

Analyzing double jeopardy pattern among fresh fruits and vegetables

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Abstract

Fresh fruits and vegetables are available in supermarkets as proprietary brands, private label brands, and non-branded produce. The numbers of branded fresh categories (versus commodity-style) are increasing, as producers seek new ways to differentiate from their competitors. From fast moving consumer goods (FMCG) it is known that brands (both proprietary and private label) can influence consumer loyalty. Therefore, this study aims to test whether proprietary brands in fresh categories enjoy higher levels of consumer loyalty and if private label or unbranded fresh produce suffer lower levels of consumer loyalty than expected. Nielsen scanner data from the United States from 2015 including almost 46,000 households were analyzed. The results show that, on average, 18% of fresh produce brands experience higher levels of loyalty and 30% of private label and 40% of non-branded fresh produce experience lower levels of loyalty, than is expected based on their size and known models.

Keywords: behavioral loyalty metrics, private label, proprietary brands

Track: Product and Brand Management

1. Introduction

Fresh fruits and vegetables (from now on ‘fresh categories’) are important dietary components as they deliver substantial health benefits, for example, reducing risks associated with heart disease (He, Nowson, Lucas, & MacGregor, 2007; Moore & Thompson, 2015; Pollard, Kirk, & Cade, 2002). Unfortunately, the average consumption of fruit and vegetable in the United States is below the recommended guideline (Guenther, Dodd, Reedy, & Krebs-Smith, 2006; Moore & Thompson, 2015) and is declining by 7% (Produce for Better Health Foundation, 2015). Understanding how consumers purchase fresh categories in developed countries such as the United States will allow marketers to put in place strategies that aim to increase consumption of such health-promoting foods, delivering great societal benefits.

Historically, the general role of marketing was to turn commodities into branded products. Brands which are distinctive from their competitors are easier to find and to signal consistent quality – thus encouraging repeat purchase. From a brand owner’s perspective, brands bring a better return on investments (Kotler, 1967). These principals are widely applied in the fast-moving consumer goods (FMCG) sector where brands impact consumers purchase behavior (Anesbury, Nguyen, & Bogomolova, 2018). However, to date, very few studies have focused on these principals in the fresh categories.

Past academic research in the fresh categories has focused on health impacts and economic benefits (Aune et al., 2017; Feagan, Morris, & Krug, 2004). To the authors’ best knowledge, there is no research analyzing variations of consumer’s brand loyalty when purchasing proprietary, private label and non-branded produce.

The study aims to explore consumer loyalty towards fresh fruit and vegetable brands through average purchase frequencies. The present study is the first academic research which tests behavioral loyalty metrics in the fresh categories. The results would give researchers insights into loyalty metrics in a category where products often behave as commodities. The results could be used to increase fruit and vegetable population intake and therefore improve society’s health and well-being.

2. Background and Research Questions

The primary purpose of brands is to create intangible assets with different valuable functions. Brands can simplify consumer choice, ensure a certain product quality level, and reduce perceived risk as well as building consumer trust (Keller & Lehmann, 2006).

Brands are distinguishable as proprietary brands (national brands) and private label brands (manufacturer/ retailer/ store brands). Proprietary brands are the traditional brands existing in grocery stores for decades. They are available throughout different stores. For example, Coca-Cola is available in the same appearance and taste in stores throughout the same country (Kumar & Steenkamp, 2007). Previous literature states that proprietary brands may enhance brand loyalty for fast-moving consumer goods (Ehrenberg, Uncles, & Goodhardt, 2004; Goodhardt, Ehrenberg, & Chatfield, 2006). Therefore, we expect that proprietary brands will have higher levels of loyalty than expected for their size in the fresh category.

In the early 1970s, when the first private labels appeared in the United States, they only accounted for 1% market share (Kumar & Steenkamp, 2007). Often, the packaging was plain, the price lower and they received less attention or advertising support compared to proprietary brands. The strategy matched the lower quality at the time (Kumar & Steenkamp, 2007; McEnally & Hawes, 1984). Within a decade, the market share of private labels grew to 10% (Hoch & Banerji, 1993). Simultaneously retailers realized that private labels with improved quality, increased promotion, and long-term strategies would enable them to gain a higher profit margin. Private label brands can have the same or better product quality than proprietary brands but at a lower price (Wulf, Odekerken-Schröder, Goedertier, and van Ossel, 2005). As a result, private labels now account for approximately 18% of category sales in the United States (The Nielsen Company, 2018). However, consumers who purchase private labels are price sensitive and therefore may switch to proprietary brands if they are on promotion (Nenycz-Thiel & Giang, 2015). We, therefore, expect that private label brands will have lower levels of loyalty than expected for their size in the fresh category.

In comparison, non-branded products lack all the advantages of a proprietary brand and private label brands. Most of the time the non-branded fresh categories are sold loose on the shelf and do not have an identifying label/sticker. Therefore, they can be seen as commodities by

consumers. As a result, we expect that non-branded fruits and vegetables (either proprietary or private label) will have lower levels of loyalty than expected for their size in the fresh category.

