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Three-tiered private-label (PL) portfolio strategies (low-quality tier: economy PLs, mid-quality tier: standard PLs, and top-quality tier: premium PLs) are gaining interest around the world. Drawing on the context-effects literature, the authors postulate how the introduction of economy and premium PLs may affect the choice of mainstream-quality and premium-quality national brands (NBs) and the choice of the retailer's existing PL offering. The authors use the natural experiment offered by Asda's and Sainsbury's introduction of economy and premium PL tiers in the corn flakes and canned soup categories in the United Kingdom to test their framework. Using brand choice models that accommodate context (compromise, similarity, and attraction) effects, the authors find that both economy and premium PLs cannibalize incumbent PLs. Economy PL introductions benefit mainstream-quality NBs because these NBs become a compromise or middle option in terms of quality in the retailer's assortment. The effects of premium PL introductions on premium-quality NBs are mixed: Their share improves in two of four cases but decreases in the other two cases.

Keywords: private labels, context effects, retailing, store brands, product assortment

Proliferating Private-Label Portfolios: How Introducing Economy and Premium Private Labels Influences Brand Choice

As of the late 1990s, every major grocery retailer had developed a credible private-label (PL) offering. Western Europe is the most developed PL region, with PL goods accounting for up to 43% of total consumer packaged goods (CPG) consumption in the United Kingdom, 39% in Germany, and 34% in France. In the United States, consumers allocate more than 20% of their total CPG spending to PLs (Planet Retail 2008). Today, nearly every U.S. and European household has purchased some PL products, and PLs are present in almost every category in the store. Still, most retailers want to increase their PL shares even further (Kumar and Steenkamp 2007). Because fewer unexploited areas of the store are left in which PLs can be launched, Information Resources Inc. (2007, p. 30) recently suggested that retailers should expand into three-tiered quality offerings as a means to reach a much wider consumer base: "Retailers seeking to expand [PL] share should consider broaden[ing PL] penetration across … consumer segments through multi-tiered offerings." The Food Marketing Institute (2005) has also urged its members to consider adopting three-tiered PL programs.

These three-tiered PL programs follow a "good, better, best" approach: They include an economy and a premium PL line in addition to the standard PL that has been around for a long time (Ailawadi and Keller 2004). Whereas economy PLs (also referred to as value or budget PLs) are no-frills bottom-of-the-market PLs that economize on more expensive ingredients to reduce costs, standard PLs (also referred to as regular PLs) imitate mainstream-quality

manufacturer brands and are positioned as mid-quality alternatives (Kumar and Steenkamp 2007). Premium PLs are at the top end of the market and deliver quality equal to that of premium-quality national brands (NBs) while typically still selling for a slightly lower price. As Kumar and Steenkamp (2007, p. 41) point out, "the emergence of the 'premium' [PL] is one of the hottest trends in retailing."

Having been developed in the United Kingdom, these multitiered PL offerings are increasingly being rolled out across other European markets and are beginning to cross the Atlantic (Information Resources Inc. 2007; Kumar and Steenkamp 2007). For example, California retail giant Safeway, in anticipation of Tesco's entry in the U.S. market, decided to expand its premium PL offering next to its existing economy and standard PL lines (Planet Retail 2007), and Food Lion introduced a three-tiered PL approach in summer 2007 (Information Resources Inc. 2007). Because more retailers are considering the move from a single standard PL line to three-tiered PL portfolios, it is important for them to understand whether the introduction of economy and premium PLs will cannibalize their existing PL offering. Likewise, managers of NBs must understand the impact of PL entry to combat the PL challenge effectively.

This study contributes to the literature as follows: First, drawing on the literature on context effects, we postulate how the introduction of economy and premium PLs affects not only the choice of mainstream- and premium-quality NBs but also the choice of the retailer's existing PLs. Whereas previous studies (Chintagunta, Bonfrer, and Song 2002; Pauwels and Srinivasan 2004) have yielded important initial insights into the impact of standard PL entry on the incumbent market players, to the best of our knowledge, the effects of economy and premium PL introductions on brand choice have not yet been examined. Second, we test our framework using the natural experiment offered by Asda's and Sainsbury's introduction of economy and premium PL tiers in the corn flakes and canned soup categories in the United Kingdom, which is leading the way in the development of sophisticated PL programs (Planet Retail 2007).

CONCEPTUAL FRAMEWORK

We draw on the literature on context effects to postulate how the entry of economy and premium PLs may affect the incumbents in the market. Context effects imply that consumer preferences between choice options are influenced by which other products are in the choice set (Prelec, Wernerfelt, and Zettelmeyer 1997). This may result in violations of basic choice axioms, such as the "independence of irrelevant alternatives" assumption, which states that the relative preference between two options should not depend on the presence of other options, and the regularity assumption, which states that a new entry should not increase the choice probability of an existing option (Huber, Payne, and Puto 1982; Luce 1959).

Three context effects have been widely researched and are among the most robust phenomena in behavioral research in marketing and psychology (e.g., Huber, Payne, and Puto 1982; Kivetz, Netzer, and Srinivasan 2004; Simonson 1989; Tversky 1972): the compromise effect, the similarity effect, and the attraction effect. The compromise effect predicts that a product obtains a relatively larger utility and choice probability when it becomes a compromise or intermediate option in the assortment after the addition of a new product (Simonson 1989). The similarity effect, also referred to as the substitution effect, predicts that adding a new product decreases the utility of the products similar to it. Thus, the choice probability will decrease disproportionately more for products similar to the newly introduced product than for dissimilar products (Tversky 1972). The attraction effect predicts that adding a new product enhances the utility and the choice probability of the relatively superior option it is most similar to (Huber, Payne, and Puto 1982; Huber and Puto 1983) and, in some cases, may suggest outcomes opposite to those of the similarity effect.

Our choice set consists of three types of PLs—economy PLs, standard PLs, and premium PLs—and two types of NBs—premium-quality NBs and mainstream-quality NBs. These choice options vary along two dimensions: (1) brand type, in which we distinguish between NBs and PLs, and (2) quality tier, in which we distinguish between low-quality-tier, mid-quality-tier, and top-quality-tier products.[1] The standard PL is "generally positioned as a mid quality/mid price alternative" (Burt 2000, p. 884), at par with mainstream-quality NBs (Alpi 2004; Kumar and Steenkamp 2007). In contrast, premium PLs are classified as top-quality-tier products. Compared with mainstream-quality NBs, premium PLs are positioned as being of superior quality (Kumar and Steenkamp 2007). They are at the top end of the market and are positioned as close substitutes to the premium-quality NBs (Dunne and Narasimhan 1999). Finally, economy PLs are introduced to answer the hard discounter threat. They offer basic, acceptable quality at the best price and are lower in quality than the mainstream-quality NBs. Typically, economy PLs have no quality-equivalent NBs in the traditional supermarket assortment (Burt 2000). As an example for chocolate, Sainsbury offers a standard PL with quality close to the leading mainstream-quality NB Cadbury. Lindt, a premium-quality NB, is challenged by Sainsbury's premium Taste the Difference chocolate. At the low end of the quality spectrum, Sainsbury sells an economy chocolate line called Basics.

Figure 1 portrays how the choice options are positioned on the brand-type and quality-tier dimensions. Premium-quality NBs, mainstream-quality NBs, and standard PLs constitute the core choice set (i.e., products that were present initially). Economy PLs were added later to the choice set, with premium PLs being the most recent new entry (Kumar and Steenkamp 2007).

We use the three context effects—compromise, similarity, and attraction—along the brand-type and quality-tier dimensions as a framework for understanding how the introduction of economy and premium PLs may affect market incumbents. Note that the focus here is not on testing the underlying behavioral mechanisms per se. Instead, the goal is to map which particular mechanism or mechanisms operate when a new PL tier is introduced and how this ultimately

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[1]From a categorization perspective, "price tier" is another dimension on which these choice options can be categorized. We did not include price tier as a third dimension along which to classify the choice options, since researchers have used the terms "quality tiers" and "price tiers" interchangeably because of a positive correlation between price and quality (e.g., Blattberg and Wisniewski 1989; Sivakumar and Raj 1997). However, we control for differences in price positioning in the empirical study.

leads to choice share shifts for the market incumbents. We first discuss how the context effects operate for the introduction of the economy PL. Then, we outline the potential effects following a premium PL introduction. We summarize the effects in Table 1. Note that whereas the similarity effect operates along each dimension separately, the compromise effect operates only along the quality-tier dimension because no middle option can be created on the brand-type dimension. The attraction effect concerns the trade-off between the two dimensions and thus cannot be applied at the level of an individual dimension.

The Effects of Introducing an Economy PL

Consider first the effects of introducing an economy PL on the market incumbents. At the time economy PLs were introduced, there were three types of incumbents: mainstream-quality NBs, premium-quality NBs, and standard PLs.

Compromise effect. The compromise effect predicts that as a result of the introduction of the economy PL, mainstream-quality NBs and standard PLs will increase in utility and, therefore, choice probability because they

Figure 1
POSITIONING OF CHOICE SET ALONG QUALITY-TIER AND BRAND-TYPE DIMENSIONS

Table 1
OVERVIEW OF POSTULATED CONTEXT EFFECTS

| Introduction | Market Incumbents | Compromise Effect (Quality Tier) | Similarity Effect | | Attraction Effect |
			Brand Type	Quality Tier	
Economy PL	Premium-quality NBs				
	Mainstream-quality NBs	+			
	Standard PL	+	–		+
Premium PL	Premium-quality NBs			–	+
	Mainstream-quality NBs				
	Standard PL		–		
	Economy PL		–		

ªA + (–) reflects that the PL tier introduction is proposed to affect the market incumbents' utility positively (negatively) through the corresponding context effect. For example, the economy PL introduction is proposed to positively affect mainstream-quality NBs through the compromise effect.

become a compromise or middle option in the assortment on the quality-tier dimension. This phenomenon can be attributed to different factors. First, consumers want to be positively evaluated by others (Simonson 1989). Therefore, they choose products they perceive as the most justifiable to others who might observe their choices, a reasonable solution being to select the middle alternative (Huber and Puto 1983). Second, consumers are often uncertain about the quality level they most prefer but are more certain about how their quality preferences compare with those of other consumers in the population (Wernerfelt 1995). This results in a decision rule of selecting the quality level that consumers with a corresponding taste would buy, which, on average, would be the mid-quality tier. Third, the perceived difference between mid-quality-tier and top-quality-tier products decreases if a more extreme low-quality-tier option is introduced (Parducci 1974). Bultez and Guerra (2005) provide support for this observation in an experimental study; they find that the presence of an economy PL on the category shelf makes the NBs and other PLs appear more similar. Thus, mid-quality-tier products would be perceived as somewhat higher in quality when the low-quality economy PL is added to the choice set (Nowlis and Simonson 2000).

