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Segmentation of Fresh Vegetable Shoppers by Product and Store Attributes Consedered for Fresh Vegetable Purchase in Klang Valley, Malaysia

Abdullahi Auwal Gindi[1], Amin Mahir Abdullah[1], Mohd Mansor Ismail[1], Nolila Mohd Nawi[1]
[1]*Department of Agribusiness and Information Systems, Faculty of Agriculture,Universiti Putra Malaysia,43400 UPM, Serdang, Selangor*

Abstract: *Understanding consumer segment is important especially in developing effective marketing strategies. Segmentation of the consumers depend on various factors including socio demographic factors of the consumers, product line to be considered, types of retail store used, attributes of the product as well as that of the store among other factors. This study examined and segmented the fresh vegetable consumers based on the product attributes and store attributes considered by the consumers in their fresh vegetable purchases. Results of the study indicate the most important fresh vegetable attributes and that of retail formats considered by the Klang valley fresh vegetable consumers when purchasing the product. Also applying statistical analysis technique to the data collected from the fresh vegetable consumers; they were segmented into three different segments each with its peculiar characteristics that differ from the other. The result suggests that for effective marketing strategies, there is need to consider the demand of each member of segments in meeting their need as well as capturing the targeted segment.*

Keywords: *Consumers, Segmentation, Fresh vegetables, Store Attributes and Product Attributes*

I. Introduction

Consumer preference to a store refers to the consumers' hierarchical prioritization of the store as aresult of their patronage of the store (Chze Lin, Than D. and B., 2003). In essence, it is the selection of the consumers for a certain store over another. The work of Russell& Mehrabian, (1977)as cited by Vieira, (2013)has conceptualized such emotional response as aprocess. Their framework considers the attributes of the environment as the antecedents that affect the intervening emotional state of the consumers and this eventually lead to taxonomy of either approach or avoidance. Many researchers, particularly environmental psychologist used Russel and Mehrabian, (1977)framework to produced large number of studies. Example,Donovan& Rossiter, (1982) formulates the approach into Stimuli – Organism – Response (S-O-R) framework. They suggest that the stimuli (as antecedents) affect the consumers' emotional states whose response may be observed in their retail behavior such as patronage to a particular retail outlet due to present of those antecedents. In the S-O-R framework, the stimuli emitted by the stores affect the perceptions of the consumers (MazurskeyJocoby, 1986) and this is the starting point of consumer behavior. The stimuli (attributes) are cues that enter consumers' minds and rouse, stir up or provoke the consumers consciously or subconsciously into taking an action.The organism refers to the intervening internal process between the stimuli and the reaction of the consumer (Chze et al., 2003). Essentially, it consists of physiological feeling and thinking activities which causes change in the emotional state of consumer. The response is the final outcome/action or reaction of the consumers, such as behavioral reaction (Bagozzi, et al., 1992). Depending on the organism process, the resultant of emotional state can influence consumers' continue or cease his retail behavior in the store.

The S-O-R framework of the past studies largely focuses on the relationship between the variables, this study proposed twodifferent angles of enquiry— the attributes influence consumers' taking decision to purchase fresh vegetableand segmenting the fresh vegetable consumers based on the attributes considered in their freshvegetablepurchases. The S-O-R model or framework consist of stimuli as independent variables, organism as mediator and response as dependent variable (Yoo, et al.,1998; Vieira, 2013). In this study, we attempt to identify the stimuli, represented by attributes, that influenced the consumers making decision and segment those consumers based on decision making.

Segmentation of the consumers have started for long, Stone, (1954) was among earlier scholars who work on consumer segmentations. The work of Stone (1954), identified four categories of shoppers as economics, personalizing, ethical and pathetic shoppers, this gave many researchers clues where to start in trying to understand the behavior of the consumers and segmentation process. Other researchers such as Darden and Raynold (1971), confirmed segmentation made by Stone (1954) using psycho graphical scale. Bellenger and Korgaonker (1980) added one segment of the consumer to the previous segmentation as recreational shoppers.

