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Supermarket Pricing Model Impact on Private Label Brands Versus National Brands among Millennial Consumers

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ABSTRACT

National Brands (NBs) and private label brands (PLBs) play a vital role in manufacturing and retailing strategies. Market share growth of PLBs over the past few decades continues to level the playing field; altering go-to-market strategies for both NB and PLB manufacturers and retailers. A quantitative examination compared purchase data between NB versus PLB using panel data from 100,000 households. Consumer metrics; trip conversion, buyer conversion, and dollar loyalty served as dependent variables interacting with a multivariate grouping of branding (NB vs. PLB), grocery pricing model (Hi-Lo vs. EDLP vs. Hybrid) and age-cohort (Millennial vs. Generation X). A MANOVA provided findings to support significance levels $<.001$ in buyer conversion and dollar loyalty scores, when comparing NB vs. PLB across grocery pricing model. Results support previous studies aligning purchase propensity for NB at Hi-Lo retailers while PLB has higher mean scores for buyer conversion and dollar loyalty at EDLP retailers.

INTRODUCTION

In the United States, private label brands (PLBs) command an 18% market share and are present in 90% of consumer product categories (AC Nielsen, 2014; Cuneo, Milberg, Benavente, & Palacios-Fenech, 2015). Retailers and manufacturers each utilize PLBs strategies with levels of control specific to national brand (NB) offerings in efforts to maximize product assortment, margins, and operational efficiency. Previous studies suggested that PLBs have exceeded their initial retail functions in the market by closing the gap in quality, packaging, and pricing to NBs, thus minimizing the level of differentiation (Altintas, Kilic, Senol, & Feride-Bahar, 2010). Prior PLB research supports improved store loyalty, margin enhancement, and buying leverage for retailers, while also supporting improved operational efficiencies specific to the utilization of excess capacity for manufacturers (Hoch & Banerji, 1993; Kumar, Radhakrishnan, & Rao, 2010). These collective benefits, in conjunction with consumer price saving, suggest continued expansion of PLB category penetration.

In many cases, NB manufacturers produce the PLB items within the same categories and employ separation strategies of slightly lesser quality, pack size, even flavor offerings. Additionally, NB manufacturers have increased promotional investment on NB items in efforts to retain continued

brand equity and typically higher margin and revenue benefits. Bouhlal and Capps (2012) referred to this strategy as a “trade down” (p.27) approach, as average produced units maintain, while the aggregate revenue weakens by lower PLB price per unit impact or a result of reduced promotional impact to NB revenues. The alternative “trade out” poses even greater risk to NB manufacturers, as competing PLB manufacturers are willing to supply the demand void, thus shifting operational throughput efficiencies from NB to PLB manufacturer (Hoch, 1996; Tarzijan, 2007). Therefore, both retailer and manufacturer require continued learning in consumer purchase trends of PLBs when compared between Hi-Lo, EDLP, and Hybrid grocery pricing models.

Supermarket Pricing Format

Progressive Grocer (1995) cited supermarket pricing format selection as one of the top five management priorities. Three major formats exist within the United States; Hi-Lo, Everyday Low Price (EDLP) and Hybrid. Consumers that see themselves as smart shoppers or bargain hunters tend to acclimate towards the Hi-Lo model as weekly promotions across multiple items, and categories provide stock up savings for high purchase frequency goods. Additional examination supports Hi-Lo supermarket pricing format as being more conducive to higher income shoppers (Ellickson & Misra, 2008; Hoch & Banerji, 1993; Pechtl, 2004). Conversely, EDLP tends to attract lower income patrons seeking a broader assortment of PLB product offering and less dependency on NB gimmick promotions like buy-one-get-one or limited time only offers (Ellickson & Misra, 2008; Pechtl, 2004). Thirdly, some retailers seek to combine the best of both pricing model strategies by offering a hybrid version of Hi-Lo and EDLP.

This study examined PLB and NB conversion and loyalty preferences within each specific supermarket pricing format. Additional examination included a three-year purchase comparison between Generation X and Millennials to identify if significant shifting between NB and PLB is occurring, and if so, which supermarket pricing format is most conducive. Olbrich, Jansen, and Hundt (2016) suggested that NB market share performance is heavily dependent on the share of promotion and product quality, leading the researchers to question the relationship between Hi-Lo NB (promotions) and subsequent EDLP and Hybrid purchase frequency of PLB.

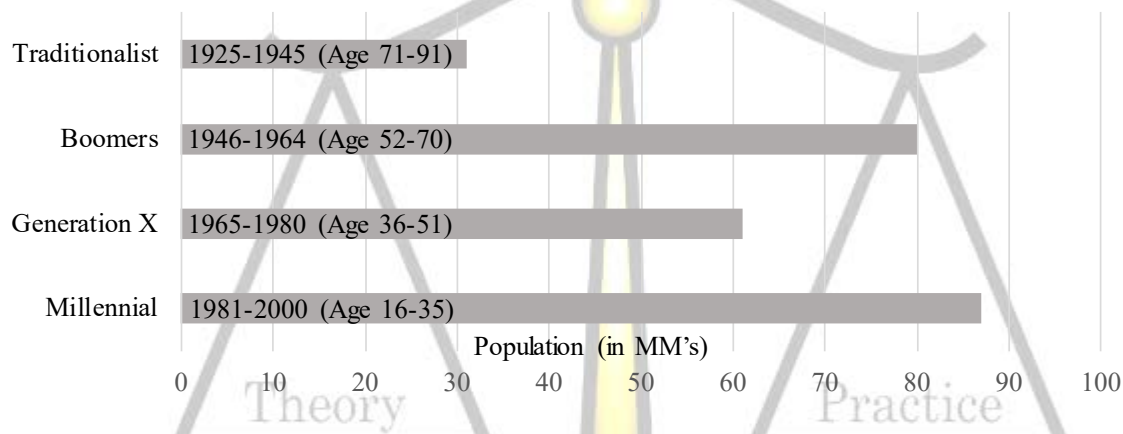
Quality Variance

The relationship between NBs and PLBs can vary across multiple product categories. Prior research acknowledged commodity categories with low functional risk and products with low brand equity, are more likely to see higher brand switching (Keller, Dekimpe, & Geyskens, 2016). Conversely, categories with greater brand functionality, quality or perceived higher status attributes, especially in cultures with high power distance behaviors, bode less favorable for PLB when comparing conversion to NB (Molinillo, Ekinci, Whyatt, Occhiocupo, & Stone, 2016). Therefore, the pasta category was selected to examine homogenous and highly interchangeable products, with low functional risk and low-quality variance (LQV) product separation. Studies using LQV categories like cheese, rice, and bread proposed a higher level of brand switching from NBs to PLBs than categories with higher-quality variance (HQV) perception like beer, candy bars, and diapers (Berges, Hassan, & Monier-Dilhan, 2013; Kumar & Steenkamp, 2007).

THEORETICAL INTERSECTION

Generational cohort, socialization, and consumer behavior theories, provide the intersection of theoretical examination for this study. Shared life events that result in the development of marketing segments based on age, that influence purchase decisions later in life, defines generational cohort theory (Strauss & Howe, 1991). Millennials, the largest generational cohort since the baby boomers, arouse concern among both retailers and manufacturers when considering purchase behaviors. This study explores the impact if any that supermarket pricing model plays in the buyer conversion and product loyalty propensity for NB and PLB among Millennials compared to Generation X.

