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1990 Marketing Science Conference

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Conference Program
March 22-25, 1990

Hosted by the University of Illinois
Department of Business Administration
Chairperson: Professor D. Sudharshan

College of Commerce and Business Administration
Bureau of Economic and Business Research
University of Illinois Urbana-Champaign

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ORSA/TIMS 1990 MARKETING SCIENCE CONFERENCE

SESSION OUTLINES

MARCH 22-25, 1990

The University of Illinois at Urbana-Champaign

Conference Chairperson: D. Sudharshan

FAS: DIFFUSION AND TECHNOLOGICAL SUBSTITUTION
Chairperson: Vijay Mahajan, Cox School of Business,
Southern Methodist University
Discussant: Jerry Wind, The Wharton School,
University of Pennsylvania
Friday, March 23, 1990, 8:15 a.m.

Timing and Diffusion of Technological Substitution: The IBM Mainframe Case
Vijay Mahajan - Southern Methodist University
Eitan Muller - Tel-Aviv University

We develop a model based on the behavioral assumptions of diffusion theory that explain the growth and decline in the adoption of four generations of IBM mainframe computers. We explore the empirical and normative implications of the model. We establish a "Now or at Maturity" timing introduction rule that states that a firm introduces a second generation technology either as soon as it is available or delays its introduction until after the maturity stage of the first generation. This is a refinement of the "now or never" rule found by Wilson and Norton.

Barriers to Incumbent Innovation
Pankaj Ghemawat - Harvard University

This paper uses a case study to reexamine the debate about whether market power increases or decreases firms' incentives to innovate and introduce new generations of products. The case study helps identify the conditions under which fears of cannibalizing existing products can lead incumbents to soft-pedal such innovations--even if they know that potential entrants will not. These conditions are formalized in terms of a simple game-theoretic model.

The Law of Capture: A Study of Generations of Technologies
John A. Norton - University of Virginia
Frank M. Bass - University of Texas at Dallas

We extend our earlier study (Norton and Bass, 1987) of the adoption and substitution of successive generations of technologies of electronic products (DRAMS, SRAMS, and logic devices) to additional products and technologies and, in so doing, we find confirmation for the model and relationships involving dynamic demand relationships for successive generations of technologies. We call this empirical generalization "The Law of Capture" because we find that the manner in which the latest generation of a technology takes over demand from earlier generations is fundamentally the same for different product categories. We shall demonstrate that the law of capture has significant implications for forecasting.

FA1: FIXING HETEROGENEITY IN PANEL DATA
Chairperson: Lakshman Krishnamurthi, University of Illinois, Chicago
Friday, March 23, 1990, 8:15 a.m.

Fixing Heterogeneity in Panel Data

Fusun Gonul and Kannan Srinivasan - Carnegie Mellon University

We generalize the estimation of household-specific parameters (i.e., fixed effects) to nonlinear dynamic models. Our work relates to the literature on unobserved heterogeneity, in general, and, fixed effects, in particular, in the context of hazard function models. We employ two different hazard function specifications to calibrate the data, namely, Gompertz and step-wise hazard functions. We find that price and promotion are significant determinants of product choice decisions, and we reject models without heterogeneity in favor of our specifications.

Household Level Choice Models and Store/Market Level Sales-Advertising Response Models: Data Aggregation Comparisons

Xin Zhou, Vinay Kanetkar, and Andrew Mitchell - University of Toronto

A number of studies have used household level scanner panel data to estimate household brand choice models. These models generally argue that the short run effect of television advertising on a household's brand choice is small and positive. In this paper, we propose and analyze two alternative procedures to map parameters of the household brand choice model to the store level brand sales model. A critical test of these approximations is also examined by using scanner panel data and store level scanner data for one product category. The paper presentation will focus on these critical test results.

Rediscovering the Demographic File: An Analysis of Systematic Differences in Household Brand Choice Behavior

Daniel S. Putler - Economic Research Service, USDA
Gurumurthy Kalyanaram - University of Texas at Dallas

This paper explicitly examines whether or not households with different socioeconomic characteristics systematically differ in their response to marketing mix and brand loyalty variables in a brand choice context. Preliminary empirical analysis indicates that differences in socioeconomic characteristics (particularly income level) across households do have strong systematic effects on brand choice behavior that are consistent with household production theory. Thus it may be possible to increase the effectiveness of a given level of promotional effort by concentrating it in market areas with a high concentration of households with certain socioeconomic characteristics.

