Big Data for Loyalty Program Management in Hypermarket

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ABSTRACT
Loyalty programs lead to a natural split of a firm’s customer base into members and nonmembers. To manage both groups effectively, it is essential to know how they concern about, such as services or promotions. This article, set in context of the second hypermarket density in Asia, examines the impact of satisfaction on store patronage and explores moderator roles of employee interaction and price sensitivity between members and nonmembers. Therefore, a survey was performed among 317 hypermarket members and nonmembers from top three settings in Taiwan. The study demonstrates that the satisfaction and store patronage behavior relationship of members stronger than nonmembers. And moderate of employee interaction and price sensitivity of members has stronger effect between satisfaction and store patronage than nonmembers. According to inconsistent relation between satisfaction and store patronage in past studies, the study extend existing theories of retention to incorporate contingency relationships, especially among members and nonmembers to manage retailer both customer relationship better.

Keywords
Loyalty program, Satisfaction, Shopping characteristics, Store patronage.

1. INTRODUCTION
According to ACNielsen’s report, the grocery retailing structure in Asia Pacific is gradually changing. Taiwan have become more hypermarket-dominant, hypermarkets are the main format for more than 50 percent of shoppers in Taiwan of typically two to three times a month. According to the Ministry of Economic Affairs, sales in the hypermarket sector posted a compound annual growth rate of 3.7 percent in the past decade, from NT$137 billion in 2007 to NT$200 billion (US$6.62 billion) in 2017.

Hypermarkets take loyalty card program as an important tool to manage customer-retailer relationship based on the hypermarket-dominant shopping pattern in Taiwan, for example, an exclusive manager of Géant points out that sales contribution of members is 1.5 times than nonmembers. Although the loyalty programs have evolved, relative to the loyalty card program of the most success loyalty program—TESCO, Taiwan still during the course of starting. The Tesco loyalty card bridges the knowledge gap, knowing what the profile of that member and nonmember is and what they prefers to buy and have capacity to minimize the risk of all promotion [1], therefore, to manage members and nonmembers is an important issue for hypermarket operating.

The study segments customers into two groups because of customer loyalty card programs or membership clubs become increasingly common in retailing to increase customers’ store patronage and purchasing quantity. Customers who are loyalty card members demonstrated higher level of customer purchasing behavior, due to retailers who provide more satisfaction and value to certain customers [2][3]. Moreover loyalty card programs can act a part of the value chain or points of product differentiation. Many empirical studies have found the positive effects of customer satisfaction on loyalty [4][5][6] and usage behavior [7][8]. Recent studies also have indicated that the relationship between satisfaction and behavior is moderated by several variables; that is, not all consumers respond equally to increases in satisfaction [9]. Based on these evolutions, we suggest that the effects of customer satisfaction on customer loyalty behavior between different customer segment need to be further evaluated. There are few empirical researches concerning the mechanisms in satisfaction—repurchasing relationship between customers who are loyalty card members and who aren’t.

From a members’ perspective, the card is a tool that generates extra rewards [10][11] also a prove that they willing to have emotional attachment with the retailer [12][13], such as price sensitivity [14], employee interaction [15]. In response to deeper insight into factors that may moderate the satisfaction—store patronage relationship [7], and to explore although members as key customers that retailer concern about, nonmembers also can be profitable if they respond to a retailer’s marketing activities [16]. The study, therefore, proposes an empirical framework that explains why the two groups of customers (members and nonmembers) with the same (different) levels of satisfaction exhibit different (the same) patterns of store patronage.