Figure 1
Generational Cohort Timeline and Population Size



Socialization theory explores the influence of life experiences on early childhood development, and the subsequent impact on adult purchase behaviors later in life (Ryder, 1965). With the expansion of big box retailers commanding ever larger market share, utilizing EDLP price formats, typical supermarket grocery stores that employ Hi-Lo promotions have largely depended on traditional media circular ads and in-store signage to communicate which items are on deal every week. The impact of suburban sprawl in the 1980s and 1990s lead to the expansion of big box EDLP retail grocery models, thus impacting those born between 1980 and 2000, and potentially influencing a higher comfort level with EDLP over Hi-Lo. Volpe and Lavoie (2008) presented evidence that EDLP retailers had a negative impact on conventional grocery prices of -7.79% (p.27), and average price saving when viewed head-to-head of -14% (p.4), thus creating greater social acceptance of savings when shopping EDLP retailers.

Evidence of individual achievement, through possessions, denotes consumer behavior theory of materialism or status consumption (Belk, 1985). The selection of NB and PLB purchases and subsequent consumption have been suggested to play a role in consumer social status perception based on the perceived lesser quality attributes associated with PLB (Garretson, Fisher, & Burton, 2002). However, various categories and products maintain significantly different social status positioning. Referred to in this study as LQV, the selection of the pasta category is

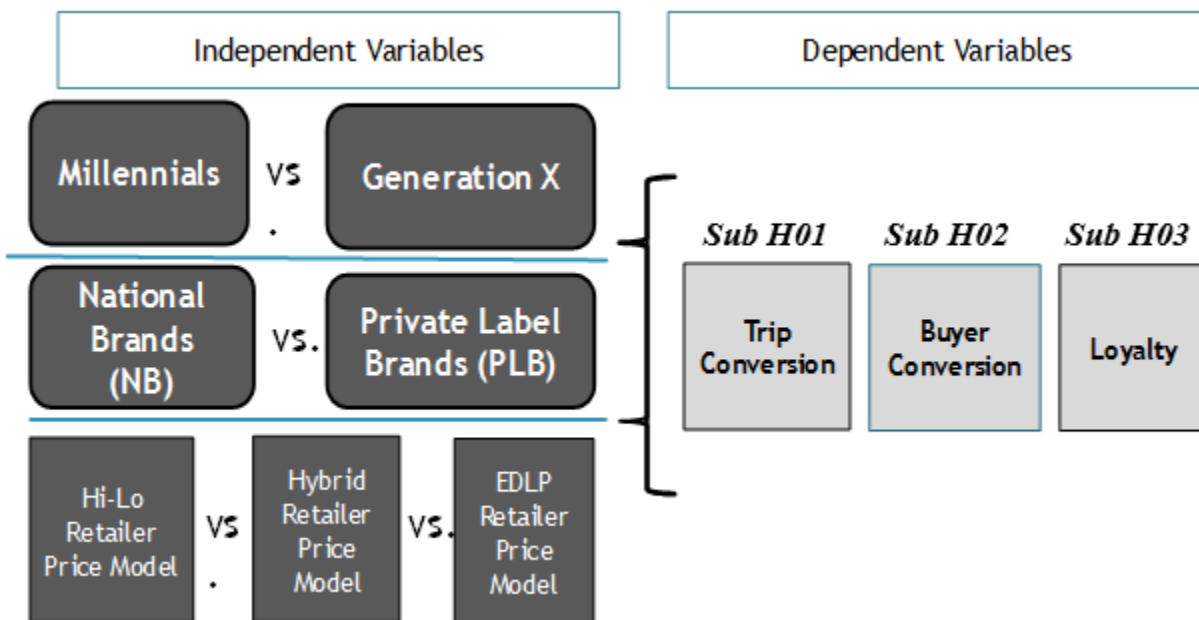
intended to mitigate as much of the socially visible characteristic that might influence conspicuous consumption.

WHO, WHAT, WHERE

The intent of this study was to investigate the potential transitioning of consumer preference for NB or PLB when factoring LQV products, as measured by buyer conversion, trip conversion, and loyalty. By analyzing ACNielsen purchase data retrieved over three years from retailers employing Hi-Lo, EDLP, and Hybrid pricing format models, we expected to determine if younger Millennial consumers were purchasing PLB, at different rates, from a specific pricing model format. Applying the examined purchase propensity, retailers and manufacturers can develop targeted marketing strategies for patrons of specific retailer pricing models as well as the implication of generational cohort assignment. The following research question served as the overarching query.

RQ: Over the past three years, are there significant differences in trips, buyer conversion, and loyalty dollars FOR PASTA between branding (National Brand versus Private Brand), age cohorts (Millennial versus Generation X), and grocery store pricing model (Hi-Lo 1, Hi-Lo 2, EDLP, and Hybrid)?

Figure 2
Research Construct



Data constraints required segmenting the Hi-Lo retailers across two separate data sources (Hi-Lo 1 and Hi-Lo 2), to ensure a broader representation of significant inputs across the entire U.S. landscape. Sub-hypotheses are used to filter specific analysis across each dependent variable. The supporting hypotheses and corresponding sub-hypotheses to the research question are:

H01: Over the past three years, there are not significant differences in trips, buyer conversion, and loyalty dollars for pasta purchases between branding (national versus private), age cohorts (Millennials versus Generation X), and grocery pricing model (Hi-Lo 1, Hi-Lo 2, EDLP, and Hybrid).

Sub-H01: Over the past three years, there are not significant differences in trip conversion for pasta purchases between branding (national versus private), age cohorts (Millennials versus Generation X), and grocery pricing model (Hi-Lo 1, Hi-Lo 2, EDLP, and Hybrid).

Sub-H02: Over the past three years, there are not significant differences in buyer conversion for pasta purchases between branding (national versus private), age cohorts (Millennials versus Generation X), and grocery pricing model (Hi-Lo 1, Hi-Lo 2, EDLP, and Hybrid).

Sub-H03: Over the past three years, there are not significant differences in loyalty dollars for pasta purchases between branding (national versus private), age cohorts (Millennials versus Generation X), and grocery pricing model (Hi-Lo 1, Hi-Lo 2, EDLP, and Hybrid).

THE DATA

Data sourced from four major retailers, incorporated from a specific pricing model format (Hi-Lo, EDLP or Hybrid). The aggregate of these four retailers comprises over 11,273 supermarkets, operating collectively in every state in the U.S. with total sales exceeding \$502 billion annually or approximately 40% of all grocery store sales (Kantar, 2015). The Hi-Lo model included two different retailers (Hi-Lo number 1 and 2) in efforts to capture shoppers in both the eastern and western United States. The EDLP and Hybrid model were assigned to two specific retailers of significant size and geographical presence in the U.S. to command the number 1 and number 2 market leader positions or 89% of the total annual sales of this selected grouping.

Multiple consumer purchase studies have employed ACNielsen Homescan panel data across categories like cheese, soap, detergents, coffee and cereal (Abril & Martos-Partal, 2013; Arnade, Gopinath, & Pick, 2008; Bouhlal & Capps, 2012). Berges et al. (2013) applied the Taylor Nelson Sofres (TNS) world panel database to capture purchase behavior from 10,000 French households. Cuneo et al. (2015) applied Euromonitor panel data across 46 countries and four non-related product categories that lead to future study recommendations to consider a category-specific review. Szymanowski and Gijbrecchts (2012) used Gesellschaft Fur Konsumforschung (GfK) household panel data, using liquid soap and breakfast cereal, in over 630 households in a Dutch retail chain only. Lastly, Bouhlal and Capps (2012) applied ACNielsen Homescan panel data of 38,040 U.S. households to determine that NB promotions have a significant negative effect to PLBs, whereas PLB promotions have little impact on NBs. The census data used for this study consisted of 100,000 participating households and focused solely on aggregate measures of category product grouping data specific to total NB pasta and total PLB pasta, thus de-identifying specific company brands.

