

A Test of the Laroche Competitive Vulnerability Model of Cognitions, Attitudes, Intentions, and Behavior : An Application to Fast Food Outlets

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Abstract

This paper first reviews the literature on theories regarding consumer brand selection processes and the role of competition within this process. It then introduces the Laroche competitive vulnerability model and then it tests this model using data on fast-food choices by actual consumers in Montreal, Canada. Using structural equation modelling, and the three most popular brands of fast-food, the model is supported for all three pairs of fast-food outlets. For the model containing the three brands, the results indicate a good fit, but the competitive relationships are weaker than for the two-brand models, indicating some dilution of competitive effects. Suggestions for future research are provided.

Key Words: Competitive vulnerability model, brand selection process, fast food outlets, structural equation modelling

抄 録

本稿では、まず消費者によるブランド選択過程に関する理論についての文献が再検討されている。次いで「ラローシュ競争バルネラビリティ・モデル」を紹介したうえで、カナダのモントリオールの消費者が現実を選択したファーストフードのデータを使用してこのモデルを検証している。最も人気がある3種類のファーストフードのデータに構造方程式モデルを適用したところ、これらファーストフード系列店の3対の組み合わせすべてに対しこのモデルが支持された。3種類のブランドを含むモデルに対する結果の適合度は良かったが、競争関係が2ブランドモデルよりも弱く、その効果がいくぶん低いことが明らかとなった。今後の研究に対する示唆が提示されている。

キーワード：競争バルネラビリティ・モデル、ブランド選択過程、ファーストフード系列店、構造方程式モデル

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Introduction

Consumer researchers have long been interested in the relationships among brand cognitive evaluations, brand attitudes, purchase intentions and brand choice as well as the competitive relationships among these constructs. For example, Laroche, Kim and Zhou (1996) have shown that cognitions related to a brand affect an individual's attitude toward a particular brand, which in turn influences her/his intention to buy the same brand; they also showed that inter-brand (or multibrand) relationships occur along the same patterns.

Understanding the process of brand choice is a critical step in predicting consumer behavior (Fishbein and Ajzen, 1975, 1980; Howard, 1977; Howard and Sheth, 1969). However, such behavior does not occur in a vacuum, but it is the result of competition among brands. While most researchers acknowledge the influence of competition in explaining behavior, few studies actually incorporate the notion of competition in a formal way (Woodside and Clokey, 1974; Tversky, 1969; Laroche and Brisoux, 1989). Although it is a very difficult problem to tackle, this shortcoming seriously limits the ability of behavioral models to reflect the reality of the marketplace.

The first published descriptions of multiattribute, multibrand models appeared in 1974 in a series of three key articles written by Clokey and Woodside (1974), Woodside and Clokey (1974), and Woodside, Clokey and Combes (1975), as explained in the following quote: "Prior literature has not included analysis of whether or not beliefs toward other brands partially determine a consumer's attitude toward a specific brand and predict brand choice behavior toward that brand." (Woodside and Clokey, 1974, p. 34)

Few empirical studies have paid attention to the role of other competing brands in the brand evaluations, the formation of attitude and the formation of intention toward a focal brand. Laroche, Bergier and McGown (1980) were the first to demonstrate the effects of competing brands attitudes in the formation of focal brands intentions. Abe and Tanaka (1989) suggested that the cognitive evaluations of the competing brands have significant influence on attitudes toward the focal brand. Further empirical evidence has also been provided by other studies. For instance, Laroche, Hui and Zhou (1994) systematically analyzed and examined the influence of competitive brands on attitude formation and intention formation within the consumers' consideration set. They showed that one

consumer's attitude toward a brand is determined by both her/his cognitive evaluations of the specific brand and her/his perceptions of other brands within the consideration set. In addition, the consumer's purchase intention is not only a function of attitude toward the focal brand, but also a function of attitudes toward the close competitors of the focal brand within the consumer's consideration set. Particularly, the effects of a focal brand on the formations of attitude and intention toward the same brand are positive, but the effects of competing brands on the formations of attitude and intention toward a focal brand are negative. In other words, intention to buy a specific brand is positively affected by attitude toward the same brand and negatively affected by attitudes toward other competing brands in the consumer's consideration set (Laroche and Brisoux, 1989; Laroche, Kim and Zhou, 1996). However, while this conceptualization is borrowed from social psychology and based on multi-attribute attitude models, as well as information processing constructs (such as the consideration set), it mainly addresses the links among brand cognitions, attitudes and intentions, but it fails to incorporate purchase in the models predicting consumer choice behavior in competitive environments.

