Consumer Response to Retailers’ Marketing Environments: An Analysis of Coffee Purchase Data

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As a consequence of differences in positioning strategies, retail outlets for grocery products often differ in their “marketing environment”—that is, in the configuration of price, product, and promotional stimuli to which consumers are exposed in the store. The in-store marketing environment can be an important marketing tool in terms of its ability to influence consumers’ purchase behavior and attract certain types of consumers. This study examines the association between the in-store marketing environment and certain characteristics of consumers’ purchase behavior. The results indicate that consumers exposed to different environments exhibit significant differences in their brand loyalty, promotion sensitivity, price sensitivity, and response to new brands. These differences in behavior are found to be related to environmental attributes such as width of product assortment and promotional activity.

INTRODUCTION

As retailers strive to establish a competitive edge and maximize profits, they use different positioning strategies to differentiate themselves from competitors. These differences and similarities in retailers’ positioning

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strategies often reflect strategic groupings within the retail category. For instance, Ghosh and McLafferty (1987) identify a number of different strategic groups in the department/discount store category, such as prestige stores, traditional department stores, mass merchandisers, and so on, each with a distinct price/quality offering.

In the grocery trade, retailers differ not only along price and quality dimensions, but also in the intensity and nature of promotional activity in the store. For example, Quelch (1982) stated that "the grocery trade is increasingly segmented, ranging from limited-assortment stores which purchase almost all of their merchandise on deal and do not value continuity of assortment, to food emporiums . . . which stress quality over price, and emphasize breadth and continuity of assortment. In between are supermarket chains which offer deep discounts on a limited set of about 200 items which change weekly or those which offer 'everyday low prices' representing modest discounts on a much broader range of items."

As a consequence of these different positioning strategies, grocery retailers often differ in their marketing environment—that is, in the configuration of price, product, and promotional stimuli to which consumers are exposed in the store. For example, the marketing environment in an "everyday low-price" supermarket will differ substantially, in terms of prices as well as promotional activity, from that in a full-service food emporium or a "deal-intensive" supermarket. The range of products stocked may also vary from one outlet to another.

These positioning strategies are likely to influence consumers in a number of ways. First, the different in-store marketing environments can create different expectations and frames of reference for shoppers and thus might influence many aspects of consumer behavior, such as brand loyalty, deal priseness, and price sensitivity. For example, a retailer who promotes frequently and provides deep discounts might increase deal priseness and reduce brand loyalty if consumers come to expect a high level of promotional activity and adapt their behavior accordingly. On the other hand, an "everyday low price" environment with infrequent deal activity might reduce price sensitivity and encourage brand loyalty.

Second, stores with different marketing environments may attract customers with different demographic characteristics. For example, retailers who stress quality over price or provide one-stop shopping convenience may be expected to attract a different type of customer than retailers who compete primarily on a price basis. Once in the store, the customer may be further influenced by the in-store marketing environment, as noted above. Thus, the in-store marketing environment can be an important marketing tool for retailers. Retailers need to understand how consumers re-
spond to different marketing environments. An understanding of consumer response could potentially enable a retailer to influence in-store purchase behavior and thus compete more effectively with other retailers.

In this study we address the question: what is the relationship between consumers' purchase behavior and the in-store marketing environments to which they are exposed? Using scanner data for regular ground coffee, we characterize the marketing environments of grocery stores by the level of promotional activity, width of product assortment, price variability, and the average price level. We then examine how consumers shopping in different types of environments differ in their purchase behavior for coffee. Several dimensions of purchase behavior are examined: brand loyalty, promotion sensitivity, price sensitivity, and new product trial. These dimensions of behavior are general characteristics of behavior in the sense that we do not adopt the viewpoint of any specific brand, but examine consumers' behavior across brands in the product category. Thus, for example, rather than focusing on consumer response to a specific brand's promotions, we focus on the consumer's sensitivity to promotions across brands in the product category.

This study differs from prior studies in a number of ways. Past research on store environment has concentrated on the physical environment, with elements such as layout, lighting, color, music, etc. (e.g. Kotler 1974; Donovan and Rossiter 1982), but has not considered the marketing stimuli in the store environment and their effects on consumer behavior. Studies on store choice have been more concerned with the impact of household characteristics, store atmosphere (physical facilities, store personnel and service, etc.), and location, than with retailers' use of marketing stimuli (e.g. see Lumpkin, Greenberg, and Goldstucker 1985; Malhotra 1983; Tantiwong and Wilton 1985; Wrigley and Dunn 1984). Further, while some prior studies in the promotion literature have considered how promotions for specific brands affect consumers' preferences and behavior with respect to those particular brands, the effect of the overall marketing environment on general characteristics of behavior (across brands in the category) has not been considered earlier.

The remainder of the paper is organized as follows. We first review past research relating to in-store marketing stimuli, and formulate hypotheses about their relationships with purchase behavior. We then describe the data used in this study and discuss the marketing environments of the stores from which the data were collected. Based on the similarities in the marketing environments of the stores, we classify the stores into strategic groups—that is, groups of stores that use similar positioning strategies in terms of product assortment, pricing, and promotional activity. We then
analyze the purchase behavior of consumers shopping in these store groups as a function of the marketing environment in each store group. Finally, the implications for retailers are discussed.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Prior studies on store environment have generally focused on the effects of the physical environment, or store "atmosphere," on consumer behavior. In an early paper, Kotler (1974) suggested that "one of the most significant features of the total product is the place where it is bought or consumed. In some cases ... the atmosphere of the place is more influential than the product itself." Subsequent empirical studies found significant relationships between store atmosphere and intended shopping behavior (Donovan and Rossiter 1982), and background music and the amount of time and money spent by shoppers (Milliman 1982). While these appear to be promising approaches to the study of environmental effects on behavior, it is clear that more empirical work is needed to identify environmental variables that the retailer has control over, and to provide actionable guidelines to retailers for developing positioning strategy.