Similarity effect. The similarity effect predicts that adding an economy PL decreases the utility of products similar to it. The similarity effect does not operate along the quality-tier dimension because economy PLs extend the choice set along that dimension through the addition of a new low-quality tier. Thus, there are no products similar to economy PLs along the quality-tier dimension.

With respect to the brand-type dimension, the similarity effect predicts that the utility of other (i.e., standard) PLs will decrease. Thus, the choice probability will decrease disproportionately more for standard PLs than for NBs. We identify two possible explanations for this similarity effect. First, Huber and Puto (1983) and Tversky (1972) argue that similar products can be viewed as dividing the loyalty of a potential user. Thus, introducing an economy PL may merely lead to a consumer "shift" (consumers moving from one PL tier to another), while total PL share remains unaffected. Second, introducing an economy PL may even lead to a decrease in total PL share by diluting the standard PL's quality image. Dilution of brand strength may arise not only from a "step-down" effect but also from a "quality-variation" effect (Dacin and Smith 1994). According to the step-down effect, the introduction of an affiliated product of inferior quality creates negative associations with the core brand (i.e., the standard PL) that are difficult for a company to overcome (Lane and Jacobson 1995; Sullivan 1990). As with the quality-variation effect, uncertainty arises when a new entry deviates from past experiences with the product. The inconsistency between the new economy PL and the incumbent standard PL in terms of quality may cause consumers to reevaluate the standard PL, resulting in a less favorable evaluation of the standard PL than before the economy PL introduction (Dacin and Smith 1994).

Attraction effect. The attraction effect predicts that the standard PL's utility will increase after the introduction of the economy PL. Standard PLs are the most similar superior option to economy PLs because they differ from each other only along the quality-tier dimension, whereas mainstream-

quality NBs differ from economy PLs along both the quality-tier and the brand-type dimension. The following explanations can be offered for this effect. First, when consumers are uncertain about their preferences, they may simplify their decision process by using the newly introduced economy PL as an anchor to make product comparisons, resulting in a "local" superiority of the standard PL (Huber and Puto 1983). Second, when consumers expect others (e.g., family, friends) to evaluate their choices, they try to anticipate what is likely to affect others' preferences (Simonson 1989). To the extent that the standard PL is clearly superior to the economy PL, the salience of this dominance relationship may lead consumers to believe that this aspect will guide the judgments of others who evaluate the same choice set (Taylor and Fiske 1978). Thus, the attraction effect predicts the opposite outcome from the brand-type similarity effect.

In summary, we offer the following propositions:

P_1: The introduction of an economy PL exerts a positive compromise effect, which increases the utility of (a) mainstream-quality NBs and (b) standard PLs.

P_2: The introduction of an economy PL exerts a negative brand-type similarity effect, which decreases the utility of standard PLs.

P_3: The introduction of an economy PL exerts a positive attraction effect, which increases the utility of standard PLs.

How these sometimes countervailing effects net out is not clear a priori. However, although our framework does not always yield a clear directional hypothesis, it helps us understand the forces that determine the choice share shifts that PL introductions produce.

The Effects of Introducing a Premium PL

Consider the effects of introducing a premium PL on the market incumbents. At the time premium PLs were introduced, there were four types of incumbents: mainstream-quality NBs, premium-quality NBs, economy PLs, and standard PLs.[2]

Similarity effect. With respect to the brand-type dimension, the similarity effect predicts that the introduction of a premium PL decreases the utility of similar products, namely, other PLs. Thus, introducing a premium PL will decrease the choice probability disproportionally more for (economy and standard) PLs than for NBs. This effect can be explained as follows: First, and as we argued previously, similar products (e.g., different types of PLs) can be viewed as dividing the loyalty of a potential user (Huber and Puto 1983; Tversky 1972). Second, consumers tend to be skeptical of extensions that deviate from a company's historic domain of expertise (Aaker and Keller 1990; Boush and Loken 1991). Because retailers' PL expertise traditionally lies in the offer of functional, price-based products (Kumar and Steenkamp 2007), moving to PL strategies that embrace broader quality credentials may not be an easy task to achieve. Third, the introduction of a PL at a quality level

noticeably higher than other PL products increases quality variation within the PL brand type (Dacin and Smith 1994). As quality variation increases, consumers are less able to count on the PL brand as a signal of a given level of quality. Thus, the introduction of a top-quality premium PL can also adversely affect consumer confidence, similar to the introduction of a low-quality economy PL (Dacin and Smith 1994).

With respect to the quality-tier dimension, the similarity effect predicts that adding a top-quality premium PL decreases the utility of the premium-quality NBs. Thus, the choice probability will decrease disproportionally more for the premium-quality NBs than for the mid-quality-tier and low-quality-tier products. This effect is in line with Sayman, Hoch, and Raju's (2002) conclusion that in categories with top-quality PLs, the PL and the premium-quality NBs compete more intensely with each other than with mainstream-quality NBs.

Attraction effect. The attraction effect predicts that adding a premium PL increases the utility of the superior option to which it is most similar. Premium-quality NBs are the most similar superior option to premium PLs, presuming that consumers are likely to place greater trust in a brand that embodies the cumulative effect of past marketing-mix strategies and brand investments (Erdem and Swait 2004). Brand trust decreases consumers' perceived risk by increasing their confidence in a firm's product claims, leading to higher choice probabilities (Hauser and Wernerfelt 1990). In addition, brand trust decreases consumers' information-gathering and -processing costs because consumers use trustworthy brands as a source of knowledge (Erdem and Swait 1998). Garbarino and Edell (1997) show that when consumers expend different levels of effort on processing equivalent alternatives (in our case, the top-quality premium PLs and the premium-quality NBs), choice of the easier-to-process alternatives (in our case, the premium-quality NBs) increases. Thus, the attraction effect predicts the opposite outcome from the quality-tier similarity effect. In summary, we propose the following:

P_4: The introduction of a premium PL exerts a negative brand-type similarity effect, which decreases the utility of (a) economy PLs and (b) standard PLs.

P_5: The introduction of a premium PL exerts a negative quality-tier similarity effect, which decreases the utility of premium-quality NBs.

P_6: The introduction of a premium PL exerts a positive attraction effect, which increases the utility of premium-quality NBs.

Which of the two effects in P_5 and P_6 dominates is difficult to predict a priori, and therefore we treat it as an empirical issue.

METHODOLOGY

Data

We use the natural experiment of Asda's and Sainsbury's introduction of economy and premium PL tiers in the corn flakes and canned soup categories in the United Kingdom to test the framework. Asda (a wholly owned subsidiary of Wal-Mart) and Sainsbury are two of the three largest retail chains in the United Kingdom. In 2006, Asda and Sainsbury operated 319 stores and 340 stores with grocery retail banner sales amounting to $31,031 million and $33,534 million, respectively, which collectively represents 24% of the

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[2]A compromise effect does not operate for the premium PL introduction. As we indicated previously, no middle option can be created along the brand-type dimension, which only differentiates between PLs and NBs. In addition, the quality-tier dimension does not allow for the creation of a middle option through the introduction of top-quality premium PLs, because the premium-quality NBs already occupy the top-quality position.

market share in CPGs in the United Kingdom. This setting has clear contemporary value because the United Kingdom is leading the way in the development of sophisticated three-tiered PL programs. In contrast, although U.S. PL leaders such as Food Lion and Safeway have (recently) rolled out three-tiered PL offerings, it is still rare for all three tiers to coexist in one category in the United States, though this is beginning to change (Planet Retail 2007).

We use Europanel scanner panel data on household purchases. The data set spans the 13-year period (676 weeks) from December 1993 to December 2006 and contains information on weekly shopping trips and purchase histories for households, prices paid and faced for each brand, and assortment size for each brand in the corn flakes and canned soup categories. In line with previous studies (Chintagunta, Bonfrer, and Song 2002; Pauwels and Srinivasan 2004), we aggregated purchase data at the stockkeeping unit level across sizes and brand variants to the brand level.

We chose the corn flakes and canned soup categories for three reasons. First, these categories feature economy and premium PL entry within the available data period. Before the window of observation, Asda's standard PL and Sainsbury's standard PL were already well established. Asda's and Sainsbury's economy PL introductions occurred in May 1995 for corn flakes and in September 1995 for canned soup, respectively. Premium PLs were launched subsequently. For corn flakes, introductions occurred in February 2002 at Asda and in January 2001 at Sainsbury, and for canned soup, introductions occurred in June 2001 at Asda and in September 1999 at Sainsbury. Second, these categories have almost five years of data after the last introduction. Third, the U.K. corn flakes and canned soup markets are mature: They were not shaken up by major NBs entering or leaving the category over the estimation period. This enables us to test our ideas in a more controlled setting.

We included the three PL tiers (standard: PL_standard, economy: PL_economy, and premium: PL_premium) and all NBs that occupy the major positions in the corn flakes and canned soup markets (five for corn flakes and four for canned soup) in the analysis.[3] Two expert judges (account managers of the leading data provider) classified the brands into one of three quality tiers (premium quality, mainstream quality, and passable quality). In the corn flakes category, the expert judges classified two of the NBs (NB_prem1 and NB_prem2) as premium-quality NBs and three (NB_mstr1, NB_mstr2, and NB_mstr3) as mainstream-quality NBs. Similarly, in the canned soup category, the expert judges classified two of the NBs as premium-quality NBs and the remaining two NBs as mainstream-quality NBs. The economy, standard, and premium PLs were classified as passable-quality, mainstream-quality, and premium-quality PLs, respectively, consistent with the retailers' positioning.

We aggregated the subset of the remaining, least frequently bought brands into a composite "all others" brand

to capture the selection of a brand that was different from those we explicitly included (see Ailawadi et al. 2007). To obtain stable measures of context effects, we considered only households that were in the panel at least 26 weeks before the first economy PL introduction and that stayed in the panel at least 26 weeks after the last premium PL introduction. As such, all the households retained were active in the panel for at least 452 weeks. In line with Seetharaman (2004) and Sivakumar and Raj (1997), we excluded households that did not purchase the selected brands at least four times per year, on average, as well as households for which the selected brands did not represent at least 70% of their category purchases. Using these selection criteria, we retained 1664 and 1377 households for the corn flakes and soup categories, respectively, which we then randomly divided into two groups of approximately two-thirds (calibration sample) and one-third (validation sample). Collectively, the sample of panelists represents 13.8% of total panel sales at the two retail chains for corn flakes and 12.7% for canned soup and is representative of the total panel in terms of shopper gender, household size, and social class.