Much later, based on the theory of reasoned action (Ajzen and Fishbein, 1980), Dabholkar (1994) also integrated information-processing and attitude frameworks and presented four alternative models of consumer choice. These different models suggest that consumer choice may take place through either the comparison of beliefs, the comparison of expectancy-value components, the comparison of attitudes or the comparison of intentions. How consumers are supposed to switch from one model to the next depending on the product category and situation is not explained.

In fact, Laroche (2001), in describing his competitive vulnerability model (as christened by Howard, 1994), disagreed with this view, and argued that the comparison may occur at every step of the whole consumer decision-making process: beliefs → expectancy-value components → attitudes → intentions → choice. The results of the brand comparison in one step may influence the results of the brand comparison in the next step. This is really a continuous, sequential process. Although some brand comparison may occur or not at one particular step, it cannot be logically dismissed. In other words, the four models of Dabholkar's study do not take into account the simultaneous comparisons of beliefs, expectancy-value components, attitudes and intentions. They arbitrarily break the relationships of the comparisons of beliefs, expectancy-value components, attitudes and intentions, which occur in a consumer decision-making process. Another problem with the tested

model is that expectancy-value components are independent of the consumer's beliefs and affects regarding other competing choices (e.g., using a touch screen to order a meal versus placing a verbal order with an employee in a fast-food restaurant, Dabholkar, 1994). Similarly, it does not consider the competitive effects underlying the expectancy value component — attitude relationship, and the attitude — intention relationship. Finally, there is no mention of the formation of consideration sets in the decision-making process, a key variable in any decision-making model of brand choice (Howard, 1994).

Furthermore, the competitive effects of one brand on another cannot be simply captured by just a comparison of consumers' beliefs, or of expectancy value components, or of attitude intention scores, since they logically must be assumed at every step of the consumer decision-making process. Undoubtedly, the brand selection process of one individual is not made in a vacuum. While there are many factors that may influence the consumer's purchase decision-making, the competitive relationships provide the fundamental links to explain the brand selection process within the consideration set.

Finally, the intention-choice causal relationship has rarely been investigated. Studies to extend Laroche competitive vulnerability model (Laroche, Hui and Zhou, 1994) could examine how the competing brands not only influence the formation of consumers' attitude and intention toward a specific brand, but also affect the determination of their choice of a particular brand.

Therefore, the goal of this study is to partially test the Laroche competitive vulnerability model and provide a more complete understanding of the influence of competing brands on the formation of cognitions, attitude, purchase intention and choice regarding a specific brand with a single conceptual framework in which all the effects can be examined simultaneously. Three two-brand models and one three-brand model, which represent links among brand cognition, attitude, intention and purchase choice, are developed and tested.

The Competitive Vulnerability Model

The consumer can be described as being faced with a very large number of stimuli (e.g., advertisements, packaging, and word of mouth) about several of the brands available in the market.

Processing this information leads to the formation of certain attributes or beliefs about some brands, then attitudes, intentions and choice. Consumer may either simplify their choice process by comparing the scores of overall evaluations (i.e., beliefs, attitudes, intentions and so on) or use compensatory decision making to choose between alternatives without considering competitive effects in the consideration set (Corfam, 1991). However, the findings of a number of researchers have demonstrated that competitive effects exist in the scores of evaluations. As evidence of competitive effects, consumers may compare brand cognitions, and attitudes toward different brands to develop purchase intentions (Laroche, Hui and Zhou, 1994). By incorporating competition into these relationships, a more complete choice process can be described, one in which consumers select a brand through several steps:

- (1) by evaluating information and previous experience on several brands to form cognitions with respect to a focal brand;
- (2) by evaluating cognitions with respect to a specific brand to form attitude toward that brand and considering the competitive cognitive effects of other brands;
- (3) by developing a consideration set of brands, only among which the selection process will be pursued further;
- (4) by assessing the attitude of a focal brand to form intention toward the same brand and considering the competitive effects of the attitudes toward other brands within the consideration set;
- (5) by evaluating the purchase intention of a focal brand to form choice toward that brand and considering the competitive effects of intentions toward alternatives within the consideration set.

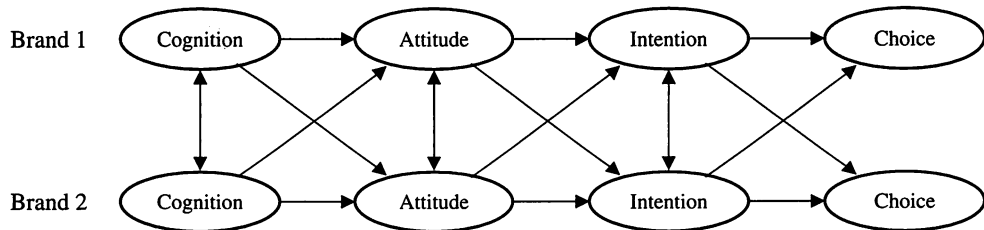


Figure 1. A simplified Laroche competitive vulnerability model of cognitions, attitudes, intentions and choice. This model can be expanded to more than two brand environments.