Based on this research, we establish a set of testable hypotheses for explore the relationship between retailer and members, nonmembers. The study hopes to make the following contributions to the field of members’ and nonmembers’ satisfaction—store patronage behavior. First, we study a set of moderating effects which combine the perceived attachment with retailer and immediate influences of price sensitivity. Second, the employee interaction and price sensitivity proposed as important moderators will contribute to developing alternative bases for loyalty members and nonmembers. Third, the moderating effects on the satisfaction—store patronage link take the model to a higher level of specificity, thereby contributing to a greater understanding of complicated customer behavior. Fourth, the study develops a model that captures the behavior between loyalty card members and nonmember, and explores the customer behavior intensive. Finally, the study suggests managers the ways to allocate their resources more effectively.

2. LITERATURE REVIEW
In Taiwan loyalty card programs of hypermarket, cardholders only earn point for spent and receive discount in cash when consumers check out. But the continuing computer-based revolution in data handling was cater to market segments as small as single consumers, including members and nonmembers [17]. In the plentiful
consumption environment of Taiwan, the retailers in Taiwan, therefore, still have to improve to understand and manage the members and nonmembers more efficiently to maintain consumer’ store patronage, such make economical rewards [16][11] or offer customize services [15][18]to right customers.

Figure 1 presents the framework of this study. Members and nonmembers’ satisfaction, employee interaction and price sensitivity are posited to have independent effect on the dimensions of store patronage. In addition, employee interaction and price sensitivity are also assumed to moderate the effect of satisfaction and store patronage. These effects will be discussed in the following sections.

![Diagram of Satisfaction-Store Patronage with Moderating Effects](image)

Figure 1 The Model of Satisfaction-Store Patronage with Moderating Effects

2.1 Satisfaction-Loyalty Relationship

Satisfaction is an overall evaluation of performance based on all prior experiences with a firm [19]. This study focuses specifically on satisfaction with the core retail service provider [20][21] to distinguish satisfaction with the service from perceptions of the personnel who provide the service. Conceptually, higher levels of satisfaction should reduce the perceived benefits of trade for retail service providers, therefore, yielding higher store patronage [22]. And, loyalty card members who are very satisfied with a specific store would show higher level of store patronage behavior [11], [15] also found that particular store’s members were significantly more satisfied with the store than nonmembers [4]. Thus, the intuitive notion that store’s loyalty card members will satisfy with a particular store will have higher level of store patronage than nonmember who satisfaction. Thus the following hypothesis is offered.

H1: Customer satisfaction with an emphasis on who has loyalty card will result in relatively higher levels of purchase loyalty than the customer satisfaction with no loyalty card.

2.2 Moderating and Directing Effects of Shopping Characteristics

A number of studies on shopping behavior have related customer purchase behavior in the retail store. The study follows previous researches [23][24] regards employees’ interaction as an important characteristic in retailing context. The employees’ interaction means when customer shop at store, strong personal attachments were formed with store personnel, and personal relationship were formed was crucial to her patronage of a store, especially when consumers belong a member of store [10][15]. The study, therefore, intuitive notices that store’s loyalty card members will patronize a store higher than nonmembers when they perceived higher level of employees’ interaction.

H2: Employee interaction with an emphasis on who has loyalty card will result in relatively higher levels of store patronage than the customer no loyalty card.

Empirically, considerable research supports the linkage between satisfaction and store patronage [20][25]. The study further investigates the levels of employee services that consumers take account of can be considered as a personal variable resulting from an evaluation of the interaction between the retailer and the client [15][18]. The study expects that employees’ interaction will have a higher moderating effect on the link between members’ satisfaction and store patronage than nonmembers. From a customer’s perspective, the card is a tool that generates extra rewards [11] also an evidence that they willing to have emotional attachment with the retailer [12][13]. For example, when Tesco invited affiliation from millions of customers, it uncorked the pent-up goodwill and frustrations that they had previously kept to themselves- so much so that Tesco had to create a dedicated call centre team to cope [1]. Therefore, the relationship between members satisfaction and loyalty which moderate by employees’ interaction positively, will be stronger than nonmembers’ satisfaction and loyalty. The following hypotheses are proposed to test.