The study of female adult shoppers by Gutman and Mills (1982) also segments shoppers into seven segments each having different characteristics with one another. Moye and Kincade (2003) identified four shopping orientation groups as decisive shoppers, confident, bargain and appearance conscious shoppers. Other researchers who worked on segmentation of the consumers based on their behavior toward food purchases include Ann Veek and Gregory Veek (2000), whose conclusion on the Nanjian consumers as having three distinct behaviors (clusters) comprises of convenience shoppers, frequency and traditional shoppers. While other researchers (Cox & Poelman, 2015) reported only two clusters of cauliflower and green bean consumers comprising heart health claim value and pleasure seekers.

While the determinants of the store image have been extensively covered in the literature (Nevin and Houston, 1980; Bitner et al., 1994; Erdem, et al., 1999) and also influence of consumers' decisionto store (Chze et al., 2003), most of these studies gave more attention mostly on store attributes influencing consumers' taking decision to a particular store. But, little have been done on looking at product attributes and store attributes together to see how they influenced consumers toward fresh vegetable purchase decision. Likewise, different researchers covered different product lines in analyses of consumers' choice, but in this research we look at only one product line namely fresh vegetable and this will give us more understanding of different segments of the consumers' inexistence for fresh vegetable purchase.

At the consumer level, household shoppers consistently report the two dominant factors that impact upon their decision to purchase fresh vegetables in retail outlets are the competitive price and quality. On quality issue however, it is multi- faceted variable (Chamhuri & Batt, 2009). On this perspective, quality could be viewed as extrinsic attributes (freshness, color, size and shape), intrinsic attributes (taste, flavor, texture and mouth feel), credence attributes (method of production) and service attributes which associated with shopping experience itself such as customer advice, ambience, convenience and credit facilities.

Hwa, (2006) examined the choice behavior of consumers as well as the key factors influencing their decisions on type of retail formats choice. Some of the attributes considered by the consumers in making decisions to choose a retail outlet include distance of the outlet from the home or work place, overall price offered, accessibility of parking space and services provided by the retail personnel, among the others. Another work of Wądołowska et al., (2008) on food choice factors, they used 101 items which later the factors were grouped into six aggregated groups including advertising factor, functional factors, healthy factors, price, sensory factors and social factors.

A review of retail formats literature and consumer patronage studies of Arnold et al, (1983) identified three outputs that influence consumers' choice of retail formats. These consist of functional, social and entertainment outputs. The relevant functional outputs include those associated with the product (e.g., freshness of the product, quality of the product, production method); assortment (e.g., breadth and depth of the retail outlets); service (information of the products, responsiveness and expertise); time saving (store accessibility, one stop shopping) price (e.g., price level, return possibilities, payment terms). The relevant social outputs include interaction possibilities (e.g., with other consumers and with retailers) and position of the retail institution within the community. The entertainment outputs relate to the shopping environment (e.g., exciting and colorful) and non shopping activities (e.g., promotions, events and eating facilities).

II. Methodology

2.1Data collection

Klang Valley area was purposively selected for this study. Cluster sampling technique was employed because the data was collected in six regions of the study area. Initially, it involves the clustering of the entire population in to six clusters based on the number of the regions in the study area. The six clusters include Kuala Lumpur, Putra Jaya, Petaling, Klang, Gombak and Hulu Langat. In each region, one city area was randomly selected. The selected areas are Kuala Lumpur, Putra Jaya, Shah Alam, Selayang town, Klang and Kajang. Multi stage cluster sampling was used in determining the sample size. The respondents were selected based on the use of random sampling technique, 100 respondents were randomly selected from each area, making a total of 600 respondents and 598 completed questionnaires from the randomly selected respondents were analyzed.