Each process involves the same sequence wherein brand cognitions are formed first, followed in order by attitudes, intentions and choices. The different brands are treated in an evaluative and comparative frame of reference as soon as a choice is made, so the next purchase selection will follow the same decision-making process. This process can be graphically represented by the model shown in Figure 1.

More detailed explanations on this competitive vulnerability model are as follows:

Competitive effects: Brand cognitions → attitudes

Several researchers have theoretically posited a causal link between brand cognitions and attitudes within a competitive framework for brands in a choice set. For example, Woodside and Clokey (1974), and Woodside, Clokey and Combes (1975) suggested that the formation of an individual's attitude is dependent on her/his beliefs about the attributes of other brands. In fact, in the brand selection processes of one consumer, s/he evaluates the information and previous experiences of a specific brand, while considering the competitive effects of other brands. After that, s/he has an attitude toward the specific brand as well as toward the competing brands. However, her/his attitude toward the specific brand actually is affected by the brand cognitive evaluation of the same brand and the competing brands. Findings from other researchers (Abe and Tanaka, 1989; Laroche and Brisoux, 1989) also show that attitude toward a specific brand depends on the features of its competing brands. The consumer's attitude toward a particular brand is positively affected by her/his cognitive evaluations of the same brand while her/his attitude toward a specific brand is negatively affected by cognitive evaluations of the competing brands within the consideration set. Furthermore, the effect of information and experience is a basic process in preference and attitude formation (Zajonc and Markus, 1982). Experienced consumers are more likely to use their prior experiences about the attributes of different brands to discriminate a focal brand from the competing brands. Therefore, we formulate the first hypothesis in a more general manner:

H1: A consumer's attitude toward a focal brand (i) is positively affected by her/his cognitive evaluation of the same brand (i) while her/his attitude toward a focal brand is negatively affected by her/his cognitive evaluations of the competing brands (j, $j \neq i$) in the consideration set.

Competitive effects: Brand attitudes → intentions

A number of researchers state that there is a significant positive relationship between attitude toward a specific brand and intention toward the same brand (Fishbein and Ajzen, 1975; Ryan and Bonfield, 1975). Moreover, Laroche and Brisoux (1989) argue that there are one direct effect and some competitive (or indirect) effects of attitudes on consumer's purchase intention. The direct effect states that only the consumer's attitude toward a focal brand determines his/her intention to buy that brand. The competitive effects suggest that intention to buy a focal brand may also be affected by attitudes toward other competing brands within the consideration set. The main difference is that a competitive effect negatively influences intention to buy the focal brand while the direct effect positively affects intention to buy that brand. Therefore, an individual's intention to buy a particular brand not only depends on her/his attitude toward the same brand, but also on her/his attitudes toward other competing brands in the consideration set. Similarly, several researchers (Laroche and Sadokierski, 1994; Laroche, Hui and Zhou, 1994; Laroche, Kim and Zhou, 1995 & 1996) provide further evidence of the two types of effects on intention. We therefore hypothesize that:

H2: A consumer's purchase intention toward a focal brand (i) is positively affected by her/his attitude toward the same brand (i) while her/his purchase intention toward a focal brand is negatively affected by her/his attitude toward the competing brands ($j, j \neq i$).

Competitive effects: Brand intention → choice

After comparing attitudes toward each brand in the consideration set, individuals form an intention toward each alternative brand, and then choice occurs when individuals compare these intentions (Fishbein and Ajzen, 1980). Bagozzi (1981) also argues that individuals seem not to generally engage in an alternative behavior A and simultaneously engage in an alternative behavior B. This seems to lead us to understand that individuals have to make a choice from multiple alternative brands after comparing multiple intentions. Dabholkar's (1994) four models suggest that consumer choice may take place through either the comparison of beliefs, the comparison of expectancy-value components, the comparison of attitudes or the comparison of intentions, and she found some empirical support only for the fourth one. Again, in consumer decision-making, a consumer may evaluate all the brands separately and arrive at intentions to use each and compare

them, and finally make a choice. However, previous studies have neglected the consideration of whether or not a consumer's intention toward other competing brands partially determine her/his choice toward a particular brand. It is true that the way a consumer develops a choice toward a specific brand is unlikely to be independent of her/his purchase intentions toward other competing brands. Relatively few studies have examined the relationship between purchase intention and choice behavior from a competitive perspective. Our third hypothesis is therefore formulated as follows:

H3: A consumer's purchase choice toward a focal brand (i) is positively affected by her/his intention toward the same brand (i) while her/his purchase choice toward a focal brand is negatively affected by her/his intention toward competing brands ($j, j \neq i$).