Heterogeneity in Traditional Brand Choice Models for Panel Data

Vaman Shenoy Kudpi and Lakshman Krishnamurthi - University of Illinois, Chicago

This paper seeks to compare alternative methods of incorporating unobserved heterogeneity in traditional brand choice models via an error components specification. Results from the estimation of the models indicate that failing to incorporate unobserved heterogeneity in traditional brand choice models significantly affects estimates of structural parameters, especially those that represent the effect of brand choice on a previous purchase occasion.

FA2: SEGMENT LEVEL ANALYSIS OF CHOICE AND BRAND LOYALTY
Chairperson: John Totten, IRI
Friday, March 23, 1990, 8:15 a.m.

Using Household Level Price Elasticities to Improve Segmented Pricing Strategy
Eric Greenleaf, Richard Colombo, and Henry Assael - New York University

We first estimate classical and Bayesian demand models for each household with panel data for saltines. Comparing the accuracy of these models when forecasting each brand's market share within the household demonstrates the advantages of the Bayesian approach. Households are then formed into price segments based on their price elasticities. We then employ discriminant analysis to identify strategically useful segmenting variables that predict which segment a household belongs to. In an era when regional and direct marketing are becoming more important to brand managers, these results can help determine the best strategy for setting optimal promotion policies for different geographic areas.

Brand Distinctive Competencies Across Consumer Purchase Strategy Segments
Imran S. Currim - University of California, Irvine
Linda G. Schneider - Dartmouth College

In this work we develop and empirically test hypotheses regarding the effects of promotion on major vs. minor market share brands in two product categories. The two main effects considered are brand switching and acceleration of either purchase quantity or interpurchase timing.

Segment Level Analysis of Market Shares: A Choice Brand Approach
Sanjoy Ghose and Purushottam Papatla - University of Wisconsin, Milwaukee

The marketing literature does not seem to provide guidelines regarding which market share model should be used in a specific product-market situation. The objective of this research is to develop such guidelines.

The Determinants of Brand Loyalty: An Empirical Investigation
Pete Fader, Leonard Lodish, and Chitrabhanu Bhattacharya - University of Pennsylvania

Various researchers have attempted to study different aspects of the complex phenomenon of brand loyalty. Their results and conclusions, however, are based on an analysis of a relatively small number of categories and brands. This study proposes to integrate and extend extant research on brand loyalty by analyzing scanner panel data for roughly 300 categories and 5000 brands. For the manager, we provide valuable strategic guidance concerning the protection or improvement of brand loyalty levels, "niche" and "change of pace" brands.

FA3: NEW APPROACHES TO CHOICE MODELING
Chairperson: Aharon Hibshoosh, San Jose State University
Friday, March 23, 1990, 8:15 a.m.

Measuring Preferences with Framing as Data
Hanan Polansky - University of Rochester

The suggested approach attempts to deduce the value attributed by the decision maker to the items confronting him exclusively from the ways in which they are framed. The description of the items is the data of the suggested approach. The suggested approach is justified from two perspectives. An empirical test supports its applicability and validity. A formal study grounds the suggested measure of values in five axioms that seem to capture main cognitive features.

Neural Networks: An Alternative Methodology for Predicting Brand Choice and Purchasing Behavior
Judy Bayer - Carnegie Mellon University

In this research we give a brief overview of neural networks. Advantages and disadvantages of this technology are described. We then discuss the feasibility of different marketing applications. Not all marketing problems are suitable for this technology. We also give empirical results of neural networks developed around brand choice applications. These networks use two types of data typically used by marketers: preference and brand similarity data and single-source scanner data.

Fuzzy Sets Applied to Multi-Attribute Choice: A Comparison of Two Models
Ian Willson - University of Toronto

The theoretical justification for the application of fuzzy sets is strong. Conceptual linguistic variables as used in natural language are the most natural consumer response when expressing preferences. The paper will highlight the difficulties in "fuzzifying" a non-fuzzy model and the methodologies available to solve these problems, including the comparison of fuzzy set model predictions using similarity measures. The dangers of manipulating fuzzy sets with traditional mathematical operations will be apparent in the empirical results presented. There are successful approaches for dealing with the inherent multi-dimensionality of combinations of fuzzy sets.