A structured questionnaire was developed for this study as survey instrument which sought to gather information regarding the products and store attributes considered by the respondent for fresh vegetable purchases. Respondents were also presented with the list of items which gathered from literatures sought to be the attributes of the fresh vegetables considered by the respondents in making decision to buy the products. Also from the questionnaire, a list of the items sought to be the attributes of the stores considered by the respondents in making decision for their fresh vegetables purchases. Respondents were asked to tick the characteristics of both product and stores they considered in making decision for their fresh vegetable purchases.

Respondents were also presented with a number of statements which sought to measure the product attributes and store attributes considered in making decision for fresh vegetable purchase. A seven pointlikert-

type scale was utilized where respondents were required to indicate the extent to which they agreed with each statement, where '1' was strongly disagree to '7' was strongly agree.

2.2 Data Analysis Procedure

Data was analyzed using SPSS ver. 21 software using techniques of descriptive statistics, exploratory factor analysis and cluster analysis. Exploratory factor analysis was applied to the adopted and modified scales that have been used from the previous researchers as the attributes considered by the consumers in their choice for fresh vegetable purchasing. The objective of using exploratory factor analysis is to reduce the data set to a much smaller number, but at the same time retaining as much information as possible. In the analysis, the correlation matrix was examined and KMO and Bartlett's Test of sphericity was performed. Principal Component analysis with varimax rotation was employed in identifying the factors. Eigen value and scree plot criteria were used in retaining the number of factors, and only those items with factor loading greater than 0.4 were retained. Also the reliability of each factor was evaluated using Cronbach's alpha, where a value greater than 0.7 were considered acceptable.

Cluster analysis technique was used in grouping and discovering the pattern of the fresh vegetable consumers who have similar characteristics and dissimilarities between groups. Cluster analysis is useful for market segmentation, in product characterization and identification of the new product opportunities and it allow one to identify competitors. The difference between cluster analysis and factor analysis is that in cluster analysis, its primary purpose is to group objects (e.g. respondents, products or other entities) based on the characteristics they possess in common and the grouping process is based on the distance (proximity) between them, whereas in factor analysis, the grouping of the variables are formed base on several people's responses to those variables.For us to identify the procedure to be used in cluster technique, we need to answer the following questions: 1. how do we measure similarities? 2. How do we form clusters? and 3. How many groups do we form? To answer the first question, two most popular methods of measuring similarities have been mentioned in literatures which include correlation and distance measured. In this research, we used distance measured method in measuring similarities between cases, with higher values representing greater dissimilarities. For more information about similarities measures, reader can check Hair et al (2010). To answer the second question, we first used the hierarchical procedure with agglomerative method to generate a number of cluster solutions, starting with each observation as its own cluster and then combining the two nearest clusters at a time until all the observations are in single cluster. In answering the last question, two step methods (combination of hierarchical and non-hierarchical) was used. After identifying numbers of cluster solutions from the hierarchical procedure, non-hierarchical or K-mean procedure was used by using seed points in order to provide more accurate cluster memberships (to refine the result obtained from hierarchical procedure by allowing the switching of cluster membership). The clusters formed were validated using cross validation method.

III. Result And Discussion

Demographic characteristics of the fresh vegetable consumers were depicted in Table 1.The result from Table 1, presents the gender of the respondents, almost the ratio between male and female are the same, on the age of the respondents, majority (52%) are within the age range of 18 to 35years, followed by about 35% within the range of 36 to 46years and only 13% are above 46years. Marital status of the respondents also depicted in Table 1, in which about 58% and 42% of them are single and married respectively. Likewise, the gender, the population of male and female respondents is almost equal. The educational level of the respondents, majority (77%) have either college or University level of education while 20% and 2% have secondary and primary level of education respectively. The income level of the fresh vegetable consumers as depicted in Table 1, indicates that, majority (48%) of the sample population earn between 700 and 2999 Malaysian Ringgit per month while the remaining 39% and 13% of the sample population earn between 3000 – 4000 and 4001 – 7000 of the Malaysian Ringgit per month respectively.

