

Brand Perception as Related to Age, Income, and Education

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Are some brands seen by the consumer as really different from all other brands? And are there others which are seen as essentially the same?

The author gives the principal results of an exploratory investigation of these questions.

The implications for marketing strategy are obvious. The crucial question, of course, is whether different consumers differ significantly in their perceptions of brands within specified product classes.

THE consumer's *perception* of a specific brand depends upon its physical qualities, container, packaging, price, advertising, promotion, and merchandising. And thus perception within any one product class may vary markedly, and from consumer to consumer.

Selection of a brand of moth balls probably does not elicit the complex interplay of forces operating in the purchase of a make of automobile or even a brand of cigarettes. For relatively expensive products the consumer might be expected to be concerned more with the choice of brands than for relatively inexpensive products. Yet, even when small expenditures are made, factors influencing brand selection can be so complex and subtle that the consumer may be unaware of their existence.

THE STUDY

Purpose

The present study was an exploratory

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investigation. It is not an analysis of the complex relationships between perception, preference, and purchase.¹

This study concerns just two problems. First, is the perception of a brand within a product class dependent on consumer income, education, or age? For example, are Camel cigarettes perceived differently by different income levels? Second, is perception of differences between brands within a product class dependent on the income, education, or age of the consumer? For example, are differences between Camels, Pall Malls, Viceroy's, Parliaments, etc., considered by the consumer to be significant or negligible? Is perception of differences related to income, education, or age?

Selection of Product Classes

The product classes chosen possessed certain easily distinguishable characteristics:

1. The brands within the product class were

¹ For examples of some of the work done in this area see: George H. Brown, "Measuring Consumer Attitudes Toward Products," *JOURNAL OF MARKETING*, Vol. 14 (April, 1950), pp. 691-98; Seymour Banks, "The Relationship Between Preference and Purchase of Brands," *JOURNAL OF MARKETING*, Vol. 15 (October, 1950), pp. 145-157; Louis Cheskin and Louis B. Ward, "Indirect Approach to Market Reaction," *Harvard Business Review*, Vol. 26 (September, 1948), pp. 572-580; Ross M. Cunningham, "Brand Loyalty—What, Where, How Much?," *Harvard Business Review*, Vol. 34 (January and February, 1956), pp. 116-128.

- readily available to all members of the various social strata.
2. They were extensively advertised.
 3. There were many price variations.
 4. There were substantial variations in the frequency of purchase by most consumers.
 5. Consumer knowledge of the brands within the product classes were of a high level. For example, 87 per cent of the respondents in the pretest knew all the brands selected, and the other 13 per cent knew all but one brand.
 6. No stigma was attached to the purchase of the product class.

The following product classes were studied:

Low-priced automobiles—Ford, Chevrolet, Studebaker, Plymouth, Nash Rambler, and Hudson.

Non-instant coffee—Maxwell House, Manor House, Stewart's, Thomas J. Webb, and Hills Brothers.

Television sets—RCA, Motorola, Zenith, General Electric, and Muntz.

Cigarettes—Parliaments, L & M, Pall Mall, Viceroy, and Lucky Strike.

Selection of Respondents

Classification of the respondents by social class, stage-in-the-life-cycle, ecological area, and by ethnic origin was considered but discarded for a multitude of reasons. It was decided to study variations in brand perception by income, age, and education, and to confine the interview to the female head of the household. These restrictions resulted in three major advantages over the before-mentioned classification methods: speed, low cost, and limited knowledge required of the population.

Sample Design

The study was confined to the Chicago Metropolitan Area. Selection of respondents was developed from the master-area probability sample of Market Facts, Inc.

The sample plan used was an intensive sampling of high-income blocks, with less taken in the low-income and middle-income blocks. In comparing a difference in attitudes between income levels, the greater dissimilarity of incomes among the high-income blocks required a higher

sampling ratio than the middle-income and lower-income blocks, which are more homogeneous with regard to income.

It was hoped that this method of disproportionate stratified sampling would deliver greater accuracy per dollar of expenditure than could be obtained by using proportionate stratified sampling.

Subsampling was at the rate of five to seven interviews per block. But no attempt was made to prelist the dwelling units.

No substitutions were taken, and up to four call backs were made, largely in the high-income blocks.

