

## Factors differentiating between concentric and sprinkled multiple-patronage shoppers in Kuwait

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**Abstract.** *Two types of hypermarket spenders with multi-patronage behavior were identified; namely, "Concentric" and "Sprinkled." The objective of this study is to examine which of hypermarket store attributes differentiate between the two types of spenders, and to determine the differences of their demographic characteristics. Six store attributes including the depth of the product assortment, store services, location convenience, sales promotion, prices, and store reputation were examined. Also, five different demographics were tested including gender, nationality, marital status, education and monthly income. A cross sectional design with an intercept survey was used. Three hundred customers were intercepted at different hypermarket store locations and asked to fill out the survey instrument. Two research hypotheses were tested using the survey data. The interpretation of the discriminant function showed that "concentric" spenders score quite high on store services, moderately on convenience and sales promotion, and low on prices. Both product assortment depth and store reputation were not important to the discriminant function interpretation. Results also indicated that only two demographics were significantly differentiating between the two types of spenders. Several recommendations were made based on the study findings to enable each hypermarket store in Kuwait to increase its share of a consumer's wallet.*

**Keywords:** retailing, patronage, consumer behavior, digital marketing, servicescape, entrepreneurship.

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### Introduction

Ongoing urbanization in Kuwait will drive retail sales to grow annually through 2020 (Fabel, 2017). The retail grocery market in Kuwait was worth \$5.8 billion in 2013 or 3.3% of the country GDP and is expected to grow by 6.7% annually between 2013-2018 (The Report: Kuwait, 2016). Because the purchasing power of Kuwait is ranked the second in the GCC after Qatar and the fifth in the world, 14 out of the top 15 luxury brands are available in the Kuwaiti market. There is still demand in the luxury market even in the face of subdued global oil prices and macro-economic slowdown (Economic News, 2017). Food retail growth in Kuwait is expected to outperform the non-food retail sales due to higher demands for healthier and value food (Kuwait Times, 2017). Also, the Kuwaiti market was able to attract many of the Western store types such as convenience stores, discount stores, specialty stores, department stores, variety stores, supermarkets, and hypermarkets. For example, during 2008, twenty-nine new global retailers entered the Kuwaiti market (Aldousari & Elsayed, 2017).

Despite the changes taking place in the retail industry in general and in the food and beverage sector, the buying behaviors of consumers have been subject to only a few studies. The concept of store patronage was not studied in the Kuwaiti retail market before even though this concept has been subject to hundreds of studies in developed countries. Understanding this behavior by retailers is important because it highlights the stages through which customers' engagement with retail outlets develops. Also, the presence of global foods and groceries hypermarkets has boosted the competition in the Kuwaiti market. Twenty-seven years ago, there was only one hypermarket in Kuwait named Sultan Center. This hypermarket is owned and operated by some Kuwaiti investors. Today, there are six hypermarkets in Kuwait, namely, City Center, Lu & Lu hypermarket, Carrefour, Géant, Sultan Center, and Saveco. The first two are owned and operated by two different Indian companies, the next two are owned and managed by two different French Companies, and the last two are Kuwaiti-owned stores (Capital Standards, 2010).

Hypermarket store management needs to know those factors that increase customer spending in a store. The fact that there are multiple patronage behaviors puts more burden on this management to provide customers with such factors to enhance and increase their sales volume. From the results of our previous study in Kuwait (Aldousari & Elsayed, 2017; Harris et. al 2017), we discovered that there are at least two types of customers with multi-patronage behaviors. We call the first set "concentric" multiple stores shoppers, who spend the majority of their grocery budgets in one hypermarket. They spend the remaining amount of money in some other hyper stores. The second type is called "sprinkled" multiple stores shoppers. Those customers buy their groceries from many hyper stores without any concentration on one of them in particular. The objective of this study is to uncover those antecedents that differentiate "concentric" multi-patron shoppers from "sprinkled" multi-patron shoppers and identify the demographics of each type. The first objective would help hyper store management in its endeavor to increase its store market share while the second would enable the management to select its stores' target market

## Literature review

The American Marketing Association defined store patronage motives as "the motives that drive an individual toward selection of a particular outlet, retailer, or supplier of service" (Bennett, 1995; Harris et. al 2017). Haynes et al. (1994) define this concept as a consumer's selection of a shopping outlet. Laaksonen (1993) considers it as all the possible inner features of dynamism around the shopping behavior phenomenon regarding store choice. Pan and Zinkhan (2006) looked at store patronage as being composed of two dimensions: (1) store selection and (2) store visit. Spiggle and Sewall (1987) determined three levels of outlet selection: store preference, store selection, and store patronage. Armitage and Conner (2001) and Jere et al. (2014) argue that formed attitudes and intentions before a customer behavior proceed patron behavior. This term refers to the positive or negative evaluation of performing a action. The stronger the positive attitude toward the behavior is, the higher the intention and likelihood of showing the behavior.