Table 1: Demographic Characteristics of the Respondents (N= 598)

Variables	Frequency	Percent
Gender		
Male	300	50.30
Female	297	49.70
Age(years)		
18-35	311	52.00
36-46	210	35.25
>46	77	12.9
Marital Status		
Single	345	57.80
Married	252	42.20
Educational Level		

Primary	14	2.30
Secondary School	122	20.40
Collage/University	460	77.10
Income (RM/Month)		
700 – 2,999	289	48.30
3000 – 4000	232	38.80
4001 – 7000	77	12.90

Source: Field survey, 2014

Respondents were asked to indicate their agreement or disagreement among the listed items sought to be the attributes of the fresh vegetables considered by the respondents when purchasing the product. Table two (2) indicates the frequencies and percentages of the agreement and disagreement of each variable. From the Table 2, the majority of the respondents (83.0%) considered fresh looking vegetables while purchasing the product, followed by 62.40% and 59.50% of the respondents who considered color of the product and size and shape of the leafy vegetable respectively as the important attributes while purchasing the product. The least important characteristics considered by the respondents are branding of the products (vegetables), imported vegetables and graded vegetables with 12.50, 21.40 and 26.40 percent respectively. The importance of color in vegetable purchase decision can be corroborated with, Frank, et al., (2001).They made conclusion from their research that the overall consumer sample used viewed color as more important in purchase decision than retail price and vitamin C content. From the result of this current study, a conclusion can be made as the greatest influencing factors on food choice (fresh fruits and vegetables) depend mostly on fresh looking of vegetable, color of the products and size and shape of the leafy vegetable.

Table 2: Frequency of the respondents showing attributes of fresh vegetables considered when purchasing the product

	Yes		**No**	
Items/Statements	**Frequency**	**percent**	**Frequency**	**percent**
Size and shape of the leafy vegetable	356	59.50	242	40.50
Fresh looking of vegetables	496	82.90	102	17.10
Color of the product	373	62.40	225	37.60
Maturity of the product	321	53.70	277	46.30
Absent of spots/holes on the vegetables	302	50.50	295	49.30
Safety of the product	250	41.80	348	58.2
Locally produced vegetables	266	44.50	332	55.50
Packaging of the product	263	44.00	335	56.00
Labeling of the product	201	33.60	397	66.40
Imported vegetables	128	21.40	470	78.60
Graded vegetables	158	26.40	440	73.60
Branding of the product	75	12.50	523	87.50

Source: Field survey, 2014

Likewise, respondents were asked to indicate their agreement or disagreement among the listed items as in Table three (3) sought to be the attributes of the store considered by the respondents in choosing the type of retail format for their fresh vegetables purchase. From the Table 3, the most important attribute considered by the majority (78.40%) was the convenient of the store location, followed by the accessibility to the store (67.20%), easy entry and exit of the store(49.0%) and enough parking spaces (49.0%). The less important attributes considered by the respondents were availability of the public toilets (16.20%), availability of refreshment/entertainment facilities (13.90%) and decorative feature of the store (21.40%). Being convenience store location as the most important attribute considered by the fresh vegetable consumers, the finding of this research was similar to the previous research of Chamhuri & Batt, (2013) who reported one segment of the fresh produce shoppers as ‘’transient shoppers’’ with the characteristics of not demonstrating any preference with regard to retail format types, rather their consideration were on which retail format is perceived to be most convenient for them at the time of purchasing the fresh produce.