Moreover, it is logical that an individual may have "a global idea" toward a certain product category. In other words, one consumer not only has overall brand evaluations, feelings and intentions about a focal brand, but also about the competing brands in the same product category.

These are also highly related (Laroche, Hui and Zhou, 1994). Thus, some correlational relationships among brand evaluations, attitudes and intentions are assumed in the proposed model.

Overall, the above description provides a complete understanding of the brand selection processes of consumers within a consideration set, that is the Laroche competitive vulnerability model. For instance, if one consumer makes a choice by evaluating brand cognitions toward different brands, then she/he will form separate attitudes and intentions for each brand. Again, after assessing the intentions across the different brands, she/he will select a brand over the other brands.

Methodology

Data collection

The data used in this study came from a survey on the selection of fast-food restaurants in Montreal, Canada. Fifteen brands were carefully selected to reflect the fast food restaurant industry, which are franchised and non-franchised brands, local and national brands as well as urban and suburban chains. The questionnaire was administrated door to door during several weekends. Efforts were made to contact as many households on the selected sampling areas as possible. The

self-administrated questionnaire was left with the consenting individual and then was picked up one week later. In total, 513 completed questionnaires were obtained. Based on the question "from the following list of fast food restaurants, indicate which fast food restaurants you would consider going to next time," we found that St-Hubert BBQ enjoys the highest level of popularity among all fast food restaurants in Montreal. In addition, St-Hubert BBQ and Chalet Suisse were simultaneously selected by 228 respondents who placed them in their consideration sets. Similarly, the two pairs St-Hubert BBQ - Harvey's, and Chalet Suisse - Harvey's were selected by 177 and 170 respondents, respectively. In addition, among those respondents, 131 chose the three brands simultaneously. In our study, these three brands were used in the analysis.

Measures

Brand cognitions

Brand cognition for each brand was measured by a 9-point semantic different scale: "with respect to these 15 fast-food outlets, to what extent do you feel you have enough information to make an informed judgment about whether to eat at the outlet?" with instructions to ignore the brands that she/he had not heard of.

Attitudes

Attitude toward fast food restaurants was measured by the following two questions, using two 9-point semantic differential scales (dislike very much/like very much and very unsatisfactory/very satisfactory): (1) "with respect to these 15 fast-food outlets, please indicate the degree to which you like the outlet," and "with respect to these 15 fast-food outlets, please indicate the degree of your satisfaction with the particular outlet." The two scales were taken as the indicators of the global attitude construct for the proposed model. The reliabilities of the two indicators were .80, .84 and .87 for Harvey's, St-Hubert BBQ and Chalet Suisse, respectively.

Intentions

Intention toward fast food restaurants was measured by using a 9-point semantic differential scale (do not intend to eat/intend to eat): "with respect to these 15 fast-food outlets, please indicate the strength of your intention to eat at those outlets."

Choice

Choice was measured by a question: "please think of the next ten times you will go to a fast-food outlet, what would be your distribution of those next ten purchases?" The measure was then divided by ten, so it varied between 0 and 1.

Data Analysis

Two-brand Model

Structural equation modeling is used to confirm the underlying factor structure of the single measure of cognitive evaluation, the two measures of attitude, the single measure of purchase intention and the single measure of choice. The program EQS (Byrne, 1994; Bentler, 1990 & 1992)