As discussed earlier, grocery retailers tend to differentiate themselves primarily through their use of marketing stimuli. The importance of in-store marketing stimuli in influencing behavior has been demonstrated in a number of studies. Most prior studies on this topic have focused on retail promotions and their effects on purchase behavior (see Walters and MacKenzie 1988 for a review). These studies have shown that promotions such as displays, coupons, features, and price cuts have significant effects on brand choice (e.g. Guadagni and Little 1983) and brand switching (Dodson, Tybout, and Sternthal 1978). However, these past studies on in-store promotions have generally adopted a brand-level perspective. That is, they have examined how a promotion for a specific brand might influence consumer behavior towards the promoted brand and towards competing brands.

Little is known, on the other hand, about the effects of in-store marketing activity on general dimensions of consumers' purchase behavior—that is, on purchase behavior across brands in the product category, rather than for specific brands in the category. A few studies have examined the acceleration in category purchases caused by promotions (Blattberg, Eppen, and Lieberman 1981; Neslin, Henderson, and Quelch 1985). There is also some anecdotal evidence suggesting that intensive promotional activity may erode consumers' brand loyalties over time (Edel 1986). However, it appears that no systematic study has been conducted
on the effects of retail promotions on behavioral dimensions such as promotion sensitivity, price sensitivity, brand loyalty, and response to new products. Given the demonstrated effect of promotional activity on brand choice and brand switching behavior, one might speculate that these general dimensions of behavior would be significantly related to the overall level of in-store marketing activity for the product category.

Our review of past research suggests that both physical stimuli and marketing stimuli in the store environment are likely to influence consumer behavior. The total store environment thus may be said to consist of the physical environment, with elements such as music, brightness, color, layout, aisle width and so on, and the marketing environment, which includes those aspects of the store environment that reflect the retailer's marketing mix. In this study we consider only the marketing environment, since that appears to be a key means of differentiation among grocery retailers (Quelch 1982). For the purposes of this study, the store's marketing environment is measured by (a) the width of product assortment, (b) promotional activity, including store coupons, special displays, and store features,\(^1\) (c) the average price level, and (d) price variability, in terms of the number and magnitude of price changes from week to week.

In the remainder of this review, we first discuss the rationale for our general hypothesis that consumers exposed to different marketing environments will differ in their purchase behavior. We then discuss specific predictions about the manner in which consumers shopping in different environments will differ from each other.

**General Hypothesis**

The central premise of this study, that there is a relationship between consumers' purchase behavior and exposure to in-store marketing activity, is suggested by adaptation level theory (Helson 1964). The theory proposes that an individual's behavioral responses to stimuli represent modes of adaptation to environmental and organismic forces. In the case of marketing stimuli, this framework suggests that the consumer's response to in-store marketing stimuli will depend on the consumer's adaptation level with respect to these stimuli. The adaptation level in turn depends on the consumer's past experience of these stimuli.

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\(^1\) Some in-store marketing activities may also occur outside the store (e.g. retailer advertising of weekly specials, distributed to households through mailings or free-standing inserts in newspapers). Since such activity is part of the retailer's marketing mix and serves to direct consumers to a specific store, it is treated in this study as part of the in-store marketing environment for purposes of exposition.

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Thus it can be argued that the way consumers respond to in-store marketing stimuli will depend in part on their past experience of such stimuli. Consumers exposed to different types or levels of marketing stimuli will have different adaptation levels and are therefore likely to differ in their behavioral responses to such stimuli. For example, a consumer who shops mainly in full-service, low-promotion stores is likely to respond differently to a price promotion than another consumer who shops in stores that frequently offer coupons or price-offs (other things being equal). In addition, stores with different environments may attract different types of consumers; for example, a full-service store with higher shelf prices may attract consumers from higher-income households. Thus observed differences in the purchase behavior of consumers shopping in different stores may be due to the influence of the stores’ environments as well as differences in consumer demographics.

Specific Predictions

The foregoing discussion indicates our motivation for hypothesizing that consumer behavior is affected by exposure to the marketing environment. In order to make specific predictions about the relationships between marketing environment variables and purchase behavior variables, we draw on a number of different research streams in the marketing literature and examine their implications for our study.

An information processing perspective (e.g. Bettman 1979) would suggest that in-store promotions provide information that consumers use in purchase decisions. There are many studies which suggest that consumers use simplifying choice strategies or heuristics when faced with too much information, too many alternatives, or a complex task (e.g. Wright 1975; Jacoby et al. 1977; Lussier and Olshavsky 1979). On the basis of this evidence, Fader and McAlister (1985) argue that "promotions, often offering substantial price cuts, allow shoppers to make quick, fairly good decisions without processing all available information." Thus promotions are believed to affect the consumer's consideration set while making purchases. Alba and Chattopadhaya (1985), reach a similar conclusion and suggest that promotions may serve as retrieval cues for consumers and inhibit the recall of competing brands, thereby affecting the consideration set.

One implication of these findings is that consumers who are exposed to substantial promotional activity (i.e., store coupons, special displays, and store features) may restrict their choice sets to promoted brands, and become more sensitive to promotions in general. While different types of
promotional activities (coupons, features, etc.) may vary in their ability to affect the consumer's consideration set, they all draw attention to the promoted brand and provide information about its price. Thus the direction of their effects on promotion sensitivity is expected to be the same. Further, to the extent that consumers patronize certain stores because of their marketing environments, high-promotion stores may attract more promotion sensitive shoppers. These arguments lead us to predict that consumers will exhibit greater sensitivity to promotions in environments with greater promotional activity.