Kaul (2006) believed that store patronage could be defined and measured in behavioral terms. They identified five non-mutually exclusive behavioral conditions. (1) A customer shops exclusively at a given store. (2) A customer spends the larger percentage of his total expenditure in each store. (3) Consumer visits to a store are greater than those visits given to any other stores. (4) A customer buys the larger

percentage of items from a given store. (5) Consecutive trips made to a given store are significantly more than those trips made to other similar competing stores. Kaul argues that the first type of definition is referring to what is called "loyal" customers who are so rare as to be practically negligible. As stated by Spiggle and Sewall (1987, p. 98), "Retail patronage is not a binary outcome; a consumer may spend 75% of expenditures at store X and the other 25% elsewhere." Most of the consumers are multiple-store shoppers though differences exist across different store types (Kaul, 2006; Kau and Ehrenberg, 1984; and Cunningham, 1961).

Gijsbrechts et al. (2008) state that most of the research work that has been done on store choice concentrated on unique shopping purposes, where consumers faced a choice between competitive stores that offered essentially similar assortments. Shifts in store patronage over time primarily related to changes in the consumer's shopping list and other situational factors, such as sales promotions, that affected his/her variable purchasing costs.

Baltas, Argouslidis, and Skarmeeas (2010) argue that store patronage is a continuum with single sponsorship in one end and many in the other. Very few studies dealt with the concept of many patrons' behaviors. Two studies in this area focused on uncovering those factors that led to the determination of the size of the multiple patronage set (Luceri and Latusi, 2012). Baltas and his colleagues (2010) investigate the effect of consumer income, total consumer grocery expenditures, and consumer satisfaction on the size of multiple patronage sets. Luceri and Latusi (2012) have expanded the domain of those factors affecting the types of patronage established by including consumer age, gender, family size, employment, store format preference, consumer shopping perception, deal proneness, the number of stores operating in the market, and the variety of stores operating in the market. The results of the two studies provided store managers with useful information when they came to segment and target their potential markets.

One of the major problems associated with the outlet patronage concept is its operational definition, which, in turn, affects its measurement. Srivastava and Natu (2014) stated that each study defined the concept operationally differently depending upon the study objective. For example, patronage was defined operationally as a retail outlet's attractiveness or willingness to buy, willingness to recommend, and shopping likelihood (Anic and Vouk, 2005; & Baker et al., 2002). It was also defined as multiple store buying) or store choice (Panda, 2013; Moore and Carpenter, 2006; Pan and Zinkhan, 2006). Other researchers referred to this concept operationally as purchase intention (Chaiyasoonthorn and Suksa-ngiam, 2011) or frequency of purchase (Moore and Carpenter, 2006). Still, others used distance traveled (Brooks et al., 2008) or frequency of visit and time spent inside the store (Mencarelli and Lombart, 2017). Finally, some researchers measured this concept by the numbers of shopping trips (Clulow and Reimers, 2009), or by enjoyment, intention to revisit, and word of mouth or satisfaction with customer service (Ala'Elddin, 2012; Gothan and Erasmus, 2008; Harris et. al 2017).

Different studies identified various antecedents to store patronage behavior. Those precursors can provide a comprehensive understanding of how consumers patronize retail outlets and what motivates them to buy more from them. One of these antecedents was the store atmosphere that represents the environment created by coordinating some store attributes. Among those attributes are products displayed, mobility, noise, music, color, odor, lighting, store space, and finishing. The results of these research works reported that store atmosphere would have a positive impact on

store patronage behavior (e.g. Joudeh, 2017; Yoo and MacInnis, 1998). Another identified antecedent was the store image and its effect on store patronage. Most of those studies showed a relationship between store image and store support and store loyalty (e.g. Jere et al., 2014; Visser et al., 2006; Ailawadi et al., 2006).

A third antecedent was convenience. Different researchers operationally defined this factor differently. Some researchers used the term to refer to the store location (Brooks et al. 2008); others were looking for everything that provided customers with comfort and convenience during their shopping trips. Studies in this area showed that this factor has a positive effect on store patronage (e.g.: Jere et al., 2014; Reimers, 2014; Panda, 2013)

Related to convenience is the amount of waiting time. Results of some studies related to this antecedent showed that consumers do not like to stay in long lines to pay for their purchased items. Asif and Deepankar (2011) reported that 83% of women and 91% of men have ceased shopping at a particular store because of long checkout lines. Store image has been found to be affected by checkout speed (Howard, 1989). Shorter checkout lanes will make consumer prefer the store to those stores with long checkout lines. Finally, Grewal et al. (2003) found that wait expectation is one of the factors affecting store patronage intention.

An additional antecedent dealt with product assortment and product variety. It emphasized the effect of carrying a unique combination of goods on store patronage behavior. A positive relationship was found between product assortment depth and store support (Ala'Eddin, 2012; Asif and Deepankar, 2011;). One more antecedent covered the effect of store sales promotion on patronage behavior. Sales promotion was found to affect consumer spending inside the retail outlet. Also, it is one of the factors that make consumers shift their patronage to another store (e.g. Al-Medabesh and Ali, 2016; Ding et al., 2015;).

