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ABSTRACT

Ingredient branding, or the use of two or more brand names on a single product, is widely seen as providing significant benefits in terms of increased product differentiation and greater market share. The association between two brand names can both enhance and dilute the brand equity of the host brand name and the ingredient brand name. This research examines the behavioral spillover effects associated with co-branded strategies across segments of consumers that vary in their prior brand commitment or loyalty. Different from previous research, this paper uses A.C. Nielsen scanner panel data to investigate the behavioral spillover effects of ingredient branded products on choice of the host and ingredient brands in a field setting. The results suggest that there is a significant behavioral spillover impact of trial of the co-branded product on the purchase probability of both the host and ingredient brands. This effect is greater among prior non-loyal users and prior non-users of the host and ingredient brands and when there is a higher degree of perceived fit between the host and ingredient brands.

Keywords: ingredient branding, co-branding, brand commitment, brand loyalty

INTRODUCTION

In 2000, accidents involving Firestone tire-equipped Ford Explorers accounted for most of the 174 deaths and more than 700 injuries that prompted Firestone's $3 billion recall of its 15-inch SUV tires. Interestingly, following the recall, 33% of non-Ford owners said that their opinion of Ford dropped after the announcement of the tire replacement program, while 86% of current owners reported *same* or *better* opinions of Ford after the announcement (Connelly 2001). Thus, anecdotally it appears that the spillover effect of Firestone's recall on attitudes toward Ford varied based on consumers' prior commitment and loyalty.

There is research demonstrating the impact of co-branded strategies on brand attitudes and loyalty towards the original brands which is referred to in the literature as *spillover effects* (Desai and Keller 2002; Kumar 2005; Park, Youl Jun, and Shocker 1996; Rao, Qu, and Ruekert 1999; Simonin and Ruth 1998; Voss and Gemmaoh 2004). A majority of this research focuses on brands in the partnership and only considers consumers in the aggregate. For instance, we know that whether the brands are complementary (Park, Youl Jun, and Shocker 1996), the type of ingredient branding strategies (Desai and Keller 2002), the extent to which the brands signal quality (Rao, Qu, and Ruekert 1999), brand familiarity (Simonin and Ruth 1999), and the number of co-branded partnerships (Voss and Gammoh 2004) can all affect consumers' attitudes toward the co-branded product. Thus, while we know a lot about how brand attributes moderate the spillover effects of a co-branded relationship, we know much less about how consumer attributes moderate such spillover effects.

Different from previous work, we examine how spillover effects vary based on prior usage or loyalty towards each of the partner brands in the co-brand. It is likely that a co-branded product does not have similar effects on all consumers. Because a co-branded product can appeal to new target segments through the addition of a secondary partner brand, the spillover effects among non-users could capture

the role of the co-brand in attracting new users. Further, co-branded products could also increase penetration or usage among existing target segments, by providing unique flavors or variants that may appeal to variety-seeking loyal users. Thus, understanding the role of consumer prior usage in moderating the spillover effects could add rich insights into the mechanisms by which co-branded products contribute to brand equity.

Specifically, we look at a special case of co-branding known as ingredient branding. Co-branding traditionally involves pairing two or more branded products together to form a separate and unique product (Park, Youl Jun, and Shocker 1996). Ingredient branding is a special case of co-branding where a host brand is combined with a branded ingredient, not to form a separate product, but to enhance the host brand product. The host brand typically refers to the primary product within which the ingredient brand resides. For instance, in the co-branded Ben and Jerry's and Heath ice cream, Ben and Jerry's is the host and Heath candy is the ingredient. There are various strategic advantages of this strategy for both the host and the ingredient including brand recognition, product differentiation, and greater market share. The addition of branded ingredients can result in market share increases for both host and ingredient brands. For example, brand names such as Intel, Gore-Tex, Microban, and NutraSweet achieved prominence primarily due to their use of ingredient branded strategies *(*Kotler and Pfoertsch 2010).