Exposure to promotional activity may also influence the degree of brand loyalty exhibited by consumers. This may occur in a number of ways. First, promotions may affect the consumer's consideration set, as discussed above, so that loyalty becomes a less important factor in the purchase decision. Second, a number of researchers have found that deal prone consumers (those sensitive to promotions) exhibit lower brand loyalty in their purchase behavior (Webster 1965; Montgomery 1971; Bawa and Shoemaker 1987). Since increased promotional activity is likely to be associated with greater promotion sensitivity, we predict that environments with greater promotional activity will be associated with lower brand loyalty.\(^2\)

The research cited earlier on the use of simplifying choice strategies also suggests that the wider the product assortment, the greater the tendency to use simplifying strategies. This might affect consumer purchase behavior as follows. On the one hand, consumers might use promotion-based heuristics to simplify the choice task. Consequently, environments with wider product assortments might be associated with increased promotion sensitivity. At the same time, a wider product assortment might cause the consumer to expand his/her consideration set and therefore exhibit reduced loyalty to any single brand. Both arguments lead us to predict that environments with wider product assortments will be associated with greater promotion sensitivity and reduced loyalty to any single brand.

It has been argued above that in environments with greater promotional activity or wider product assortment, consumers are likely to be less brand loyal to existing brands. This suggests that they are likely to be more

\(^2\) Brand loyalty may also be indirectly affected by various factors that influence brand preferences. These factors might include consumer characteristics such as product familiarity and perceived price differences between brands (e.g. Monroe 1976), as well as store or brand characteristics such as shelf space and shelf location. For simplicity we assume that these factors vary randomly across the consumers and stores analyzed, and do not explicitly consider them in the analysis.
willing to try any new brands that are introduced. Thus we predict that the trial rate for new products will be higher in environments with greater promotional activity or a larger product assortment. It should be noted that we are referring here to the impact of promotions in the period prior to the new product introduction, not the promotion for the new product itself.

Turning next to reference price theory, there is evidence that prices assume greater importance in the brand choice process in environments characterized by price variability over time (see Monroe 1973 for a review of the price perception literature). Winer (1986) estimated a reference price model of brand choice for frequently purchased products and found his hypothesis supported for two of three brands analyzed. He concluded that frequent promotions and price changes lead to an increase in the importance of price in the brand choice process. A similar conclusion was reached by Eastlack and Rao (1986), who analyzed sales data for a brand of vegetable juice over five years and found that price increases for the brand led to a substantial increase in price elasticity for a six-month period.

It is reasonable to assume that consumers who are more price sensitive or attach a greater importance to price will, on average, tend to buy lower-priced brands. Based on the above discussion, therefore, we predict that in marketing environments characterized by greater price variability, consumers will exhibit a greater tendency to buy lower-priced brands. This relationship will be stronger to the extent that stores with greater price variability attract more price-sensitive customers to begin with. Price variability in this study is measured both by the number of price changes occurring per week and the magnitude of those price changes.

To summarize, the research reviewed above suggests that a number of marketing environment variables are likely to be related to purchase behavior. Consumers exposed to different environments are expected to differ in their behavior in the following ways:

- Consumers will exhibit greater promotion sensitivity and lower brand loyalty if exposed to environments with greater promotional activity (displays, features, and store coupons) and larger product assortments.

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There may also be interactions between marketing environment variables that affect consumer behavior. For example, consumers' promotion sensitivity may be greater in environments where different types of promotions, such as features and special displays, occur together. However, for our data, interactions were not explicitly modeled along with main effects because the level of multicollinearity between the interaction terms and the other variables was very high.
- Consumers will exhibit a greater tendency to buy lower-priced brands if exposed to environments with greater price variability.
- The trial rate for new products will be greater in environments with greater promotional activity and wider product assortments.

**THE DATA**

The predictions were tested using scanner panel data on purchases of regular ground coffee. The data set contained information on each purchase made over a two-year period by 1,362 purchasers of regular ground coffee (of which 597 are analyzed in this study, as explained below), in two markets: Marion, Indiana and Pittsfield, Massachusetts. It was collected using in-store UPC scanners by BehaviorScan during 1980–82. After the first year of the data collection period, a new brand, Master Blend, was introduced in both markets. Data are available for the period preceding as well as that following the new product introduction. The data set covers purchases made in 13 different stores and also contains week-by-week information about the marketing environment, including the prices and promotional activity for all brands of regular ground coffee in each store.

Three sets of variables were used in the analyses: purchase behavior variables, household characteristics, and marketing environment variables. The manner in which these variables were measured is described below.

The purchase behavior variables, measured at the household level, consisted of the following:

(a) *brand loyalty*, defined as the proportion of a household’s purchases that were devoted to its most frequently purchased brand (Cunningham 1956; Bawa and Shoemaker 1987).

(b) *promotion sensitivity*, defined as the proportion of a household’s purchases that consisted of a promoted brand. A promoted brand was one that was on display, or featured in a store advertisement, or available with a store coupon, or purchased with a manufacturer coupon.

(c) *price importance*, defined as the average difference between the unit price of the brand with the lowest unit price, and the unit price of the brand purchased. Both these prices were shelf prices (before adjusting for coupons, if any). This variable, which can have only zero or negative values, is assumed to reflect the importance of paying the lowest price possible. The lower the unit price of the brand purchased relative to the cheapest brand available, the greater the value of this variable, and the greater the importance of price to the consumer.
(d) new product trial, a binary variable which was equal to one if the new brand was purchased at least once during the one-year post-introduction period, and zero if not.