H3: Employee interaction moderates the effect of customer satisfaction on store patronage, with positive moderating effects being greater for loyalty card members than for nonmembers.

Economics orientation means customer expressed a sense of responsibility for her household purchasing duties: customer was sensitive to price, quality, and assortment of merchandise, all of which entered into the calculus of her behavior on the store [16]. Loyalty programs can create switching barriers, such as economical. Customers lose advantages (e.g. point) if they change to other retailer, and psychological and relational barriers that enhance customers stay in specific retailer [27], which strengthens the loyalty program effects beyond those of the economic aspects [28]. The study, therefore, expects that the relationship between price sensitivity and store patronage of loyalty card members will higher than nonmembers. Based on the above discussion, we put forth the following hypothesis:

H4: Price sensitivity with an emphasis on who has loyalty card will result in relatively higher levels of store patronage than the customer no loyalty card.

Consumers weigh both the benefits and costs of a particular decision were posited in economic models of buyer behavior [28][29]. One implication is that as price sensitivity increase, the perceived costs of spending should eventually outweigh the perceived benefits arising from dissatisfaction with the core retailer [15][30][18]. Thus, when price sensitivity is low, dissatisfied customers should be more likely to defect than are satisfied customers. Loyalty program attract consumer who covet economic benefic (discount) [31], therefore, when price sensitivity is high, members may patronize the store despite their dissatisfaction and the moderate effect between satisfaction and store patronage will have higher level affect than nonmembers. Consequently, we put forth Hypothesis 5:

H5: Price sensitivity moderates the effect of customer satisfaction on store patronage, with positive moderating effects being greater for loyalty card members than for nonmembers.
3. RESEARCH DESIGN AND EMPIRICAL RESULTS

3.1 Sample

Questionnaires that operationalized the satisfaction and the loyalty construct as well as the moderator variables were sent to 960 randomly selected customers of a Taiwan Hypermarket of Carrefour, RT-Mart and Géant. In all, we received 317 responses; response rates ranged from 32%, 35% and 37% in Carrefour, RT-Mart and Géant. These hypermarkets were surveyed to collect the data. To be good survey candidates, these hypermarkets have attained a specific scale and have stable operation quality. The hypermarket share of the three hypermarkets settings is as much as 79.4% [32] and the hypermarket in Taiwan has the second density in the Asia. Thus, using these three hypermarkets to examine the customer-service provider relationship was suitable to the object of this research.

The ratio of female and male is near to 50%. More than half of the respondents had a college degree and most were less than 46 years of age (82%). The median salary was between N.T. $10,000 and $50,000 near to 60%. To examine sample homogeneity over the three hypermarkets, we examined distributional variability in terms of member or not, customers’ age, education and income. In terms of variability in mean value, we found significant differences for loyalty card (F=8.88, p< .01), age (F=12.98, p< .01), education (F=7.02, p< .01), and income (F=3.88, p< .05). Thus, we combine the data from different hypermarket settings to examine continuance.

The study also conducted the MANOVA analysis to compare early and early-late respondents on the constructs in the hypotheses to check for any nonresponse bias. Comparing first and follow-up respondents enables a check of nonresponse bias because subjects who respond less readily, such as late respondents, are more likely nonrespondents [33]. This work uses multivariate F-ratio for the MANOVA test to compare the response groups of early and late, with insignificant differences in terms of loyalty card (F=0.03, p>.01), gender (F=2.23, p>.01), age (F=1.42, p>.01), income (F=2.41, p>.01) and education (F=0.54, p>.01); therefore, a combined statistical analysis was satisfactory.

3.2 Measures

The study based our reflective measures on extant literature that has undergone prior psychometric scrutiny and adapted them to fit the context of our investigation. In appendix, the study presented the fully battery of scales employed, item loadings, and principal literature sources.