THE DESIGN

Non-random assignment of data into the corresponding groups required a quasi-experimental research design. ACNielsen provided the data hierarchy and metric groupings design. Organized by branding, age cohort, grocery pricing model, the data were extracted to Excel. The data comparisons were specific to Millennial consumers (18 to 35 years old) and Generation X (36 to 55 years old) at the time of this study. The actual point of purchase data between NB and PLB averaged a 25% price gap when factoring all promoted and non-promoted NB volume over a three-year period. Price and other psychographic attributes excluded.

Multivariate analyses of variance (MANOVAs) with three independent variables were used to examine a total of eight groups, corresponding to branding (national versus private), age cohorts (Millennial versus Generation X), and grocery pricing model (Hi-Lo 1, Hi-Lo 2, EDLP, and Hybrid). The researcher discovered a medium effect size of $f^2 = .0625$ (Cohen, 1988). An accepted power of .80 and alpha level of .05 was applied. The alpha level ensured that the researcher was 95% certain that significant findings were not pure chance alone (Tabachnick & Fidell, 2013). Applying the defined parameters, G*Power 3.1.9 was used to calculate an appropriate sample size for the research. Based on the calculations, a sample of at least 120 entries in the archival dataset would be sufficient (Faul, Erdfelder, Buchner, & Lang, 2014). This data consisted of 293 entries.

Pre-Analysis Data Screen

Outliers were examined with the intention of removal from the data set by calculation of standardized values, or *z*-scores. *Z*-scores falling outside of the range ± 3.29 standard deviations away from the mean were considered outlying responses (Tabachnick & Fidell, 2013).

Normality

Before analysis, the assumptions of a MANOVA were assessed; normality, homogeneity of variance, and homogeneity of covariance. For the research question, normality was assessed by three Kolmogorov-Smirnov (KS) tests, corresponding to each dependent variable. A non-significant result ($p > .05$) suggested that there is not a difference between the research data and a true bell-shaped distribution, and the assumption of normality will have been met. Homogeneity of variance was assessed by three Levene's tests. A non-significant result ($p > .05$) suggested that there is not a significant difference in the variance of the data between the groups, and the assumption of equal variances was met. Box's M test was used to test the null hypothesis that the observed covariance matrices of the dependent variables were approximately equal between the groups (Howell, 2013). A non-significant result ($p > .001$) suggested approximate equal covariance, and the assumption was met.

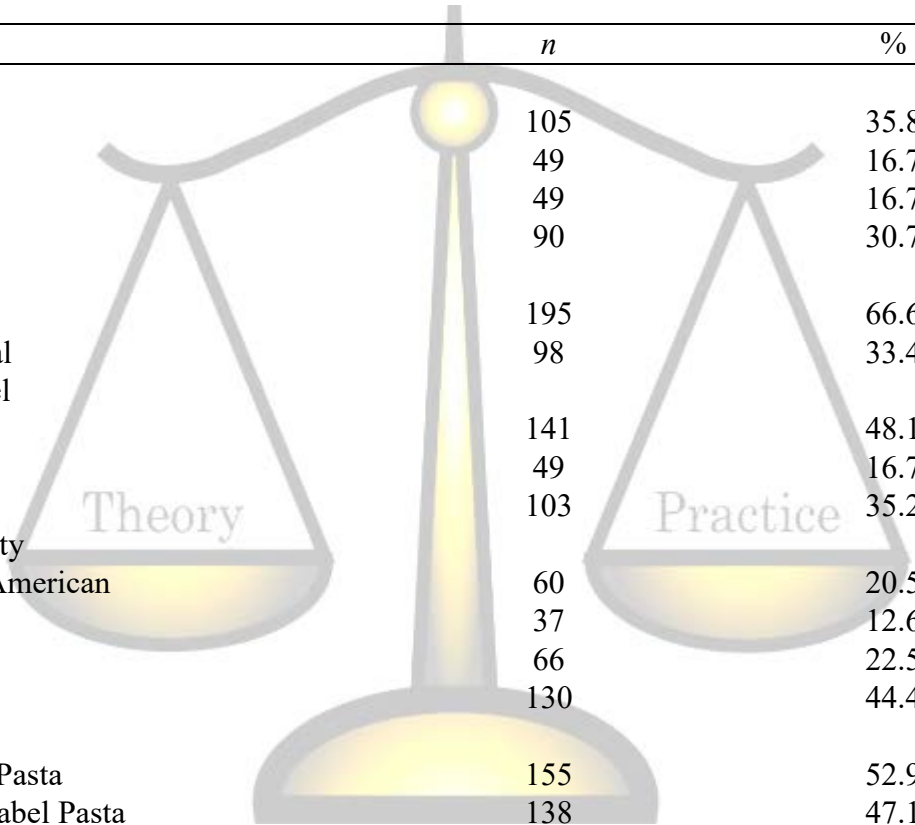
The MANOVA uses the *F* test to make the overall comparison on whether significant differences exist collectively between the groups (George & Mallery, 2016). If the *F* test for the overall MANOVA was significant, individual *F* tests were conducted for the ANOVAs to determine if each dependent variable significantly varies between the groups. Significance corresponded to any associated *p*-values less than .05. Because the grocery pricing model has more than two groups, post-hoc analyses were conducted to determine exactly where the differences lie (Pallant,

2013). The null sub-hypothesis for each research question was rejected if the overall F test for the MANOVA is significant, and the individual F test for the ANOVA is significant.

THE RESULTS

A total of 293 data points was examined for the pasta data set. Pasta data points are collectively representative of 59,735 raw buyer's combinations and 883,408 shopping occasion and 465,308 purchase occasions, over a three-year period.

Table 1
Frequencies and Percentages for Pasta Data (n = 293)



Variable	<i>n</i>	%
Market		
EDLP	105	35.8
Hi-Lo 1	49	16.7
Hi-Lo 2	49	16.7
Hybrid	90	30.7
Age Cohort		
Gen X	195	66.6
Millennial	98	33.4
Income Level		
High	141	48.1
Medium	49	16.7
Low	103	35.2
Race/Ethnicity		
African American	60	20.5
Asian	37	12.6
Hispanic	66	22.5
White	130	44.4
Segment		
Branded Pasta	155	52.9
Private Label Pasta	138	47.1
Year		
2013	93	31.7
2014	98	33.4
2015	102	34.8

Note: Due to rounding error, all percentages may not sum to 100%.