Validation of Classification into Quality Tiers

We validated the expert judges' quality-tier classification with a survey of 39 U.K. consumers who are regular users of the categories (minimum four purchases per year). In all cases, the number of assignments of the NB or PL to its posited quality tier was higher than to any other quality tier, attesting to the substantive validity of our classification. To validate our results further, we also asked respondents to rate the quality of every NB and PL on a five-point scale, ranging from "very low" (1) to "very high" (5). A means-comparison test provided additional evidence for the classification. Quality ratings of brands assigned to the same tier were not significantly different from one another ($p > .10$), whereas quality ratings of brands that were assigned to different tiers differed significantly ($p < .10$; the exceptions were NB_prem2, NB_mstr1, and PL_premium Asda for corn flakes, which differed at $p = .17$, and NB_mstr1 and PL_premium Asda for canned soup, which differed at $p = .14$). Furthermore, dispersion among respondents' quality scores was low, with all coefficients of variation well below 100% (maximum coefficient of variation = 46%), suggesting uniform quality perceptions (see Table 2).[4]

Descriptives

Table 3 provides category sales by retail chain and choice shares by brand and retail chain. The pattern of choice

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[3]We included all NBs with an average market share of at least 5% over the data period. These NBs and the PLs were available on the shelves of Asda and Sainsbury in nearly every week of the sample, the exceptions being the corn flakes economy PL and the canned soup premium PL at Asda, which were not available in .3% and 1.2% of the weeks after their introductions, respectively. This wide availability of the focal NBs and PLs ensures their visibility to and enables direct comparison by consumers, a necessary condition for the context effects to come into play.

[4]We obtained perceived quality ratings at the end of the observation series, whereas the economy PL introductions took place in 1995 and the premium PL introductions took place in the late 1990s/early 2000s. We believe that this approach is warranted because Mitra and Golder (2006, p. 230) find that "the effect of change in objective quality is not fully reflected in customer perceptions of quality until after about six years." We further validated the approach by analyzing quality ratings of Ciao (www.ciao.co. uk), an online community that reports individual consumers' brand quality ratings as well as the exact date on which consumers rated the brands (ranging from 2001, when Ciao went online, to the present). We regressed consumers' brand quality ratings, as reported on Ciao, on a nonparametric trend by including seven-year dummies (using the last year as the baseline), while controlling for fixed brand effects. None of the year dummies were significant for corn flakes or soup ($p > .05$). These results offer some validity for the use of quality judgments at the end of the observation series.

Table 2

VALIDATION OF CLASSIFICATION INTO QUALITY TIERS

	Percentage Assigned to Correct Quality Tier[a]	Average Perceived Quality Rating[b]	Coefficient of Variation Perceived Quality Rating
A: Corn Flakes			
Premium-Quality NBs			
NB_prem1	76%	4.38*	12%
NB_prem2	52%	4.21*,Δ	16%
Mainstream-Quality NBs			
NB_mstr1	60%	3.74+,Δ	18%
NB_mstr2	54%	3.69+	16%
NB_mstr3	52%	3.69+	19%
Premium PL			
Asda	43%	4.19*,Δ	13%
Sainsbury	53%	4.27*	12%
Standard PL			
Asda	61%	3.42+	20%
Sainsbury	66%	3.41+	15%
Economy PL			
Asda	74%	2.59°	38%
Sainsbury	76%	2.27°	24%
B: Canned Soup			
	Percentage Assigned to Correct Quality Tier[a]	*Average Perceived Quality Rating[b]*	*Coefficient of Variation Perceived Quality Rating*
Premium-Quality NBs			
NB_prem1	61%	4.15*	17%
NB_prem2	52%	3.97*	18%
Mainstream-Quality NBs			
NB_mstr1	52%	3.39+,Δ	18%
NB_mstr2	59%	3.06+	24%
Premium PL			
Asda	43%	3.92*,Δ	17%
Sainsbury	54%	3.96*	13%
Standard PL			
Asda	61%	3.11+	27%
Sainsbury	71%	3.14+	17%
Economy PL			
Asda	74%	2.23°	46%
Sainsbury	78%	2.46°	28%

[a]Respondents were asked to assign all NBs and PLs to one of three quality tiers: (1) top brands (brands or store brands that excel on quality), (2) mainstream brands (brands or store brands that are middle of the road in terms of quality), and (3) secondary brands (brands or store brands that offer a basic, passable quality level). All percentages assigned are significantly higher than the 33.3% to be expected in case of random assignment ($p < .001$).

[b]Respondents were asked to rate the quality of all NBs and PLs on a five-point scale, ranging from "very low" (1) to "very high" (5). Average perceived quality ratings with the same superscripts (*, +, Δ, or °) are not significantly different from one another ($p > .10$).

Notes: Thirty-nine respondents evaluated the NBs. Only respondents that frequented Asda and Sainsbury evaluated Asda's and Sainsbury's PLs, respectively, resulting in 26 evaluations of Asda's PLs and 29 evaluations of Sainsbury's PLs.

shares is highly similar across the two chains. In each chain, the standard PL's choice share decreased after the economy and the premium PL introductions. In addition, the economy PL's share further decreased after the introduction of the premium PL. The effects on the NBs are less clear-cut, possibly because of marketing-mix changes. Indeed, although the descriptives provide an initial feel for the aver-

age position of brands (NBs and PLs) in the period before and after the new PL tier introductions, they do not allow us to separate the between-brand shifts produced by the PL line introductions from those induced by price, promotion, advertising, or brand assortment fluctuations. Assessing the true impact of the PL introductions on incumbent brands, beyond the effects of marketing-mix changes of these brands and taking into account heterogeneous reactions across consumers, calls for estimation of a choice model.

Model

To test the impact of the economy and premium PL introductions on incumbent brands' utilities and ensuing choice probabilities, we use a mixed multinomial logit specification with context effects (hereinafter, we refer to this as MMNLC). As in previous studies (Huber, Payne, and Puto 1982; Lehmann and Pan 1994; Rooderkerk, Van Heerde, and Bijmolt 2008), we include the context-effect variables in the systematic utility component of the choice alternatives, producing shifts in the incumbents' relative baseline utilities after the introduction of the new PL tier. To avoid a confound with the impact of (changes in) incumbents' regular prices, promotions, assortments, or advertising spending, we incorporate these as control variables in the utilities, together with a "last purchase" variable that captures households' purchase dynamics (Seetharaman 2004). In addition, we introduce a variable that reflects general economic conditions, the consumer confidence index, to separate consumers' tendencies to purchase more PLs in times of economic downturn (Lamey et al. 2007) from the context effects. Finally, to avoid omitted variable bias in the proposed context effects for premium-quality and mainstream-quality NBs and incumbent PLs, we also allow for intercept shifts in the "other brand" aggregate following the economy and premium PL introductions. This leads to the following specification:

$$(1a) \qquad P_{i,t}^{h} = \frac{\exp\left(V_{i,t}^{h}\right)}{\sum_{j \in S} \exp\left(V_{j,t}^{h}\right)},$$

$$(1b) \quad V_{i,t}^{h} = \alpha_{i}^{h} + \beta_{1}^{h} COMPR\_econ_{i,t} + \beta_{2}^{h} SIMTypeAT\_econ_{i,t}$$
$$+ \beta_{3}^{h} SIMType\_prem_{i,t} + \beta_{4}^{h} SIMQualAT\_prem_{i,t}$$
$$+ \gamma_{1}^{h} LastPurchase_{i,t}^{h} + \gamma_{2}^{h} Price_{i,t} + \gamma_{3}^{h} Promo_{i,t}$$
$$+ \gamma_{4}^{h} Adv_{i,t} + \gamma_{5}^{h} Assor_{i,t} + \gamma_{6}^{h} Conf_{i,t}$$
$$+ \eta_{1}^{h} Other\_econ_{i,t} + \eta_{2}^{h} Other\_prem_{i,t},$$

where

i = brand subscript (i = NB_prem1, NB_prem2, NB_mstr1, NB_mstr2, NB_mstr3, PL_standard, PL_economy, PL_premium, or other);

$P_{i,t}^{h}$ = the probability that household h, given a category purchase, selects brand i on occasion t from the set of brands S (including the "other brand" aggregate) available at the retailer at that time;

$U_{i,t}^{h} = V_{i,t}^{h} + \varepsilon_{i,t}^{h}$ = the utility of brand i at occasion t to household h, consisting of a deterministic component V and a Gumbel-distributed random component ε; and

Table 3

DESCRIPTIVES: CATEGORY SALES AND BRAND SHARES BEFORE AND AFTER THE INTRODUCTION OF PL TIERS

| | *Economy PL Introduction* | | | | *Premium PL Introduction* | | | |
| | *Asda* | | *Sainsbury* | | *Asda* | | *Sainsbury* | |
	1 Month Before	*6 Months After*	*1 Month Before*	*6 Months After*	*1 Month Before*	*6 Months After*	*1 Month Before*	*6 Months After*
Category Sales[a]								
Corn flakes	543	551	753	749	855	831	739	798
Canned soup	267	260	429	476	308	327	464	467
Choice Share (%)								
Corn Flakes								
NB_prem1	48.6	43.3	34.3	31.4	51.3	49.8	31.0	33.7
NB_prem2	4.3	2.6	6.8	5.8	5.9	3.9	8.3	9.0
NB_mstr1	10.3	15.1	15.7	17.5	11.0	15.3	20.4	21.1
NB_mstr2	11.5	15.5	11.3	13.4	10.3	9.5	12.8	11.0
NB_mstr3	2.1	1.7	2.3	2.3	1.4	1.7	2.1	2.1
PL_standard	22.5	17.1	27.8	26.3	18.2	15.8	25.7	22.3
PL_economy	N.A.	2.7	N.A.	1.6	2.0	1.4	1.4	1.1
PL_premium	N.A.	N.A	N.A.	N.A.	N.A.	1.1	N.A.	.8
Canned Soup								
NB_prem1	48.9	39.6	35.4	36.9	44.3	47.1	35.3	38.4
NB_prem2	10.5	10.2	6.8	7.7	7.3	8.4	8.7	6.1
NB_mstr1	7.5	10.2	18.9	18.3	6.8	5.8	13.3	13.0
NB_mstr2	4.1	7.7	10.8	9.6	6.9	5.1	10.0	11.3
PL_standard	28.4	21.4	25.8	23.2	21.9	20.4	28.9	26.9
PL_economy	N.A.	9.4	1.3	1.4	11.6	10.2	3.2	2.7
PL_premium	N.A.	N.A.	N.A.	N.A.	N.A.	1.5	N.A.	.7

[a]Unit sales based on household sample (1664 households for corn flakes, 1377 households for canned soup).
Notes: N.A. = not applicable.