In addition to addressing an important practical and theoretical gap in the literature by examining how spillover effects vary by usage of and loyalty towards the partnered brands in ingredient branded strategies, we also contribute to the extant literature by examining the moderating effect of fit between the brands, as well as testing our hypotheses in a field study of actual behavior, as opposed to an artificial laboratory setting. This latter point is especially important since the bulk of co-branding research has been conducted in a lab setting using hypothetical examples (Desai and Keller 2002;

Kumar 2003; Park, Youl Jun, and Shocker 1996; Rao, Qu, and Ruekert 1999; Simonin and Ruth 1998; Voss and Gemmaoh 2004). The disadvantage of this approach is that it precludes the ability to examine both short-run and long-run consequences of co-branded alliances. The present work contributes to extant knowledge regarding brand alliances by investigating the spillover effects of ingredient branded strategies in a field setting using A.C. Nielsen scanner panel data. The use of scanner panel data allows us to examine the *behavioral spillover* effects of ingredient branded strategies. Behavioral spillover effects involve the purchase of the host or ingredient brand following the trial purchase of the co-branded product. In other words, we examine how consumers behave differently following *trial* of the co-branded product and how such behavior varies across segments of prior users and prior non-users. The importance of product experience (i.e., trial of the co-branded product) is summarized by Smith and Swinyard (1982, p. 84) who suggest, "information gained through direct experience is not subjected to the same level of counterarguing, source derogation, message rejection [as information from advertising]. Accordingly, the resulting beliefs are stronger, more confidently held, generating a powerful information base for attitudinal development." Therefore, examining spillover effects using actual choice data more accurately represents real-world effects.

THEORETICAL BACKGROUND

The spillover impact of co-branded strategies has been investigated previously primarily with a focus on brand attributes. For example, Park, Youl Jun, and Shocker (1996) found that there was a differential spillover effect of the alliance on the partner brands with the dominant partner brand receiving a greater impact than the less dominant partner in a co-branded relationship. Simonin and Ruth (1998) found that the brand alliance exerted greater spillover effects on the unfamiliar brand than on the familiar brand. As noted previously, our research examines how consumer attributes, such as prior usage and loyalty contribute to future purchases of the host and ingredient brands. Thus, we define behavioral

spillover effects as the purchase of either the host or ingredient brand following trial of the co-branded product.

Trial of the co-branded product furnishes new information concerning the host and the ingredient brands. Consumers are known to rely more on information provided by product experience than information obtained from other sources (Kempf and Smith 1998). Specifically, the trial of the co-branded product is likely to have differential behavioral spillover effects on consumers based upon their degree of prior experience with the host and ingredient brands. Among *prior non-users* or among *prior non-loyal users* of the host and the ingredient brands, consumers' knowledge structures of the host brands and the ingredient brands are likely to be less extensive. Under these conditions of limited prior knowledge the new information provided by the trial of the co-branded product is likely to have greater diagnosticity (Fazio et al. 1989). Information that is more diagnostic carries more weight and has greater impact (Anderson 1981). Therefore, among prior non-users and among prior non-loyal users, brand alliance information is likely to exert strong behavioral spillover effects on perceptions of the partner brands. Conversely, since prior loyal users have a higher level of prior experience with the parent brand and thus well-developed sets of associations (Keller 1993), the additional information provided by trial of the co-branded product is less diagnostic and has limited potential for behavioral spillover effects. In summary, the following is hypothesized:

H_1: Trial of a co-branded product is likely to have a significant behavioral spillover impact on purchase of both the host and ingredient brands, particularly among prior non-users or prior non-loyal users of the host and ingredient brands.

One likely moderator of the behavioral spillover effects among prior users is the similarity of the host and ingredient to the co-branded product. The role of perceived fit between the brands, or the similarity between brand images and categories, in a co-branded alliance has been investigated previously (Park, Youl Jun, and Shocker 1996; Simonin and Ruth 1998). Park, Youl Jun, and Shocker

(1996) suggest that attribute-level complementarity is a critical factor influencing the success of co-branded products, where complementarity is judged by the presence of each partner brand compensating for the attribute weaknesses of the other. Simonin and Ruth (1998) investigate the role of overall product and brand fit in enhancing evaluations of brand alliances.

While previous research has focused primarily on the role of perceived fit in enhancing co-branded product attitude (the forward transfer of associations), its role in moderating *spillover* effects has not been evaluated previously.[1] There is considerable theoretical support for the role of perceived fit in moderating the spillover impact. According to the Feldman and Lynch model (1988), the likelihood that an input will be used in making a judgment depends partly on the diagnosticity of the input. An input is considered diagnostic if it helps assign a target into a particular category, such as high or low quality. Using this perspective, consumers are likely to assume their favorable perceptions of a co-brand are more diagnostic for making a judgment about the individual brands in the co-brand if the two brands are similar. From a diagnosticity perspective, therefore, the greater the fit of the ingredient with the host brand, the more informative is a piece of information regarding the co-branded product in influencing the perception of the partner brands. Categorization theory also suggests that the degree to which a new instance fits with the existing category knowledge will influence the degree to which existing brand beliefs are changed by new information (Weber and Crocker 1983). Consistent with this, we propose the following:

H_2: Trial of the co-branded product is likely to have a greater behavioral spillover impact on purchase of both the host and ingredient brands when the ingredient has a greater degree of fit with the host brand.