Table 2
Means and Standard Deviations for Pasta Data

Variable	Min	Max	<i>M</i>	<i>SD</i>
Pasta Data				

Trip Conversion	0.22	0.92	0.53	0.13
Buyer Conversion	0.32	0.98	0.69	0.13
Dollar Loyalty	12.50	71.70	31.67	8.95

Table 3
Overall MANOVA for Pasta Purchases

Source	<i>F</i>	Hypothesis df	Error df	<i>p</i>	Partial η^2
Branding	113.93	3	275	<.001	.554
Age Cohort	3.12	3	275	.027	.033
Grocery Pricing Model	7.27	9	831	<.001	.073
Branding*Age Cohort	7.01	3	275	<.001	.071
Branding*Grocery Pricing Model	14.36	9	831	<.001	.135
Age Cohort*Grocery Pricing Model	0.59	9	831	.807	.006
Branding*Age Cohort *Grocery Pricing Model	1.96	9	831	.041	.021

Descriptive Statistics for Continuous Variables

Pasta data. Trip conversion ranged from 0.22 to 0.92, with $M = 0.53$ and $SD = 0.13$. Buyer conversion ranged from 0.32 to 0.98, with $M = 0.69$ and $SD = 0.13$. Dollar loyalty ranged from 12.50 to 71.70, with $M = 31.67$ and $SD = 8.95$. Table 3 presents the descriptive statistics of the continuous variables for rice and pasta purchases.

Results for Pasta MANOVA

The results of the MANOVA were significant for each main effect, indicating that there is an overall difference between trips, buyer conversion, and dollar loyalty by branding ($F(3, 275) = 113.93, p < .001$, partial $\eta^2 = .554$), age cohort ($F(3, 275) = 3.12, p = .027$, partial $\eta^2 = .033$), and grocery pricing models ($F(9, 831) = 7.27, p < .001$, partial $\eta^2 = .073$). In addition, the two-way interactions were significant: branding*age cohort ($F(3, 275) = 7.01, p < .001$, partial $\eta^2 = .071$) and branding*grocery pricing model ($F(9, 831) = 14.36, p < .001$, partial $\eta^2 = .135$). Finally, the three-way interaction term was significant: branding*age cohort*grocery pricing model ($F(9, 831) = 1.96, p = .041$, partial $\eta^2 = .021$).

Table 4
Between-Subjects Effects for Main Effects and Interactions (Pasta Data)

Source	Dependent Variable	df	F	Sig.	Partial η^2
Branding	Trip Conversion	1	157.22	<.001	.362
	Buyer Conversion	1	280.45	<.001	.503
	Dollar Loyalty	1	101.37	<.001	.268
Age Cohort	Trip Conversion	1	0.89	.347	.003
	Buyer Conversion	1	7.56	.006	.027
	Dollar Loyalty	1	0.62	.432	.002
Grocery Pricing Model	Trip Conversion	3	0.81	.491	.009
	Buyer Conversion	3	7.47	<.001	.075
	Dollar Loyalty	3	11.25	<.001	.109
Branding*Age Cohort	Trip Conversion	1	13.80	<.001	.047
	Buyer Conversion	1	20.04	<.001	.067
	Dollar Loyalty	1	1.86	.174	.007
Branding*Grocery Pricing Model	Trip Conversion	3	50.43	<.001	.353
	Buyer Conversion	3	36.56	<.001	.284
	Dollar Loyalty	3	19.89	<.001	.177
Branding*Age Cohort*Grocery Pricing Model	Trip Conversion	3	3.25	.022	.034
	Buyer Conversion	3	4.28	.006	.044
	Dollar Loyalty	3	1.08	.358	.012
Error	Trip Conversion	277			
	Buyer Conversion	277			
	Dollar Loyalty	277			

Table 5
Means and Standard Deviations for Pasta Purchases by Branding

Continuous Variables	Min.	Max.	M	SD
National				
Trip conversion	0.26	0.92	0.60	0.11
Buyer conversion	0.50	0.98	0.78	0.09
Dollar loyalty	12.50	71.70	35.77	9.17
Private				
Trip conversion	0.22	0.77	0.46	0.11
Buyer conversion	0.32	0.82	0.60	0.10
Dollar loyalty	14.40	48.10	27.07	5.98

Table 6
Means and Standard Deviations for Pasta Purchases by Age Cohort

Continuous Variables	<i>Min.</i>	<i>Max.</i>	<i>M</i>	<i>SD</i>
Generation X				
Trip conversion	0.22	0.92	0.53	0.14
Buyer conversion	0.32	0.98	0.68	0.14
Dollar loyalty	12.50	71.70	31.99	9.56
Millennial				
Trip conversion	0.37	0.80	0.54	0.10
Buyer conversion	0.49	0.95	0.72	0.10
Dollar loyalty	14.20	56.50	31.04	7.58

Table 7
Means and Standard Deviations for Pasta Purchases by Grocery Pricing Model

Continuous Variables	<i>Min.</i>	<i>Max.</i>	<i>M</i>	<i>SD</i>
EDLP				
Trip conversion	0.26	0.77	0.53	0.09
Buyer conversion	0.46	0.87	0.68	0.08
Dollar loyalty	12.50	41.40	29.11	5.93
Hi-Lo 1				
Trip conversion	0.25	0.84	0.54	0.18
Buyer conversion	0.32	0.90	0.67	0.19
Dollar loyalty	19.50	71.70	37.66	11.38
Hi-Lo 2				
Trip conversion	0.35	0.70	0.52	0.10
Buyer conversion	0.42	0.90	0.69	0.11
Dollar loyalty	15.10	51.70	29.65	7.71
Hybrid				
Trip conversion	0.22	0.92	0.55	0.15
Buyer conversion	0.39	0.98	0.73	0.15
Dollar loyalty	18.60	65.30	32.51	9.44

Table 8
Means and Standard Deviations for Pasta Purchases by Branding and Age Cohort

Continuous Variables	Branding	Age Cohort	<i>M</i>	<i>SD</i>
Trip conversion	National	Gen X	0.61	0.12
		Millennial	0.57	0.10
	Private	Gen X	0.44	0.11
		Millennial	0.50	0.08
Buyer conversion	National	Gen X	0.78	0.10
		Millennial	0.77	0.09
	Private	Gen X	0.58	0.11

Dollar loyalty	National	Millennial	0.65	0.08
		Gen X	36.59	9.81
	Private	Millennial	34.20	7.65
		Gen X	26.95	6.18

Table 9

Means and Standard Deviations for Pasta Purchases by Branding and Grocery Pricing Model

Continuous Variables	Branding	Grocery Pricing Model	M	SD	
Trip conversion	National	EDLP	0.50	0.09	
		Hi-Lo 1	0.68	0.08	
		Hi-Lo 2	0.60	0.06	
		Hybrid	0.65	0.11	
	Private	EDLP	0.55	0.09	
		Hi-Lo 1	0.36	0.07	
		Hi-Lo 2	0.44	0.06	
		Hybrid	0.42	0.09	
	Buyer conversion	National	EDLP	0.70	0.08
			Hi-Lo 1	0.82	0.07
			Hi-Lo 2	0.78	0.06
			Hybrid	0.84	0.07
Private		EDLP	0.66	0.08	
		Hi-Lo 1	0.48	0.09	
		Hi-Lo 2	0.60	0.09	
		Hybrid	0.59	0.10	
Dollar loyalty		National	EDLP	29.09	6.29
			Hi-Lo 1	44.70	8.99
			Hi-Lo 2	34.14	5.88
			Hybrid	38.84	7.69
	Private	EDLP	29.14	5.60	
		Hi-Lo 1	29.01	7.35	
		Hi-Lo 2	24.97	6.56	
		Hybrid	24.59	3.65	

Branding. Results of the individual ANOVA indicated significant differences between branding for trip conversion ($F(1, 277) = 157.22, p < .001, \text{partial } \eta^2 = .362$), buyer conversion ($F(1, 277) = 280.45, p < .001, \text{partial } \eta^2 = .503$), and dollar loyalty ($F(1, 277) = 101.37, p < .001, \text{partial } \eta^2 = .268$) by branding.