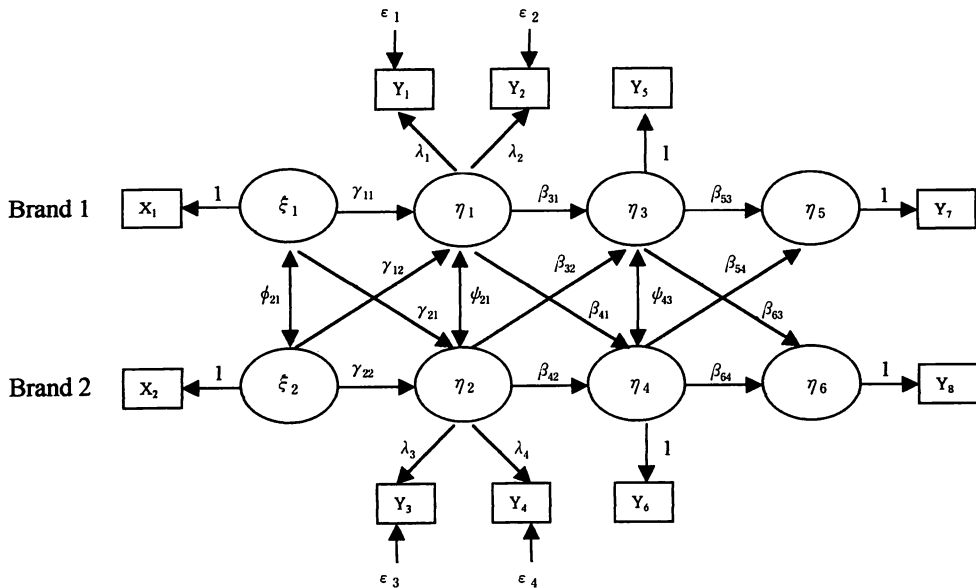


Figure 2: An EQS competitive vulnerability model of choice for two brands. X_1 and X_2 = The indicator of cognitive evaluation toward brand 1 and 2, respectively. Y_1 and Y_2 = The two different measures of attitude toward brand 1. Y_3 and Y_4 = The two different measures of attitude toward brand 2. Y_5 and Y_6 = The indicator of purchase intention toward brand 1 and 2, respectively. Y_7 and Y_8 = The measure of choice toward brand 1 and 2, respectively. ξ_1 and ξ_2 = cognitive evaluation toward brand 1 and 2, respectively. η_1 and η_2 = Attitude toward brand 1 and 2, respectively. η_3 and η_4 = Intention to purchase brand 1 and 2, respectively. η_5 and η_6 = Choice toward brand 1 and 2, respectively.

is used to test the confirmatory model as shown in Figure 2.

This model was tested three times, and for each test, two of the three selected brands were taken either as brand 1 (the focal brand) or brand 2 (the competing brand). The results of the EQS analysis indicate that the model produces a Chi-square value of 61.8 with 26 degrees of freedom ($p < .001$), a relative Chi-square (χ^2/df) of 2.4, a comparative fit index (CFI) of 0.94 for the selected pair of St-Hubert BBQ and Chalet Suisse.

Similarly, it also gives a $\chi^2 = 37.0$, $df = 26$ ($p = .07$), a relative Chi-square of 1.4 and a CFI = 0.98, as well as a $\chi^2 = 68.9$, $df = 26$ ($p < .001$), a relative Chi-square of 2.7 and a CFI = 0.92 for the pair of Chalet Suisse and Harvey's, and the pair of St-Hubert BBQ and Harvey's, respectively.

These results indicate that each of the three models has an acceptable fit (Bentler, 1990). The parameter estimates and their corresponding t-values are as shown in Table 1.

Table 1: Standardized EQS Estimates

Parameters	Two-Brand Model (1)		Two-Brand Model (2)		Two-Brand Model (3)	
	Estimates	t-values	Estimates	t-values	Estimates	t-values
λ_1	.803	fixed	.687	Fixed	.691	fixed
λ_2	.862 ^a	13.9	.893 ^a	9.30	.896 ^a	10.3
λ_3	.799	fixed	.772	fixed	.809	fixed
λ_4	.928 ^a	15.0	.916 ^a	12.3	.878 ^a	13.2
γ_{11}	.487 ^a	6.10	.468 ^a	4.42	.505 ^a	4.34
γ_{12}	-.125 ^c	-1.62	-.145 ^c	-1.46	-.183 ^c	-1.65
γ_{21}	-.116 ^c	-1.56	-.122 ^c	-1.33	-.124 ^c	-1.37
γ_{22}	.508 ^a	6.49	.570 ^a	5.82	.591 ^a	5.48
β_{31}	.906 ^a	12.7	.794 ^a	8.49	.898 ^a	8.94
β_{32}	-.141 ^a	-2.58	-.024	-0.37	-.129 ^b	-1.82
β_{41}	-.021	-0.39	-.104 ^b	-1.76	-.142 ^b	-2.09
β_{42}	.827 ^a	12.4	.881 ^a	11.2	.924 ^a	11.3
β_{53}	.269 ^a	3.86	.283 ^a	3.71	.296 ^a	3.85
β_{54}	-.136 ^b	-1.94	-.185 ^a	-2.43	-.030	-0.39
β_{63}	-.139 ^b	-1.94	-.039	-0.49	-.216 ^a	-2.82
β_{64}	.111 ^c	1.55	.177 ^b	2.25	.277 ^a	3.60
ϕ_{21}	.489 ^a	6.41	.619 ^a	6.82	.731 ^a	7.83
ψ_{21}	.490 ^a	5.21	.389 ^a	3.66	.566 ^a	4.96
ψ_{43}	.537 ^a	5.22	.362 ^a	3.34	.558 ^a	4.62

1. Two-brand model (1), (2) and (3) correspond to the three combinations of St-Hubert BBQ and Chalet Suisse, Chalet Suisse and Harvey's, and St-Hubert BBQ and Harvey's, respectively.