$\alpha_i^h =$ a brand-specific preference parameter (i = NB_prem1, NB_prem2, NB_mstr1, NB_mstr2, NB_mstr3, PL_standard, PL_economy, PL_premium, or other).

By setting $\alpha_{NB\_prem1}^h$ to zero, we can identify and estimate the mean utilities of all other brands relative to NB_prem1's mean utility. In addition, COMPR_econ, SIMTypeAT_econ, SIMType_prem, and SIMQualAT_prem represent the context effects, which, in line with the conceptual development, capture shifts in the relative utilities of incumbent brands after the introduction of a new PL tier. These context effects differ by dimension (brand type and quality tier) and type of PL introduction (economy or premium).

As Table 1 shows, some of the context effects work in opposite directions and cannot be separately identified. Specifically, this is true for the brand-type similarity effect and the attraction effect when the economy PL is introduced and for the quality-tier similarity effect and the attraction effect when the premium PL is introduced. Therefore, we include these effects in the model through a common context-effect variable (SIMTypeAT_econ and SIMQualAT_prem), the sign of which indicates which of the context effects prevails.

Following Lehmann and Pan (1994), we operationalize the context effects through step dummy variables, which take the value of one in periods after the PL introduction.[5]

For an overview of the measures used for the context effects and the control variables, see Table 4.

To account for unobserved heterogeneity across households, we use a random-effects specification, in which the parameters α_i^h, β_1^h, β_2^h, β_3^h, β_4^h, γ_1^h, γ_2^h, γ_3^h, γ_4^h, γ_5^h, γ_6^h, η_1^h, and η_2^h of Equation 1b are normally distributed. We use simulated maximum likelihood to estimate the means and standard deviations of these parameter distributions.

FINDINGS

To understand how economy and premium PL introductions affect brand choice, we analyze the model outcomes in two ways. First, we test the propositions by examining the context parameter estimates directly. In doing so, we also compare the fit and predictive validity of the model with a context-free choice model. Second, having ascertained the significance and predictive validity of the estimated context parameters, we calculate the change in market share for each type of incumbent after the economy and premium PL introductions and compare it with the shifts that would be produced in the absence of context effects.

Descriptive and Predictive Validity

To verify the descriptive validity of the MMNLC, we compare it with a context-free mixed multinomial logit model (MMNL0).[6] As the fit statistics in Table 5 show, adding context effects improves the model's descriptive validity (AIC, AIC3) in both categories and both chains.

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[5]As an example, for i = NB_mstr1, all context-effect variables are zero before T_{Ec}. From T_{Ec} onward, the step dummy COMPR_econ takes the value of one. As another example, for i = PL_standard, all context-effect variables are set to zero before T_{Ec}. From T_{Ec} onward, COMP_econ and SIMTypeAT_econ take the value of one. From T_{Pr} onward, SIMType_prem is also set to one.

[6]If all incumbent brands suffer from a PL introduction in the same proportion, the context-effect estimates will be zero, and the model reduces to this regular "context-free" mixed multinomial logit model.

Table 4

MEASUREMENT

Variable	Operationalization
T_{Ec}	•Introduction week of the economy PL
T_{Pr}	•Introduction week of the premium PL
Context Effect Variables	
COMPR_econ	•Compromise effect on the quality-tier dimension (+) for the economy PL introduction, equal to 1 for i = NB_mstr1, NB_mstr2, NB_mstr3, or PL_standard and $t \geq T_{Ec}$ and 0 otherwise.
SIMTypeAT_econ	•Similarity effect on the brand-type dimension (–) or attraction effect (+) for the economy PL introduction, equal to 1 for i = PL_standard and $t \geq T_{Ec}$ and 0 otherwise.
SIMType_prem	•Similarity effect on the brand-type dimension (–) for the premium PL introduction, equal to 1 for i = PL_standard or PL_economy and $t \geq T_{Pr}$ and 0 otherwise.
SIMQualAT_prem	•Similarity effect on the quality-tier dimension (–) or attraction effect (+) for the premium PL introduction, equal to 1 for i = NB_prem1 or NB_prem2 and $t \geq T_{Pr}$ and 0 otherwise.
Control Variables	
LastPurchase$_{i,t}^{h}$	•Last purchase indicator, which is equal to 1 when household h also bought brand i on the previous shopping trip and 0 otherwise.
Price$_{i,t}$	•Unit list price for brand i on shopping trip t, converted into real prices using the United Kingdom's consumer price index.
Promo$_{i,t}$	•Price-promotion depth, which is equal to the difference (converted into real values using the United Kingdom's consumer price index) between brand i's promotional price and brand i's average price level (defined over a six-month moving window) if brand i is on promotion on shopping trip t and 0 if otherwise (Nijs et al. 2001). Following Nijs and colleagues (2001), we view promotional weeks as weeks in which brand i's price was at least one standard deviation below its average price level.
Adv$_{i,t}$	•Advertising for brand i on shopping trip t is represented by an ad-stock specification, which captures contemporaneous and delayed (lagged) advertising spending (Hanssens, Parsons, and Schultz 2001). We obtained advertising data through ACNielsen Media Research.
Assor$_{i,t}$	•Logarithm of assortment size (number of stockkeeping units available) for brand i on shopping trip t.
Conf$_{i,t}$	•Consumer confidence (a monthly composite indicator developed by the Directorate General for Economic and Financial Affairs of the European Commission, capturing households' expectations of their financial situation, the general economic situation, unemployment, and savings, all over the next 12 months) for i = PL_standard, PL_economy, PL_premium and 0 otherwise.
Other_econ$_{i,t}$	•Dummy variable equal to 1 for i = Other and $t \geq T_{Ec}$ and 0 otherwise; this controls for the intercept shift in the "other brand" aggregate after the economy PL introduction.
Other_prem$_{i,t}$	•Dummy variable equal to 1 for i = Other and $t \geq T_{Pr}$ and 0 otherwise; this controls for the intercept shift in the "other brand" aggregate after the premium PL introduction.

We also compare the predictive performance of the model with and without context effects on a holdout sample of households. We find that, in each category and chain, the log-likelihood of MMNLC exceeds that of MMNL0. Moreover, the hit rates (percentage of holdout household choices correctly predicted by the model) produced by the context-effects model are also systematically higher than if we had not allowed for any context effects. In all, this supports the descriptive and predictive validity of the proposed MMNLC model.

Parameter Estimates

Tables 6 and 7 present the estimates for corn flakes and canned soup, respectively, for each of the two retail chains. First, in line with P_1, the economy PL introduction consistently exerts a positive and significant compromise effect, which is beneficial to the standard PL and to the mainstream-quality NBs. A second finding for the economy PL introduction is that, on average, the (negative) brand-type similarity effect in P_2 always outweighs the possible (positive) attraction effect in P_3. This supports the viewpoint that economy and standard PLs compete heavily with each another because they are of the same brand type.

As with the economy PL introduction, the launch of the premium PL produces the expected negative brand-type similarity effect, in line with P_4. This effect is significant in three of four cases (the exception is soup at Asda) and implies that the premium PL introduction negatively affects

the incumbent PLs. As for the quality-tier similarity (P_5) versus attraction (P_6) effect following the premium PL introduction, we observe a mixed pattern, with two positive effects (one significant for soup at Asda and one insignificant for corn flakes at Sainsbury), pointing to a predominance of the attraction effect, and two negative effects (one significant for corn flakes at Asda and one insignificant for soup at Sainsbury), pointing to a predominance of the quality-tier similarity effect.

The pattern of brand constants reflects the brands' appeal relative to the reference brand NB_prem1. The estimated standard deviations of these brand constant parameters point to substantial heterogeneity across households, an issue we return to subsequently.

Overall, we find that the results generalize reasonably well. Turning first to the context effects for which we have unequivocal expectations (the compromise effect for the economy PL introduction and the brand-type similarity effect for the premium PL introduction), we find that all eight effects run in the proposed direction, with seven of the eight effects reaching significance.

For the context effects for which the theory runs in two directions, we find that the brand-type similarity effect triggered by the economy PL introduction always outweighs the attraction effect: All four context-effect parameters are negative and significant. As for the quality-tier similarity versus attraction effect following the premium PL introduction, we observe a mixed pattern, pointing to a predomi-

Table 5

MODEL FIT

	A: Corn Flakes				
	MMNL0			MMNLC	
	Asda	*Sainsbury*		*Asda*	*Sainsbury*
Descriptive Validity (Estimation Sample)					
Number of observations	41,123	36,331		41,123	36,331
LL	–40,485.4	–37,066.0		–40,461.7	–36,978.4
Number of parameters[a]	28	28		40	40
AIC	81,026.8	74,188.0		81,003.5	74,036.8
AIC3	121,540.2	111,281.9		121,505.2	111,055.3
Predictive Validity (Holdout Sample)					
Number of observations	12,034	13,178		12,034	13,178
LL	–13,472.6	–16,235.8		–13,372.9	–16,211.8
Hit rate	.588	.521		.591	.524
	B: Canned Soup				
	MMNL0			MMNLC	
	Asda	*Sainsbury*		*Asda*	*Sainsbury*
Descriptive Validity (Estimation Sample)					
Number of observations	23,161	23,531		23,161	23,531
LL	–18,070.65	–19,899.3		–17,996.9	–19,825.4
Number of parameters[a]	26	26		38	38
AIC	36,193.3	39,850.6		36,069.7	39,726.8
AIC3	54,290.0	59,775.8		54,104.6	59,590.2
Predictive Validity (Holdout Sample)					
Number of observations	5348	6688		5348	6688
LL	–4669.0	–7636.3		–4590.3	–6820.1
Hit rate	.697	.607		.706	.657

[a]The number of parameters equals the number of coefficients in the utility function times two (estimate of mean and standard deviation of the normal mixing distribution).

Notes: LL = log-likelihood, and AIC = Akaike information criterion.

nance of the attraction effect in half the cases but a predominance of the quality-tier similarity effect in the other half.

We formally assess the generalizability of our conclusions across the two retailers and product categories through a meta-analytic procedure. We use the method of adding z (Rosenthal 1991), which provides the *p*-value that the results of the retailers and categories combined could have occurred under the null hypothesis of no effect. This offers a stronger test than the significance of the separate context-effect parameters. The meta-analysis reveals that, collectively, the introduction of an economy PL line triggers a highly significant, positive compromise effect ($z = 6.14$, $p < .001$) and, overall, induces a negative brand-type similarity effect ($z = –7.39$, $p < .001$). Taken as a whole, the introduction of the premium PL line results in a strongly significant, negative brand-type similarity effect ($z = –4.43$, $p < .001$) and generates a nonsignificant quality-tier similarity versus attraction effect ($z = .93$, $p = .35$).