Age cohort. Results of the individual ANOVA indicated significant differences between age cohorts for buyer conversion ($F(1, 277) = 7.56, p = .006, \text{partial } \eta^2 = .027$). Results of the individual ANOVAs were not significant between age cohorts for trip conversion and dollar loyalty.

Grocery pricing model. Results of the individual ANOVA indicated significant differences between grocery pricing models for buyer conversion ($F(3, 277) = 7.47, p < .001, \text{partial } \eta^2 = .075$) and dollar loyalty ($F(3, 277) = 11.25, p < .001, \text{partial } \eta^2 = .109$). Results of the individual ANOVAs were not significant between grocery pricing models for trip conversion.

Branding*Age Cohort. Results of the individual ANOVA indicated significant differences by the interaction of branding*age cohort for trip conversion ($F(1, 277) = 13.80, p < .001, \text{partial } \eta^2 = .047$) and buyer conversion ($F(1, 277) = 20.04, p < .001, \text{partial } \eta^2 = .067$). Results of the individual ANOVAs were not significant by the interaction of branding*age cohort for dollar loyalty.

Branding*Grocery Pricing Model. Results of the individual ANOVA indicated significant differences by the interaction of branding*grocery pricing model for trip conversion ($F(3, 277) = 50.43, p < .001, \text{partial } \eta^2 = .353$), buyer conversion ($F(3, 277) = 36.56, p < .001, \text{partial } \eta^2 = .284$), and dollar loyalty ($F(3, 277) = 19.89, p < .001, \text{partial } \eta^2 = .177$).

Branding*Age Cohort*Grocery Pricing Model. Results of the individual ANOVA indicated significant differences by the interaction of branding*age cohort*grocery pricing model for trip conversion ($F(3, 277) = 3.25, p = .022, \text{partial } \eta^2 = .034$) and buyer conversion ($F(3, 277) = 4.28, p = .006, \text{partial } \eta^2 = .044$). Results of the individual ANOVA were not significant by the interaction of branding*age cohort*grocery pricing model for dollar loyalty.

Hypotheses for RQ. The findings suggested that there were significant differences in trip conversion between branding, but not for age cohort or grocery pricing model. Therefore, the null hypothesis (Sub-H₀₁) was partially rejected. The findings suggested that there were significant differences in buyer conversion between branding, age cohort, and grocery pricing model. Therefore, the null hypothesis (Sub-H₀₂) was fully rejected. The findings suggested that there were significant differences in dollar loyalty between branding and grocery pricing model. Therefore, the null hypothesis (Sub-H₀₃) was partially rejected. Table 4 presents the between-subject effects for the main effects and interaction terms for the pasta data set. Tables 5 - 9 present the means and standard deviations of the pasta purchases for each grouping variable.

THE ANALYSIS

Our results suggested alignment with Aliwadi and Keller (2004) position that interchangeable homogenous products perform similarly when comparing NB to PLBs. Results also suggested strong NB conversion is largely due to promotional activity, primarily in Hi-Lo markets, with an ultimate discovery of Millennial buyer conversion favoring PLB over NB.

Table 10
Hypothesis Analysis Results (Pasta Data)

Hypothesis	Finding
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<i>Sub-H₀₄:</i>	Partially Reject
<i>Branding</i>	Significant
<i>Age Cohort</i>	Not Significant
<i>Grocery Pricing Model</i>	Not Significant
<i>Sub-H₀₅:</i>	Reject
<i>Branding</i>	Significant
<i>Age Cohort</i>	Significant
<i>Grocery Pricing Model</i>	Significant
<i>Sub-H₀₆:</i>	Partially Reject
<i>Branding</i>	Significant
<i>Age Cohort</i>	Not Significant
<i>Grocery Pricing Model</i>	Significant

Sub H₀₁ was partially rejected as significant differences in pasta purchases were present in trip conversion when compared between NB and PLB, although not seen in age cohort or grocery pricing model. This finding suggested that NB use of promotion, display, ad circulars, and grocer incentives across all retailers, allowed for greater levels of trip conversion among consumers in general, but not specific or substantially different across ages or grocery pricing models.

Sub H₀₂ was fully rejected as significant differences in pasta purchases were present in buyer conversion across all independent variables; branding, age, and model. Similarly, to trip conversions, specific retailers use of NB promotional activity and a general acceptance of NB among all consumers generates higher levels of buyer conversion towards NB. Pasta buyer conversion is higher among Millennials when compared to Generation X. Additionally, EDLP grocery pricing model delivered the lowest NB buyer conversion score when compared Hi-Lo and hybrid models, and conversely the highest buyer conversion score for PLB.

Sub H₀₃ was partially rejected as significant differences in pasta purchases were present in loyalty dollars when compared between NB and PLB and across grocery pricing models, but not ages. This finding suggested that consumers spend a larger percentage of their category dollars on NB. EDLP has the lowest loyalty score across all grocery pricing models. This finding suggested that Hi-Lo and hybrid models capture a larger percentage of consumers spending within the pasta category because of higher promotional frequency in non-EDLP retailers.

Table 10 provided visibility to the pasta purchase mean scores measured between-subject effects and pairwise comparison of branding and age cohort. This was a significant finding of the purpose of this research, in that significance is proven that buyer conversion and trip conversion among Millennials is higher than Generation X specific to PLB pasta purchases. Additionally, figure 3 and figure 4 highlights the mean scores for Generation X higher propensity for NB and Millennial propensity for PLB when examining trip and buyer conversion.

Figure 3
Mean scores for Pasta Purchases by Branding and Age Cohort across Trip Conversion

