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RESEARCH PAPER SERIES

Using Choice Based Conjoint to Assess Brand Strength and Price Sensitivity

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1996

Article originally published in Sawtooth News

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Article Originally Published in *Sawtooth News*

In our continuing effort to provide information on PC-based interviewing and analysis, we present the following case history by Jon Pinnell and Pam Olsen of IntelliQuest, Inc.

At IntelliQuest, we use leading edge research techniques to provide information to companies in dynamic high technology industries. One of our clients, a Fortune 500 company, recently asked us to help answer some questions about one of its technology products. Among other things, the client wanted to know the strength of its brand name in this particular product category, how that brand strength affected its vulnerability to competitors' price changes, and its influence over other brands.

Our client has given us permission to share this research. To maintain the confidentiality of the study results, we have disguised the product attributes and refrained from naming the product category. Nevertheless, we think the information we can share shows how interesting and valuable such results can be.

We originally considered traditional conjoint analysis for this project. Conjoint can provide information on price sensitivity, and this information can be used to estimate the value of brand name. But, traditional conjoint estimates only one price response function and then assumes that function applies across all brands. For this research assignment, it was important to be able to estimate the price sensitivity of each brand: we wanted to see if our client's brand was more or less sensitive to price changes than competitive brands.

Discrete choice modeling, on the other hand, is a data collection and analysis technique that lets the researcher look at the interactions between any two attributes, such as price and brand. For this reason, we decided to use Sawtooth Software's new CBC System for Choice-Based Conjoint (based on discrete choice modeling). Unlike more traditional conjoint software, CBC does its analysis on an aggregated basis (it does not generate a set of individual utilities for each respondent). We considered whether or not this would pose a problem for us, but decided that since we had just a small set of attributes and would be talking with a relatively homogeneous group of respondents, the technique would work just fine.

A Disk-by-Mail Approach to Study Design

Because we knew that purchasers of our client's product would have access to PCs, we decided to use a disk-by-mail (DBM) approach. We frequently use DBM methods for our technology product research. We find that DBM offers higher response rates at a lower cost and also allows more complex study designs than are feasible with paper or phone administration.

We sent the DBM survey to 2,000 randomly selected individuals. The sample included a mix of product users, purchasers and specifiers. Our response rate was 53%: 1,054 individuals returned their surveys within four weeks. The survey questioned respondents about a number of areas including key buying factors, the purchase process for the product, and usage habits. In addition, a CBC module addressed the primary pricing issues that concerned us.

The choice-based conjoint part of the study used four product attributes: Brand, Distribution Channel, Performance, and Price. We looked at four brands, which we'll call Brands A, B, C, and D. There were three levels of the Distribution attribute: Available Through Retail Stores Only, Available Through Mail Order Only, and Available Through Either Retail Stores or Mail Order. For the Performance attribute we also used three levels: Above Average Performance, Average Performance, and Below Average Performance. Within the Price attribute, each brand had four different prices reflecting 5% and 15% above and below the average price for that brand. Respondents were asked to respond to a series of questions like the one shown in Table 1.

Table 1
Which of these would you be most likely to purchase?

Brand A	Brand B	Brand C	Brand D	NONE:
Available thru retail or mail order	Available thru mail order only	Available thru retail or mail order	Available thru retail only	If these were my only choices, I'd postpone my purchase
Below average perform.	Above average perform.	Average perform.	Below average perform.	
\$285	\$410	\$335	\$290	

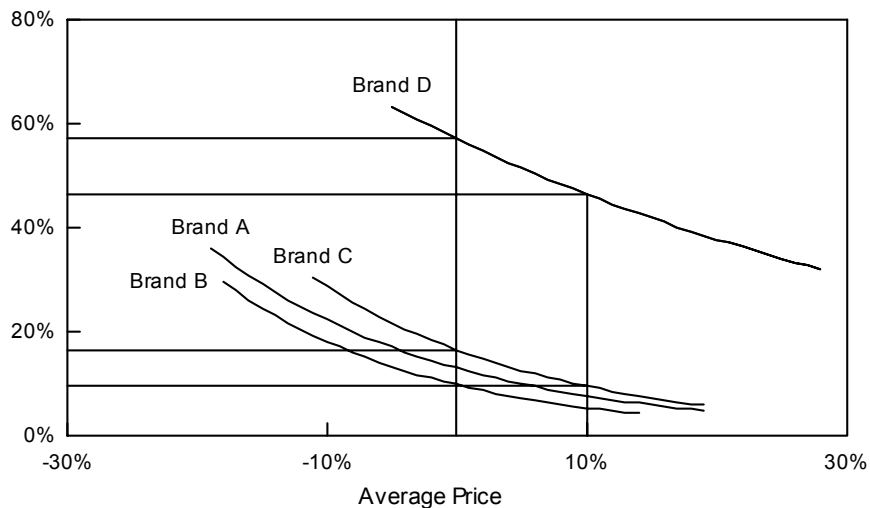
This type of question differs from the "card sort" or "paired comparison" questions asked with traditional conjoint analysis. With CBC, each question is directed at understanding how respondents make choices from competitive choice sets. And, to make the task even more

realistic, a "none" option is included so that respondents are not forced to make a choice they wouldn't make in the "real world." The inclusion of the two attributes besides Price and Brand (Performance and Distribution Channel) were not necessary to address the objective of the research. However, we have found it beneficial to include at least one attribute in addition to price and brand. This helps keep the respondent from focusing only on price and brand.