[1] Simonin and Ruth (1998) do not explicitly manipulate perceived fit but instead measure the extent of perceived fit and incorporate this as a covariate.

METHOD

This research examines the behavioral spillover effects of ingredient branded strategies in a field setting using household scanner panel data. This dataset was obtained specifically for this research. The dataset includes a product category where a brand simultaneously introduced three ingredient branded products as line extensions to its original brand. All three co-branded products have 'stand-alone' ingredients.[2] An example of such a brand introduction may be Betty Crocker cake mix introducing a premium line of cake mixes with multiple ingredient brands such as Hershey's and Sunkist.

Each of the co-branded products has two brand names. One of the partner brand names (the host brand) is common across all three co-branded products. The common host brand is labeled HB and is the dominant partner as judged by order of presentation of names and prominence on packaging. The ingredient parent brands are labeled IB_A, IB_B, and IB_C, respectively. IB_A and IB_B belong to the same foods category (but distinct from the category where the co-brand is introduced), whereas the third ingredient IB_C has a large presence in another foods category (also distinct from the category of the co-branded product). The dataset consists of household-level scanner panel data for the entire product category for approximately eighteen months prior to introduction of the ingredient branded line extensions and for one year following introduction. While it was desirable to obtain data for a longer time period than one year following introduction, given the short inter-purchase times in this category (approximately thirty days), the one year time period post-introduction was deemed sufficient to examine the behavioral spillover effects. The names of the brands and categories used in the data are masked to provide anonymity.

A brief overview of the three categories (one host and two ingredient categories) follows. The host category had an average interpurchase time (in days) of 29, 36 national brands (with greater than

[2] Hershey's may be viewed as a 'stand-alone' ingredient because it has an independent presence in its own category and sells directly to consumers. In contrast, Intel does not have an independent presence and cannot sell directly to the consumer.

.5% market share), and an average price in cents per gram/ounce of 50. The host brand had a market share of 11%. The second product category (of which ingredient brands IB_A and IB_B were a part) had an interpurchase time (in days), 30 major brands, and an average price in cents per gram of 173. The ingredient parent brand A had a market share of 10% while the ingredient parent brand B had a market share of 8%. The category of the third ingredient branded product had an interpurchase time of 34 days, 20 major brands, and an average price in cents per gram of 226. The market share of ingredient parent brands was 10%.

Model Development

A logit choice model is a reasonable approach to capture the behavioral spillover effects associated with the purchase of the co-branded product. To estimate a model of household choice behavior, however, extensive information regarding marketing mix variables (e.g., price, promotion) for the entire set of competitors is necessary. Our dataset contains price and promotional information regarding the specific brand purchased on any given choice occasion, but the corresponding information for competing brands is unavailable. Some researchers using household level scanner panel data impute competitors' prices from available information to create a competitive scenario on every choice occasion. In our category, due to the large number of competing brands (approximately 30) and the fragmented nature of the market, imputing competitive prices for each choice occasion is likely to contribute to considerable measurement error.

Our primary objective was to examine households' propensities for purchasing the host *and* ingredient brands (i.e., the behavioral spillover) following their choice of the co-branded product. This is achieved by modeling with the unit of analysis being the household. To examine the spillover effects of prior trial of the co-branded product, we created a dummy variable (SPILLOVER) which takes on the value 1 if a household made a trial purchase during the first six months after the introduction of the co-

branded product and remained 0 otherwise. Behavioral spillover effects of the host and the ingredient brand are observed subsequent to the initial six month period (until the last week recorded in the dataset). Separate models were developed for host and ingredient brands where the dependent variable is the purchase of the original host (P_{pur}) or the ingredient brand (C_{pur}) during this subsequent time period. Further, these models were estimated both for prior users and non-users of the host and the ingredient.[3]

In addition to the inclusion of the spillover effects variable, we included three variables to control for the characteristics of the household that may have an impact on their decision to purchase the host and ingredient brands. These covariates were carefully chosen to account for the main drivers of purchase following introduction of a new product. First was a variable that captured the household's prior loyalty towards the host (LOYHB) or ingredient brands (LOYIB). These variables represent the impact of brand loyalty, which is a significant factor in choice behavior (Guadagni and Little 1983). This is operationalized as a percentage of host/ingredient brand purchases compared to the total purchases in the category prior to the introduction of the co-branded product (Guadagni and Little 1983).[4] The second variable was the overall category usage, measured as the total number of category purchases made in the host/ingredient category ($TOTNUM_h$ and $TOTNUM_i$) by a given household. The probability of choosing the host or ingredient brands in their respective categories is likely to depend upon category usage (i.e., heavy users are more likely to purchase the co-branded product). Prior research suggests that propensity to purchase a brand extension is influenced by category expertise (Smith and Park 1992). The frequency of purchasing in a category or category usage is an indicator of the knowledge or expertise in a category (Alba and Hutchinson 1987). Given this, we control for category usage in our model. Third, the overall coupon proneness of the household was included to