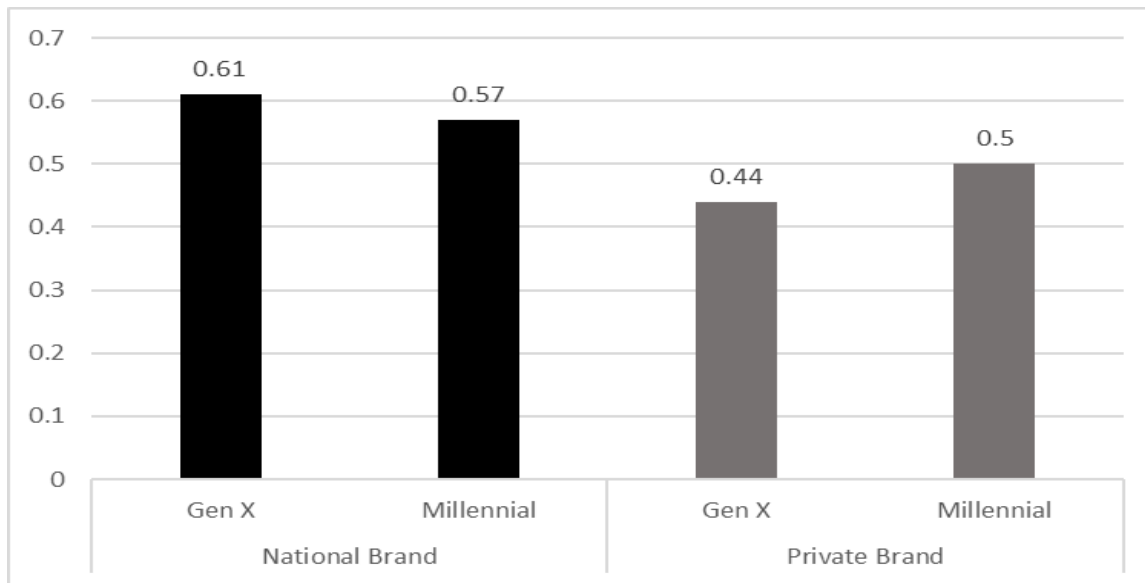
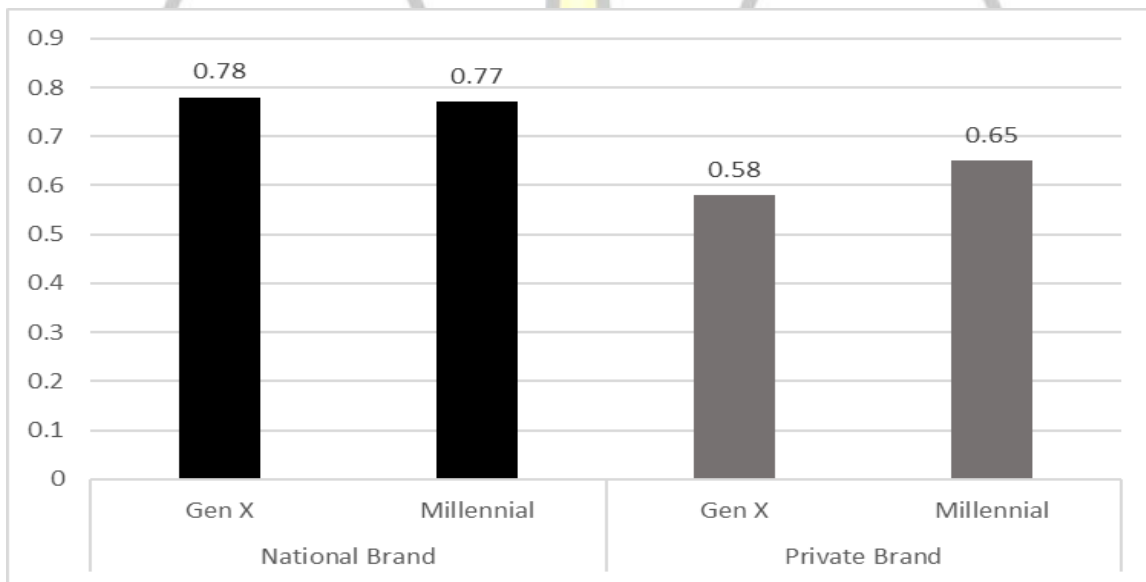


Figure 4
Mean scores for Pasta Purchases by Branding and Age Cohort across Buyer Conversion



CATEGORY AND SEGMENT LIMITS

The use of buyer conversion and trip conversion serve the investigative research function well but are not without limitations. Each respective metric included specified categories of research.

Although this study focused on LQV products, even the slightest variance can be perceived differently across multiple categories or products (Bao et al., 2011). Therefore, consumer reactions in non-pasta categories might exhibit different buyer or trip conversion scores.

Three years of data supporting this research omit income as a socio-demographic attribute and could limit deeper segmentation analysis (Abraham & Harrington, 2015). However, cross reference of specific years of the study compared to the U.S. Census Bureau (2015) model for household income dispersion, revealed minor changes among earners regarding percentage of change in total. It is posited that both sample groups examined, follow the same income dispersion and therefore capture a robust sampling of the projected population.

FUTURE RESEARCH RECOMMENDATION

As LQV categories are accompanied by low price positioning. Consumption comparisons of PLB and NB across Hi-Lo, EDLP, and Hybrid supermarkets should also be examined in trending categories like organic, free-range meat, all-natural or genetically modified organism free goods (Non-GMO). Hoch (1996) suggested NB manufacturers that are willing to produce PLB are better positioned to control fast follow innovation clock speed specific to PLB market entry timing. Extended category examination is important for innovation investment recovery and on-going margin delivery impact to the overall category. Using the same research design and construct, a similar study specific to new trending goods consumption tendencies across Hi-Lo, EDLP and Hybrid models would help manufacturers develop specific trade funding strategies for different grocery pricing models.

PLB and NB association with stronger performance in EDLP and Hi-Lo, respectively, warrant continued research across multiple store categories to identify variance between categories (Ellickson & Misra, 2008; Pechtl, 2004). These findings could provide insights useful to retailer's allocation of merchandising and display investment, while also helping manufacturers identify optimal product launch channel selections. The store model, Hi-Lo, EDLP or Hybrid, is unlikely to change. However, adaptation within specific categories might provide operational granularity needed to force growth from otherwise stagnant category performance.

MANAGERIAL IMPLICATION

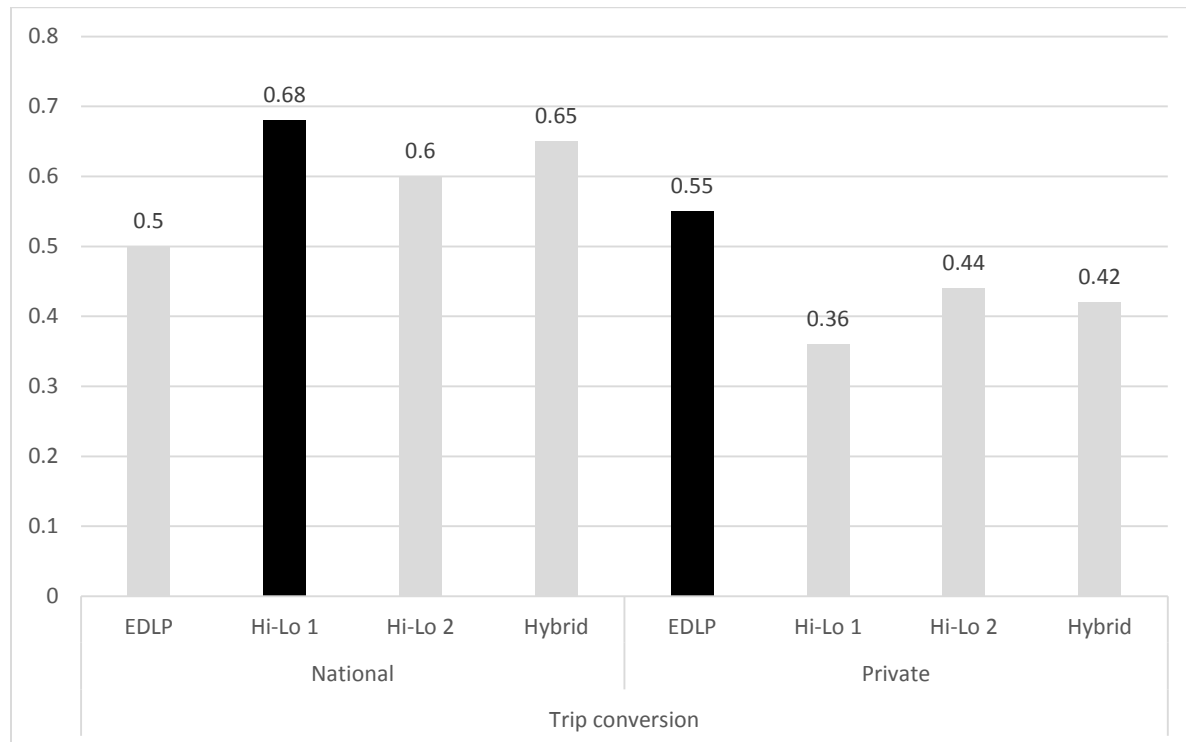
A key finding in this study illustrates a higher propensity for higher purchases of NB per trip from Hi-Lo formats and conversely a higher propensity for PLB (trip conversion) within the EDLP format. The promotionally driven nature of Hi-Lo models provides stronger consumer engagement efforts to reach potential brand loyalist. Additionally, retailers use NB trade funding and marketing dollars supplied by the manufacturers to drive store traffic through shopper incentives communicated through weekly circular ads. Data supports this apparent alignment between Hi-Lo retailers and NB manufacturers, as illustrated in figure 5.