Another antecedent discovered was store prices. A negative relationship exists between prices and consumer purchases. This factor is also one of the reasons customers switch between different food and grocery stores (Nguyen et al., 2015; Batra, 2014; Hassan et al., 2010). Loyalty card programs are means to create customer loyalty to the store and are related to price antecedents. This practice can establish personalized relationships with clients (Meyer-Waarden, 2008; Yi and Jeon, 2003 & Sharp and Sharp, 1997). The impact of loyalty programs on purchase behavior is found to affect either differentiation or purchase loyalty (Meyer-Waarden, 2008). Reichheld (1996) found that differentiation loyalty decreases the degree of sensitivity customers have toward competitive offers, and they thereby prompt customers to pay a higher price or select other brands that are more expensive. Finally, Nako (1997) and Bolton et al. (2000) found that loyalty programs make consumers mind off prices.

The courtesy of store employees and services provided were other antecedents that are positively related to store patronage behavior. Studying this antecedent indicated that friendly employees, when interacting with a store atmosphere, would have a positive impact on store selection. Furthermore, when employees stress more personalized relationships with customers, the latter's attitudes toward store products and services will be more favorable (Minnema et al., 2017; Hou, Wu, and Hu, 2013; McColl-Kennedy et al., 2009; Hu and Jasper, 2006).

The last antecedent to store patronage that has been under study is the favorable store reputation. Favorable company reputation will lead to its survival and profitability (Ou et al., 2006). Thang and Tan (2003) found that store reputation is one of the factors affecting consumer store preference. Mufazzal (2013) found that store size, its

decoration, product presentation, and brands carried by the retail outlet are the major factors affecting store reputation.

In this study, six of the previous antecedents are taken to determine which of them would differentiate between "concentric" and "sprinkled" multi-store shoppers. Moreover, gender, nationality, education, and income are used to examine the socioeconomic characteristics that describe both types of customers.

### **Research objectives**

In reviewing the used operational definitions in defining and measuring the concept of store patronage in most of those published research works, we found that four of them tell us that the outcome of this retail patronage behavior is not a binary one. Rather, consumers tend to show multiple store patronage behavior, especially when they come to buy convenience products such as food and groceries. Unfortunately, most of the previous research works concentrated on single-purpose shopping, where consumers face a choice between competitive stores that offer essentially similar assortments. Customers will select the store that provides the maximum shopping utilities, and they will assign all of their grocery budgets to this store. Gijbrecchts et al. (2008) state that a few research papers were able to relax this focus on single store patronage. This study relaxes this assumption and deals with multi-store shopping behavior in the Kuwaiti market. From a previous research made in this market (Aldousary & Elsayed, 2017), evidence suggests that there are very few single-store shoppers, in terms of foods and groceries, and there are two types of multi-patron customers: the first is "concentric," and the other is "sprinkled". The objective of this study is to uncover the factors that differentiate between the two types of customers. Six factors were used: convenience, prices, sales promotion, product assortment depth, store services, and store reputation. Also, five demographic variables were used to describe the personal characteristics of both types of customers.

### **Research hypotheses**

Two research hypotheses examined in this study were:

*(H1):* The concentric group means of convenience, prices, sales promotion, product assortment depth, store services, and store reputation will not be equal to those of the sprinkled group.

*(H2):* There are significant differences in the demographic characteristics of "concentric" shoppers and those of the "sprinkled."

### **Research methodology**

#### *Research design and data collection*

We tested the above research hypotheses using a cross-sectional design with an intercept surveys. The population of this study comprises all adult retail customers' shopping for foods and groceries at all hypermarket stores in the State of Kuwait. Due to the lack of a sampling frame, time, and budget, we used an intercept sample (Sinha and Banerjee, 2004 & Prasad, 2010). We collected the required data via intercept surveys conducted at all hypermarkets in Kuwait. Before collecting the data, we obtained permission from the store managers of the six hypermarkets to allow us to interview some of their customers in front of their branches' locations. We collected the data at different times of the day, five days a week, to avoid any potential bias owing to the use of a non-random sample. Shoppers going to any one of the six hypermarkets were intercepted in front of the stores and were asked to fill out the study questionnaire

before doing their shopping. We used a self-administered, structured, non-disguised questionnaire to collect our data.

Regarding the size of the sample, Brown and Wicker (2000) state that investigators using discriminant analysis should avoid very large sample sizes because statistical tests are more likely to yield significant results for trivial differences under such circumstances. However, small sample sizes are not recommended either because the idiosyncrasies in the sample will unduly influence the statistical results. Brown and Tinsley (1983) recommended that the total sample size be at least ten times the number of discriminator variables. Stevens (1996) argued that the ratio of cases to variables should be more on the order of 20 to 1. Brown and Wicker (2000, p.214) suggested that good sample sizes be within these two recommendations, with care given to ensuring that the sample size of the developmental sample (used to develop the discriminant function) meets the requirements for the number of cases in each group. Since we have six discriminator variables, the developmental sample should have a maximum of 120 cases in each group and a minimum of 60 cases. We are going to use cross-validation using the hold-out method, which requires splitting the total sample randomly into two parts, with two-thirds of the sample belonging to a "developmental" sample and one-third being allocated to a "cross-validation" sample. We decided to make the developmental sample size equal to 300 cases, a number that guarantees the required number of cases in each group, and we made the cross-validation sample size equal to 150 cases. This made the total sample size equal to 450 cases.