Application of a Network Model of Consumer Choice
John Rotondo, Ronald Knoll, and Ramesh Lakshmi-Ratan - AT&T Bell Laboratories

We apply a cross-effects choice model developed by Rotondo (1986) to subjective choice probabilities collected in a large-sample laboratory experiment. The model associates with each ordered pair of alternatives a positive scale value, $w(i,j)$, which is interpreted as the partial utility of alternative i in a context including alternative j. We introduce a simple error theory and a transofrmation that linearizes the model and orthogonalizes the errors, reducing the problem of parameter estimation to ordinary least squares. We fit both the network (cross-effects) and Luce model to the experimental data at the individual subject level permitting a direct comparison of the distribution of goodness-of-fit statistics across subjects. We also examine the correlation among taste parameters in the population.

FA4: NEW PRODUCT STRATEGY ANALYSIS
Chairperson: Ajay Manrai, Wharton School, University of Pennsylvania
Friday, March 23, 1990, 8:15 a.m.

The Effect of Product Line Considerations and Consumer Information on Optimal New Brand Positioning and Pricing

Dan Horsky - University of Rochester
Paul Nelson - Purdue University

Current research in brand positioning usually assumes that the entrant is new to the market and introduces only one new brand. The attributes positioning of the new brand is assumed to be immediately observed by consumers and no added risk is assumed in its choice. In this research the effects of product line considerations and dynamics of consumer familiarity with the new brand on new brand positioning and pricing are evaluated. Encumbant firms are allowed to react on price and all firms maximize profits. Intuitive and analytical results concerning differences in optimal firm behavior across these different scenarios are discussed and illustrated using automobile industry survey data.

Product Feature Development and Introduction Over Time

Jehoshua Eliashberg, Arvind Rajan, and Richard Steinberg - AT&T Bell Laboratories

We address a class of problems with the following characteristics. A new version of the product is introduced periodically. Each version of the product has additional features. Information about the marginal revenue accruing from each feature is known for each time period. The problem is one of allocating the development budgets to features over multiple periods to maximize the total expected revenue over the planning horizon. We formulate the general problem as a mixed-integer program and discuss solution methodologies.

Incorporating Competitive Reactions in Conjoint Choice Simulators

Sunil Gupta - Columbia University
Rajeev Kohli - University of Pittsburgh

Recently, several authors have developed models which address the issues arising from competitive reaction in multidimensional spaces. Assuming continuous product spaces and differentiable consumer utility functions, they provide significant insights about how competitors should position/reposition their product offerings. However, similar models for analyzing new product introductions in competitive settings based on conjoint data have not appeared in the marketing literature. The specific objectives of our paper are: (i) to specify conditions under which optimum alternative(s) is (are) guaranteed to exist, and to suggest guidelines for identifying such alternative(s); and (ii) to develop justifiable criteria which can help the DM select a set of "second-best" alternatives for further product development considerations, when an equilibrium does not exist.

Competitive Marketing Strategies for Late Entry with Market Share and Profit Objectives

Gregory S. Carpenter - Columbia University
Kent Nakamoto - University of Arizona

This paper analyzes competitive strategies for late entry in which the entering brand seeks both a minimum market share and profit. We consider markets in which consumer preferences and competition are asymmetric. For those cases, we build a model of brand choice and market share, based on a number of empirical regularities, e.g., multidimensional perceptions and differences in buyers' tastes. In this framework, we develop a model of brand profit and use that, with our market share model, to analyze late entry strategy. Using these results we show how pursuing market share objectives can fundamentally alter late entry strategies.

FA5: INDUSTRIAL BUYING AND VENDOR DIVERSITY
Chairperson: Lauranne Buchanan, University of Illinois, Urbana-Champaign
Friday, March 23, 1990, 8:15 a.m.