Since the new product introduction might have introduced nonstationarity in consumer preferences and purchase behavior, only the first-year (i.e., prior to the new product introduction) data were used in measuring consumers’ brand loyalty, promotion sensitivity, and price importance. The second-year data were used only to measure consumers’ response to the new product in terms of trial.

The household descriptors used in the analysis consisted of household income (in $000s), housewife’s age (in years), housewife’s formal education (in years), home ownership (a binary variable, equal to one if the household owned their home, and zero otherwise), and category usage (number of product category purchases made in a one-year period).

The in-store marketing environment variables used in the analysis are described in Table 1. The average value for each environment variable over the one-year period was calculated in each store. Width of product

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width of product assortment</td>
<td>Average number of brands stocked in store per week</td>
</tr>
<tr>
<td>Special displays</td>
<td>Average number of brands on special display per week</td>
</tr>
<tr>
<td>Store features</td>
<td>Average number of brands featured per week</td>
</tr>
<tr>
<td>Store coupons</td>
<td>Average number of brands for which store coupons were available each week</td>
</tr>
<tr>
<td>Number of price changes</td>
<td>Average number of brands for which shelf price changed from previous week (averaged over weeks)</td>
</tr>
<tr>
<td>Magnitude of price changes</td>
<td>Average magnitude of price changes from previous week (averaged over weeks and over brands for which price changed)</td>
</tr>
<tr>
<td>Average price</td>
<td>Average unit price of brands in the product category (averaged over weeks and over brands)</td>
</tr>
</tbody>
</table>

* Variables were measured for each store over the first year of the data collection period
assortment and level of promotional activity were measured by observing the average number of brands available each week and the average number of brands that were promoted (displayed, featured, or couponed) each week. Price variability in each store was measured by the average number of changes in shelf price every week and the average magnitude of these price changes. Finally, the average price level in each store was measured as the average shelf price (averaged over all brands in the category) over the one-year period.

ANALYSIS AND RESULTS

In analyzing consumer response to retailers’ marketing environments, one difficulty which arises is that because each household shops in several stores, it is difficult to identify the impact of any one store’s environment on the household’s purchase behavior. Thus it is necessary to identify the primary environment to which each household was exposed, and to examine its association with the household’s behavior and characteristics. In this study the empirical analysis consisted of the following steps.

First, we clustered stores based on similarities in their marketing environments (i.e. based on the level of promotion, width of product assortment, etc. observed in each store over the one-year period). In this manner, we identified strategic groups of stores with similar marketing environments. Next, for each household we identified the primary strategic group in which the household shopped—that is, the group of stores which accounted for most of its purchases. We then analyzed the behavior and characteristics of each group’s customers to determine how they differed across marketing environments. In the final step, household purchase behavior was modeled as a function of marketing environment variables and household characteristics.

These steps in the analysis, and the results obtained at each stage, are described below.

Classification of Stores Into Strategic Groups

The identification of strategic groups within the sample was based on the stores’ marketing environments. Since each store’s environment reflects its positioning strategy (in terms of product assortment, pricing, and promotional activity), stores with similar environments can be considered to be in the same strategic group in the sense that they have similar positioning strategies.

Table 2 shows how the 13 stores in the sample differed from each other in terms of the type of store, store location, and marketing environment
<table>
<thead>
<tr>
<th>Store</th>
<th>Type of Store</th>
<th>Store Location</th>
<th>Width of Assortment</th>
<th>Store Coupons</th>
<th>Store Displays</th>
<th>Store Features</th>
<th>Average Price</th>
<th>Magnitude of Price Changes</th>
<th>Number of Price Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regional Chain</td>
<td>Market 1</td>
<td>1.46</td>
<td>-0.56</td>
<td>0.37</td>
<td>-0.51</td>
<td>-0.41</td>
<td>-0.60</td>
<td>-0.69</td>
</tr>
<tr>
<td>2</td>
<td>&quot;</td>
<td>&quot;</td>
<td>1.21</td>
<td>-0.62</td>
<td>-0.27</td>
<td>-0.54</td>
<td>-0.84</td>
<td>-0.63</td>
<td>-0.79</td>
</tr>
<tr>
<td>3</td>
<td>&quot;</td>
<td>&quot;</td>
<td>1.21</td>
<td>-0.66</td>
<td>-0.41</td>
<td>-0.54</td>
<td>-0.88</td>
<td>-0.65</td>
<td>-0.74</td>
</tr>
<tr>
<td>4</td>
<td>National Chain</td>
<td>&quot;</td>
<td>0.71</td>
<td>-1.29</td>
<td>1.33</td>
<td>0.10</td>
<td>-0.16</td>
<td>1.16</td>
<td>0.93</td>
</tr>
<tr>
<td>5</td>
<td>&quot;</td>
<td>&quot;</td>
<td>0.71</td>
<td>-1.11</td>
<td>1.36</td>
<td>0.13</td>
<td>-0.17</td>
<td>0.09</td>
<td>0.10</td>
</tr>
<tr>
<td>6</td>
<td>&quot;</td>
<td>&quot;</td>
<td>0.46</td>
<td>-0.57</td>
<td>1.86</td>
<td>0.42</td>
<td>-1.82</td>
<td>0.09</td>
<td>0.35</td>
</tr>
<tr>
<td>7</td>
<td>Independent</td>
<td>Market 2</td>
<td>-1.04</td>
<td>-0.30</td>
<td>0.26</td>
<td>-1.53</td>
<td>1.94</td>
<td>-0.78</td>
<td>-0.88</td>
</tr>
<tr>
<td>8</td>
<td>&quot;</td>
<td>&quot;</td>
<td>-1.54</td>
<td>-0.30</td>
<td>0.41</td>
<td>-1.58</td>
<td>1.62</td>
<td>-0.83</td>
<td>-0.97</td>
</tr>
<tr>
<td>9</td>
<td>National Chain</td>
<td>&quot;</td>
<td>-0.54</td>
<td>1.96</td>
<td>-1.26</td>
<td>1.90</td>
<td>-0.27</td>
<td>-0.68</td>
<td>-0.31</td>
</tr>
<tr>
<td>10</td>
<td>&quot;</td>
<td>&quot;</td>
<td>-0.54</td>
<td>1.83</td>
<td>-1.23</td>
<td>1.75</td>
<td>-0.32</td>
<td>-0.75</td>
<td>-0.60</td>
</tr>
<tr>
<td>11</td>
<td>&quot;</td>
<td>&quot;</td>
<td>-0.54</td>
<td>0.27</td>
<td>-1.12</td>
<td>0.45</td>
<td>0.68</td>
<td>1.05</td>
<td>0.90</td>
</tr>
<tr>
<td>12</td>
<td>&quot;</td>
<td>&quot;</td>
<td>-0.04</td>
<td>1.03</td>
<td>-0.44</td>
<td>0.33</td>
<td>0.93</td>
<td>2.65</td>
<td>2.72</td>
</tr>
<tr>
<td>13</td>
<td>&quot;</td>
<td>&quot;</td>
<td>-1.54</td>
<td>0.33</td>
<td>-0.87</td>
<td>-0.37</td>
<td>-0.28</td>
<td>-0.11</td>
<td>-0.01</td>
</tr>
</tbody>
</table>