[3] Prior users are defined as those having bought the original host or ingredient brand at least once prior to the six-month period in which the dependent variable P_{hpur} was estimated. Prior non-users refer to households who did not purchase the original brands even once in the time period preceding the same six-month period.

[4] Please note that in the model estimated for prior non-users, the prior loyalty variable is zero and is therefore not included.

account for households' purchasing of the original brands due to the promotions or coupons associated with these brands. This is measured as the ratio of total number of host/ingredient purchases made by the household using a coupon divided by the total number of category purchases prior to the introduction of the co-branded product ($COUPPAR_h$ and $COUPPAR_i$).

Next we formally provide the behavioral spillover effects models for the host and the ingredient brand. First, we describe the model for the host brand.Let P_h (pur host)=1 if the parent host was purchased by a household h between the seventh and twelfth months after the introduction of the co-branded product and P_h (pur host)=0 otherwise.

(1) P_h (pur host)=exp (u)/1+exp(u)

(2)$u=\beta_0+\beta_1 LOYHB_h+\beta_2(SPILLOVER_h)+\beta_3(TOTNUM_h)+\beta_4(COUPPAR_h)$

$LOYHB_{(h)}$ = loyalty of household h towards the host brand prior to the introduction of the co-branded product. Following previous work (Guadagni and Little 1983), loyalty was a percentage measure calculated by dividing the number of host brand purchases by the total purchases made in the category.

$SPILLOVER_h$ =an indicator dummy which takes on the value 1 if the co-branded product is purchased by a household *h* in the first six months after introduction and remains 0 otherwise.

$TOTNUM_h$ = total number of category purchases made in the host category by household *h* prior to the introduction of the co-branded product.

$COUPPAR_h$= coupon proneness in the host category by household h prior to the introduction of the co-branded product. Similar to previous research, this was measured by taking the total number of purchases made by a household *h* using a coupon divided by the total number of category purchases made by the same household.

A similar model was tested for spillover effects in the ingredient category. Loyalty, total category purchases, spillover and coupon proneness were measured in the ingredient category in a manner similar to that of the host category. The the model for spillover effects in the ingredient brand category is described as follows.

(3) P_h(pur ing)=exp(z)/1+exp(z)
where $z=\alpha_0+\alpha_1 LOYIB_h+\alpha_2(SPILLOVER_h)+\alpha_3(TOTNUM_h)+\alpha_4(COUPPAR_h)$

Where P_h(pur ing)=1 if the ingredient parent brand was purchased by household *h* between the seventh and twelfth months after the introduction of the co-branded product and P_h(pur ing)=0 otherwise.

Qualification Criteria for Households and Setting Product Introduction Dates. The scanner panel data allows us to investigate spillover effects at the household level. To study the impact of a household's purchase of the co-branded product on the original brands, we imposed some qualifying criteria on the households that were included. First, since the panel is comprised of households that enter and leave the panel continuously, we had to ensure that only those households that were present prior to the introduction of the co-branded product and that were also present at least six months following product introduction were included in the sample. This resulted in the creation of a static panel. Second, to test the hypothesized effects regarding prior loyalty it was necessary to construct purchase histories on the households prior to the introduction of the co-branded product. Also, since we investigate spillover effects on both the host and the ingredient brand, households making at least three purchases in *both* the host brand (HB) and ingredient brand (IB_i) categories *both* before and after product introduction were included in the analysis. Additionally, we included only those households that had at least one opportunity to purchase in the six month time period when spillover effects were measured (i.e., seven to twelve months after introduction of the co-branded product). Since the new product introduction took place over a five-week period, the new product introduction date was allowed to vary by market and was set to the week prior to the date on which the first purchase of the product was recorded in a given market.

As the dependent variable in these spillover models is binary, we used a logistic regression to estimate the behavioral spillover effects models. The behavioral spillover impact is judged by the significance of the spillover effects variable. A chi-square statistic is used to gauge overall model fit. The results of the behavioral spillover effect models are presented in Tables 1 and 2.