The Influence of Buyer Switching Costs on Second-Sourcing
Shantanu Dutta and George John - University of Minnesota

A puzzling practice observed in some industries is "second-sourcing." This study investigates the profitability of second-sourcing by developing a two period game-theoretic model which incorporates the features of second-sourcing arrangements that we usually observe. Among the results we show is that when potential buyers face high switching costs, it is more profitable for a firm to license a second-source. We also offer some managerial implications for firms considering options for going to market with such products.

Industrial Buying Behavior: Aviation Fuel Contracts
Mark D. Uncles - London Business School

Aviation fuel is an industrial market where there is competitive information about contracts between oil companies (suppliers) and their customers (airlines). For European airports (at least), regular patterns of contracting have been found. Loyalty is low and divided. These patterns, and the structure of this market, are predictable from the Dirichlet model. The nature of competitive bidding is advanced as one reason for this outcome. The analogy with regularly bought consumer goods is drawn out and a number of methodological and managerial issues are made explicit. It is suggested that managers might "read" industrial markets rather like the way they read consumer markets.

Vendor Diversity
Ward Hanson - Purdue University
Lynn O. Wilson - AT&T Bell Laboratories

Choosing suppliers and alloating purchases among them are among the most important management decisions facing a firm. Industrial customers frequently make a tradeoff between the efficiency of having a limited number of suppliers and the risk which results from reliance on only a few suppliers. Our analysis shows how supplier prices and shares are related to supplier cost structures and to the strength of the desire by the buyer for multiple vendors. For both the linear and nonlinear pricing situations, our analysis draws attention to the importance of information on buyer objectives. We consider the incentives for a buyer to reveal its commitment to multiple sourcing. Although the buyer will generally have an incentive to understate its desire for multiple sourcing, in many cases it may choose to commit resources so as to prove to suppliers that the information it reveals is accurate.

Modelling Industrial Buyers Decision Strategies: An Empirical Test of Prospect Theory
William J. Qualls - Massachusetts Institute of Technology
Frank Kardes - University of Cincinnati

This study entails combining two streams of research: prospect theory and industrial buying behavior. A two-phased study involving a protocol analysis and an empirical test of the decision strategies employed by industrial buyers is presented. A field experiment conducted among buyers at a heavy equipment manufacturer is discussed. The results suggest that industrial buyers employ a variety of decision strategies with the perception of risk representing one of many tactics.

FA6: ORGANIZATIONAL INNOVATIONS FOR PERFORMANCE IMPROVEMENTS
Chairperson: Howard Thomas, University of Illinois, Urbana-Champaign
Friday, March 23, 1990, 8:15 a.m.

Implementing Quality Function Deployment Successfully in American Companies
Abbie Griffin - University of Chicago

The results obtained by using Quality Function Deployment (QFD) as a process for developing new products were investigated acorss 35 projects in 9 American corporations. This talk will review factors which contributed to successful and unsuccessful implementation of the process, as well as present the overall results of the investigation.

The Impact of Marketing Consultancy on Small/Medium Sized Firms
Robin Wensley and Minoo Frahangmehr - University of Warwick

The Support for Marketing scheme (SFM) or The Marketing Initiative was devised by the UK Department of Trade and Industry to help the small and medium sized firms to overcome their marketing problems. The objective of this paper is to report on research concerning the Support for Marketing scheme, to see if there was any benefit to the firm, in their experience of the scheme and to see how the benefits are related to the choice of consultant, to the existence of formalized planning within the firms or, various other factors.

Profit Impact of Degree of Marketing Specialization: Is "Average" Worse than Average?
William Boulding and Eunkyu Lee - Duke University

In this paper we present and estimate a formal model relating degree of marketing specialization (DMS) to firm profits. More specifically, we examine the main effect of DMS on both firm revenues and costs, along with the effects of DMS conditional on the firm's competitive position, while controlling for overall expenditures, environmental factors, the firm's vector of other marketing activities (e.g., price), and unobserved firm-specific conditions (e.g., size or skill).

Strategic Alliances for Complementary Products: Structure, Management and Performance
Louis P. Bucklin and Sanjit Sengupta - University of California at Berkeley

Alliances for complementary products are a new, and rapidly growing form of strategic partnership. Because these partnerships are of growing importance, and usually call for methods of governance beyond those appropriate to the boundaries of the individual firm, the task of management has become commensurately difficult. Key managerial issues identified include the structuring of appropriate agreements, management methods and performance measurement.