*Entries in each column are standardized values, with zero mean and unit standard deviation across stores*
variables. In the table, for ease of interpretation the values of the environment variables have been standardized across stores (with zero mean and unit standard deviation). These standardized values are not used in the analysis but facilitate the comparison of stores in Table 2.

Examination of the data in Table 2 suggested that many of these similarities and differences in marketing environments could be accounted for by the type of store (regional chain, national chain, or independent store) and its location (market 1 or market 2). Using these two criteria, the stores were classified into four strategic groups: national supermarket chains in market 1 (denoted National 1), regional chains in market 1 (Regional 1), national chains in market 2 (National 2) and independent stores in market 2 (Independent 2). As can be seen from Table 2, stores within each group tended to have similar values for the environment variables.

This four-group classification scheme was validated through cluster analysis on the marketing environment variables in Table 2. A four-cluster solution obtained through the cluster analysis yielded the same four groups described above, and accounted for 73 percent of the variance in the environment variables. Thus our classification scheme appears to have accounted for a large part of the differences between store environments. It also indicates that different types of stores (e.g. regional versus national chains) differ in their positioning strategies and their marketing environments, which is what one might expect.

Table 3 summarizes the differences in marketing environments between the four groups. In the table we report the mean values of the marketing environment variables for each group. The marketing environment characterizing each store group was as follows:

- Stores in group Regional 1 had the largest product assortments, the lowest prices, relatively low price variability, and a balanced set of promotions with about average levels of coupons, special displays and features.
- Stores in group National 1 also had large product assortments and low prices, but had high price variation and tended to use special displays and features more often than other stores and coupons less often.
- Independent 2 stores had the smallest product assortments, the highest prices, the least price variability, the lowest feature activity, and an average level of coupon and display activity.
- National 2 stores tended to have smaller product assortments and higher prices than other national or regional chains. They had high price variability as well as a relatively high level of coupon and feature activity, but lower display activity than other stores.
<table>
<thead>
<tr>
<th>Strategic Group</th>
<th>Width of Assortment</th>
<th>Number of Price Changes</th>
<th>Average Price of Store Displays</th>
<th>Store Coupons</th>
<th>Store Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional 1</td>
<td>15.3</td>
<td>1.407</td>
<td>0.539</td>
<td>0.614</td>
<td>0.414</td>
</tr>
<tr>
<td>National 1</td>
<td>12.7</td>
<td>2.112</td>
<td>0.189</td>
<td>0.852</td>
<td>0.219</td>
</tr>
<tr>
<td>Independent 2</td>
<td>5.0</td>
<td>0.278</td>
<td>0.213</td>
<td>0.287</td>
<td>0.732</td>
</tr>
<tr>
<td>National 2</td>
<td>7.6</td>
<td>1.929</td>
<td>0.197</td>
<td>1.642</td>
<td>1.043</td>
</tr>
</tbody>
</table>

*Entries are average values across stores in each group.
Overall, National 1 and National 2 stores had the highest levels of promotional activity and the greatest price variability, while Regional 1 and National 1 stores had the largest product assortments.

Analysis of Purchase Behavior and Demographics by Strategic Group

Following the classification of stores into the four strategic groups, we obtained measures of the purchase behavior variables (brand loyalty, promotion sensitivity, etc.) for each household, and determined the primary strategic group in which the household shopped. The sample analyzed consisted of 597 households (or 44 percent of the households in the data set) that made at least five purchases of the product category over the one-year period, and made at least 80 percent of their purchases within their primary strategic group. Only households that met both criteria were included in the sample. The first criterion ensured that a reasonable number of observations were available for measuring each household's behavior. The second ensured that each household in the sample was primarily exposed to the marketing environment of a single strategic group, and not exposed to other types of environments to any significant degree (this criterion eliminated about one-third of the 886 households that satisfied the first criterion). The average household in the sample analyzed made over 21 purchases of the product category, and made 95 percent of its purchases in its primary strategic group.