Insert Tables 1 and 2 here

Behavioral Spillover Effects on the Host Brand

Prior Host Users. As can be seen in Table 1, trial of both Co-Brands A and B had a significant impact on inducing trial of the parent host brand among prior users and the trial of Co-Brand C was not significant. The odds ratio for the spillover effects indicator was 1.751 in the case of the Co-Brand A ($p < 0.05$) and 1.296 ($p < 0.10$) in the case of Co-Brand B. The estimated coefficient of spillover variable is the log of odds ratio between the group which tried the cobranded product and the group that did not (for Co-Brand A it is 0.560). The odds ratio can be calculated by taking the exponent of the coefficient ($e^{0.560} = 1.751$). This suggests that triers of the cobranded product are 1.751 times more likely to purchase the host brand than non-triers. Or the odds for customers who have tried the cobranded product to purchase the host brand are 75% higher than the odds for customers who did not try the cobranded product (1.751 – 1.000).

This indicates a strong behavioral spillover effect of prior co-brand trial on subsequent purchase of host brand, thereby providing support for hypothesis 1. Regarding the control variables, the impact of loyalty towards the host brand and total category experience were positive and significant ($p < 0.01$) across all three co-brands. The coupon proneness in the host category was positive and significant in the case of Co-Brands A and B ($p < 0.01$). The overall model was significant for Co-Brands A and B ($p < 0.01$) and Co-Brand C ($p < 0.05$).

Prior Host Non-Users. The odds ratio for the spillover effects indicator was 2.135 in the case of Co-Brand A and 2.932 in the case of Co-Brand B ($p < 0.01$). This indicates that the odds of purchasing Co-Brand A and Co-Brand B among triers are 113% and 193% higher than non-triers, respectively. The spillover effect variable was not significant among prior non-users of Co-Brand C. Across all three cases, the total category experience variable was not significant. The coupon proneness variable was

positive and significant across all three cases ($p < 0.01$). The overall model was significant for Co-Brands A and B ($p < 0.01$) and Co-Brand C ($p < 0.05$).

Behavioral Spillover Effects on the Ingredient Brands

Prior Ingredient Users. The behavioral spillover effects of the trial of the co-branded product in the *ingredient categories* are presented in Table 2. As can be seen in Table 2, among *prior users* of each of the ingredient brands, the loyalty towards the ingredient brand in the respective parent categories was positive and significant ($p < 0.01$) across all three cases. The spillover effects variable was not significant across all three cases. The total number of category purchases was positive and significant at the 1% level among prior non-loyal users across all three cases. The coupon proneness variable was not significant across all three cases. The overall model was significant ($p < 0.01$) across all three cases.

Prior Ingredient Non-Users. Among *prior non-users* of each of the ingredient brands, the spillover effects indicator variable was significant in enhancing the probability of purchasing the ingredient brands only for Co-Brand B (odds ratio = 2.184). The category experience variable was not significant across all three cases. The coupon proneness variable was not significant across Co-Brands A and B, but was significant for the Co-Brand C ($p < 0.01$).

In summary, it appears as if the introduction of the co-branded product had behavioral spillover effects both in the host and in the ingredient categories. The behavioral spillover effects were seen in the case of two out of the three co-branded products (i.e., Co-Brand A and Co-Brand B) both among prior users and prior non-users of the host brand. To illustrate the changes in percentages of households purchasing the host and ingredient brands, we conducted further analysis. Figures 2 and 3 demonstrate the impact among prior users and Figures 4 and 5 demonstrate the impact among prior non-users. The figures capture the relationship between the trial of the co-branded product in the six-months following its introduction and purchase of the host and ingredient brands in the time period between seventh and

twelfth month after introduction. For instance, as can be seen in Figure 1, among host prior users and *non-triers* of the Co-Brand B, 58% bought the host brand in a subsequent time period to when the co-brand was introduced. In contrast, among host prior users and *triers* of the Co-Brand B, 78% bought the host brand in a subsequent time period. Among prior non-users and *non-triers* of the Co-Brand A, 38% bought the host brand. For the prior non-users and *triers* of the Co-Brand A, 48% bought the host brand in a subsequent time period. Figure 2 demonstrates the impact on the ingredient brand. Figures 3 and 4 demonstrate the behavioral spillover effects among prior non-users. This suggests that the addition of a second brand name may serve to enhance the original brands as well as attract new segments of consumers to the brand.