*Sample demographics*

Table (1) shows the composition of the final sample. According to this table, the majority of the sample were males; Kuwaitis; with incomes ranging from less than 500 to less than 1500 KWD; married, widowed, or divorced with kids; and with either a high school, diploma (two years of education after high school), or a university degree.

**Table 1.** *The demographic characteristics of the study sample (total 450)*

Demographics	Number	Percent	Demographic	Number	Percentage
<b>Gender:</b>			<b>Marital Status:</b>		
Male	286	63.6%	Single, widowed and divorced	171	38.0%
Female	164	36.4%	without kids	50	11.1%
<b>Nationality:</b>			Married but no kids	229	50.9%
Kuwaiti	347	77.1%	Married, divorced or widowed with kids	74	16.4%
Non-Kuwaiti	103	22.9%	<b>Education:</b>	110	24.4%
<b>Income in KWD:</b>			Less than high school	115	25.6%
Less than 500	119	26.4%	High school	130	28.9%
500 to less than 1000	137	30.4%	Diploma ( 2 years after high school)	21	04.7%
1000 to less than 1500	116	25.8%	Bachelor degree		
1500 to less than 2000	56	12.4%	Master or Ph.D. degree		
2000 to less than 2500	10	02.3%			
2500 or more	12	02.7%			

Source: Authors' own findings.

*Study instrument*

The survey instrument, which was used in the data collection phase, had different types of questions. They were dichotomous, multi-dichotomous, or a five-point itemized ratings scale. The study questionnaire contained three main sections. The first section had two questions. In the first question, we asked respondents to write down the average percentage of their incomes that they allocate for buying foods and groceries every month. In the second question, we asked the respondents to determine those percentages of their food and grocery budgets they spend in each of the six

hypermarkets. In the second section of the survey instrument, we used a five-point itemized rating scale in which we asked the respondents to determine how much important each of the forty-five items are to the amount of money they spend inside a hypermarket. Possible answers ranged from 1 (not important at all) to 5 (very important). Seven items measured for convenience, 12 measured for assortment depth, 8 for sales promotion, 8 for store services, 5 for prices, and 5 for store reputation. The last part of the questionnaire measured respondents' demographic characteristics, including gender, nationality, education, marital status, and monthly income.

## Data analysis and results

### Scale reliability and validity

Data analysis began with examining the appropriateness of the data for a running exploratory factor analysis using a KMO measure of sample adequacy and Bartlett's test of sphericity. KMO was equal to 0.943, indicating that the data is adequate for performing factor analysis. Bartlett's test was statistically significant at  $p=0.000$ , which shows again the appropriateness of the data for the running factor analysis. We used maximum likelihood extraction method and Varimax rotation with Kaiser normalization to run the factor analysis. The objective of this analysis is to reduce the number of variables based on the structural relationship among the 45 items used to measure the study variables. The results of this analysis indicate the existence of six factors which were able to explain 70.12% of the total variance. We included all the Items with a factor loading equal to or higher than 0.4, and not highly loaded on more than one factor (Osborne and Costello, 2009). Table (2) shows the results of the exploratory factor analysis and Cronbach's alphas for the six extracted factors. As seen in this table, only 32 out of the 45 items were loaded on six factors, and all their Cronbach's alphas were greater than 0.7, which is a generally accepted value indicating scale reliability (Hair, Black, and Babin, 2010).

To check the scale validity, we used Amos 18 to perform a confirmatory factor analysis of all measures simultaneously. The results of this analysis (table 3) showed the lack of the general fit of the data to the model (Chi-square = 132.69, degrees of freedom = 26 and  $P = 0.000$ ). However, all comparative fit indices were higher than the cut-off values (Chi-square/ degrees of freedom= 5.10, GFI= 0.935, AGFI= 0.911, NFI=0.931, RFI=0.905, TLI= 932, CFI= 944 and RMSEA= 0.049), indicating the measurement model's validity.

**Table 2. Exploratory Factor analysis results and Cronbach's Alpha**

Variable	Items	Factor loading	Explained variance	Eigen value	Cronbach's Alpha
Assortment depth	• Number of brands for each product.	0.431	39.24	11.92	0.770
	• Variation of products in it.	0.513			
	• Having well-known brands.	0.538			
	• Adding new brands from time to time	0.710			
	• Adding new products	0.742			
	• Find cheap as well as expensive items.	0.761			
	• Availability of fresh vegetables and fruits.	0.659			
	• Availability of fresh meat and chicken.	0.478			
	• Availability of fresh fish	0.461			
	• Variety of available type of meats and fish.	0.561			
Store Services	• Returned product policy.	0.403	9.54	1.99	0.860
	• Exchange product policy.	0.789			