Table 3: Frequency of the respondents showing store attributes considered when purchasing fresh vegetables

	Yes		**No**	
Items/Statements n = 598	**Frequency**	**percent**	**Frequency**	**percent**
One stop shopping convenience	256	42.80	342	57.20
Convenient store location	469	78.40	129	21.60
Convenient accessibility of the store	402	67.20	196	32.80
Easy entry and exit within the store	293	49.00	305	51.00
Enough parking space	295	49.30	303	50.70
Convenient opening and trading hours	242	40.50	356	59.50

Availability of sales personnel to respond to my request	278	46.50	320	53.50
Provision of information of the products by the sales personnel	182	30.40	416	69.60
Offering personalize service	122	20.40	476	79.60
Availability of refreshment/entertainment facilities	83	13.90	515	86.10
Decorative features of the stores	128	21.40	470	78.60
Availability of public toilets	97	16.20	501	83.80

Source: Field survey, 2014

Principal component analysis revealed three factors each from the product and store attributes, explained 64.91% and 68.79% of the variance observed in the respondents' decision for product and store while purchasing the fresh vegetables (Table 4, and Table 5).

From the Table 4, the Keiser-Meyer-Olkin (KMO) measure of sampling adequacy achieved is acceptable level of 0.771, while the Bartlett's test of sphericity give significant level at P< 0.0001,confirmed appropriateness of the factor model. From the Table4, factor one (1), with an Eigenvalue 34.87, captures three items and accounts for 27.33% of the variance. Collectively these three items are described as ''freshness seekers''. The Cronbach's alpha of this factor is 0.891 which is relatively indicating high reliability. Factor two (2) capture three items and have Eigenvalue of 16.63 and Cronbach's alpha of 0.705 indicating satisfactory reliability of the measurement. These three items are collectively described as ''safety product seekers''. The factor three has the Eigenvalue of 12.7, Cronbach's alpha of 0.70 and percentage of variance explained of 17.9. These items are collectively described as ''quality product seekers''.

Table 5 reveals three factors captured from the principal component analysis. The Keiser-Meyer-Olkin (KMO) measure of sampling adequacy achieved satisfactory level of 0.735, while the Bartlett's test of sphericity gives significant level at P< 0.0001, confirming appropriateness of the factor model. From the table 5, factor one consists of three items with Eigenvalue of 32.5 and about 25 percentage of variance explained.This factor is described as ''convenience seekers'' while making decision in choosing the retail formats to buy fresh vegetables. Factor two has Eigenvalue of 22 and its Cronbach's alpha of 0.73 with percentage of variance explained of 24.46. This factor is described as ''Entertainment seekers''. The last factor captures three items with about 13 Eigenvalue and Cronbach's alpha of 0.776. This factor is described as "Good service seekers".

Table 4: Number of factors extracted for Product attributes considered by the consumers for fresh vegetables purchase Item names	**Factors**		
	1	2	3
Size of leafy vegetables is my concerned when purchasing the products	.913		
Size of fruity vegetables is my priority when purchasing the product	.903		
Shape of the fruity vegetables is my concerned when purchasing the product	.879		
*I don't care about how nicely the vegetables are arranged in a stall while making decision to buy the product		.762	
I always consider availability of organic vegetables in making decision to purchase the products		.756	
*Mixed up of maturity levels of the vegetables is not my concern in making decision to buy the products		.743	
I always considered the way the vegetable is packaged in making purchase decision of it		.725	
*Presences of holes on the vegetables fruits is not indication of its low quality			.861
*Presence of spots on the leaves of the vegetables is not an indication of its low quality			.842
Eigenvalues	34.869	18.195	11.846
Percentage of variance	27.33	21.91	15.66
Cumulative Percentage of Variance	27.33	49.24	64.91

*These are negative questions; they were revised before performing the analysis
Source, Field survey, 2014

Table 5: Number of factors extracted for the store attributes considered by the consumers for fresh vegetables purchase Item names	**Factor**		
	1	**2**	**3**
Good layout of the store make it easy for me to find what I need	.914		
I always want to get everything in one stop shopping	.881		
I prefer to go to the store with the enough parking space while buying fresh vegetable	.868		
I prefer to choose self-service store while purchasing fresh vegetable		.765	
I prefer to choose the store where there is room for bargaining with the store personnel		.735	
*Looking how hygienic the vendors/retailers are is not my concern when purchasing fresh vegetable		.714	
Decorative features of the store influence my decision in choosing the store for fresh vegetable purchase			.886
Presence of children play area will make me to choose the store for fresh vegetable purchasing			.811
Attractive merchandise display influence my decision in choosing the store			.771
Eigenvalues	39.25	19.01	10.52
Percentage of variance	24.15	23.91	20.72
Cumulative Percentage of Variance	24.15	48.07	68.79
*This is negative question; it was revised before performing the analysis Source, Field survey, 2014			