Insert Figures 1-4 Here

Role of Perceived Fit. To test H_2, it was necessary to examine whether there were any significant differences in terms of fit across the three ingredient branded products. Accordingly, a perceived fit survey was undertaken across a sample of 41 consumers, drawn from a nationally representative panel. Category fit was measured using two seven-point scales (1=very low similarity, 7= very high similarity; 1=not at all alike and 7=very much alike, r=.72). The average host-ingredient category fit rating for both co-brands A and B was 4.30 (recall both ingredient A and B belonged to the same category); further, the category fit was significantly different from the category fit rating of 2.40 for the category of ingredient C ($p < .0001$). Brand image fit was measured using two seven-point scales (1=very low fit, 7=very high fit; 1=very low similarity, 7=very high similarity, r=.73). The average host-ingredient brand image fit for co-brand A was 4.22, co-brand B was 4.27 and for co-brand C was 2.15. The brand image fit was not significantly different between co-brand A and co-brand B, but both of them had significantly higher brand image fit relative to the host-ingredient brand image fit for co-brand C ($p < .0001$).

The category similarity between the parent category of ingredient brands A and B and the co-brand category was high (average category similarity = 4.30). Based on t-test results, it appears that the category similarity between ingredients A and B and the co-brand category was significantly higher than the similarity between Brand C and the co-brand category (average category similarity = 2.40). The average brand image fit between the host brand and the ingredient brand A was 4.22. The average brand image fit rating between the host and the ingredient brand B was 4.27. The average brand image fit rating between the host and the ingredient brand C was 2.15. The differences in brand and category fit between brands A and B were not significant. Their ratings both in terms of category similarity and brand image fit, however, were significantly higher than those for brand C.

The behavioral spillover effect in the case of the host brand was only observed in two out of three cases (Co-Brands A and B) where the perceived fit between brands was relatively high (see Table 3). Therefore, it appears that the reciprocal transfer of associations from the co-brand to the host is moderated by the perceived fit between the host and the ingredient brands. The less dominant ingredient brand also benefits from the introduction of the co-branded product, but the effect is seen only in one out of three cases. The spillover impact is obvious in the case of the Co-Brand B (i.e., in a situation where the perceived fit between the host and the ingredient categories was high and the resultant trial rate was higher than the trial rate of the Co-Brands A and C). These findings offer support for H_2.

Although not hypothesized, we also examined the role of prior experience with the host and the ingredient brand on trial of the co-branded product (the forward transfer of associations). This is to be expected given the prior empirical work in the area that shows that a positive attitude or familiarity with the host and the ingredient brand has a positive effect on attitude towards the co-branded product (Park, Youl Jun, and Shocker 1996; Simonin and Ruth 1998). To do this analysis, prior experience with the host and ingredient brands were coded as dummy variables such that any experience with the host brand

in the one year time period preceding introduction of the co-branded product was coded as a 1 and the dummy variable was zero otherwise. A similar variable was created to capture the effect of prior experience with the ingredient branded product. Across all three co-branded products, the impact of experience with the host was significant at the 1% level. The impact of experience with the ingredient brand was evident only in the case of the Brand B.

Market Share Analysis. What is the impact of introduction of the co-branded product on overall market share? To examine this, we analyzed the market share of the parent brand before and after introduction of the co-brand, restricting the analysis to those who tried the co-branded product. Among prior users who tried the co-branded product, there was no appreciable increase in market share of the parent brand after the introduction of the co-brand. This is understandable because the co-brand may have caused a reduction in market share in the parent brand due to cannibalization, which may have offset any increase in preference for the parent brand caused by introduction of the co-brand. Among prior non-users, the introduction of the co-brand caused a 6% increase in market share of the parent brand. Taken together, the market share of the parent brand increased by 2% in the overall sample (including both prior users and prior non-users), following introduction of the co-brand. While this is modest, it should be remembered that the category as a whole is large and consists of various small brands. Therefore, relative to several brands in the category, a market share of 2% for the parent brand is considerable, given that we are only examining the category for the first year after the introduction of the co-brand. Further, the co-brand itself had a 7% market share among those who tried the co-brand. Similarly, among those who tried the co-branded product, there was a 2% increase in market share of the original ingredient brand of co-brand C, and there were no increases evident for the ingredient brands A and B. Thus, consistent with the earlier analysis, the spillover impact of co-brand introduction on market share of the ingredient brand is minimal, with the exception of a small market share increase for co-

brand C.