In order to access measurement validity, confirmatory factor analyses were run with AMOS 18.0. Confirmatory factor analysis is considered to be superior to more traditional criteria such as coefficient alpha in the context of scale validation, because less restrictive assumptions apply [34]. The value of composite reliability and average variance extracted gained on the basis of confirmatory factor analysis. The composite reliabilities of these four constructs, which we calculated using [35] approach exceed 0.7. And the average variance-extracted estimates also exceed 0.5, the threshold value that Fornell and Lacker recommend. This suggests that all constructs have highly reliability. All item loadings in appendix were significant for each factor, demonstrated convergent validity [34]. The study also demonstrated discriminant validity following the procedure of [35], to ensure unidimension. In Table 4, the square root of each construct’s average variance extracted (AVE) is larger than its correlations with other constructs demonstrated the discriminant validity. Thus, the constructs in study were well defined [34].

3.3 Hypothesis Testing

In order to test the hypotheses, we ran a series of regression analysis to estimates identical models for store patronage. To check if the differences between the coefficients obtained for the different regressions reached significant levels, a Chow test was performed. The results in Table 1 obtained (F = 3.0, p < .05) indicate the existence of notable differences between members and nonmembers.

The regression analyses for the members reveal that satisfaction has a significant positive effect on store patronage (β=.62, t=2.01, p< .05) but is unrelated in nonmembers (β=.53, t=1.34, p< .182). Thus, the hypothesized positive effect of members’ satisfaction result in relatively higher levels of purchase loyalty than nonmembers’ satisfaction is supported (H1). Moreover, personal interaction with an emphasis on who has loyalty card has, as hypothesised, a relative positive influence on store patronage than nonmembers was not proved (β=.43, t=-1.42, p< .158; β=.40, t=-.94, p<.348). So, H2 not supported. Employee interaction × members satisfaction has a positively effect on store patronage (β=.14, t=1.69, p< .1) and Employee interaction × nonmembers satisfaction was not significant (β=.13, t=1.09, p=.276). H3, therefore, the greater moderate effect of personal interaction of members’ satisfaction on store patronage than nonmembers was supported, Price sensitivity of members and nonmembers both have a positive effect on store patronage (β=.98, t=3.69, p< .01; β=.48, t=1.94, p< .01). H4 supported. Price sensitivity × members satisfaction and Price sensitivity × nonmembers satisfaction both have a positively effect on store patronage (β=.21, t=2.87, p< .01; β=.12, t=-1.75, p< .1). H5 therefore, the moderate effect of price sensitivity of members higher than nonmembers’ satisfaction on store patronage was supported.

<table>
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<th>Table 1 Regression Models</th>
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<td>Dependent variables</td>
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<tr>
<td>Store patronage</td>
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<td>Independent variables</td>
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<td>Intercept .56</td>
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<td>H1 Satisfaction .62</td>
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<td>H2 Employee interaction -.43</td>
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<td>H3 Price sensitivity .98</td>
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<td>H4 Employee interaction × Satisfaction .14</td>
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<td>H5 Price sensitivity × Satisfaction -.21</td>
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<td>R² .46</td>
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<td>Adjusted R² .44</td>
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<td>Chow Test 3.0▲</td>
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<td>p&lt; .1; **p&lt; .05; ***p&lt; .01.</td>
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<td>▲The F-ration is determined by equation as follow:</td>
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\[ F(k, n - 2k) = \frac{(RSS_p - [RSS_1 + RSS_2])}{k} / \frac{(RSS_1 + RSS_2)}{n - 2k} \]

With: \( k \) the degree of freedom; \( n \) the number of observations, \( RSS \) the residual sum of squares from the polled sample regression; \( RSS_1 \) the residual sum of squares from a separate regression on the members subsample; and \( RSS_2 \) the residual sum of squares from the separate regression on the nonmembers subsample. A significant \( F \)-ration indicates that the slopes or intercepts differ beyond chance between the groups \( (F(0.05, 5.157) = 2.21) \).