Robustness Checks

We ran three robustness checks to increase confidence in the findings. First, we tested a more flexible specification in which we allowed each NB within the same quality tier to deviate from the brand-tier pooled context effect. Adding this extra flexibility did not enhance fit in three of four cases. For canned soup at Asda, we observed a small improvement in fit (AIC dropped from 36,069 to 36,042) and a significantly smaller compromise effect for one of the two mainstream-quality NBs; the other context effects remained virtually unchanged.

Second, we considered a "relaxed" model version in which we allowed the premium PL introduction to differentially affect the incumbent economy and standard PL. This yielded no improvement for Sainsbury and only a slightly better fit for Asda (AIC dropped from 81,003.5 to 81,002.5 for corn flakes and from 36,069.7 to 36,066.2 for soup). Overall, all effects remained substantively the same.

Third, we ran a reduced-form model in which, instead of estimating context effects, we allowed intercept shifts in the utility of each major set of brands (premium-quality NBs, mainstream-quality NBs, other brands, and the different incumbent PL tiers) after the economy and premium PL introduction, with premium-quality NBs serving as the baseline.[7] As for the economy PL introduction, we consistently found strong positive effects on the utilities of the mainstream-quality NBs, corroborating the findings in Tables 6 and 7 for the compromise effect (which is the only effect through which we propose mainstream-quality NBs are affected by the economy PL introduction; see Table 1). In contrast, the utilities of the standard PL were never significantly affected by the introduction of the economy PL.

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[7]Because the step variables capturing the economy and the premium PL introductions are not alternative specific, we cannot estimate a separate shift for these introductions for each brand set; we can only assess their differential impact on some brand sets versus others. That is, in addition to a restriction on the brand constants, we need a restriction on the context-effect shifts for each PL introduction by selecting one brand set as a benchmark and estimating the other brand sets' utility shifts after the introduction relative to that benchmark. If we were to estimate separate utility shifts for each brand set following a PL introduction, the model would be unidentified.

Table 6

PARAMETER ESTIMATES FOR THE MMNLC MODEL FOR CORN FLAKES

	Asda		Sainsbury	
	M (t-Value)	SD (t-Value)	M (t-Value)	SD (t-Value)
Context Effects				
Economy PL Introduction				
Compromise effect (+)	**.291**	**.422**	**.171**	**.445**
	(3.64)	(13.73)	(2.38)	(16.85)
Brand-type similarity effect (–)	**–.406**	**.920**	**–.217**	.047
versus attraction effect (+)	(–4.06)	(17.86)	(–2.71)	(1.01)
Premium PL Introduction				
Brand-type similarity effect (–)	**–.285**	**.287**	**–.201**	.112
	(–3.16)	(3.08)	(–2.24)	(1.47)
Quality-tier similarity effect (–)	**–.168**	.199	.115	**.285**
versus attraction effect (+)	(–2.02)	(1.84)	(1.40)	(3.58)
Brand Constants				
Standard PL	**–1.047**	**1.473**	**–.557**	**1.496**
	(–7.74)	(33.63)	(–4.82)	(29.87)
Economy PL	**–2.353**	**2.711**	**–.741**	.359
	(–10.92)	(21.81)	(–3.15)	(1.54)
Premium PL	–5.450	2.952	**–1.977**	.753
	(–1.60)	(1.59)	(–3.22)	(1.56)
Premium-quality NB 2	**–2.236**	**1.782**	**–1.189**	**.863**
	(–10.66)	(15.22)	(–7.27)	(10.11)
Mainstream-quality NB 1	**–.994**	**1.050**	**–.403**	**.809**
	(–11.12)	(26.02)	(–4.18)	(26.49)
Mainstream-quality NB 2	**–.381**	**1.076**	.090	**1.402**
	(–3.49)	(23.52)	(–.59)	(27.10)
Mainstream-quality NB 3	**–3.448**	**1.526**	**–2.768**	**2.330**
	(–9.70)	(5.09)	(–13.79)	(15.48)
Other brands	**–2.222**	**1.769**	**–1.335**	**.648**
	(–6.86)	(6.13)	(–5.72)	(5.28)
Control Variables				
Last purchase	**.974**	**.442**	**1.154**	**.711**
	(41.95)	(14.95)	(44.13)	(28.36)
Price	–.167	.254	–.194	**3.565**
	(–.36)	(1.28)	(–.39)	(14.76)
Price-promotion depth	.014	**.050**	**.034**	.029
	(1.08)	(2.86)	(3.10)	(1.68)
Assortment size	**.767**	**.066**	**.972**	**.154**
	(15.82)	(3.57)	(14.07)	(5.38)
Advertising	.011	**.152**	–.006	**.174**
	(.56)	(18.67)	(–.31)	(20.96)
Consumer confidence index	–.011	**.032**	.007	.001
	(–1.60)	(5.52)	(1.04)	(.18)
Shift in "other brands" constant	**–1.220**	**1.480**	**–1.570**	**.886**
after economy PL introduction	(–2.96)	(6.13)	(–4.50)	(4.69)
Shift in "other brands" constant	–1.696	1.710	–.266	.728
after premium PL introduction	(–1.12)	(1.13)	(–.564)	(1.58)
Mean LL (number of observations)	–.98392 (41,123)		–1.01782 (36,331)	

Notes: Coefficients represent the means and standard deviations of the normal mixing distributions across households. Estimates significant at the 5% level (one-sided for the context effects for which we have unequivocal expectations and two-sided elsewhere) are in bold. LL = log-likelihood.

The findings in Tables 6 and 7 show that this nonsignificant intercept shift for the standard PL can be explained by a positive compromise effect being nullified by a negative brand-type similarity effect. As for the premium PL introduction, the standard and economy PLs were negatively affected in six of eight cases, which not only supports the negative brand-type similarity effect reported in Tables 6 and 7 but also adds the insight that the premium PL hurt the incumbent PLs significantly more than the premium-quality NBs (the negative parameter was significant at $p < .05$ in four of six cases and at $p < .10$ in one additional case). On the contrary, we always found an insignificant impact of the premium PL introduction on the mainstream-quality NBs, confirming our expectations (see Table 1). Collec-

tively, the pattern of estimated coefficients in the reduced-form model corroborates the context-effect findings we reported previously.

Are the Context Effects Enduring?

In line with Huber, Payne, and Puto (1982) and Lehmann and Pan (1994), the MMNLC model captures the context effects as shifts in the brands' baseline utilities after the new PL tier introductions. A relevant question is whether these context effects are enduring.[8] To shed light on this issue, we allowed for gradual context-effect changes over time by

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[8]Note that the presence of a lagged variable already produces dynamic context-effect patterns: Initial context-effect shifts are reinforced on subsequent purchase occasions.

Table 7

PARAMETER ESTIMATES FOR THE MMNLC MODEL FOR CANNED SOUP

	Asda		Sainsbury	
	M (t-Value)	SD (t-Value)	M (t-Value)	SD (t-Value)
Context Effects				
Economy PL Introduction				
Compromise effect (+)	**.392**	**.282**	**.193**	**.277**
	(3.55)	(10.57)	(1.95)	(7.04)
Brand-type similarity effect (–)	**–.281**	**.741**	**–.360**	**1.001**
versus attraction effect (+)	(–3.91)	(24.11)	(–3.39)	(22.17)
Premium PL Introduction				
Brand-type similarity effect (–)	–.037	.053	**–.161**	.088
	(–.47)	(1.46)	(–1.69)	(1.75)
Quality-tier similarity effect (–)	**.217**	**.418**	–.036	**.374**
versus attraction effect (+)	(3.22)	(5.96)	(–.47)	(7.87)
Brand Constants				
Standard PL	**–.464**	**1.499**	**–.220**	**1.170**
	(–3.98)	(40.19)	(–2.87)	(37.50)
Economy PL	**–1.345**	**2.201**	–.308	**2.170**
	(–7.67)	(30.89)	(–1.16)	(24.10)
Premium PL	**–1.951**	**2.122**	**–.903**	**1.200**
	(–3.21)	(4.36)	(–3.72)	(7.01)
Premium-quality NB 2	**–2.012**	**2.486**	**–.920**	**2.318**
	(–18.99)	(36.22)	(–8.33)	(28.28)
Mainstream-quality NB 1	**–3.452**	**2.843**	**–2.312**	**2.617**
	(–19.51)	(26.73)	(–17.66)	(26.50)
Mainstream-quality NB 2	**–3.097**	**3.341**	**–2.911**	**3.471**
	(–14.57)	(30.11)	(–12.65)	(16.37)
Other brands	**–2.196**	**1.885**	**–1.184**	.130
	(–7.55)	(19.66)	(–3.96)	(1.23)
Control Variables				
Last purchase	**1.405**	**.678**	**1.071**	**.742**
	(71.84)	(31.23)	(43.58)	(30.13)
Price	**–12.270**	**.673**	**–10.451**	**7.080**
	(–15.85)	(2.12)	(–11.26)	(15.60)
Price-promotion depth	**.107**	**.066**	**.147**	.027
	(5.80)	(3.18)	(8.88)	(1.28)
Assortment size	**.868**	**.669**	**1.327**	**.485**
	(16.70)	(29.82)	(21.26)	(32.83)
Advertising	**.224**	**.498**	.087	**.236**
	(3.43)	(7.15)	(1.33)	(3.42)
Consumer confidence index	.002	.011	.008	**.033**
	(.33)	(1.67)	(1.38)	(6.64)
Shift in "other brands" constant	.375	**.416**	–.005	**.558**
after economy PL introduction	(1.27)	(5.73)	(–.01)	(5.87)
Shift in "other brands" constant	**–.739**	**.530**	–.175	**1.545**
after premium PL introduction	(–3.81)	(3.18)	(–.76)	(10.48)
Mean LL (number of observations)	–.777033 (23,161)		–.842523 (23,531)	

Notes: Coefficients represent the means and standard deviations of the normal mixing distributions across households. Estimates significant at the 5% level (one-sided for the context effects for which we have unequivocal expectations and two-sided elsewhere) are in bold. LL = log-likelihood.

augmenting the MMNLC model with a time process function (for a similar approach, see Singh, Hansen, and Blattberg 2006). Specifically, we multiply the context-effect step dummies with a second-degree polynomial in "time since introduction," thus allowing for flexible increase and/or decay patterns over time.[9] For the premium PL intro-

duction, the process function does not yield significant parameters. For the economy PL introduction, we find that the context effects become gradually more pronounced over the years in each category and chain (for corn flakes in Asda, the effect slightly drops again about seven years after introduction). In all, these results show that the context

[9]For example, the context step dummies linked to the economy PL introduction are multiplied by $[1 + \varphi_{1,ec} \times (t - T_{ec}) + \varphi_{2,ec} \times (t - T_{ec})^2)]$ for each week $t > T_{ec}$, where $\varphi_{1,ec}$ and $\varphi_{2,ec}$ are additional parameters to be estimated. As an additional analysis, we augmented the (step dummy) model with a pulse dummy for each proposed context effect (for a similar approach, see Van Heerde, Gijsbrechts, and Pauwels 2008). This pulse dummy equals one during the first four weeks after the PL introduction (zero before and after that period) and enables us to separate the immediate effects (defined as the first four weeks after entry) from the enduring effects of economy and premium PL entry. For example, positive pulse and step coefficients for the compromise effect would suggest that the econ-

omy PL mainly boosts the share of mainstream-quality NBs in the first introduction month, and less so afterward. We find that none of the pulse dummy coefficients are significant. We carried out two robustness checks with the pulse dummy equalling one (1) in the first week after entry and (2) in the two months following entry, but the results remained substantively the same. This suggests that there is neither a clear delay before the context effects materialize nor a sudden drop in these effects—possibly because consumers are already familiar with the notion of economy or premium PLs and/or hold relatively clear and realistic expectations on these PLs.

effects produced by the new PL tier introductions are not a short-lived phenomenon but persist for several years after the introduction.