Table 4 shows the number of households shopping in each group and the mean values of the purchase behavior variables for these households. From the table it can be clearly seen that households shopping in different strategic groups varied in their purchase behavior. Customers of Independent 2 stores had the highest brand loyalty, and the lowest promotion sensitivity and price importance. In contrast, households shopping in National 1 stores had the lowest brand loyalty and the highest promotion sensitivity and price importance. The rate of new product trial was greatest in Regional 1 stores and lowest in Independent 2 stores.

Using the Table 4 data, we tested for differences in purchase behavior across groups both with univariate tests (i.e., with a separate test for each purchase behavior variable) and with a multivariate analysis of variance, and each test showed that the groups differed significantly from each other. For brand loyalty, promotion sensitivity and price sensitivity, the univariate test used was one-way analysis of variance, with the null hypothesis that the groups did not differ on these variables. For trial, which was a binary variable, the univariate test consisted of a chi-square goodness-of-fit test with the null hypothesis that the proportion of triers in each
TABLE 4

Purchase Behavior by Strategic Group$^a$

<table>
<thead>
<tr>
<th>Purchase Behavior Variable</th>
<th>Strategic Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Regional 1 Stores</td>
</tr>
<tr>
<td></td>
<td>(129)</td>
</tr>
<tr>
<td>Brand Loyalty$^b$</td>
<td>.662</td>
</tr>
<tr>
<td>Promotion Sensitivity$^b$</td>
<td>.560</td>
</tr>
<tr>
<td>Price Importance$^b$</td>
<td>−.055</td>
</tr>
<tr>
<td>New Product Trial$^c$</td>
<td>.690</td>
</tr>
</tbody>
</table>

$a$ Entries in the table are mean values of purchase behavior variables for households in each strategic group. Sample sizes for each group are in parentheses. The total number of households analyzed is 597.

$b$ Means differ significantly ($p < .01$) across strategic groups, as indicated by analysis of variance tests.

$c$ Proportion of triers differs significantly ($p < .01$) across strategic groups, as indicated by chi-square goodness-of-fit test.

group equalled the average proportion of triers in the total sample. In these univariate tests the null hypothesis (of no difference across groups) was rejected at $p < 0.01$. In the multivariate analysis of variance, the null hypothesis that the groups did not differ in terms of brand loyalty, promotion sensitivity, and price sensitivity considered jointly was rejected at $p < 0.001$ (trial could not be included in this multivariate test as it was a categorical variable).

From these findings one may draw some preliminary conclusions about the relationship between marketing environment variables and purchase behavior. Recall that Independent 2 stores had small product assortments and low promotional activity, while National 1 stores had large product assortments and high promotional activity (relative to other store groups). The data in Table 4 are thus consistent with our prediction that brand loyalty varies inversely with width of assortment and level of promotional activity, while promotion sensitivity varies directly with the level of promotional activity. In addition, Regional 1 stores had the largest product assortments.
assortments and Independent 2 stores the smallest assortments; this seems to suggest that new product trial varies directly with the width of assortment, as predicted. These findings were subsequently confirmed by multivariate regression analyses, as discussed later.

In analyzing differences in purchase behavior across strategic groups, one must consider whether customer profiles vary across these strategic groups, and if such variation can account for any of the observed differences in purchase behavior. A number of earlier studies (e.g. Webster 1965; Montgomery 1971; Blattberg et al. 1978; Bawa and Shoemaker 1987) found some household characteristics to be significantly related to deal proneness and brand loyalty. Thus, if there are significant differences in customer profiles across groups, they may account for some of the observed variation in purchase behavior across groups as well.

An analysis of household characteristics by strategic group revealed that there were some differences, although not major ones, in the customer profiles of the groups. In Table 5 are shown the mean values for the household descriptor variables by strategic group. As can be seen, the customer profiles of the strategic groups differed significantly on two variables: wife's education ($p < .05$) and category usage ($p < .01$). Households shopping in Regional 1 and National 1 stores tended to have more educated housewives and be heavier users of the product category, relative to those shopping in Independent 2 and National 2 stores. In other respects the customer profiles for the strategic groups were not significantly different.

It should be noted that these differences may to some extent reflect demographic differences between the consumer populations of markets 1 and 2. Thus these results need to be interpreted with caution. Overall, it would appear that our findings do not provide a strong basis for concluding that different marketing environments attract different types of customers among the households in our sample. However, our results do point to the need to include household descriptors as covariates in the analysis of purchase behavior and its association with marketing environment variables. This is considered in the subsequent multivariate analyses.

**Analyzing the Association Between Purchase Behavior and Marketing Environment Variables**

The previous analysis demonstrated that there were significant differences in purchase behavior across strategic groups. In order to determine which marketing environment variables could explain these differences, multivariate regression analyses were conducted. These analyses were
TABLE 5

Household Characteristics by Strategic Groupa

<table>
<thead>
<tr>
<th>Household Characteristic Variable</th>
<th>Strategic Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Regional 1 Stores</td>
</tr>
<tr>
<td>Income ($000)</td>
<td>(129)</td>
</tr>
<tr>
<td>Wife’s age (years)</td>
<td>22.8</td>
</tr>
<tr>
<td>Wife’s Education (years)</td>
<td>50.3</td>
</tr>
<tr>
<td>Home Ownership (proportion)</td>
<td>13.3b</td>
</tr>
<tr>
<td>Category Usage (number of category purchases)</td>
<td>.88</td>
</tr>
</tbody>
</table>

* Table entries are means of household characteristic variables. Number of households in each strategic group is in parentheses.

b Means differ significantly ($p < .05$) across strategic groups, as indicated by an analysis of variance test.

c Means differ significantly ($p < .01$) across strategic groups, as indicated by an analysis of variance test.

conducted across households ($n = 597$). The dependent variables in these analyses were the four purchase behavior variables, and the explanatory variables consisted of household characteristics and the marketing environment to which the household was exposed. The marketing environment for each household was assumed to be that of the primary strategic group in which the household shopped. For example, if the household shopped primarily in the group Regional 1, the marketing environment variables for that household would be assigned the values shown in Table 3 for Regional 1. A limitation of this procedure was that it restricted the range of values for the environment variables across households. However, it served our purpose, since it captured the major differences in marketing environment variables across households.