The objectives of cluster analysis are taxonomy development, data simplification and or relationship identification (Hair et al., 2010). The primary objective of this research is to develop a taxonomy that segments fresh vegetable customers in to groups with similar characteristics. In this segmentation process, customers are not viewed individually, but rather as a member of relatively homogenous groups portrayed through their common profiles.The variables used for clustering process for this research was the factors identified from the factor analysis results of both product and store attributes. The mean value of each factor was obtained with the use of SPSS ver. 21 software. The reason for using the result of the factor analysis was to avoid multicollinearity issue which is a big problem in cluster analysis. The factors are uncorrelated to one another and hence problem of multicollinearity have being solved. The issues of outlier, sample size and variable scale standardization were taking care before proceeding to partitioning process. The hierarchical method was initially applied to the data in order to identify preliminary set of cluster solutions. The process of selecting the number of cluster depends on at the combination of observations that give large agglomeration coefficient (measure the increase in heterogeneity between the clusters). Based on the large discrepancy of agglomeration coefficients between cluster three and four, cluster three was selected from the hierarchical method.

The three clusters selected from hierarchical method, were used as the basis for non-hierarchical analysis from which a final cluster solution will be selected. Non hierarchical has the advantage of being able to better '' optimize'' cluster solution by reassigning observations until maximum homogeneity within clusters are achieved. Using the optimization algorithm of non hierarchical procedure, three cluster solutions were obtained (Table 5). Also the ANOVA result (Table 6) showing the difference in variable mean across the three clusters. The ''F'' value indicating the mean of the variables are statistically significance. The interpretation of the segments (clusters) was based on the analyzing the mean value of each segment. Also the mean values were plotted as a profile diagram (figure 1) indicating the pattern of each cluster. Looking at the extreme mean values of each cluster is important in interpreting and comparing between clusters.

Table 6: Vegetable Consumer Segments with respect of product and store attributes

Variables	Mean value of segment member		
	Segment I	Segment II	Segment III
Freshness seeker	5.04	3.71	5.92
Safety of the product seeker	4.93	5.32	5.78
Product quality seeker	5.36	5.36	5.96
Convenience seeker	5.63	4.18	5.94
Retail services seeker	5.02	4.62	5.70
Entertainment seeker	4.03	5.06	5.85
Segment size (number of cases per segment)	170	224	204

Table 7: Variables of Product and Store Attributes Means Difference

	Cluster		Error		F	Sig.
	Mean Square	df	Mean Square	df		
Freshness	265.455	2	.880	595	301.495	.000
Safety	34.602	2	.750	595	46.113	.000
Products' quality	24.319	2	.662	595	36.755	.000
Store convenience	189.363	2	.793	595	238.846	.000
Retail services	63.231	2	.671	595	94.233	.000
Entertainment	153.853	2	.867	595	177.497	.000

Source, Field survey, 2014

Segment I members of the fresh vegetable consumers ware characterized by not considering entertainment of the retail formats as important attributes that will make them to choose the store for fresh vegetable purchases. The variable means of cluster I have the highest mean value for freshness and retail services than cluster II. The variable mean values of segment II and III are higher than that of segment I on safety of the product and entertainment while both segment I and segment II have the same mean value of product quality. The size of segment I is the smallest among the three segments (170 cases). This segment of the consumers is good to characterized it as convenience seekers and have less consideration of entertainment of the store while choosing store to purchase fresh vegetables. Based on the size of this segment (170 cases), it will be deduced that only 28% of the fresh vegetable consumers are less concerned about the entertainments offered by the retailers in selecting the type of retail format in purchasing the product.

