Latitude of Quantity Acceptance: Conceptualization and Empirical Validation[1]

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Introduction

As a result of increasing costs, consumer packaged goods companies (i.e., fast moving consumer goods (FMCG) companies) are facing significant pressure on operating margins. For example, the increasing cost of raw material resulted in a steep decline of almost 50 percent in operating profit margins in the second quarter of 2010 for Britannia (Economic Times 2010). Firms have been using innovative strategies to adapt to increasing costs in materials. One such strategy has been to decrease the quantity (weight) of a product packet while keeping the price constant. For instance, Frito lay has reduced the weight per pack by ten to twenty percent; Cadbury has reduced the pack size of Bournville chocolate by seventeen to eighteen percent (DNA Syndication 2011) and ITC has substituted raw material edible oil with butter, reduced the quantity per pack and also hiked the price of high-margin biscuit packs (Economic Times 2010).

In the quantity reduction strategy, it's the consumer who takes the hit as he is offered a lower quantity of the same product at the same price. The major argument in favor of quantity reduction is that the consumer is less likely to notice it as compared to the price increase. However, such a strategy may be successful in the short term and may be more feasible for brands with high equity as compared to low equity brands, (as found in extant studies level of equity and market share are positive correlated) because the consumer is less likely to switch a brand with a higher loyalty than a brand with lower loyalty (e.g., Fournier 1998). In general, brands with higher equity generate significantly higher customer preferences and purchase intentions (Cobb-Walgren, Ruble, and Donthu 1995). However, there are several practical questions which a marketing manager would have to answer: – for example, what would be the impact of quantity decrease on high equity brands vs low equity brands? How much quantity reduction is possible for a brand under a specific product category? Can low equity brands increase their market share by offering higher product quantity at the same price? Further, in this paper, we attempt to answer these very questions by manipulating product quantity of eight selected brands with different levels of product involvement, brand equity and purchase frequency, asking two specific questions: First, is there a latitude of acceptance with respect to small quantity changes? Second, is there an asymmetric effect of quantity reduction (higher unit price) versus quantity increase (lower unit price)?

Hypotheses

Consistent with the extant literature, we argue that the consumer generally has a reference price for a SKU (stock keeping unit) and this reference tends to be sticky. As discussed earlier, firms consider reducing the product quantity keeping its price unchanged, as one of the options to minimize the adverse impact of higher input cost. Research has shown that consumers have a latitude of indifference around a reference point across many situations/stimuli (e.g. amount of lighting in a room, lifting weights, fluctuations in asset levels, price levels) (Luo 1998; Kardes 2013). Therefore, consumers would be indifferent to this change to an extent, as they are in the case of reference price and other assessments. Evidently, the quantity decrease scenarios are similar to price increases in the sense that they offer lower quantity of a product at the same price, leading to higher per unit price.

We postulate the following three hypotheses with regard to latitude of quantity acceptance and the quantity increase or decrease per unit price.

Hypothesis 1: There exists latitude of quantity acceptance (LQA).

Hypothesis 2: Quantity increase (lower per unit price) will increase consumer purchase intention. Similarly, quantity decrease (higher per unit price) will decrease consumer purchase intention.

Hypothesis 3: The effect of quantity reduction (higher per unit price) will be more for a large market share brand than the effect of quantity increase (lower per unit price) for a small market share brand when the market share differential is large.

Data Collection And Measurement

Selection of Product Categories

First, we selected four product categories - perfumes, fairness cream, antiseptic cream and aerated beverages, which belonged to high/low involvement and high/low purchase frequency. In order to establish that the selected product categories truly fall in the assumed category, pre-test I was done on 40 respondents using Mittal's (1989) purchase involvement scale. Purchase involvement scale showed adequate reliability and generated Cronbach Alpha from 0.619 to 0.832. The product categories of perfumes (5.53) and fairness creams (5.48) had high mean scores as compared to antiseptic cream (5.03) and beverages (4.12). T-tests were conducted to establish that the mean score of high involvement product categories are statistically different from the mean scores of low involvement product categories. T-test produced a t-value of 4.56 and p-value of less than 0.05 showing statistically significant difference between high involvement (i.e., perfumes and fairness cream) and low involvement (i.e., antiseptic cream and beverages) product categories. Overall, the results were as expected on the product involvement dimension while they were reverse to the expectations on the purchase frequency dimension for high involvement product category.

Identification of Brands in Product Categories

Second, we identified brands under each product category and conducted pre-test II on 40 respondents to determine the brand equity of each brand under each category. Brands were identified through a combination of methods which included judgmental sampling, websites of online retailers, informal discussions with prospective respondents and discussions with subject matter experts. In pre-test II, we employed the Yoo and Donthu (2001) scale for

measuring brand equity, and the scale showed sufficient reliability, measured in Cronbach Alpha. Based on pre-test II results, we finally selected eight brands: Calvin Klein, Ferragamo (high involvement–high frequency), Boroline, Himalaya (low involvement–low frequency), Loreal, Chambor (high involvement–low frequency), Coke, Mirinda (low involvement–high frequency).