One difficulty that arose in conducting these multivariate analyses is
that some of the marketing environment variables proved to be highly correlated across households. For example, across households the correlation was $-0.91$ between store coupons and special displays, and $0.92$ between store features and number of price changes (see Table 6). The high degree of multicollinearity made it impossible to include all the environment variables in the multivariate analyses. It was necessary, therefore, to identify a subset of these environment variables that did not exhibit such severe multicollinearity and that accounted for most or all of the same variance in the dependent variables.

In order to identify a set of surrogate variables for the multivariate analyses, we examined the correlation matrix of the environment variables (see Table 6) and also conducted a principal components analysis on these variables. Inspection of the correlation matrix revealed that there were three distinct sets of correlated variables in the data, which finding was confirmed through the principal components analysis. These sets of correlated variables, or principal components, in the data were:

(a) width of assortment and average price, which had a high negative intercorrelation,

<table>
<thead>
<tr>
<th><strong>TABLE 6</strong></th>
<th>Correlation Matrix for Marketing Environment Variables*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width of Assortment</td>
<td>Store Coupons</td>
</tr>
<tr>
<td>Store Coupons</td>
<td>$-0.77$</td>
</tr>
<tr>
<td>Store Features</td>
<td>$0.64$</td>
</tr>
<tr>
<td>Special Displays</td>
<td>$-0.40$</td>
</tr>
<tr>
<td>Number of Price Changes</td>
<td>$-0.10$</td>
</tr>
<tr>
<td>Magnitude of Price Changes</td>
<td>$0.99$</td>
</tr>
<tr>
<td>Average Price</td>
<td>$-0.20$</td>
</tr>
</tbody>
</table>

* Across the 597 households in the sample
(b) special displays and store coupons, which also had a high negative intercorrelation, and
(c) store features, number of price changes and magnitude of price changes, which had high positive intercorrelations.

Three variables were ultimately retained for analysis, one from each of the groups above: width of assortment, special displays, and store features. These variables were used as explanatory variables in the multivariate regression analyses along with household characteristic variables. The dependent variables in the analyses were the four purchase behavior variables: brand loyalty, promotion sensitivity, price importance, and new product trial. As trial was a binary dependent variable, it was modeled using logistic regression, which is appropriate for dichotomous dependent variables (Maddala 1983); the other three variables were modeled using multiple regression. The regression models were estimated using a maximum likelihood procedure for the logistic regression model, and ordinary least squares for the other three models. In Table 7 we present the standardized coefficients estimated for each model across the 597 households in the sample.

Table 7 shows that even after accounting for the effects of household characteristics, marketing environment variables had significant associations with purchase behavior. All three environment variables in the analyses were found to be related to brand loyalty, promotion sensitivity, and price importance. In addition, width of assortment was found to be related to new product trial, although the other environment variables were not.

The coefficient estimates in Table 7 indicate that consumers tended to be less brand loyal when exposed to a larger product assortment and greater display and feature activity. This was consistent with the prediction regarding brand loyalty. Promotion sensitivity also tended to be higher for larger assortments and more displays and features, as predicted. Price importance was found to be higher in environments with greater feature activity. This, too, was consistent with expectations since feature activity had a high positive correlation with price variability (number and magnitude of price changes), and price importance was predicted to be higher in environments with greater price variability. Finally, the rate of new product trial tended to be greater in environments with larger product

---

4 An alternative approach might be to estimate the four models as a system of simultaneous equations. However, the estimation task would be quite complex in such an analysis since the logistic regression model is a nonlinear model and the dependent variable in that model (trial) is a binary variable. For simplicity, we have chosen to estimate the models independently.
TABLE 7
Regression Analyses of Purchase Behavior Variables with Household Characteristics and Marketing Environment Variables as Predictors*

<table>
<thead>
<tr>
<th>Explanatory Variable</th>
<th>Brand Loyalty</th>
<th>Promotion Sensitivity</th>
<th>Price Importance</th>
<th>New Product Trial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category Usage</td>
<td>.002</td>
<td>-.034***</td>
<td>.002</td>
<td>.284**</td>
</tr>
<tr>
<td>Wife's Education</td>
<td>.014</td>
<td>.025**</td>
<td>-.002</td>
<td>-.139</td>
</tr>
<tr>
<td>Wife's Age</td>
<td>.003</td>
<td>.008</td>
<td>.002</td>
<td>-.073</td>
</tr>
<tr>
<td>Income Home Ownership</td>
<td>.003</td>
<td>-.008</td>
<td>.001</td>
<td>-.078</td>
</tr>
<tr>
<td>Income Home Ownership</td>
<td>.002</td>
<td>.005</td>
<td>0</td>
<td>-.064</td>
</tr>
<tr>
<td>Width of Assortment</td>
<td>-.052***</td>
<td>.089***</td>
<td>.003**</td>
<td>.501***</td>
</tr>
<tr>
<td>Special Displays</td>
<td>-.042***</td>
<td>.046***</td>
<td>.012***</td>
<td>-.120</td>
</tr>
<tr>
<td>Store Features</td>
<td>-.027***</td>
<td>.027**</td>
<td>.010***</td>
<td>.015</td>
</tr>
</tbody>
</table>

* Entries in the table are standardized coefficients. The sample size for the analysis was 553 (some households from the sample of 597 had to be excluded because of missing values for one or more variables).

b Results for Brand Loyalty, Promotion Sensitivity, and Price Importance are based on OLS regression. Results for New Product Trial are based on logistic regression. In parentheses are shown the R-squares for the OLS regressions and McFadden's rho-square for the logistic regression.