Explaining Cross-Household Heterogeneity in Context Effects

The estimation results (in particular, the standard deviations of the mixing distributions; see Tables 6 and 7) point to substantial cross-household heterogeneity in the context effects. Following Kivetz, Netzer, and Srinivasan's (2004) call for more research on what drives the heterogeneity in context effects, we ran exploratory regressions linking the households' posterior context-effect coefficients (dependent variables) to category and chain fixed effects, household sociodemographics, and household purchase indicators (independent variables). Available household sociodemographics include shopper gender (1 = female, 2 = male), household size, and social class (lower versus middle versus upper). As household purchase indicators, we include share of wallet spent at the retailer (Sainsbury or Asda) and share of wallet captured by the product category (corn flakes or soup).

The exploratory regressions reveal no effects of sociodemographics. However, the size of the brand-type and quality-tier similarity effects is associated with the retailer's share of wallet. The quality-tier similarity effect on the premium-quality NBs following the premium PL introduction is lower (less positive, or more detrimental: $\beta = -.023$, $p = .06$) among households in which the retailer has a higher share of wallet. Conversely, households that spend a larger portion of their budget at the retailer exhibit less negative brand-type similarity effects after the introduction of the economy PL ($\beta = .076$, $p < .05$) and the premium PL ($\beta = .01$, $p < .05$). This suggests that a retailer's own brand cannibalization from introducing new PL tiers is less detrimental among the chain's primary shoppers.

In addition, the constants for the three PL tiers are characterized by substantial heterogeneity across households. Although we find no effect for premium PLs, the economy and standard PL appeal appears to be related to household sociodemographics. Male shoppers are more inclined to appreciate standard PLs ($\beta = .129$, $p < .05$) and especially economy PLs ($\beta = .218$, $p < .01$). In addition, whereas standard PL preference is lower among higher social classes than middle social classes ($\beta = -.135$, $p < .05$), the economy PL version is more strongly appreciated by middle ($\beta = .218$, $p < .01$) and especially lower ($\beta = .396$, $p < .01$) social classes. These results are in line with Steenkamp and colleagues' (2005) findings that PL buying tendency in the United Kingdom is higher among men and consumers from lower social classes, which further bolsters confidence in the findings.

Who Are the Winners and Who Are the Losers?

The model estimates shed light on the direction and magnitude of the separate context effects on the brands' relative utilities. To further trace the implications of the introduction of economy and premium PLs for all incumbents, it is instructive to "net out" the separate context effects and assess their ultimate impact on brand shares. Specifically, we calculate the change in choice share due to the introduction of a new (economy or premium) PL for each type of

incumbent in the market and assess who are the winners and who are the losers.

Following Ailawadi, Gedenk, and Neslin (1999), we assess this by simulating brand choice before and after each PL introduction and comparing the outcomes. For each household, we first obtain the posterior coefficients from the MMNLC as average likelihood-weighted draws from the parameter mixing distribution (see Train 2003, p. 266). We then calculate the preintroduction choice probabilities using these posterior household parameters and, to avoid confounding effects of marketing-mix changes, for average price, promotion, assortment, and advertising levels of each brand. Aggregation across households yields the brand share levels before introduction, which appear in Table 8, Column (a), for the economy PL introduction and in Table 9, Column (a), for the premium PL introduction.

As a benchmark setting, we first consider the expected changes in market share if the newly introduced PLs would draw proportionally from each incumbent. We obtained these changes by simulating proportional reductions in households' preintroduction choice probabilities for incumbents and computing the change in market share by comparing the aggregated choice probabilities before and after the PL introduction. Under the proportional draw hypothesis, all incumbent brands—whether they are NBs or PLs or low-quality, medium-quality, or top-quality-tier brands—suffer from the advent of the economy and the premium PLs, as evidenced by the negative share changes in Column (b) of Tables 8 and 9.[10]

Next, we compare these benchmark figures with the changes implied by the richer model that includes context effects. This time, we simulate the postintroduction choice probabilities—again, for average price, promotion, advertising, and assortment levels of each brand—using the full MMNLC model. We again calculate market share by aggregating choices across households and compute the change in market share by comparing the market shares before and after the PL introductions. We present the outcomes in Column (c) of Tables 8 and 9; this generates some noteworthy insights.

First, contrary to the proportional draw setting, mainstream-quality NB incumbents can actually gain share after the introduction of a new PL tier. In particular, as Table 8 shows, the advent of the economy PL in the corn flakes category significantly increases the share of mainstream-quality NBs, with 4.5% (from 22.9% to 27.4%) at Asda and 3.2% (from 29.6% to 32.8%) at Sainsbury—a consequence of the compromise effect. Consistent with this, in the canned soup category, mainstream-quality NBs benefit from the economy PL introduction, as is evident in the significant absolute share increases of .6% and 1.3% at Asda and Sainsbury, respectively. All share increases are significantly larger than would be expected under a proportional draw scenario, as Column (d) in Table 8 shows. Moreover, premium-quality NBs also suffer from the economy PL

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[10]Because we derived the market share estimates by aggregating choice probabilities on the basis of heterogeneous, household-level posterior estimates, the aggregate percentage share changes expected under a proportional draw (i.e., when all incumbents' household-level choice probabilities are affected equally by the PL tier introduction) are not exactly equal to one another.

Table 8
INTRODUCTION OF AN ECONOMY PL TIER: WHO ARE THE WINNERS AND WHO ARE THE LOSERS?

	Corn Flakes				Canned Soup			
	Share Before Introduction (a)	ΔShare Proportional (b)	ΔShare (c)	t-Value (c)–(b) (d)	Share Before Introduction (a)	ΔShare Proportional (b)	ΔShare (c)	t-Value (c)–(b) (d)
Asda								
Premium-quality NBs	**58.1** (1.23)a	**–.6** (.08)	**–4.0** (1.37)	**–2.49**	**60.7** (1.20)	**–5.7** (.22)	**–8.4** (1.30)	**–2.40**
Mainstream-quality NBs	**22.9** (1.02)	**–.3** (.03)	**+4.5** (1.13)	**+4.38**	**8.0** (.39)	**–.5** (.05)	**+.6** (.36)	**+3.45**
Standard PL	**18.1** (.95)	**–.3** (.06)	*–1.3* (.96)	–.958	**29.8** (1.03)	**–4.25** (.21)	**–3.0** (1.15)	*+1.34*
Sainsbury								
Premium-quality NBs	**43.5** (1.02)	**–.3** (.03)	–1.3 (1.19)	–.86	**52.9** (.86)	**–1.7** (.12)	**–3.3** (1.16)	*–1.36*
Mainstream-quality NBs	**29.6** (.91)	**–.2** (.02)	**+3.2** (1.05)	**+3.26**	**13.3** (.49)	**–.3** (.02)	**+1.3** (.53)	**+3.11**
Standard PL	**25.4** (.79)	**–.2** (.02)	*–1.4* (.99)	–1.26	**32.1** (.81)	**–1.5** (.12)	*–1.6* (1.07)	–.11

aStandard errors are in brackets. Standard errors are obtained using 500 multivariate draws of the means and standard deviations of the mixing distributions in Tables 6 and 7. Shares and share changes in bold are significant at the 5% level, and those in italics are significant at the 10% level (two-sided tests). Note that because the distributions of shares and share changes are skewed, the usual t-tests do not apply, and significance is based on the fraction of draws with positive or negative values.

Notes: To distinguish choice share changes inherent to the introduction from those induced by changes in the control variables, we keep the control variables constant and calculate the "Share Before Introduction" for average levels of the control variables. "ΔShare Proportional" represents the absolute change in share that might be expected if the newly introduced PL tier drew proportionally from each incumbent. "ΔShare" represents the observed absolute change in share due to the introduction of a new PL tier compared with the share before the introduction. (Note that because of parameter heterogeneity across households, proportional draw in individual choice probabilities does not necessarily translate into identical percentage changes in aggregate shares).

Table 9
INTRODUCTION OF A PREMIUM PL TIER: WHO ARE THE WINNERS AND WHO ARE THE LOSERS?

	Corn Flakes				Canned Soup			
	Share Before Introduction (a)	ΔShare Proportional (b)	ΔShare (c)	t-Value (c)–(b) (d)	Share Before Introduction (a)	ΔShare Proportional (b)	ΔShare (c)	t-Value (c)–(b) (d)
Asda								
Premium-quality NBs	**54.1** (.52)a	–.8 (3.77)	–2.1 (4.02)	–.78	**52.3** (.31)	–.2 (.04)	**+2.8** (.73)	**+4.02**
Mainstream-quality NBs	**27.5** (.50)	–.4 (2.02)	**+2.8** (2.60)	**+2.53**	**8.5** (.25)	–.0 (.01)	–.4 (.25)	**–1.52**
Standard PL	**16.8** (.42)	–.2 (1.15)	**–2.1** (1.34)	**–2.12**	**26.9** (.38)	–.1 (.01)	**–1.6** (.57)	**–2.63**
Economy PL	**1.3** (.15)	–.0 (.76)	–.2 (.10)	**–1.95**	**10.8** (.18)	–.0 (.01)	**–.5** (.18)	**–2.39**
Sainsbury								
Premium-quality NBs	**42.2** (.71)	–.2 (.10)	**+3.4** (1.71)	**+2.12**	**49.7** (.56)	–.8 (.09)	–1.0 (.96)	–.082
Mainstream-quality NBs	**32.8** (.65)	–.1 (.08)	–.4 (1.16)	–.22	**14.6** (.36)	–.2 (.02)	+.4 (.44)	+1.42
Standard PL	**24.1** (.74)	–.1 (.05)	**–3.2** (1.26)	**–2.50**	**30.5** (.67)	–.6 (.07)	–1.9 (.87)	–1.54
Economy PL	**.7** (.08)	–.0 (.00)	–.1 (.05)	**–2.55**	**3.6** (.25)	–.0 (.01)	–.3 (.11)	**–2.18**

aStandard errors are in brackets. Standard errors are obtained using 500 multivariate draws of the means and standard deviations of the mixing distributions in Tables 6 and 7. Shares and share changes in bold are significant at the 5% level, and those in italics are significant at the 10% level (two-sided tests). Note that because the distributions of shares and share changes are skewed, the usual t-tests do not apply, and significance is based on the fraction of draws with positive or negative values.