	<ul style="list-style-type: none"> <li>• Availability of ATM in or outside the store.</li> <li>• Availability of machines for recharging mobiles.</li> <li>• Sincere complaints handling.</li> <li>• Availability of clean restroom inside the store</li> </ul>	0.811 0.789 0.569 0.529			
Convenience	<ul style="list-style-type: none"> <li>• Close to your home or to your workplace.</li> <li>• Easy to spot needed product inside it.</li> <li>• Working 24 hrs. 7days a week</li> <li>• Easy to find a park for your car any time.</li> <li>• Less time to pay for your hopping.</li> <li>• Helping you to reach your parked car with your shopping</li> </ul>	0.655 0.798 0.654 0.600 0.694 0.667	8.52	1.45	0.809
Sales promotion	<ul style="list-style-type: none"> <li>• Real price reduction in the sales.</li> <li>• Sales covers well-known brands.</li> <li>• Products covered by promotion are different every time.</li> <li>• Promotion stays for a good period</li> </ul>	0.703 0.775 0.777 0.740	7.00	1.37	0.870
Prices	<ul style="list-style-type: none"> <li>• The use of gift card.</li> <li>• Fair prices.</li> <li>• Competitive prices.</li> </ul>	0.828 0.793 0.578	3.57	1.14	0.735
Store reputation	<ul style="list-style-type: none"> <li>• Sincere and understandable management.</li> <li>• Management frank communication.</li> <li>• Solving customer's problem sincerely.</li> </ul>	0.716 0.472 0.473	2.25	1.103	0.776

Source: Authors' own findings.

**Table 3. Results of Confirmatory factor analysis**

Fit Indices of the measurement model	Value
Chi-square	132.690
Degrees of Freedom	26
P-Value	0.000
Normed Chi-square (Chi-square/degrees of freedom)	5.10
Goodness-of-fit index (GFI)	0.935
Adjusted goodness-of-fit index (AGFI)	0.911
Normed Fit Index (NFI)	0.931
Relative Fit Index (RFI)	0.905
Tucker-Lewis Index (TLI)	0.932
Comparative Fit Index (CFI)	0.944
Root-Mean-Square Error of Approximation (RMSEA)	0.049

Source: Authors' own findings.

### Determining the two groups of shoppers

In order to determine who belongs to the concentric group of shoppers and who belongs to the other, we compute the average of those percentages allocated by all respondents to spend at each of the six hypermarkets. This average was equal to 69% with a standard error of the mean equal to 2%. Accordingly, we classify those shoppers who allocate more than 71% of their foods and groceries budget to buy from one hypermarket store as concentric shoppers. Those who spend less than that are classified as sprinkled shoppers. Table (4) show the number, the percentage, and the maximum spending in a hypermarket for each group.

**Table 4. Distribution of the study sample according to the type of shoppers**

Shopper Type	Number of shopper	Percentage of shopper	Maximum spending in a hypermarket
Sprinkled	238	52.9%	171-181
Concentric	212	47.1%	292-306

Source: Authors' own findings.

**Results of testing the first hypothesis**

To test the first hypothesis, we used a descriptive multiple discriminant analysis (MDA). We use this analytic technique to achieve several goals: (1) To determine if statistically significant differences exist between the average score profiles of concentric and sprinkled shoppers who are buying foods and groceries in Kuwait; (2) To establish procedures for classifying shoppers into concentric and sprinkled based on their scores on the discriminatory variables; and (3) to determine which of the independent variables under study account most for the differences in the average score profiles of the two groups. Running an MDA should go through three stages. The first covers the derivation of a significant function that can separate the two groups of shoppers. The second stage involves the development of a classification matrix to evaluate the performance of the discriminant function. The last stage determines which of the predictor variables contribute most to discriminating between the two groups.

We begin the analysis by testing the equality of group means using the developmental sample (300 cases) which was selected randomly from the total sample. Table (5) shows that group differences were significant for only four variables. All Wilks' lambda values for the four variables were significant. The Wilks' lambda is significant by the F test. It is known that Wilks' lambda value ranges between 0 and 1, and the smaller its value, the more significant the variable is in discriminating between the two groups. Those four variables were product assortment depths (Wilks' Lambda= 0.245, F [1, 298] = 271.5 p= 0.000; sales promotion (Wilks' Lambda= 0.132, f [1, 298] = 577.3, p= 0.000); store services (Wilks' Lambda=0.069, F [1, 298] = 1194.5, p= 0.000); convenience (Wilks' Lambda= 0.080, F [1, 298] = 1013.6, p= 0.000); and prices (Wilks' Lambda=0.181, F [1, 298] = 397.4, p= 0.000). Only the store reputation variable did not significantly discriminate between the two types of shoppers, as its Wilks' lambda was = 0.987, F [1, 298] = 1.152, p= 0.286. The results indicate that the smaller the Wilks' lambda, the greater the F value and the more significant the variable is in discriminating between the two types of shoppers.

**Table 5. Test of equality of group means**

Predictor variables	Wilks' Lambda	F	df1	df2	significance
Product assortment depth	0.245	271.499	1	298	0.000
Sales promotion	0.132	577.344	1	298	0.000
Store Services	0.069	1194.534	1	298	0.000
Convenience	0.080	1013.588	1	298	0.000
Prices	0.181	397.376	1	298	0.000
Store reputation	0.987	1.152	1	298	0.286

Source: Authors' own findings.

One important condition for running discrimination analysis is that the covariance matrices of the independent variables under study should be equal and should not deviate from normality. Box's M is a test for the equality of the group covariance matrices. For large samples, a non-significant p value means there is insufficient evidence that the matrices differ. Table (6) shows the results of Box's M test. The results in this table show that Box's M is not statistically significant, which indicates that the data do not differ from the multivariate normal. This means that we can proceed with the analysis.