2. ^a significant at 0.01 (one way); ^b significant at 0.05 (one way); ^c significant at 0.10 (one way).

Cognitions influencing brand attitudes (H1)

As shown in Table 1, the estimated values of γ_{11} , γ_{12} , γ_{21} and γ_{22} are either negative or positive respectively with significant t-values. These results indicate that a higher cognitive evaluation toward a specific brand led to a higher attitude toward the same brand ($\gamma_{11} = .487, .468, .505$ and $\gamma_{22} = .508, .570, .591$ for each of three models, respectively). On the other hand, a higher cognitive evaluation toward a particular brand led to a lower attitude toward the competing brands ($\gamma_{12} = -.125, -.145, -.183$ and $\gamma_{21} = -.116, -.122$ and $-.124$). In other words, an individual's attitude toward a focal brand is positively related to her/his cognitive evaluation of the same brand. However, an individual's attitude toward the focal brand is negatively related to her/his cognitive evaluations of the competing brands (H1).

Attitudes influencing purchase intentions (H2)

The results (β_{31} , β_{32} , β_{41} and β_{42}) confirmed H2 that an individual's purchase intention toward a specific brand increased as her/his attitude toward the same brand increased. On the other hand, an individual's purchase intention toward a specific brand decreased as her/his attitudes toward other competing brands increased.

Purchase intentions influencing choice (H3)

Purchase intention also produced a significant effect on choice of a focal brand while competitive effects exist simultaneously. In other words, a stronger purchase intention toward a specific brand led to a higher degree of purchase choice toward the same brand (β_{53} and β_{64}). However, a stronger purchase intention toward a specific brand led to a lower degree of purchase choice toward other competing brands (β_{54} and β_{63}). This evidence strongly supports H3.

Furthermore, ϕ_{21} , ψ_{21} and ψ_{43} are significantly different from 1, so the constructs of cognitive evaluation, attitude and purchase intention are distinct between the focal brand and each of the competing brands. These results are consistent with the findings from previous studies (i.e., Laroche, Hui and Zhou, 1994). This also further reveals the correlational relationships among cognitive evaluations, among attitudes and among purchase intentions between a focal brand and each of the competing brands.