Out of 240 possible interviews, 196 (82 per cent) were completed.

Attitude Measurement

Two kinds of information were sought from the consumer: factual information about the consumer himself, and attitudes toward brands in the product classes.

Consumer's attitudes toward brands were elicited by questions on attitudes toward *quality* of a brand relative to other brands in the same product class, and *price* of a brand relative to other brands in the same product class.

The method of successive intervals was used, which permitted equal intervals of measurement. Thus, a change in a score from 9 to 11 in one person is similar to a change in attitude from 6 to 8 for another. Furthermore, a respondent not only can rank the brands, but can indicate the degree of feeling between brands. Moreover, under this method, one or more brands may be placed in the same category which is not true under the paired-comparison or ranked-order methods.

In the interview, two boxes were used—12 inches long, 4 inches high, and 4 inches wide with removable tops. Each box had eleven slots cut at equal intervals in the top. Corresponding to these slots were eleven individual compartments under each slot. Opposite the top slot of one box were the words "Very Best," and opposite the bottom slot appeared the word "Very Worst." The second box was identical, except that the scale read from "Most Expensive" at the top to "Least Expensive" at the bottom.

Other than these words, there were no numbers or descriptive phrases for the respondent to see. The slots merely represented a scale on the attitude continuum for brands within any one product class.

The respondent was given chips. On each chip was the name of a brand within the product class to be rated. The respondent was instructed to drop each chip into the one slot best describing her rating or feeling toward the brand. She was told that she could drop more than one chip into each slot. The same procedure was followed until all brands in all product classes had been rated.

To get some idea of judgment of price between brands of a product class, the person interviewed dropped another set of chips (corresponding to the first product class rated on quality) into the slots in the second box marked "Most Expensive" to "Least Expensive," and so on, for the remaining three product classes.

No attempt was made to compare brand perception by occupation, marital status, type of occupancy, ownership, use, or knowledge levels. Pretesting had enabled preselection of only those product classes and brands where ownership or use and knowledge levels were extremely high.

The question of consumer knowledge was included in the questionnaire only to see if those interviewed differed in brand knowledge from those in the pretest. They did not.

THE CONSUMER'S PERCEPTION OF BRANDS

Chi-Square Test

To determine whether brand perception is related to income, education, or age level of the consumer, chi-square tests of association between brand perception and demographic class (income, education, age) were made for each brand within each of the product classes.

The chi-square test is computed on the assumption that there is really no relationship, for example, between the income level of those interviewed and their rating of the quality or price of a specific brand, say Camels. If the computed value of chi-square is small, the absence of any significant relationship between income

level and the quality of Camels is accepted. The observed variations in the ratings by different income levels are said to be nothing more than random sampling variations.

In other words, high-income, middle-income, and low-income consumers perceive the quality of Camels pretty much the same. Income, therefore, is not significant. However, if the computed chi-square is quite large, so large that in only 5 or less times out of 100 surveys could the differences so observed occur, then there is a significant relationship between income level and the quality of the cigarette. This would mean that high-income, middle-income, and low-income consumers perceive the quality of Camels differently. Income, then, is said to be significant.

If a difference is significant at the 5 per cent level, one can be 95 per cent confident that the difference is not due to random chance fluctuations. That is to say, if the same test were repeated many times over one could expect to reach correct conclusions 95 per cent of the time getting erroneous ones the other 5 per cent. At the 1 per cent level of significance, one can be 99 per cent confident that the observed difference is not due to chance. A probability level of 5 per cent or less is considered significant for this investigation.

Quality and Price

The consumer's perception of brand was divided into two areas: first, perception of a brand's *quality* within a product class; second, perception of the *price* of the brand within the product class relative to the other brands in the same product class.

With 196 consumers divided into six income categories and with an eleven-point rating scale, there was a total of six times eleven or sixty-six cells. If there were an equal number of observations among the sixty-six cells, this would allow for approximately three observations per cell. However, many of the cells were in reality vacant and many had less than three observations.

One of the important assumptions of the chi-square test is that each cell should

contain at least five observations. The eleven-point brand rating scale and some of the demographic classes were consolidated for the analysis to get a minimum of five observations per cell.