**Table 6:** Results of testing of equality of covariance matrices

Box's M	30.780
F approx.	1.336
df1	21
df2	82877.565
sig	0.139

Source: Authors' own findings.

We turn now into computing and testing the canonical discriminant function coefficients. In this regard, we should investigate both unstandardized and standardized discriminant function coefficients. The first is calculated on raw scores for each variable. It is considered important when the researcher would like to make a cross-validation of the discriminant function, as we will do later. However, these coefficients cannot be used to determine the relative importance of each discriminator variable in making the discrimination among groups due to the scaling differences among study variables. For the later reason, standardized discriminant function coefficients are used because it is computed using standardized scores. Table (7) shows both unstandardized and standardized discriminant function coefficients. From this table, the ranks of both unstandardized and standardized coefficients are different. In addition, the most discriminating variable between the two groups of shoppers is convenience, followed by store service, then prices, then sales promotion, and finally, product assortment depth. Store reputation was not taken into consideration because the means for the two groups were not different.

**Table 7.** Unstandardized and Standardized discriminant Function coefficients

variable	Standardized coefficients	Rank	Unstandardized coefficients	Rank
Product assortment depth	0.208	5	0.271	5
Sales promotion	0.273	4	0.531	3
Store service	0.577	2	1.531	1
Convenience	0610	1	1.453	2
Prices	0.380	3	0.630	4
Store reputation	0.019	6	- 0.099	6
Constant			- 10.893	

Source: Authors' own findings.

The discriminant function itself can be tested using Wilks' Lambda and Chi-square test. Wilks' Lambda is the ratio of the total variance in the discriminant scores not explained by the differences among groups. A Lambda equal to 1.00 occurs when observed group means are equal. Meanwhile, a small Lambda occurs when within-group variability is small compared to the total variability. A small Lambda indicates that the group means appear to differ. The associated significance value indicates whether the difference is significant. As Table (8) indicates, our Lambda value was equal to 0.027, which is very small, and its Chi-square value with six degrees of freedom was equal to 308.408 and was significant at  $P = 0.000$ . An additional way to check on the validity of the discriminant function is to look at the canonical function. The canonical function expresses the degree of correlation between the discriminant scores and the level of the dependent variable. A high value of this correlation indicates a function that discriminates well. In our case, it was equal to 0.987, which is considered extremely high, indicating the ability of the function yielded from the analysis to discriminate very strongly between the two types of shoppers.

**Table 8.** *Summary of Canonical Discriminant Function*

Eigenvalue	36.650
Canonical function	0.987
Wilks' Lambda	0.027
Chi-square	308.408
df	6
sig	0.000

Source: Authors' own findings.

Another parameter that can be looked at in evaluating the discriminant function is the Eigenvalue. This value indicates the ratio of between-group variability to within-group variability for a discriminant function. The larger the Eigenvalue, the better the discriminator value loading on the function are at accounting for the group differences. Table (8) shows that this value is very high, and it is equal to 36.650. Again, this is another indication of the goodness of the discriminant function extracted from our data analysis.

A final examination of the discriminant function can be done by looking at the group centroids. Table (9) shows the centroids of the two groups of shoppers. This table indicates that the "concentric" group scored at the positive end on the bipolar function and the "sprinkled" group at the negative end of the function. The centroids reported in this table represent the mean discriminant score of the members of a group on a given discriminant function. This can be useful for classification and prediction purposes. The discriminant score of each group case is compared to each group centroid and the probability of group membership is calculated. The closer the score is to a group centroid, the greater the probability the case belongs to that group.

**Table (9):** *Group centroids*

Group	Centroid
Sprinkled	-1.250
Concentric	2.293

Source: Authors' own findings.

To interpret the meaning of the discriminant function, one should look at the structure matrix coefficients in addition to the unstandardized and standardized coefficients. Table (10) shows the structure matrix coefficients. By looking at this table, we can say that the "concentric" group scores quite high on store services, moderately on convenience and sales promotion, and low on prices. Both product assortment depth and store reputation are not important to the discriminant function interpretation. For store reputation, the difference of the means between the two groups was not statistically significant. This means it is not a discriminator variable. For prices, its structure matrix correlation coefficient is less than 0.30. Typically, if the coefficient value is less than 0.30, then it will not be interpreted (Brown and Wicker, 2000, p.221).

**Table 10:** *Structure Matrix Coefficients*

variable	Coefficient
Store Services	0.609
Convenience	0.561
Sales promotion	0.423
Prices	0.351
Product assortment depth	0.290
Store reputation	0.019

Source: Authors' own findings.