FBO: EFFICIENCY IN EFFECTIVE DATA COLLECTION AND UTILIZATION
Chairperson: Seymour Sudman, University of Illinois, Urbana-Champaign
Friday, March 23, 1990, 10:30 a.m.

Purchase Time Compression Study: Comparison of Laboratory Purchasing with Actual Purchasing Behavior

Raymond Burke - University of Pennsylvania
Bari Harlam - Columbia University
Barbara Kahn - University of California, Los Angeles
Leonard Lodish - University of Pennsylvania

The objective of this research is to explore the extent to which consumers' longitudinal purchases available from scanner panels can be mimicked through the use of dynamic computer experiments in a laboratory setting. In this study, we attempt to delineate under what circumstances it is essential to use real shopping data (i.e., actual scanner data) and under what circumstances it is possible to simulate consumers' purchase behavior in laboratory experiments. In our presentation, we will outline our overall study procedures, describe our computer experiment techniques, present our empirical results and discuss future analysis plans.

Uses and Limitations of Consumer Diary Panel Data

John B. Frey - Du Pont Company
Meryl Gardner - University of Delaware

One important source of consumer apparel purchase information used by Du Pont in managing its multi-billion dollar apparel fibers business is the MRCA soft goods consumer diary panel. This type of information is relied upon by the apparel industry to provide guidance on trends in what consumers buy, where they buy, and how much they pay. In addition to sampling error, consumer diary panel data is prone to many other errors. This paper will report on a detailed analysis of some of these errors based in part on a statistical comparison of data from two competing diary panels, a Monte Carlo simulation of the purchase and reporting process, and a study of the behavior of "could-be" panelists.

Distribution Measures for a Product Line

John D. C. Little - Massachusetts Institute of Technology

In the packaged goods industry, knowing the %ACV (all commodity volume) of an item (UPC) is valuable because it tells marketing managers what percent of the possible customers have ready access to the product and, by commonly used rules-of-thumb, what sales increases would be possible if more stores carried the item. We show how to extend distribution measures to a product line so that the same rules-of-thumb will work. The trick is to calculate the distribution of the product line as the weighted average of its individual UPC's, where the weight is the UPC's base volume per percentage point of distribution. A similar process applies to merchandising measures such as features and display. The new aggregate measures make it possible to apply to the product line the same rules-of-thumb commonly used to estimate sales increases from in-store promotion for an individual item.

FB1: MARKETING ECONOMETRICS
Chairperson: James Lattin, Stanford University
Friday, March 23, 1990, 10:30 a.m.

Problems Price Correlations Create in Scanner Data-Based Brand Positioning Maps
Timothy D. Renken - Washington University

This paper (1) illustrates biases price correlations can create when scanner data are used to build brand positioning maps, and (2) describes a mapping technique designed to eliminate those biases. The paper applies a technique described by Renken and Messinger in their working paper "Appraising FTC Opposition to the Proposed 1986 Soft-Drink Acquisitions: Marketing Research Tools Used to Define Antitrust Markets." The technqiue is applied to the same 45 weeks of two-liter soft drink data, and the resulting map is intuitive in two respects: (1) products of the same manufacturers do not cluster together on the same points, and (2) the map shows a clear cola-non-cola dimension.

Is Reference Price Based on Context or Experience? An Econometric Analysis of Scanner Data
Kadiampatti N. Rajendran - University of Northern Iowa
Gerard J. Tellis - University of Southern California

In this paper we explore whether an individual's reference price for a brand has two components; an experiential component derived from past prices of chosen brands, as has been assumed in empirical studies, and a contextual component derived from current prices of other brands, as suggested by theoretical literature. The results of the analysis suggest that there is a strong, consistent contextual component and a relatively inconsistent experiential component.

Seasonal Market Response
Marnik G. Dekimpe and Dominique M. Hanssens - University of California, Los Angeles

Many products and services are marketed in seasonal environments, i.e., those that are characterized by recurring patterns in the same periods across years. We propose a sequence of empirical tests for determining the nature of seasonality in sales and marketing, and for measuring short-term and long-term marketing effects in the presence of seasonality. We illustrate these procedures to establish long-run effectiveness of advertising spending for a home-improvement chain. While strong seasonal patterns in both advertising and sales are shown to exist, our tests demonstrate that the dynamic marketing effects dissipate within one year. We explore the managerial implications of our findings and conclude with several directions for future research.