DISCUSSION

This research examines the behavioral spillover effects of ingredient branding strategies. The existence of behavioral spillover among prior users suggests that co-branding can enhance overall brand sales without incurring a risk of cannibalizing own brand sales. In other words, co-branded products provide an opportunity to position each of the line extensions as distinct from one another for different market segments. These findings expand on research findings by Desai and Keller (2002) who show that co-branded ingredients can help the host in many ways (e.g., by introducing new attributes into the product category and by expanding the usage of the host brand). They also build on previous work by Swaminathan, Fox and Reddy (2001) in a brand extension context. Further, our findings suggest that category and brand fit may moderate the behavioral spillover impact of the co-branded product on future purchases of both the host and the ingredient brands. Although the use of a small sample (n=41) for the perceived fit survey is a limitation, future research could investigate the role of fit using a broader range of fit characteristics (e.g., attribute-level fit, image fit) and examine the impact on choice of a co-branded product using larger samples of consumers. Brand managers may need to identify ingredients that have a higher degree of category and brand image fit with the parent to enhance the likelihood of generating greater spillover effects. The findings from this research also provide insights relevant to cross-selling strategies. Recent research has examined cross-selling strategies (Li, Sun and Wilcox 2005) and has explored various aspects of multiple-category decision-making (Russell et al. 1999). Researchers have also found that consumers exhibit similarities in their purchase behavior across product categories, in terms of responsiveness to price and advertising (Ainslie and Rossi 1998) as well as state dependence effects (Seetharaman, Ainslie and Chintagunta 1999). The present research sheds some light on potential for cross-selling using co-branded products.

TABLE 1

Spillover Effects of Trial of the Co-Branded Product Among Prior Users and Prior Non-Users of the Host Brand

	Prior Users			*Prior Non-Users*		
	Co-Brand A	***Co-Brand B***	***Co-Brand C***	***Co-Brand A***	***Co-Brand B***	*Co-Brand C*
Intercept	-1.231* (.104)	-1.224* (.104)	-1.315* (.105)	-1.651* (.112)	-1.661* (.112)	-1.418* (.111)
Loyalty *(LOYHB)*	7.575* (.426) *1948*	7.604* (.426) *2006*	8.004* (.439) 2992			
Spillover Effects Indicator *(SPILLOVER)*	.560* (.218) *1.751*	.259[#] (.144) *1.296*	.078 (.239) *1.081*	.758* (.362) *2.135*	1.076* (.251) *2.932*	-.426 (.756) *.653*
Total Number of Purchases Made in Category *(TOTNUM)*	.014* (.001) *1.014*	.01* (.001) *1.010*	.016* (.001) *1.016*	-.002 (.003) *.997*	-.003 (.003) *.997*	-.005 (.003) *.995*
Coupon Proneness in the Host Category (*COUPPAR*)	2.129* (1.057) *8.406*	2.068* (1.058) *7.909*	1.602 (1.108) *4.963*	4.302* (1.451) *73.847*	4.117* (1.460) *61.374*	4.072* (1.489) *58.674*
Sample Size Trial Households	3235 1250	3235 1250	3170 1234	2475 397	2475 397	2305 392
%age Correctly Classified	69%	69%	69%	84%	84%	83%
% Concordant	76%	76%	76%	51%	50%	52%
-2 Log L	3660 (p<.001)	3664 (p<.001)	3551 (p<.001)	2166.232 (p=.004)	2153.974 (p=.000)	2091.209 (p=.012)

*significant at the 1% level

[1]figures in parentheses refer to standard errors

[2] figures in italics represent odds ratios

TABLE 2

Spillover Effects of Trial of the Co-Branded Product on Prior Users And Prior Non-Users of the Ingredient Brand

	Prior Users			*Prior Non-Users*		
	Co-Brand A	*Co-Brand B*	*Co-Brand C*	*Co-Brand A*	*Co-Brand B*	*Co-Brand C*
Intercept	-2.422* (.096)[1]	-2.140* (.090)	-1.967* (.093)	-2.287* (.136)	-2.332* (.141)	-2.351* (.157)
Loyalty *(LOYIB $_{(i)}$)*	3.788* (.297) *44.163*[2]	2.828* (.237) *16.918*	4.251* (.180) *70.200*			
Spillover Effects Indicator *(SPILLOVER)*	.210 (.197) *1.234*	.228 (.131) *1.256*	.490 (.254) *1.632*	.705 (.452) *2.025*	.781* (.331) *2.184*	.071 (.612) *1.074*
Total Number of Category Purchases *(TOTNUM$_{(i)}$)*	.035* (.003) *1.035*	.033* (.002) *1.034*	.031* (.002) *1.032*	-.007 (.009) *.993*	.000 (.008) *1.000*	-.004 (.006) *.994*
Coupon Proneness in the Ingredient Category(*COUPPAR$_{(i)}$*)	-.009 (.022) *.991*	.002 (.020) *1.002*	.030 (.021) *1.031*	.016 (.027) *1.016*	.003 (.033) *1.004*	.051* (.024) *1.053*
Sample Size Trial Households	3744 972	4139 1226	3955 1712	1966 172	1571 146	1520 127
%age Correctly Classified	75%	72%	71%	91%	91%	92%
% Concordant	67%	65%	78%	43%	45%	45%
-2 Log L	3986.171 (p=.000)	4739.298 (p=.000)	4424.411 (p=.000)	1163.545 (p=.388)	966.913 (p=.183)	868.688 (p=.180)