4. DISCUSSION AND IMPLICATION

The marketing concept, which proposes that members and nonmembers satisfaction should be the focal point of business activities, is based on the explicit assumption that satisfied customers repatronize more and therefore retailer are more profitable. In questioning this fundamental assumption, we predict that customer’s shopping characteristics would moderate the relationship between satisfaction and repurchase behavior to intensive understand the effect between members and nonmembers.

By examining the conceptual framework, the study understood differentiation of store patronage behavior, and to know whether loyalty programs works.

Our results hold implication for both theory and management. In terms of theory, our results highlight the need to incorporate factors beyond satisfaction in models of store patronage and suggest the need to extend existing theories of retention to incorporate contingency relationships [25]. In considering such contingencies, our results may partially explain, for example, why customers may remain with service providers despite lower levels of satisfaction and why the satisfaction-retention relationship has evidenced variability in prior research [36]. And the contingencies effect of price sensitivity that maintains unsatisfaction’s members and nonmembers in store was proved in the study. The employee interaction with members also moderates the relationship between satisfaction and store patronage.

For management, here are some implications. According to 20/80 laws and resource allocation theory, retailers should allocate their 80% resources on 20% major customers, and how to apportion resources is an important questions to retailers. Firms can use loyalty programs to enhance customer value, profitable customer and etc, because these benefits, loyalty card members will have higher satisfaction and would like to repatronize more than nonmembers. Following 20/80 laws, therefore, retailers should make their efforts on the “golden customers” was proved as a right choice in the study.

Also, it is advisable for retailers to emphasize the low prices strategies of greater value. Customers were price sensitivity when they shop in hypermarket, the hypermarket also the main store format for more than 50 percent of shoppers in Taiwan. They shop typically two to three times a month. The study proved that members and nonmembers increase their store patronage behavior when they perceived a specific the product the hypermarket offer with the lowest price. Even they unsatisfied, they still patronize because they can get for their money through the consumption. Although many firms primarily focus on members, nonmembers may be profitable when they respond strongly to a retailer’s marketing activities. The percentage amount of larger than NT $ 2,001 that nonmembers (21%) spend was similar to members (26%). Retailers, therefore, can increase revenue from nonmembers through sales promotion.

Managers also would be benefit from a better understanding of moderating variables. First, employee interaction, the member’s preference for social interaction with store personnel moderated the effects of satisfaction and store patronage. Thus, as continuing computer-based revolution, technologies will involve in retailing. Because of the trend, retailer’s employee can identify members easier in store, such as personal shopping assistant in Metro, they can serve members at every point in the company further enhance members’ store patronage behavior when they please with the store. Second, the practical implications of price sensitivity may, however, not be so straightforward. One possible conclusion is that retailers should build up various marketing programs so as to retain existing members and attract nonmembers despite their lack of satisfaction with the retailer. Such a conclusion seems most fitting for retailers who generally satisfy their customers but want some sort of “insurance” against defection when their customers experience the occasional but probably unavoidable service failure [37]. But the retailer should act on the premise that provide products with lowest price, make members earn point for spent and receive unexpected discount and offer the specific products coupon to specific consumers. For example, Tesco wanted to win the price battle, but it also wanted to get more impact for the money, create a more efficient, strategic mechanism for price reduction. Tesco, therefore, understand which of their millions of commodities they most wanted to see discounted through data, they could fight the battle as fiercely as any rival, investing in price cuts where the money would work hardest. Through this kind of price battle, they not only can maintain nonsatisfied members and nonmembers, but also would be a sustainable customer proposition [1].

While interesting and managerial relevant results were found, the study has only examined the store patronage behavior. Future studies can corporate with retailer to identify the real purchase amount of consumer. And the scope of the study examined the framework of perception and behavior among members and nonmembers in Taiwan. Future investigations can examine in others country and others retail formats to generalize the findings.

5. REFERENCES


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## Authors’ background

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