Notes: To distinguish choice share changes inherent to the introduction from those induced by changes in the control variables, we keep the control variables constant and calculate the "Share Before Introduction" for average levels of the control variables. "ΔShare Proportional" represents the absolute change in share that might be expected if the newly introduced PL tier drew proportionally from each incumbent. "ΔShare" represents the observed absolute change in share due to the introduction of a new PL tier compared with the share before the introduction. (Note that because of parameter heterogeneity across households, proportional draw in individual choice probabilities does not necessarily translate into identical percentage changes in aggregate shares).

introduction, in three of four cases. This could be due to consumers switching away from these top-quality NBs to the now more appealing mainstream-quality NBs, in accordance with the strong and consistent compromise effect.

After the premium PL introduction, the competitive position of premium-quality NBs significantly improves in two of four cases (corn flakes at Sainsbury: share increase of 3.4%; canned soup at Asda: share increase of 2.8%; both share increases are significantly larger than proportional); in the other two cases, premium-quality NBs lose share, but these share losses are not significant (Table 9). Combined with the negative effect of the economy PL introduction on the premium-quality NBs, this leads to the result that though premium-quality NBs are not harmed by premium PL introductions, they may suffer from economy PL introductions.

Overall, we find that mainstream-quality NBs win from economy PL introductions, but premium-quality NBs do not always win from premium PL introductions. Apparently, incumbent NBs have a more difficult time fighting PLs on quality than on price.

Second, the standard PL significantly loses share from both economy and premium PL introductions. Share losses for the standard PL range from -1.3% ($p < .10$) to -3.0% ($p < .01$) for the economy PL introduction (Table 8) and from -1.6% ($p < .01$) to -3.2% ($p < .01$) for the premium PL introduction (Table 9). Moreover, the advent of the premium PL makes the standard PL incumbent suffer significantly more than would be expected under the proportional draw scenario, consistent with the brand-type similarity effect. In contrast, for the economy PL introduction, the share losses were not significantly larger than proportional (the brand-type similarity effect still outweighs the attraction effect but is compensated by the compromise effect). Likewise, the economy PL suffers disproportionally from the premium PL introduction, with absolute share losses ranging from $-.1\%$ to $-.5\%$ (for all changes, $p < .01$). Overall, we find that new PL tier introductions cannibalize incumbent PLs and that this cannibalization is disproportionally strong for the premium PL tier introduction.

In summary, retailers' existing PL offerings invariably suffer from the introduction of new PL tiers. In contrast, economy and premium PL introductions are not necessarily detrimental, and in some cases are even beneficial, for incumbent NBs' market shares.

DISCUSSION

Three-tiered PL portfolio strategies are gaining interest around the world. We draw on the context-effects literature to examine how economy and premium PL introductions influence PL and NB choice. We use a natural experiment of two retailers' introductions of economy and premium PL tiers in two categories to test the framework. Although the fit and predictive validity of the context-effects model is only marginally higher than when no context effects are allowed for, the fit improvement is consistent across retailers and categories. Moreover, the estimated context effects are both significant and substantively large.

Incumbent PLs invariably suffer from the introduction of economy and premium PLs. More specifically, we find that economy PLs cannibalize standard PLs. Likewise, premium PLs cannibalize economy and standard PLs. The modeling exercise helps us better understand why these effects occur,

by identifying the underlying theoretical mechanisms. In both cases, this is at least partly due to the brand-type similarity effect. These findings are consistent with the "divided loyalty" argument, but they also support the notion of "brand strength dilution through quality variation": As quality variation increases through either downscale or upscale PL line extensions, consumers become less confident in the PL brand name as a signal of a given quality level. Notably, we find that the cannibalization effect is particularly strong when the higher-quality tier is added: Incumbent PLs suffer disproportionally from the advent of the premium PL.

In comparison, we find that economy and premium PL introductions are not necessarily detrimental and, in several cases, may even benefit incumbent NBs in terms of market share. Premium PL introductions may sometimes benefit premium-quality NBs because of the attraction effect, whereas economy PL introductions always benefit mainstream-quality NBs because these become a compromise or middle option in the retailer's assortment on the quality-tier dimension.

Managerial Implications

Understanding how economy and premium PL introductions affect PL and NB incumbents' shares is critical to both retailers and NB manufacturers. For retailers, we challenge the common management belief that covering a full range of PL tiers increases the retailer's PL share without triggering cannibalization. Recently, the United Kingdom's second-largest retailer, Sainsbury, indicated in an interview with Planet Retail (2007, p. 61, italics added) that "we do not *anticipate* that this [economy and premium PL introductions] will be largely detrimental to the standard range." The findings indicate that this optimism may not be fully warranted.

If retailers want to reduce the cannibalizing effects of PL introductions, they should counter the brand-type similarity effect. They could do so by carefully positioning their PLs in different shelf areas or on different shelves to prevent the consumer from directly comparing the three PL tiers. Furthermore, they could create stand-alone brands instead of subbrands under the retailer brand name to delink their different PL tiers. For example, in contrast to Tesco, which has used the subbrand approach to introduce its line of economy PLs ("Tesco's Value"), Delhaize, a food retailer headquartered in Belgium, launched its economy PL under the stand-alone brand name "365."

For NB manufacturers, we find that the common management belief that PL proliferation will cause NB sales to flag even further has been overstated. Counter to business press publications, which are flooded with headlines such as "Retail: Bye-Bye Brands," "Big Brands Go Begging," and "Private Label Onslaught" (Kumar and Steenkamp 2007), we find that the introduction of economy and premium PL tiers may actually increase the choice share of NBs. The results for the underlying context effects suggest different strategies for NB manufacturers to ensure beneficial or to reduce harmful effects of PL tier introductions on market share.

Managers of premium-quality NBs should work on exploiting the attraction effect by emphasizing quality superiority. In these highly price-volatile environments, managers should resist the temptation to cut prices or offer promotions to combat premium PL introductions. Instead, they should

invest in product innovations and in communicating to consumers that their brands are superior by sustaining a high level of advertising. Conversely, managers of mainstream-quality NBs should try to exploit the compromise effect by avoiding separate displays. Mixed displays, in which mainstream-quality NBs are displayed alongside more upscale and downscale NBs and/or PLs, help them because comparisons are made easier for the consumer.

Notably, Tesco recently introduced a fourth PL tier, dubbed "Discount Brands." This new tier is positioned between Tesco's economy and standard PL lines and includes PLs that are not branded "Tesco" but are own-branded products, with names such as Creamfields cheese, Packers Best tea, and Daisy washing-up liquid. The jury is still out on the new discount range's success. From the findings herein, we speculate that this new PL tier (1) will negatively affect economy PLs (the lower-quality option) as well as standard PLs and mainstream-quality NBs (the higher-quality options) through the compromise effect, (2) will negatively affect all incumbent PL tiers through the brand-type similarity effect, and (3) will positively affect the standard PLs and the mainstream-quality NBs through the attraction effect. When we add up these effects, our bottom-line prediction is that economy PLs will suffer the most. However, we also note that Tesco cleverly tries to reduce cannibalizing effects on its incumbent PL tiers: The use of a prominent aisle near the entrance to the store, full of discounter products only, could reduce the negative compromise effect on economy and standard PLs because head-to-head comparison is made more difficult. Similarly, the use of pseudo–brand names instead of the "Tesco" name could reduce the negative brand-type similarity effect.

Limitations and Further Research

This research has several limitations that offer avenues for further research. First, further research could enrich the findings through laboratory-based choice experiments. By including process measures, such experiments could help untangle the sometimes countervailing context effects (Swait and Andrews 2003). Second, the average quality of standard PLs may differ across countries, categories, and retail chains. Corstjens and Lal (2000) point out that the quality of PLs is an instrument for retailers to generate differentiation. As such, the average perceived quality level of the standard PL forms the platform from which other PL tiers can be launched with more or less ease. It may be worthwhile to investigate the extent to which the relatively high-quality level of standard PLs in the U.K. market influences the results. Does the high-quality "pole position" in the United Kingdom reduce the hurdle to offer premium PLs, or in contrast, does it impede differentiation of the new premium PL from the existing standard PL offering? Studying the research questions in other countries with different overall quality levels of the standard PL may help generalize the findings across countries.

Furthermore, because of the setting, this study leaves some aspects of the branding and introduction strategy uncovered. For example, all PL extensions in this study carry the retailer's name as a subbrand. As we noted previously, retailers may have an interest in adopting stand-alone branding strategies for either upscale or downscale introductions, an issue that has yet to be explored in academic studies. In addition, until recently, economy PLs have typically been introduced before premium PLs. As such, we were unable to disentangle the effect of adding a quality tier from an order-of-entry effect explanation.

Although our MMNLC model results control for changes in price, the simulation results hold price at average levels. Further research could investigate the effects of PL tier introductions on price and how these price changes affect how brands are perceived. For example, we find that mainstream-quality NBs stand to win following the advent of the economy PL (keeping prices constant at average levels) because they become the reasonable-quality compromise option. However, if NB manufacturers react to economy PL introductions by reducing their mainstream-quality NBs' prices or by increasing price promotions, they may erode their brands' perceived quality levels, and the compromise effect may no longer operate to their advantage.