Subsequently, the data also suggested that trip conversion among PLB shoppers is stronger in the EDLP format. More trips to EDLP format result in actual purchases of PLB products as opposed to Hi-Lo formats. The implication for EDLP retailers is to ensure sufficient PLB assortment and

maintain competitive price positioning versus Hi-Lo retailers PLB strategies. As PLB command only an 18% market share in the U.S., EDLP retailers should also carefully monitor NB average price per unit in the remaining market to ensure competitive positioning. Finding ways to communicate savings and value through the EDLP model is vital in securing the larger NB consumer and thus improve store traffic. Additionally, rarely is pasta consumed as a single dish. Therefore, the overall marketing strategy must include complimentary meal solutions.

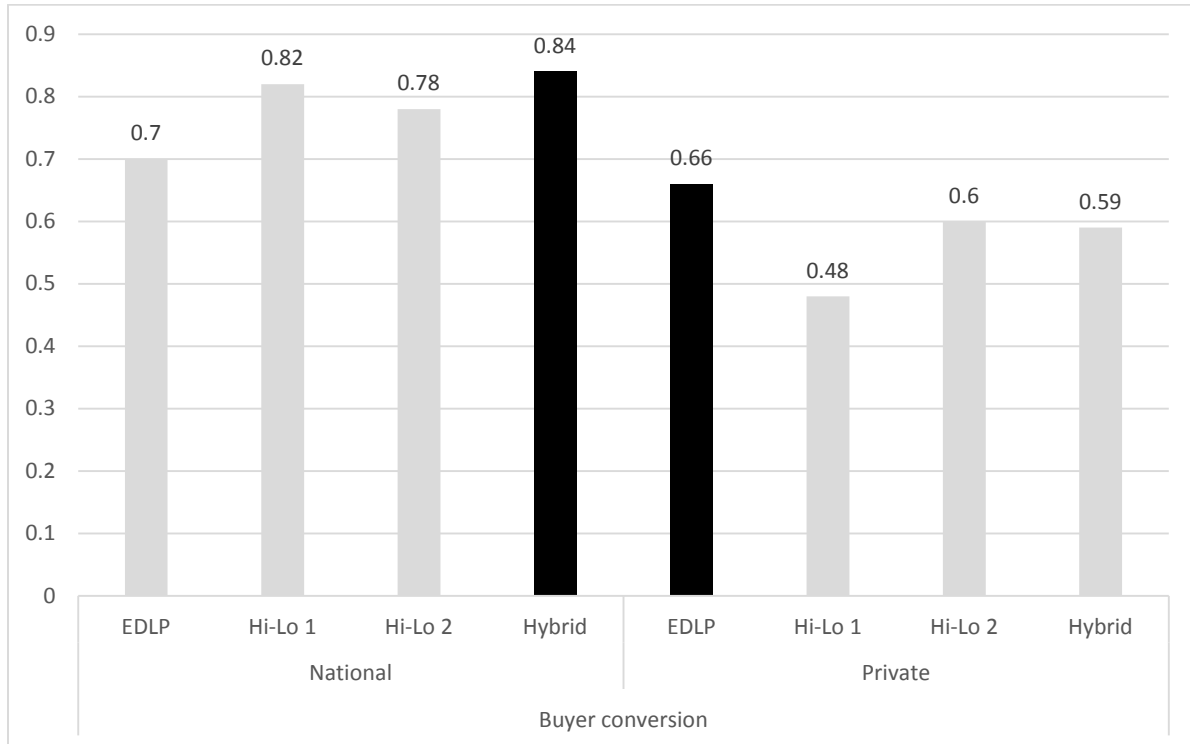
Figure 5

Mean scores for Pasta Purchases by Branding and Grocery Pricing Model Trip Conversion



The number of shoppers that made a NB purchase is higher in Hybrid and Hi-Lo compared to EDLP format shoppers. Like trip conversion, EDLP buyer conversion scores were significantly higher when considering PLB purchases per shopper. Overwhelmingly, NB performance in Hi-Lo and PLB performance in EDLP suggests alternate strategies when applied to trip and buyer conversion. Hi-Lo retailers could consider shifting to a Hybrid model by maintaining aggressive promotional activity frequency on NBs while maintaining an EDLP strategy on PLBs. This Hybrid approach would align with the findings and minimize inner category competition. Additionally, EDLP retailers could consider creating more in-store activity to highlight NB item awareness in attempts to trade up PLB consumers to higher priced and higher margin products, thus improving the conversion rate of NB items while still maintaining a wide assortment of PLBs.

Figure 6
Mean scores for Pasta Purchases by Branding and Grocery Pricing Model Buyer Conversion