For the four product groups studied—automobiles, television sets, coffee, and cigarettes—sixty-three values of chi-square were calculated. Relatively few (eleven) were statistically significant at the 5 per cent level, and only one was significant at the 1 per cent level. For automobiles and cigarettes, there was virtually no evidence that perception of brand quality varies with income, age, or education.

For television sets and coffee, significant values were somewhat higher, but still relatively low. Three of the five television brands and two of five brands of coffee showed significant differences in quality perception between income groups. One brand of coffee showed significant differences for income, education, and age.

As to price, of sixty-three chi-squares calculated, relatively few were significant. Television brands revealed no significant difference in price perception between income groups. One out of six brands of automobiles, one out of five brands of cigarettes, and two out of the five brands of coffee showed significant differences. The brand of coffee was again significant for both income and age.

Under the hypothesis that no relationship exists between the income, age, and educational level of those interviewed and their rating of the quality or price of a specific brand, it is striking that so few significant values of chi-square turned up. However, it should be pointed out that the chi-squares as calculated were not independent since the same individuals appeared repeatedly in the different classifications. The reliability of the apparent lack of significance is not as convincing as if the individual chi-squares had been combined. A combination of the individual chi-square values might have revealed greater significance by accentuating any trend or lack of trend in the data. Furthermore, if the Ford brand perceptions, for example, are affected by (not independent) those for Chevrolet, Plymouth, etc., the resulting chi-squares have contained

within them (or are altered by) the extent of correlation between car brand perceptions. However, it should be remembered that usually any set of data will show some nominal correlation, including Arizona sunshine and Los Angeles smog!

To obtain some measure of the degree of relationship between brand perception and age, income, and education coefficients of contingency were computed from each previously obtained chi-square. This is not a very reliable measure of relationship, but under the circumstances no better measure was available.

The degree of relationship was found to be relatively low with the exception of the brand of coffee. While relatively few chi-squares were significant, the number was large enough to warrant exploration for systematic patterns among the corresponding coefficients of contingency. That is, the desire now was to determine which factor—the brands within a product class, or the demographic classification, or both—is most important in determining brand perception.

Variance analysis is predicated on two assumptions, neither of which was met in this study. First, individual sample observations should be independent of each other. Second, the variability of the sample observations within each of the sixty-six cells should be approximately equal. This could hardly be the case in this study because of the tendency for the variability of the three methods of classification to fluctuate in accordance with their means. For example, one could hardly expect the means for age, income, and education to be identical or even close.

Although the assumptions of analysis of variance were not fulfilled, still it seemed useful to carry through the analysis as a rough descriptive device to see if any "main effects" stood out.

For automobiles and cigarettes, neither the brands nor consumer classification were significant in influencing quality perception.

For brands of television sets, only demographic breakdown was significant in determining quality perception. The brands themselves were not an influence.

For coffee, both brands and demo-

graphic breakdown were significant in determining the consumer's perception of quality. However, demographic factors were by far the most important, particularly income.

An exploration was next made to determine the influence of the brands and demographic breakdown (income, age, and education) upon the consumer's perception of price.

For automobiles, neither the makes nor demographic breakdown were significant in determining the consumer's perception of price.

For cigarettes, the brands had little influence on price perception. However, income and age, while not significant influences, were far more important than education.

For television sets, the brands were not significant in influencing price perception. However, demographic breakdown was a significant influence largely due to the importance of income.

For coffee, the reverse was true. Brands were significant, but not demographic breakdown. Despite the lack of significance of demographic breakdown, income again was substantially more important than either age or education as a factor in price perception.

THE CONSUMER'S PERCEPTION OF BRAND DIFFERENCES

The previous section was concerned with reactions of consumers to the *same brand*. The present section deals with differences *between brands* perceived by consumers.

For each level of income, education, and age, chi-squares were calculated for the following cross-classifications: (1) quality perception and brand of television sets; (2) quality perception and make of automobile; (3) quality perception and brand of coffee; and (4) quality perception and brand of cigarettes. Similar cross-classifications were calculated for price perception and selected brands of automobiles, television sets, coffee, and cigarettes.

For the three consumer classifications analyzed (income, education, and age), fifty-two values of chi-square were calcu-

lated. Of these, thirty-four were statistically significant, twenty-seven at the 1 per cent level.