** Significant at $p < .05$.
*** Significant at $p < .01$.

assortments, as predicted. However, display and feature activity were found to be unrelated to trial, which was not consistent with our prediction. One explanation for this is that displays and features may have had relatively weak associations with trial, which were not detected by the estimation procedure owing to the restricted range of these variables.

Among the household characteristics, category usage and wife's education were found to be associated with purchase behavior, although the magnitudes of their effects were substantially lower than those of the mar-
keting environment variables. Heavier users of the category had a higher trial rate for the new product and were less promotion sensitive. The latter result is consistent with an earlier finding by Webster (1965) that deal prone housewives tended to be light purchasers of the product category. Promotion sensitivity was also found to be positively related to wife’s education, which echoes the results of Narasimhan (1984) and Bawa and Shoemaker (1987).

CONCLUSIONS AND IMPLICATIONS

In this study we have shown that there is a significant association between a store’s marketing environment and the purchase behavior exhibited by its customers. Though our analyses need to be repeated for other product categories, they have important implications for retailers, as discussed below. However, some limitations of our study should be kept in mind. First, the study only considered one product category within the store, and consumers’ exposure to environments for other categories in the store might have affected our results. Moreover, coffee is a heavily promoted category and in that respect may be a somewhat atypical category. However, this does not seem to be a major concern because within a store the environments for different product categories are likely to reflect the same overall positioning strategy, and thus are likely to be similar. Second, while our results are consistent with the hypothesis that marketing environments influence purchase behavior, our analysis is correlational and does not provide evidence of a causal relationship between the two. Third, our conclusions regarding the association between new product trial and marketing environment variables are tentative since they are based on a single new product introduction. Overall, however, the data clearly suggest a number of conclusions about marketing environments and consumer behavior.

Our findings indicate that there appear to be distinct differences between the in-store marketing environments provided by different retailers. These differences are reflected in the retailers’ use of variables such as coupons, features, special displays, product assortment, and price. Among the stores analyzed in our study, we identified four strategic groups on the basis of the stores’ marketing environment variables. Further, the differences in marketing environments between these groups were found to be systematically related to differences in consumers’ brand loyalty, promotion sensitivity, price importance, and rate of new product trial. The strategic groups also appeared to attract customers with different education levels and purchase rates, although this might have been due to differences in store location.
The results suggest that the width of product assortment had a strong association with consumers' purchase behavior. The larger the assortments to which consumers were exposed, the lower the degree of loyalty exhibited towards any single brand. Further, consumers shopping in stores with larger assortments appeared to be more sensitive to promotions, possibly because promotions provide a useful heuristic for screening a large number of alternatives. Larger assortments were also associated with greater price sensitivity, which may be attributed to the fact that, in our sample of stores, larger assortments tended to be accompanied by lower prices. This may have attracted consumers who were more price sensitive, thus accounting for the finding. Lastly, stores with larger assortments also tended to generate higher trial for new products. One might conjecture that this was due to the lower brand loyalty and higher promotion sensitivity of consumers shopping in large-assortment environments. Less brand loyal consumers would be more likely to switch from their regular brands to try the new product, while their higher promotion sensitivity would also lead to a greater likelihood of trial as a result of promotion for the new product at the time of its introduction.

Display and feature activity appeared to increase consumers' sensitivity to promotions and prices, and to decrease brand loyalty. This, combined with the effect of product assortment size, resulted in brand loyalty being lowest and promotion sensitivity highest in stores with large assortments and high display and feature activity. The impact of displays and features, however, tended to be less than that of the assortment size. Thus stores with small assortments tended to have relatively brand loyal customers despite high promotional activity.

The effect of store coupons could not be directly tested because they were highly correlated with special displays in our data. Since the correlation between coupons and displays was negative, our tentative conclusion is that the effect of coupons on behavior may differ from that of displays. However, this needs to be verified through further research on other product categories.

For these data, price variability had a high positive correlation with feature activity. Thus price variability had the same relationship with purchase behavior as did feature activity. In particular, consumers tended to be more price sensitive in stores where price variability was high. This is consistent with the results of earlier studies (e.g. Winer 1986), which found that consumers place a greater importance on prices when prices fluctuate over time.

These findings have a number of important implications for retailers. In general, retailers need to consider the consequences of their positioning
strategy and in-store marketing environment for their customer profile and consumers’ purchase behavior in the store. A number of specific recommendations can also be made regarding promotional strategy, pricing strategy, and product assortment. Regarding promotional strategy, our results suggest that promotions such as special displays and features are more likely to be effective in stores that carry a larger product assortment and that tend to use promotions more frequently. Our results also have implications for pricing strategy. Stores that charge higher prices will tend to benefit from a strategy that maintains price stability over time, while frequent price changes will tend to be more beneficial for stores that adopt a low-price positioning. Finally, stores with larger product assortments appear to have an improved basis for charging slotting allowances or other fees from manufacturers for providing shelf space for new products, since the trial rate for new products is likely to be higher in these stores.

REFERENCES