In segment II of the consumers, product quality, safety of the products and entertainment are the major attributes considered by this segment of the consumers while purchasing the product. It is good to characterized consumers of this segment as those who concerned much about their health issues while purchasing the fresh vegetables and hence are health conscious consumers. Segment II of the consumers has the total size of 224

cases which indicates that about 37% of the total fresh vegetables consumers are concerned about the product quality and safety while purchasing fresh vegetables.

Segment III of the consumers are more concerned of both product and store attributes than the rest of the two segments. A part from freshness, convenience and retail services concerned, the segment III of the consumers are more similar to segment II than segment I and hence characterized as the consumers who concerned more with both product and store attributes while purchasing fresh vegetables. To visualize and see clearly the differences between the three segments of the consumers, a cluster profile was depicted at the figure 1 below.

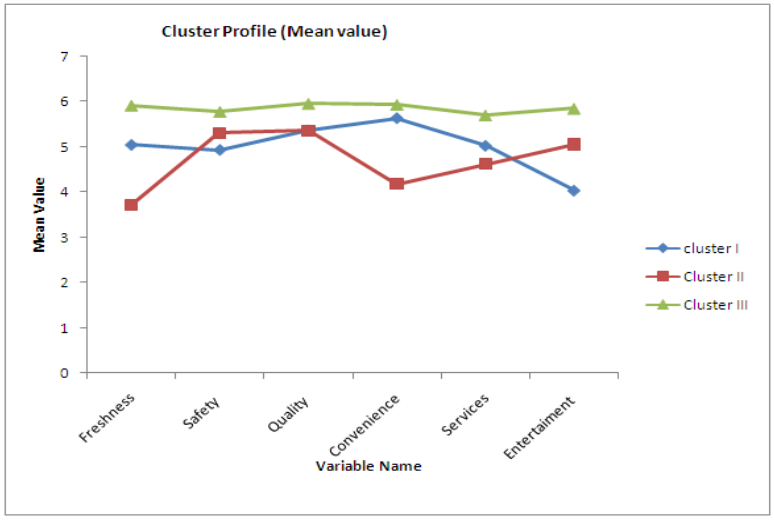

Figure 1: Segments of the fresh vegetable consumers

IV. Summary And Conclusion

Segmentation process was based on different factors which include demographic and psychographic chracteristics of the consumers as well as product and choice of the place to purchase the product. This process of segmentation of the consumers have started for long period of time. Fresh vegetable consumers of Klang Valley area were choosing for this study and multi-stage cluster sampling technique was used in determining the sample size. Structural questionnare was developed for the study and data was analysed using descriptive statistics, factor analysis and cluster analysis using SPSS version 21 software. Result of the study shows that majority of the respondents considered fresh looking of vegetables, color of the products and size and shape of the fresh vegetables as the important attributes considered by the respondents while purchasing the products. From the result also, majority of the respondents considered convenient of the store location, accessibility of the store, easy entry and exit and enough parking space as the important attributes for fresh vegatable purchses. Principal component analysis result revieled three factors each from the product and store attributes explained about 65% and 68% of the variance observed in the respondents' decision while purchasing frsh vegetable. Two methods of cluster analysis were used in segmenting the fresh vegetable consumers into three cluster solutions different from one another. The three segments of the consumers obtained are convenience seekers, health conscious concerned consumers and segment of the consumers who concerned for both products and store attributes while purchasing fresh vegetables.

V. Implication And Limitation Of The Study

Based on the result obtained from the research, of the different segments of the fresh vegetable consumers, the information can be incorporated into strategy development for the targetting each member of fresh vegetable segment. The limitation of this study is that, it focused only in trying to segments fresh vegetable consumers, but there is need for future research to incorportes demographic variables of the consumers in order to validate these cluster solutions and find the compostions of each segment of the consumers (cluster).

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