Due to the relationship between income, age, and education, it might be expected that the consumer's perception of quality differences would be similar for certain levels of income, age, and education. This is largely because consumers appear repeatedly in different categories. It is infrequent that a consumer will be both poor and well educated, or wealthy and illiterate. If it is found that consumers who have incomes under \$2,000 per year perceive significant quality differences between brands of cigarettes, then it should be possible to predict that consumers having less than eight years of formal schooling would also perceive significant differences. However, this predictability is not much in evidence even at the extreme levels of income, and is absent for the middle-income levels where predictability regarding the consumer's age and education is much less certain.

With 65 per cent of the calculated chi-squares significant, it appears that consumers definitely perceive quality differences between brands of certain product classes.

For automobiles, the consumers (no matter how classified) perceived very large significant differences among the makes, as evidenced by all the chi-squares being significant at the 1 per cent level.

For television sets, the same held true with the exception of one income level (under \$2,000) which perceived no difference among the brands.

For coffee, three out of five income classes showed substantial differences between the brands of coffee, in contrast to only one out of four for each of the educational and age levels.

For cigarettes, none of the income levels perceived significant quality differences between the brands. Only one educational level perceived any brand differences, but three out of four age levels perceived significant quality differences among the five brands of cigarettes. However, one educational level (high-school graduates) and one age level (35-55-year olds) perceived significant quality differences among the

brands of all four product classes.

Does the consumer's perception of price differences among brands parallel her perception of quality differences? Of fifty-two calculated chi-squares, thirty answered the question in the affirmative, being significant at the 1 per cent level, with but one exception.

For television sets, all consumer classifications were unanimous in perceiving substantial price differences among the brands, at the 1 per cent level.

For cigarettes, four out of five income levels perceived substantial price differences between the brands, the \$2,000 to \$3,999 level being the sole exception. Three out of four educational levels perceived no significant differences. High-school graduates were alone in perceiving significant price differences between the brands. Only the two lowest age levels perceived differences in prices between the brands, while the upper two (36-55 and over 55) did not.

For automobiles and cigarettes, perception of price differences between brands of these two product classes was confined primarily to the upper-income and educational levels. The youngest consumers (under 26) and the oldest (over 55) perceived no differences among makes of automobiles. Only the two upper age levels perceived price differences among brands of coffee, with the oldest group (over 55) being statistically significant at the 1 per cent level.

The large number of significant chi-squares warranted an exploration to determine the relative importance of income, age, and education versus the combined four product groups on *quality differences* among the brands and *price differences* among the brands.

As previously, the coefficients of contingency were calculated from the corresponding chi-squares and used in the analysis of variance tests. The analysis revealed that income, age, and education were not significant in determining quality differences among brands of each of the four product classes. The product classes, however, are tremendously important, being significant at the 1 per cent level.

The product classes are similarly significant in perception of price differences between the brands of the four product classes. However, income as well as the product classes are significant in the consumer's perception of price differences. Both were significant at the 1 per cent level.

SUMMARY

Brand perception, for selected brands within four product classes chosen, seem largely independent of consumer socio-economic classification. There appears to be a similar brand rating regardless of income, education, or age of the consumer.

It is less certain whether consumers of the same socio-economic classification perceive significant differences among brands in a product class. Significant quality differences are perceived between brands of automobiles and television sets; and to some degree this is true for coffee and cigarettes. But only for television sets do perceptions of price typically differ between brands. For brands within other product classes, significant price differences are perceived for only isolated levels of income, education, and age.

Implications as to other product classes would have to be viewed with caution. Only two consumer durable goods were studied. Both were relatively high priced, and purchased relatively infrequently by most consumers. Only two consumer non-durables were studied, both purchased frequently, both relatively low priced, and both (for the most part) presold by the manufacturer through advertising.

Certainly, however, similar studies of other product classes should prove valuable. For example, it would be useful to see the effects on brand perception where brand-price variations among brands of a product class are large (for example, brands of lipstick, vitamins, aspirin), as compared with product classes where brand-price variations are minimal (for example, fresh milk, chewing gum, candy bars). It would also prove useful to study product classes where brand entry is infrequent, such as razor blades, in contrast to washing powders, cereals, and tooth paste.