Measurement of Purchase Intention and Latitude of Quantity Acceptance

Thirdly we measured purchase intention and found LQA for each brand. We therefore propose that the LQA is the level of quantity within which a brand is able to maintain fifty percent of its existing market share. Specifically, we find lower LQA for a high equity brand, i.e., the volume level till which at least fifty percent of the initial consumers remain with the brand when the quantity is reduced. Similarly, we find the upper LQA for a low equity brand, i.e., the volume level is stable till it attracts additional customers to the extent of at least fifty percent of the initial consumers. An initial market share is calculated for both the brands by keeping both the quantity and price constant, and this market share is indicative of the difference in brand equity of the selected brands.

Using LQA, we also attempt to establish the effects of brand equity on consumer purchase intention when the product quantity is changed keeping other factors, like price, constant. To achieve this, we designed a standard questionnaire in which we varied the quantity of different brands in steps, and at each step, the purchase intention was recorded and measured using simple one-item seven point Likert scale from 'strongly disagree' to 'strongly agree'. A total of 88 useable responses were obtained. The respondents were pursuing their post graduate degree in business management from a business school. Average age of respondents was 22 years, and 53 of them were male. Keeping other parameters constant, purchase intention for each brand was recorded at six quantity levels, i.e., original quantity level and five quantity decrease steps for high equity brand, and original quantity level and five quantity increase steps for low equity brand.

Empirical Analysis And Discussion Of Results

Empirical Support for Hypotheses

Our results support the hypotheses with which we had set off on this study, and as expected high equity brands command larger initial market share than low equity brands. Overall, the decline in market share of high equity brands is much sharper than the gain in market share of low equity brands. Under the high equity brand category, the market share declined by as much as fifty percent after quantity reduction in the first two steps except for Boroline, where it happened at the third step. Contrary to this, none of the low equity brands were able to achieve even fifty percent gains in market share due to the quantity increase. We find that there exists LQA in both high and low equity brands thus supporting our hypothesis 1. However, the range of the LQA is wider for low equity brands than for the high equity brands. Thus, high equity brands are more elastic to quantity reduction while consumers avoid buying low equity brands even if they are offered in higher quantity at the same price point (i.e., low unit price).

We find the positive and negative changes in the consumer purchase intention due to the quantity increase and decrease respectively, supporting hypothesis 2. Specifically, a lower per unit price has increased the market share of low equity brands up to forty seven percent (i.e., Himalaya) while a higher per

unit price has decreased the market share of high equity brands up to eighty one percent (i.e., Calvin Klein). Thus, the erosion in market share due to quantity reduction is more for a high equity brand than the gain for a low equity brand due to quantity increase, supporting hypothesis 3. The range of decline for high equity brands is from twenty six to eighty one percent, while for low equity brands, the gains range from twenty to forty seven percent, except in the case of Mirinda.

ANOVA and ANCOVA (analysis of covariance) results show that there exists significant main effect of product involvement, brand equity and purchase frequency with p-value <0.01. Also, there is an interaction effect between product involvement and brand equity, and three-way interaction between product involvement, purchase frequency and brand equity with p-value <0.10. The interaction effect between product involvement and frequency, and frequency and brand equity is statistically insignificant. The interaction effect between product category involvement and brand equity suggests that the consumer may react differently to brands with different equity depending on whether the brand belongs to high or low involvement product categories. We find that for the low equity brand, purchase intention is lower for the high involvement product category than for the low involvement product category.

Summary of Research and Managerial Findings

In general, the data supports the extant findings with regard to reference price (Kalyanaram and Little 1994; Krishnamurthi, Mazumdar, and Raj 1992; Mayhew and Winer 1992) but in the context of latitude of quantity acceptance. However, the exact effect depends on the brand equity, where quantity fluctuation seems to exert more influence on high equity brands than on low equity brands. The results relating to the effect of low and high unit prices on consumer purchase behaviour support literature on quantity discount (i.e., Gu and Yang 2010) and quantity surcharge (i.e., Manning, Sprott, and Miyazaki 1998; Whitefield, Lawson, and Martin 1995) though its captured through quantity change scenarios. We find that the effect of quantity reduction (higher per unit price) is higher for a high equity brand than the effect of quantity increase (lower per unit price) for a low equity brand. Such results are not unlikely because consumers may consider quantity discounts (i.e., quantity increase scenarios in this study) as gains received from buying larger package sizes with lower unit prices as suggested by Gu and Yang (2010) and quantity surcharges (i.e., quantity decrease scenarios in this study) as losses. Also, if consumer is able recognize the higher unit price (i.e., quantity surcharge) then it may lead to negative evaluation of brand and customers may feel exploited, consistent with Widrick (1979b) and Whitfield, Lawson, and Martin (1995), leading to lower purchase preference. Thus, lower (higher) per unit price is perceived as gains (losses). However, a consumer reacts more sharply to losses (i.e., quantity decrease in this study) than to gains (i.e., quantity increase in this study), such findings corroborate earlier literature (Hardie, Johnson, and Fader 1993; Kalwani et al. 1990; Mayhew and Winer 1992; Putler 1992).

References

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