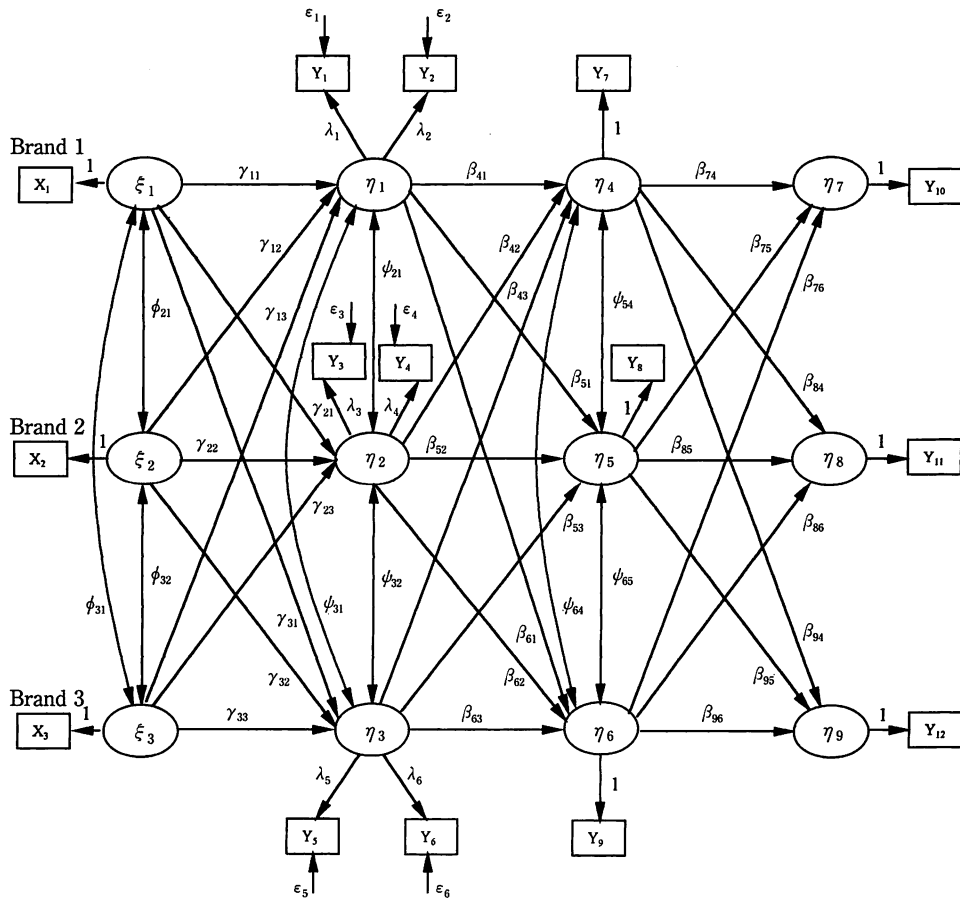


Figure 3: An EQS competitive vulnerability model of brand choice for three brands. X1, X2 and X3 = The indicator of cognitive evaluation toward brand 1, 2 and 3, respectively. Y1 and Y2 = The two different measures of attitude toward brand 1. Y3 and Y4 = The two different measures of attitude toward brand 2. Y5 and Y6 = The two different measures of attitude toward brand 3. Y7, Y8 and Y9 = The indicator of purchase intention toward brand 1, 2 and 3, respectively. Y10, Y11 and Y12 = The measure of choice toward brand 1, 2 and 3, respectively. ξ_1 , ξ_2 and ξ_3 = Cognitive evaluation toward brand 1, 2 and 3, respectively. η_1 , η_2 and η_3 = Attitude toward brand 1, 2 and 3, respectively. η_4 , η_5 and η_6 = Intention to purchase brand 1, 2 and 3, respectively. η_7 , η_8 and η_9 = Choice toward brand 1, 2 and 3, respectively.

Three-Brand Model

Next, we incorporated three brands into one structural equation model and tested the competitive effects among cognitions, attitudes, purchase intentions and choices. Figure 3 illustrates the EQS model specifications on the competitive effects and Table 2 presents the results of the EQS solution.

As shown in Table 2, the three-brand model produced a Chi-square value of 143.7 with 63 degrees of freedom ($p < .001$), a relative Chi-square of 2.3, a comparative fit index of .92, which all

indicate that the model is acceptable. Although not all competitive parameters are significant (e.g., only four of eighteen competitive parameters are significant either at the 0.01, 0.05 or 0.10 level), all the structural relationships are in the hypothesized direction.

Table 2: Standardized EQS Estimates

Three-Brand Model					
Parameters	Estimates	t- values	Parameters	Estimates	t- value
λ_1	.643	parameter fixed	ϕ_{21}	.689 ^a	6.47
λ_2	.871 ^a	7.78	ϕ_{31}	.661 ^a	6.29
λ_3	.839	parameter fixed	ϕ_{32}	.652 ^a	6.23
λ_4	.867 ^a	12.3	ψ_{21}	.552 ^a	4.10
λ_5	.795	parameter fixed	ψ_{31}	.447 ^a	3.60
λ_6	.959 ^a	12.3	ψ_{32}	.581 ^a	4.73
γ_{11}	.495 ^a	3.49	ψ_{54}	.721 ^a	4.90
γ_{12}	-.161	-1.20	ψ_{64}	.365 ^a	3.01
γ_{13}	-.043	-0.34	ψ_{65}	.640 ^a	4.95
γ_{21}	-.010	-0.08			
γ_{22}	.479 ^a	3.78			
γ_{23}	-.038	-0.32			
γ_{31}	-.061	-0.51			
γ_{32}	-.253 ^b	-2.10			
γ_{33}	.570 ^a	4.70			
β_{41}	.889 ^a	6.43			
β_{42}	-.114	-1.18			
β_{43}	-.043	-0.50			
β_{51}	-.088	-1.07			
β_{52}	.912 ^a	9.41			
β_{53}	-.017	-0.23			
β_{61}	-.013	-0.16			
β_{62}	.042	0.52			
β_{63}	.774 ^a	8.71			
β_{74}	.326 ^a	3.45			
β_{75}	-.020	-0.19			
β_{76}	-.128	-1.25			
β_{84}	-.219 ^a	-2.34			
β_{85}	.381 ^a	3.37			
β_{86}	-.160 ^c	-1.58			
β_{94}	-.113	-1.18			
β_{95}	-.152 ^c	-1.41			
β_{96}	.260 ^a	2.49			

1. ^a significant at 0.01 (one way); ^b significant at 0.05 (one way); ^c significant at 0.10 (one way).