Finally, we focus on the effects on brand choice. Because a large portion of most retailers' revenue and profit comes from selling NBs, policy recommendations cannot be as clear-cut for retailers as for NB manufacturers. Therefore, studying the effect of the introduction of different PL tiers on overall category sales may offer additional insights for the retailer. Moreover, retailers may manage their PL programs with different strategic objectives in mind, such as driving up share of wallet and share of shopping trips (Ailawadi, Pauwels, and Steenkamp 2008) or margins (Ailawadi and Harlam 2004), and introducing different PL tiers may contribute to those objectives. For example, economy PLs can be launched to fight hard discount competitors and gain back lost share from these players. Conversely, premium PLs are often believed to generate higher gross margins and thus are introduced to increase a category's overall profitability. Thus, even when cannibalization occurs, the retailer might be following a smart strategy by introducing additional PL tiers. Therefore, further research should explore the impact of introducing different PL tiers on additional performance indicators, such as store traffic and profit.

REFERENCES

Aaker, David A. and Kevin L. Keller (1990), "Consumer Responses to Brand Extensions," *Journal of Marketing*, 54 (January), 27–41.

Ailawadi, Kusum L., Karen Gedenk, Christain Lutzky, and Scott A. Neslin (2007), "Decomposition of the Sales Impact of Promotion-Induced Stockpiling," *Journal of Marketing Research*, 44 (August), 450–67.

———, ———, and Scott Neslin (1999), "Heterogeneity and Purchase Event Feedback in Choice Models: An Empirical Analysis with Implications for Model Building," *International Journal of Research in Marketing*, 16 (3), 177–98.

——— and Bari Harlam (2004), "An Empirical Analysis of the Determinants of Retail Margins: The Role of Store-Brand Share," *Journal of Marketing*, 68 (January), 147–65.

——— and Kevin Lane Keller (2004), "Understanding Retail Branding: Conceptual Insights and Research Priorities," *Journal of Retailing*, 80 (4), 331–42.

———, Koen Pauwels, and Jan-Benedict E.M. Steenkamp (2008), "Private-Label Use and Store Loyalty," *Journal of Marketing*, 72 (November), 19–30.

Alpi, Jean-Claude (2004), "Intermarché Adopts 3-Tier PL Strategy," *Private Label International*, (Fall), (accessed December 17, 2007), [available at http://www.privatelabelmag.com/pdf/pli_fall2004/print/4.cfm].

Blattberg, Robert C. and Ken Wisniewski (1989), "Price-Induced Patterns of Competition," *Marketing Science*, 8 (Fall), 291–310.

Boush, David M. and Barbara Loken (1991), "A Process-Tracing Study of Brand Extension Evaluation," *Journal of Marketing Research*, 28 (February), 16–28.

Bultez, Alain and Fabienne Guerra (2005), "CONTRASTES: Plaidoyer pour un Bon Vieux Test de Différences Entre Proportions," *Recherche et Applications en Marketing*, 20 (2), 29–54.

Burt, Steve (2000), "The Strategic Role of Retail Brands in British Grocery Retailing," *European Journal of Marketing*, 34 (8), 875–90.

Chintagunta, Pradeep K., Andrew Bonfrer, and Inseong Song (2002), "Investigating the Effects of Store-Brand Introduction on Retailer Demand and Pricing Behavior," *Management Science*, 48 (10), 1242–67.

Corstjens, Marcel and Rajiv Lal (2000), "Building Store Loyalty Through Store Brands," *Journal of Marketing Research*, 37 (May), 281–91.

Dacin, Peter A. and Daniel C. Smith (1994), "The Effect of Brand Portfolio Characteristics on Consumer Evaluations of Brand Extensions," *Journal of Marketing Research*, 31 (May), 229–42.

Dunne, David and Chakravarthi Narasimhan (1999), "The New Appeal of Private Labels," *Harvard Business Review*, 77 (3), 41–52.

Erdem, Tülin and Joffre Swait (1998), "Brand Equity as a Signaling Phenomenon," *Journal of Consumer Psychology*, 7 (April), 131–57.

——— and ——— (2004), "Brand Credibility, Brand Consideration, and Choice," *Journal of Consumer Research*, 31 (1), 191–98.

Food Marketing Institute (2005), "Private Label Products: A Critical Component of Differentiation for U.S. Food Retailers and a Key Driver of Store Sales, Shopper Loyalty, According to New FMI Study," report presented at the 2005 Food Marketing Institute Show, Chicago, (May 1–3), (accessed December 17, 2007), [available at http://www.fmi.org/news_releases/index.cfm?fuseaction=mediatext&id=535].

Garbarino, Ellen C. and Julie A. Edell (1997), "Cognitive Effort, Affect, and Choice," *Journal of Consumer Research*, 24 (September), 147–58.

Hanssens, Dominique M., Leonard J. Parsons, and Randall L. Schultz (2001), *Market Response Models: Econometric and Time Series Analysis*. Boston: Kluwer Academic Publishers.

Hauser, John and Birger Wernerfelt (1990), "An Evaluation Cost Model of Consideration Sets," *Journal of Consumer Research*, 16 (4), 393–408.

Huber, Joel, John W. Payne, and Christopher Puto (1982), "Adding Asymmetrically Dominated Alternatives: Violations of Regularity and Similarity Hypotheses," *Journal of Consumer Research*, 9 (June), 90–98.

——— and Christopher Puto (1983), "Market Boundaries and Product Choice: Illustrating Attraction and Substitution Effects," *Journal of Consumer Research*, 10 (June), 31–45.

Information Resources Inc. (2007), *Private Label 2007: U.S. & Europe Retail Branding Strategies Capture Market Potential*. Chicago: Information Resources Inc.

Kivetz, Ran, Oded Netzer, and V. Srinivasan (2004), "Alternative Models for Capturing the Compromise Effect," *Journal of Marketing Research*, 41 (August), 237–57.

Kumar, Nirmalya and Jan-Benedict E.M. Steenkamp (2007), *Private Label Strategy: How to Meet the Store Brand Challenge*. Boston: Harvard Business School Press.

Lamey, Lien, Barbara Deleersnyder, Marnik G. Dekimpe, and Jan-Benedict E.M. Steenkamp (2007), "How Business Cycles Contribute to Private-Label Success: Evidence from the United States and Europe," *Journal of Marketing*, 71 (January), 1–15.

Lane, Vicki and R. Jacobson (1995), "Stock Market Reactions to Brand Extension Announcements: The Effects of Brand Attitude and Familiarity," *Journal of Marketing*, 59 (January), 63–77.

Lehmann, Donald R. and Yigang Pan (1994), "Context Effects, New Brand Entry, and Consideration Sets," *Journal of Marketing Research*, 31 (August), 364–74.

Luce, R. Duncan (1959), *Individual Choice Behavior: A Theoretical Analysis*. New York: John Wiley & Sons.

Mitra, Debanjan and Peter N. Golder (2006), "How Does Objective Quality Affect Perceived Quality? Short-Term Effects, Long-Term Effects, and Asymmetries," *Marketing Science*, 25 (3), 230–47.

Nijs, Vincent, Marnik G. Dekimpe, Jan-Benedict E.M. Steenkamp, and Dominique M. Hanssens (2001), "The Category Demand Effects of Price Promotions," *Marketing Science*, 20 (1), 1–22.

Nowlis, Stephen M. and Itamar Simonson (2000), "Sales Promotions and the Choice Context as Competing Influences on Consumer Decision Making," *Journal of Consumer Psychology*, 9 (1), 1–16.

Parducci, Allen (1974), "Contextual Effects: A Range-Frequency Analysis," in *Handbook of Perception*, Vol. 2, Edward C. Carterette and Morton P. Friedman, eds. New York: Academic Press, 127–41.

Pauwels, Koen and Shuba Srinivasan (2004), "Who Benefits from Store Brand Entry?" *Marketing Science*, 23 (2), 364–90.

Planet Retail (2007), *Private Label Trends Worldwide*. London: Planet Retail Ltd.

——— (2008), *Grocery Retailing in U.S.A.* London: Planet Retail Ltd.

Prelec, Drazen, Birger Wernerfelt, and Florian Zettelmeyer (1997), "The Role of Inference in Context Effects: Inferring What You Want from What Is Available," *Journal of Consumer Research*, 24 (June), 118–25.

Rooderkerk, Robert P., Harald J. van Heerde, and Tammo H.A. Bijmolt (2008), "The Impact of Context Effects on Optimal Product Lines," working paper, CentER, Tilburg University.

Rosenthal, Robert (1991), *Meta-Analytic Procedures for Social Research*. Newbury Park, CA: Sage Publications.

Sayman, Serdar, Stephen J. Hoch, and Jagmohan S. Raju (2002), "Positioning of Store Brands," *Marketing Science*, 21 (4), 378–97.

Seetharaman, P.B. (2004), "Modeling Multiple Sources of State Dependence in Random Utility Models: A Distributed Lag Approach," *Marketing Science*, 23 (2), 263–71.

Simonson, Itamar (1989), "Choice Based on Reasons: The Case of Attraction and Compromise Effects," *Journal of Consumer Research*, 16 (September), 158–74.

Singh, Vishal P., Karsten T. Hansen, and Robert C. Blattberg (2006), "Market Entry and Consumer Behavior: An Investigation of a Wal-Mart Supercenter," *Marketing Science*, 25 (5), 457–76.

Sivakumar, K. and S.P. Raj (1997), "Quality Tier Competition: How Price Change Influences Brand Choice and Category Choice," *Journal of Marketing*, 61 (July), 71–84.

Steenkamp, Jan-Benedict E.M., Inge Geyskens, Oliver Koll, Katrijn Gielens, and Helen Lewis (2005), *Fighting Private Label: Growth Drivers, Brand Defense Strategies, and Market Opportunities*. London: Business Insights Limited.

Sullivan, Mary W. (1990), "Measuring Image Spillovers in Umbrella-Branded Products," *Journal of Business*, 63 (July), 309–329.

Swait, Joffre and Rick L. Andrews (2003), "Enriching Scanner Panel Models with Choice Experiments," *Marketing Science*, 22 (4), 442–60.

Taylor, Shelly E. and Susan T. Fiske (1978), "Salience, Attention, and Attributions: Top of the Head Phenomena," in *Advances in Experimental Social Psychology*, Vol. 11, Leonard Berkowitz, ed. New York: Academic Press, 249–87.

Train, Kenneth (2003), *Discrete Choice Models with Simulation.* Cambridge, UK: Cambridge University Press.

Tversky, Amos (1972), "Elimination by Aspects: A Theory of Choice," *Psychological Review*, 79 (4), 281–99.

Van Heerde, Harald, Els Gijsbrechts, and Koen Pauwels (2008), "Winners and Losers in a Major Price War," *Journal of Marketing Research*, 45 (October), 499–518.

Wernerfelt, Birger (1995), "A Rational Reconstruction of the Compromise Effect: Using Market Data to Infer Utilities," *Journal of Consumer Research*, 21 (4), 627–33.