Now, we turn to evaluating the usefulness and the practicality of the obtained discriminant function. This can be done by evaluating how accurate this function is in

classifying members to groups (Betz, 1987). The actual procedures for such an evaluation require classifying the original cases in the developmental sample. This is done by calculating the scores of the discriminator variables extracted from the same sample and comparing these scores with the group centroids. Finally, the group to which each case would be assigned is compared to the group to which the case actually belongs, and the percentage of correct assignments is calculated. The upper half of table (11) shows the results of this procedure. According to the results reported in this part of the table, 93.3% of the sprinkled group were classified correctly. Concentric shoppers were classified 94.3% correctly. The hit rate of the function is computed by adding the total number of both sprinkled and concentric shoppers who were correctly classified and dividing the sum by the total number of the developmental sample (300 cases). This hit rate, according to the results, is equal to 94%.

**Table 11:** *Percent of correct classification in the Developmental and Cross validation samples*

	Group	Sprinkled	Concentric	Total
Developmental sample Count (300 cases)	Sprinkled	150	10	160
	Concentric	8	132	140
Percent	Sprinkled	93.75%	06.25%	100%
	Concentric	05.7%	94.3%	100%
Cross-validation sample Count (150 cases)	Sprinkled	72	6	78
	Concentric	6	66	72
Percent	Sprinkled	92.3%	07.7%	100%
	Concentric	08.3%	91.7%	100%

Source: Authors' own findings.

The cross-validation was done using the hold-out method. In this procedure, we used the same discriminant variable scores derived from the developmental sample to classify the members of the hold-out sample. The lower half of Table (10) shows the results of this classification. As shown in this part of the table, 92.3% of sprinkled and 91.7% of concentric were classified correctly. Accordingly, the hit rate is equal to 92%. This value is lower than the hit rate achieved for the developmental sample, which will almost always be the case. This means that the use of the discriminant function derived from the developmental sample to classify independent samples can be expected to result in approximately 92% of the cases being correctly classified.

One way to test the hit rate significance is to compute the z-value. Unfortunately, none of the computer programs provides this test, and it has to be computed manually. Brown and Wicker (2000) provided an equation for computing z that can be compared with the critical value of z at a 95% confidence level. The computation process starts with calculating the probability of classifying cases by chance. This calculation is made using the following equation:

$$P_1a_1 + p_2a_2 + \dots + p_k a_k$$

where p is proportion of the total sample actually belonging to a group, a is the actual proportion of the cases classified by discriminant analysis into a particular group, and k is the number of the groups (Betz, 1987; and Brown & Tinsley, 1983). In our classification using the developmental sample, p<sub>1</sub> and p<sub>2</sub> were equal to 0.533 and 0.473, respectively; a<sub>1</sub> and a<sub>2</sub> were equal to 0.527 and 0.467, respectively; and the chance rate = (0.533 (0.527) + (0.473) (0.467)) = 0.502. After calculating the chance rate, we computed the z value using the following equation:

$$Z = (Np_a - Np_c) / (Np_c(1 - P_c))$$

Where: N is total sample size,  $p_a$  is the proportion of cases classified correctly using discriminant analysis, and  $p_c$  is the proportion of cases expected to be classified correctly by chance. Again, in our developmental sample  $N=300$ ,  $p_a=0.94$  and  $p_c= 0.502$  and  $z = (300) (0.94) - (300) (0.502)/(300) (0.502) (0.491)= 1.752$ , the z value exceeds the critical value of z at 95% confidence level, which is equal to 1.65. Accordingly, the hit rate for the developmental sample was statistically significant. We did the same thing for the cross-validation sample hit ratio, and the value of calculated z was equal to 1.675, which exceeds the critical value of z, confirming the statistical significance of the hit rate of the cross-validation sample.

In general, the results of the discriminant analysis confirm the first research hypothesis. Only four out of the six discriminators were able to discriminate significantly between sprinkled and concentric shoppers.

### Results of testing the second hypothesis

The second research hypothesis states the existence of differences in the demographic characteristics of "concentric" shoppers and the characteristics of the "sprinkled" shoppers. Table (12) shows the results of testing this hypothesis.

**Table 12.** Results of testing the second research hypothesis

Variable	Test used	Test value	Degree of freedom	significance
Gender	Chi-square	12.124	1	0.000
Nationality	Chi-square	0.012	1	0.499
Marital status	Chi-square	1.049	2	0.592
Education	Mann-Whitney U	86.00	n.a.	0.127
Monthly income	t-test	-2.918	448	0.004

Source: Authors' own findings.

Based on the results reported in the above table, we can say that only gender and monthly income were different significantly between the two types of spenders. The percentage of male concentric was 72.3%, and their average monthly income ranges from 664 to 1959 KWD, while sprinkled tend to be more female-oriented (64.2%), and their average monthly income ranges from 533 to 1221 KWD.

### Conclusion

Stores selling foods and groceries, such as hypermarkets, face a situation in which their customers exhibit multi-patron behavior. This means that the success of such stores will depend partially on their ability to increase their shares of a consumer's wallet. Such increase requires store managers to understand those factors that make customers spend a greater percentage of their food and grocery budgets in their stores, as well as to know which types of customers they should target with their marketing communication activities. This study is an attempt to shed light on these two issues.