On one hand, these results suggest that the competitive effects are present when consumers select a specific brand among few alternatives, since the signs of γ 's and β 's parameters strongly support that there is a positive relationship along the direct paths of cognition, attitude, intention and choice toward the same brand while there is a negative relationship along the indirect paths of cognition, attitude, intention and choice toward the competing brands.

On the other hand, the degree of competitive effects in the three-brand model is not as strong as it is in the two-brand models (i.e., the significant level of competitive parameters). This may be explained as follows: the inclusion of more than two brands in choice model of inter-brand dependence may lead to some non-significant cross-over coefficients or noncompetitive effects (Laroche, Hui and Zhou, 1994). In addition, consumers may like to only focus on two comparisons of the most popular brands in order to reduce their information load and the cognitive complexity of their decision-making choice process (Lussier and Olshavsky, 1979; Brisoux and Laroche, 1980). Given the variety and large number of brands, most consumers probably do not attempt to use all information in brand judgment and will instead use simplifying heuristics to reduce or minimize judgment task difficulty (Brisoux and Laroche, 1981). Moreover, Kamakura and Srivastava (1984) argue that similar alternatives are more substitutable and competitive than dissimilar alternatives. If alternatives are similar in a consideration set, they may tend to draw shares of competitive effects from each other. Again, Laroche, Hui and Zhou (1994) also provide further evidence to support this dilution of competitive effects.

Another explanation is that this may be related to the fast food industry, where products (outlets) are not directly comparable, and it is easier for consumers to compare the outlets two at a time (e.g., BBQ chicken versus hamburgers). Further research may shed more light on this finding.

Discussions and Implications

What is new in this study is the structural equation modeling that examines different constructs and tests the competitive effects simultaneously across brand cognitions, attitudes, intentions and choice within the brand selection processes of consumers. From a theoretical viewpoint, the tested model, i.e., the Laroche competitive vulnerability model (Laroche, 2001) provides a more complete

understanding of the brand selection process of a consumer. The results of this study not only support the influence of competing brands on the formation of attitudes and intentions (Laroche, Hui and Zhou, 1994), but also support our hypothesized link between purchase intention and choice. Overall, the influence of competition on attitude formation, intention formation and choice formation is successfully examined. Although the competitive environment cannot be controlled, understanding its effects on the consumer decision-making process may provide a marketer with insights for studying her/his brand and the competing brands in order to attract customers to that brand.

In addition, if research only focuses on using the comparisons of expectancy-value components, attitudes or intentions between alternatives to predict consumer behavior (Bagozzi, 1981; Warshaw 1980; Dabholkar, 1994), it obviously ignores the competitive effects on consumer choice. Our findings suggest that the comparative analysis method does not completely explain the processes underlying consumer choice among competitive alternatives. Any feelings and thoughts of one consumer toward the competing alternatives unavoidably influence her/his attitude, intention and choice toward her/his focal brand. Therefore, understanding the processes underlying consumer choice is critical for explaining and predicting consumer choice behavior.

Limitations and Future Research

The first limitation of this study is that a single item is used to measure brand cognitions and brand intentions. In fact, consumers' previous purchase experience may have an influence on their cognitive evaluations toward a specific brand that they experienced, since they know the most important attributes for discriminating among brands (Johnson and Lehmann, 1997). In turn, their cognitions directly affect their attitudes, and indirectly their intentions toward and future purchases of the same brand (Brucks, 1985; Laroche, Kim and Zhou, 1996). Further investigation of this issue is needed to offer greater insight on exactly how consumers evaluate the brands with which they are familiar. In addition, a larger, more diversified sample from different economic and cultural regions may enhance the generalizability of the findings in this study.

Although the results of this study suggest that the competitive effects on consumer choice-making

are somewhat significant, future research on consumer brand selection within a consideration set may attempt to replicate the results with additional variables and for different product categories with active competition. For instance, the information on price and quality is highly related to brand evaluations of specific brands in the fast food industry (Laroche and Toffoli, 1999; Bojanic, 1996). How are the consumer perceptions of the overall quality of a particular brand related to the formations of attitudes and intention toward that brand and other competing brands? Will stronger three-brand effects be found in product categories with more elaborate inter-brand evaluations, for example, personal computers or DVD players? Therefore, future research may examine the degree to which results of this study extend to other specific information contexts and product categories.

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