Developing Measures of Price Sensitivity

We used the responses to these questions to estimate the percentage of time respondents as a group would choose each brand at each price. We then used this information to create a graphic representation of the relative demand for each brand. Figure 1 below is an example of such a graph. The price sensitivity for each brand is reflected by the slope of the demand curve for that brand. A steeper slope indicates greater price sensitivity; a flatter slope indicates less price sensitivity.

Figure 1



The curves in Figure 1 show that variations in price do affect the relative demand for specific brands in this product category. For example, at the current average price, the demand for Brand D is about 56%. A 10% price increase for this brand would change that demand to 45%. To estimate what this means in terms of price elasticity, we take the percent change in demand of 20% $(-11\%/56\%)$ and divide it by the price increase of 10%. The resulting elasticity estimate is -2.0. Using the same price points, Brand C has a 17% demand at its current average price and 11% with a 10% price increase. The percent change in demand is -35% $(-6\%/17\%)$, resulting in an elasticity estimate of -3.5.

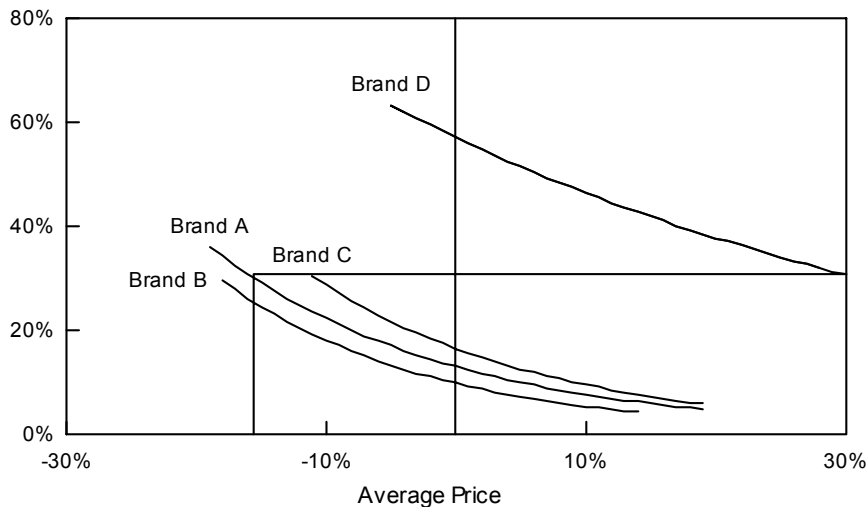
These elasticity estimates show us that even though Brand C lost only 6 share points in comparison to a loss of 11 share points for Brand D, Brand C lost 36% of its share and Brand D lost only 20%. Our client is using this kind of information, in conjunction with its proprietary volume and cost data, to assess the impact of various pricing strategies on revenues and profits. If, for example, our client raises the price of its product and competitors do not respond, both share and revenue will decrease. In contrast, if our client raises its price and competitors do the same, both share and revenue will increase and revenue will increase at a faster rate than share.

Assessing Brand Strength

Our client can achieve greater share in the face of a price increase because its brand equity is greater than that of any competitor. If all the brands in this market were to raise their prices, competitive products would lose acceptability faster than our client's product.

The strength of our client's brand is shown in Figure 2.

Figure 2



Here you can see the premium a brand can charge or the discount a brand must allow at a particular level of relative demand. For example, to achieve 30% demand, Brand A would have to set its price at 16% below the current average price. For Brand D to achieve 30% demand, it can charge a price premium of 30%. Taken together, this means that for the market to be indifferent between Brands A and D, Brand A would have to be priced 35% below Brand D ($1 - \frac{1 - .16}{1 + .30}$).

It was important to our client to have concrete information on the impact of different pricing strategies in this market. Through the use of the choice-based approach to conjoint analysis, we have been able to provide estimates of brand strength and price sensitivity. Traditional conjoint analysis could have provided information on consumers' price sensitivity, but not as it related to the different brands available. And, in addition to the types of graphs and data shown here, we've been able to supply our client with a customized pricing simulator disk, so that the client can model the impact of an infinite variety of competitive scenarios. Our client now has price sensitivity estimates for each of the brands in this market, and this information is invaluable in developing marketing strategy.