Six factors were examined in this study. The results of the discriminant analysis revealed that only four factors could discriminate between sprinkled and concentric shoppers. The latter type of shoppers was found to score quite high on the store services, moderately on both convenience and sales promotion, and low on prices. This means that the perceived high level of services can make the shoppers spend more money in the store. Hypermarket store management should try to increase both related and unrelated services offered to their consumers on their premises. Related services include those that are related directly to the store's line of business, such as helping customers inside the store to locate needed items, allowing customers to return

unwanted merchandises, having layaway plans for some items to be purchased later, permitting customers to exchange some of the early bought durable products, and providing customers with rain checks when items on sale run out of stock during sale time. On the other hand, unrelated services represent some extra services that are not directly related to the store's type of business, such as having a clean restroom inside the store, a play room for the kids, a free public phone inside or outside the store, a cafeteria offering customers different types of fast foods and beverages, some machines for paying mobile bills, for charging mobiles with new balances, for withdrawing cash, and some mobiles companies that provide new mobile services for the store customers. In general, the more services a store manager adds, the higher the probability of attracting concentric shoppers to the store. The impact of store services on shopping behavior and consumers' attitudes was documented in many previous studies (e.g.: Asif and Deepankar, 2011; Pan and Zinkhan, 2006).

A second factor that could differentiate between the two types of shoppers is convenience. The study results regarding this factor showed that concentric shoppers prefer a moderate level of this factor. Convenience can be improved notably by focusing on some aspects that make the shopping trip more comfortable for consumers. The first is opening new store branches in locations that they pass by on their way home. Second is providing customers a good, wide parking areas around the store. Third is improving product presentation inside the store to enable customers to locate and find all needed items on the shelves more easily and quickly. Fourth is increasing the number of cashiers so that customers can pay for their shopping faster and without standing in lines for a long period of time. Another suggestion is to help customers push their shopping carts to their cars in the parking area. Finally, Keeping stores open twenty-four hours a day, seven days a week will provide customers with more convenience. A positive relationship between convenience and shopping behavior was found in many previous studies (e.g.: Jere, Aderele, and Jere, 2014; Reimers, 2014; Panda, 2013;).

A third factor that encourages customers to spend more of their food and grocery budgets in a hypermarket store is sales promotion. A moderate level of this factor will make a customer a concentric shopper. Several issues related to sales promotion should be taken care of by the store management people. First, price reductions for items on sale should be notable to consumers. A true price reduction should be made to convince customers that the store sales promotion is true and genuine. Second, the items included in the sales promotion should be the most wanted and demanded items by customers. Third, the items that are offered on sales should be changed from one promotion to another. Including the same items every time the sales promotion is offered will make them less appealing to consumers. Finally, the duration and the timing of the sales promotions should be suitable to consumers' needs. For example, a store should offer its sales at the beginning of the month, when most of its customers receive their monthly salary. Also, sales promotions should be offered to consumers before a holiday or social occasion. The duration of the sales promotion should be long enough to allow all potential consumers to take advantage of it. The effects of sales promotions on shopping behavior has been documented by many previous studies (e.g.: Al-Medabesh and Ali, 2016; Ding, et al., 2015; Stella and Ikechuwu, 2015).

A final factor that affects the amount of money spent inside a hypermarket store is price. A low score on this factor is preferred by concentric shoppers. This means that price differences between the store's products and those of other hypermarkets should be very small. A hypermarket store's management should exert all its efforts to

guarantee that its product prices are comparable to those offered by its competitors. Also, management can create loyalty programs and foster long-lasting relationships with the store's customers. Such programs would provide the store management with two benefits. First, it would guarantee that customers would prefer to buy from the store all the time. Second, it would entice permanent customers to pay higher prices for the store's products, as they would be less sensitive to the differences between the store's prices and that of other hypermarket stores. Prices were found to influence the shopping behavior of consumers in many studies (e.g. Nguyen et al., 2015; Batra, 2014).

Regarding the demographic characteristics of both types of shoppers, results indicated that two socio-economic attributes discriminate between the two types. Those are monthly income and consumer gender. Most concentric shoppers are males who earn a high monthly income. Two important implications for these results were found: First, new store branches should be open in those neighborhoods resided by people with high income. Neighborhoods in Kuwait are divided into areas with high-income people, those with middle-income people, and those where poor expatriates live. The first two types of neighborhoods are suitable as good locations for new store branches. Second, all marketing communications made by the store should target those males with high monthly income.

### **Research limitations and suggested future research**

Only three empirical studies related to multiple patronage behavior were conducted. The first investigates the effect of consumer income, total consumer grocery expenditures, and consumer satisfaction on the size of the multiple patronage sets. The second study expanded the domain of those factors affecting the types of established patronage by including consumer age, gender, family size, employment, store format preference, consumer shopping perception, deal proneness, the number of store operating in the market, and the variety of stores operating in the market. Our study attempts to determine those store attributes that differentiate between concentric and sprinkled shoppers who hold multiple patronage attitudes. More studies are required to fully understand this attitude and its effect on customer allocation of its budget to different stores of the same type. For example, only six store attributes were examined in this study to know its effect on consumer budget allocation. Still more attributes, such as store ambiance, store layout, and store employee courtesy can be examined in future studies. Also, this study focused only on hypermarket stores, however, other types of retail stores should be subject for future examinations. Moreover, the description of shopper types focused only on some demographic characteristics. Other demographics and psychographics variables should be examined in the future.

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