This study focuses on three fresh category brand types: (1) proprietary, (2) private label and (3) non-branded. An example of banana brands are Chiquita and Dole, and a kiwifruit brand is Zespri. According to theory, brands can deviate from expected patterns which results in niche or change-of-pace behavior. There is an expectation that consumers who purchase proprietary brands will be more loyal than expected (i.e., niche) while consumers who purchase private label or non-branded fresh fruits and vegetables will be less loyal than expected (i.e., change-of-pace).

2.1 Double jeopardy - a loyalty model

Earlier research has defined two perspectives (behavioral and attitudinal) when discussing brand loyalty (Blattberg & Sen, 1974; Day, 1969; Ehrenberg & Goodhardt, 2002). Dick and Basu (1994) suggested that repeat purchase and a favorable attitude are required to define loyalty, and they understood loyalty as an attitude-behavior relationship. This study focuses on behavioral loyalty. One of the most widely used models of measuring behavioral loyalty in FMCG is double jeopardy (dj) (Greenacre, Tanusondjaja, Dunn, & Page, 2015; McPhee, 1963; Uncles & Kwok, 2009). Dj states that small brands suffer twice, they have fewer buyers and those buyers purchase the brand less frequently (Ehrenberg & Goodhardt, 2002; Sharp et al., 2012).

We can accurately model the expected level of consumer loyalty towards fresh category brands using the Dirichlet model (Kearns, 2010). While it is essential to know the predominant pattern, it is also important to understand the deviations (Ehrenberg et al., 2004). Deviations occur when the observed brand performance differs from the theoretical Dirichlet model estimation. Two prominent types of deviations exist. Those are niche and change-of-pace. Niching or change-of-pace occur if the observed penetration and purchase frequency deviate more than 10% from the theoretical values (Anesbury et al., 2018; Kahn, Kalwani, & Morrison, 1988; Scriven, Bound, & Graham, 2017). Based on the prior literature, we will use the Double Jeopardy/Dirichlet model to compare behavioral loyalty towards the above-listed three groups of products in the fresh categories.

Therefore, our research questions are:

RQ 1: Do proprietary branded fresh fruits and vegetables demonstrate ‘niche’ behavioral loyalty compared to what is expected by the double jeopardy model?

RQ 2: Do private label, or non-branded fresh fruits and vegetables demonstrate ‘change-of-pace’ behavioral loyalty compared to what is expected by the double jeopardy model?

3. Method

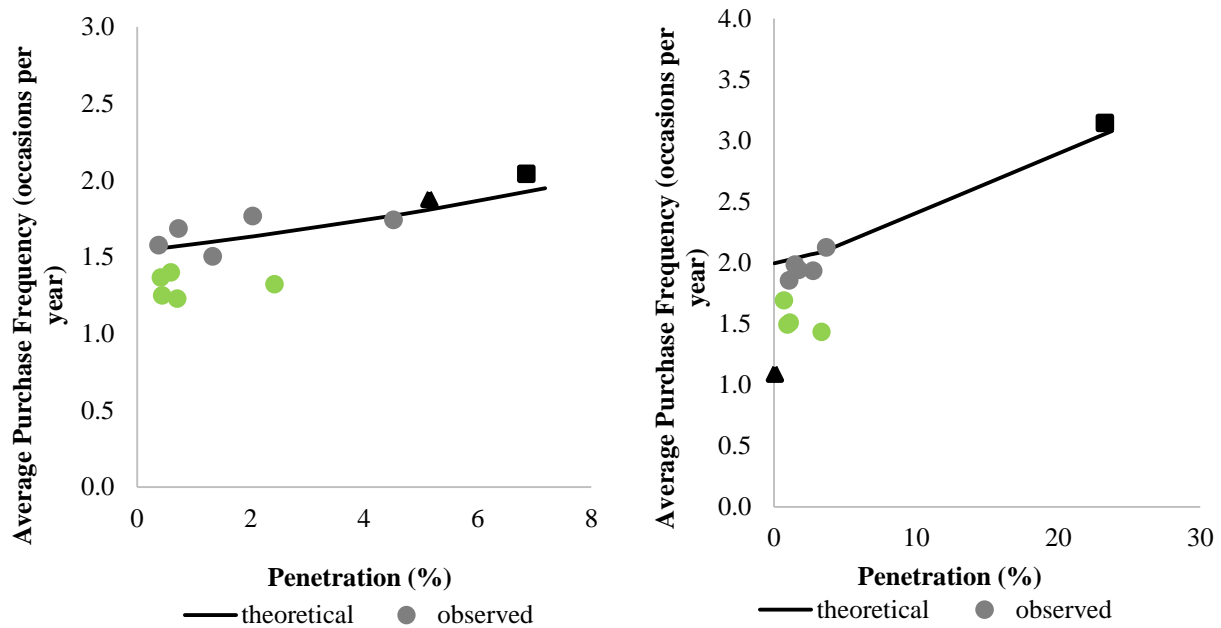
The study examines Nielsen panel data from the United States in 2015. The panel contains 45,958 households making 8,123,409 purchases. Ten fresh categories including apples, oranges, carrots, lettuce, mushrooms, spinach, tomatoes, onions, potatoes and strawberries from the top three grocery retailers were in the data. Each category analyzed individual proprietary brands with a market share and penetration above 1%, and an aggregated proprietary brand containing ‘all other’ smaller brands. By default, the panel provider aggregates the non-branded and private label brands. Earlier studies have aggregated smaller brands into a “superbrand” which does not affect any model specifications (Goodhardt, Ehrenberg, & Chatfield, 1984; Habel & Lockshin, 2013). Calculations of the category and brand penetrations and average purchase frequency were undertaken for all three retailers individually.