*significant at the 1% level

[1]figures in parentheses refer to standard errors

[2] figures in italics represent odds ratios

FIGURE 1
Spillover Effects on Host Brand
Prior Users

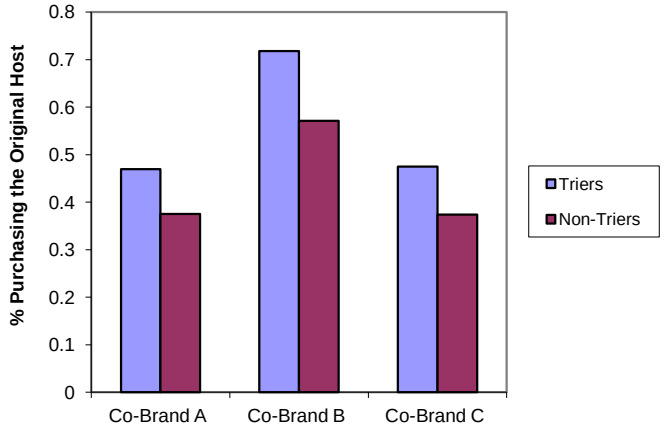


FIGURE 2
Spillover Effects on Ingredient
Prior Users

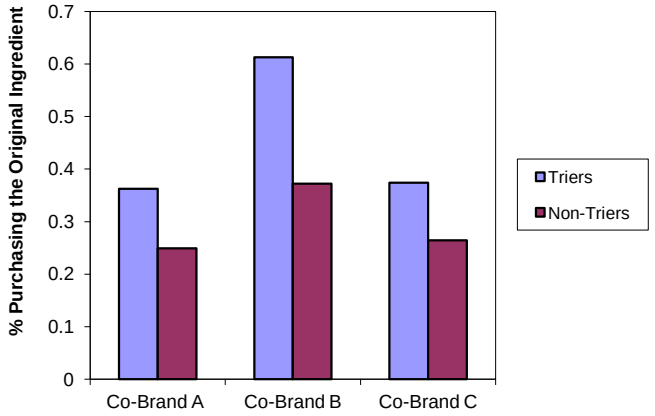


FIGURE 3
Spillover Effects on Host Brand
Prior Non-Users

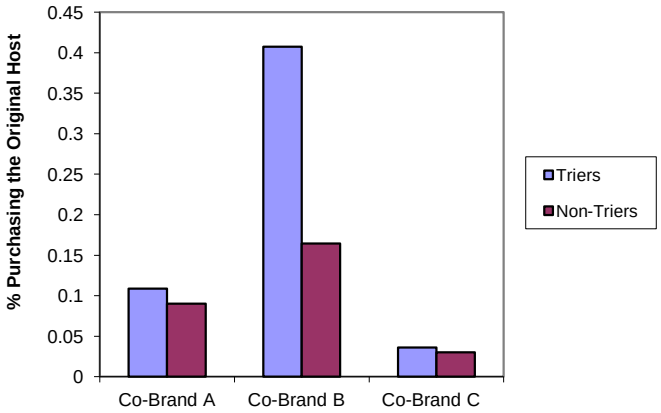
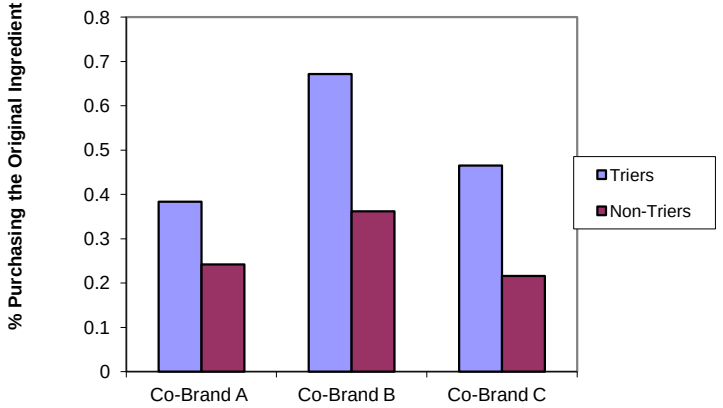


FIGURE 4
Spillover Effects on Ingredient
Prior Non-Users



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