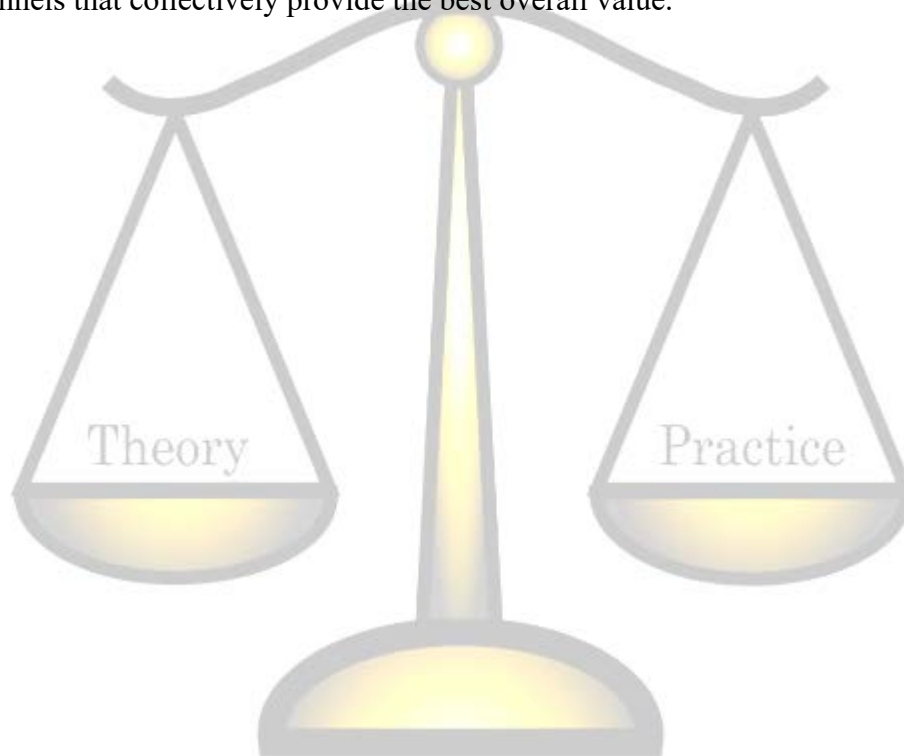
CONCLUSION

Our study supports previous studies and illustrates that NBs maintain higher trip conversion in Hi-Lo formats, whereas, trip conversion scores for NB in EDLP formats are the lowest, by comparison. Findings suggest a greater number of NB purchases per trip to the stores utilizing a Hi-Lo model, and subsequently, fewer average purchases per trip for NB when compared to EDLP models. A positive relationship exists between displays and features, as well as pantry loading consumption of the products offered at lower prices, within the Hi-Lo format. Retailers might consider basket building complimentary product promotions in conjunction to drive top line sales. Basket building promotions that are targeting specific products provide retailers with more aggressive margin contribution across multiple purchases. Manufacturers must take care to ensure that promotional frequency and cadence do not become so pronounced that the consumer can forward buy sufficient quantities to span offers, thereby diluting the average cost per unit by selling a higher proportion of volume at lower promoted prices as opposed to regular price.

Conversely, PLBs buyer conversion is significantly greater in EDLP format retailers. Suggesting that a greater number of EDLP shoppers average more purchases when compared to Hi-Lo shoppers, within the Pasta Category. This finding is important for EDLP retailers to consider the price gap between PLB and NB could be conducive to pushing more purchases to PLBs, and

potentially trading margin contribution benefits for top line revenue dilution. Additionally, EDLP price strategies for NB in comparison to Hi-Lo offerings potentially risks store traffic reductions with non-PLB consumers.

Grocery pricing models; Hi-Lo, EDLP, and Hybrid serves specific needs of select consumers, retailers, and manufacturers. This study set out to investigate the relationship of NB and PLB consumption across multiple grocery pricing models about LQV product categories, incorporating purchase preference for Millennial shoppers. Findings support Ellickson & Misra, (2008) position that EDLP is more conducive to PLB shoppers while consumers prefer Hi-Lo models when purchasing NB and that the growing Millennial shopper cohort illustrates strong purchase propensity for PLB over NB, in a LQV category. Retailers and Manufacturers must continue to evolve strategies as consumers, with the help of mobile technology, become more sophisticated shoppers, thus taking advantage of deal timing and product offerings across multiple channels that collectively provide the best overall value.



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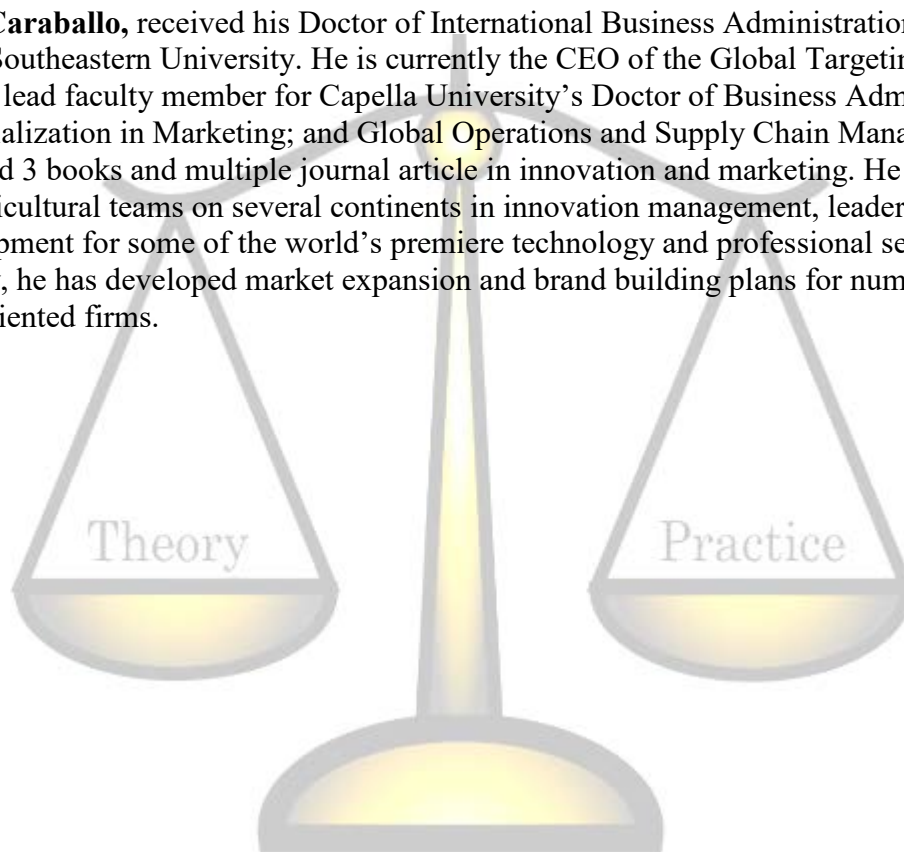
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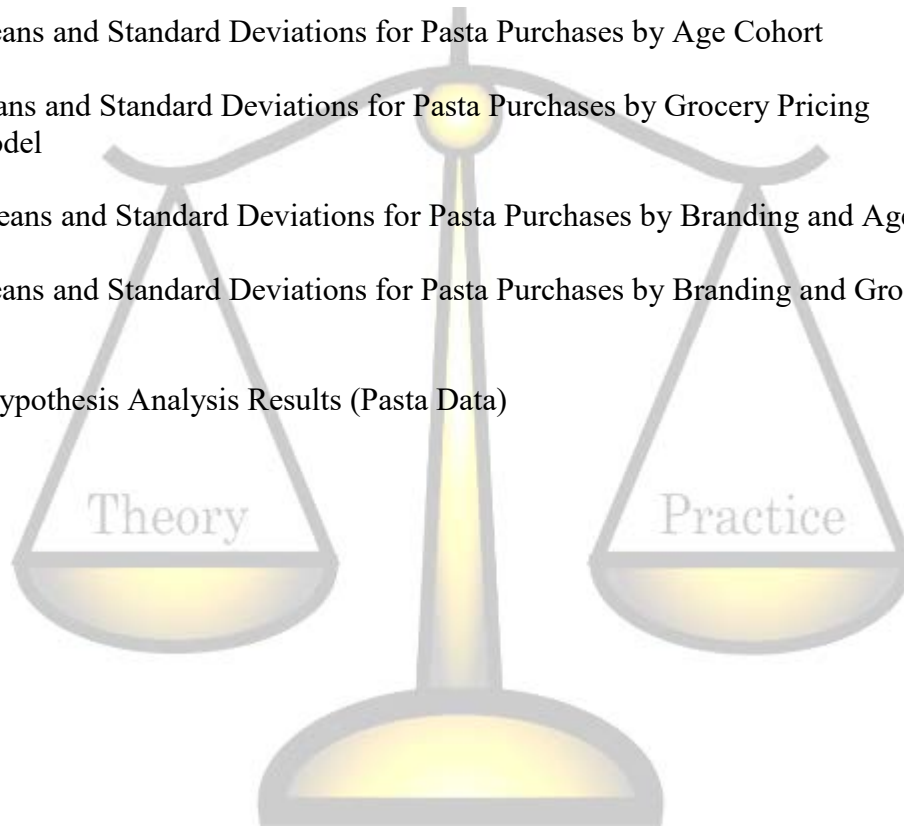
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