The Dirichlet model was applied to produce theoretical double jeopardy values concerning brand penetration and purchase frequency (Kearns, 2010). Furthermore, brands that deviated by more than 10% are niche or change-of-pace (Anesbury et al., 2018). To be considered niche, penetration has to be 10% less than expected and the average purchase frequency has to be 10% higher than expected. The opposite is necessary to classify a brand as change-of-pace.

4. Results and Discussion

Figure 1 demonstrates the approach with the penetrations (x-axis) and the average purchase frequencies (y-axis) of apples for two different retailers. The grey and green dots represent proprietary branded apples, the triangle represents the private label apples, and the square represents non-branded apples. The line visualizes the theoretical Dirichlet model predictions. The larger the distance between the dots and the line the greater the deviations from expected. The green dots represent change-of-pace brands and no apple brands behaved as niche.

Figure 1: Double jeopardy and Dirichlet benchmarks of apples for two different retailers



In order to answer RQ1 we analyzed the deviations for all ten categories and all retailers between the theoretical and the observed data in terms of penetration and average purchase frequencies. If a brand had fewer consumers who showed higher loyalty to the brand, the brand was classified as niche.

To address RQ2 a larger customer base that purchased branded fresh produce, a lower frequency demonstrates a change-of-pace brand.

Table 2 shows that from ten fresh categories, on average 44% of proprietary branded produces behaved as expected while 18% are niche and 37% behave as change-of-pace. Previous FMCG analysis found similar results for brands being change-of-pace and slightly lower for niche (Scriven et al., 2017). Overall, the vast majority show the loyalty levels as expected based on their size.

We note that proprietary brands of the spinach category are the only ones which do not behave as niche. One possible explanation is that there is high competition in the spinach market. More competition leads to more choice and therefore less loyal consumers.

Table 2: All ten fresh categories for all three retailers

Produce categories	<i>n</i>	Behaving as expected (%)	Niche (higher loyalty, smaller customer base, %)	Change-of-pace (lower loyalty, larger customer base, %)
Lettuce	14	58	16	26
Mushrooms	12	56	19	25
Apples	14	55	5	41
Carrots	11	55	9	36
Spinach	18	42	0	58
Potatoes	9	41	18	41
Tomatoes	23	41	32	27
Oranges	15	38	14	48
Strawberries	20	28	25	47
Onions	10	27	45	27
Branded		44	18	37
Private Label	30	67	3	30
Non-Branded	30	60	0	40

Of the 30 fruit and vegetable private label brands (as ten categories x three retailers), 3.3% were niche and 30% were change-of-pace. Similarly, for non-branded, the results show that 0% were niche and 40% were change-of-pace. Previous literature stated that overall 25% to 33% of brands behave as niche (Scriven et al., 2017). In our case, branded products are more than five times more likely to be niche than private label brands. The likelihood to be change-of-pace varies only slightly among them (branded 37%, private label 30%, non-branded 40%).

5. Conclusions

This study helps marketers understand how consumers purchase fresh categories across non-branded, private label and proprietary brands. The knowledge is useful in that it will help increase the consumption of fresh categories. Both retailers and consumers will benefit as consumers will eat more healthy food, and retailers will gain economic benefits.

One limitation of the study is that the data is only from the United States. Therefore, it is essential to conduct the same analysis in different countries to see whether the results hold. Another is that we did not analyze state by state to cover the cultural difference, e.g., mango eating behavior in a mango growing States compared to non-mango growing States. Analyzing

regional differences could be a solution. Future research could investigate whether consumers are loyal towards the fresh category brands or if they are loyal towards the price tiers, i.e., the lowest price within the fresh category during that shopping occasion. Meaning they have set a cut-off price in their mind and only purchase the product which does not exceed that price.

Disclaimer

1. Researcher(s) own analyses calculated (or derived) based in part on data from The Nielsen Company (US), LLC and marketing databases provided through the Nielsen Datasets at the Kilts Center for Marketing Data Center at The University of Chicago Booth School of Business.
2. The conclusions drawn from the Nielsen data are those of the researcher(s) and do not reflect the views of Nielsen. Nielsen is not responsible for, had no role in, and was not involved in analyzing and preparing the results reported herein.

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