Diagnosing Competitive Reactions Using (Aggregated) Scanner Data
Peter S. H. Leeflang and Dick R. Wittink - Cornell University

Causality tests are used to specify the dynamic-causal structure of a system of competitive reaction equations. The data cover 76 weekly periods, supplied by A. C. Nielsen (the Netherlands) B.V., based on a sample of about 150 stores. Our results suggest that scanner data provide a useful basis for describing competitive reactions at the retailer level. The findings show that simple competitive reaction functions would fail to capture the complexity of competitive reactions. Simple reactions do, however, account for a disproportionate number of all reaction effects obtained.

FB2: BRAND SWITCHING MODELS
Chairperson: Brian Ratchford, SUNY, Buffalo
Friday, March 23, 1990, 10:30 a.m.

A Model of Automobile Choice and Brand Switching: Empirical Results

Rishin Roy, Barry L. Bayus, and Dick R. Wittink - Cornell University

We propose a dynamic brand choice model based on the assumption of random utility maximization for consumer choices. The model is developed at the individual household level (see Roy, 1989). A key aspect of this model is that factors not accounted for by observable characteristics are accommodated by allowing for serially correlated error terms. This serial correlation exists when there is temporal persistence in the unobservable components of random utility. The model is applied to the U.S. automobile market using survey data collected from buyers of new 1986 and 1988 vehicles and is compared with choice models from the logit family that assume serially uncorrelated errors.

Stochastic Consumer Choice as the Outcome of Stochastic Preference and Indifference: A Double Threshold Theoretical Perspective

L. Inhyok Choi - Columbia University

This article attempts to investigate more closely and intuitively the decision process of consumer judgments and choice in light of the notion of indifference and preference in the preference structure within the "lens" model framework. Two thresholds δ_1 and δ_2 are proposed to help articulate choice situations, especially where different alternatives may offer minimally discernible differences. These two thresholds are incorporated into the conventional stochastic choice model. This theoretical model of two thresholds explains stochastic choice as the outcome of stochastic indifference and preference.

An Investigation of Brand Loyalty in the Automobile Market Using a Brand Switching Model

Patrick S. McCarthy - Purdue University
P. K. Kannan - University of Arizona
Gordon P. Wright - Purdue University
Radha Chandrasekaran - University of Arizona

The main goal of our research is to empirically examine the effects of customer loyalty in the automobile market and its role in explaining the observed switching matrix using a brand switching model. The data we use is obtained from recent car buyers by J. D. Power and is a three-dimensional brand switching matrix consisting of details on preivous car owned, car currently purchased, and the substitute choice if the currently purchased car were not available. We also model consumer heterogeneity at a more detailed level of developing an unobservable latent model.

Statistical Mechanics of Choice

Peter S. Faynzilberg - University of Illinois, Urbana-Champaign

A theory of stochastic choice behavior is proposed. It aims at uncovering the relationships between the aggregate and individual choice behaviors in large buyer populations such as those in the consumer goods markets, for example. In terms of the goods involved, it is applicable at any level, that is, it deals with choices of brand, products, and product types equally well. One of the outcomes of this research was uncovering several methodological inconsistencies that seem to be present in both Herniter's and the Hendry models.

FB3: COMPARING CHOICE MODELS
Chairperson: Ramnath Lakshmi-Ratan, AT&T Bell Laboratories
Friday, March 23, 1990, 10:30 a.m.

Do First Stage Screening Probabilities Influence Second Stage Probabilities?

Dennis H. Gensch - University of Wisconsin, Milwaukee

Recent articles in choice modeling advocate a two stage decision process in which the decision maker uses the first stage to screen down the number of feasible alternatives, and the second stage to make a final choice. This paper formulates a minimum discrimination information (MDI) approach to intertwine the two stages of a decision process. Using a real-world data set, second stage probabilities were estimated using both the MDI and MLE (maximum likelihood estimation) approaches. In this case the new MDI approach had substantially less error. This indicates for this set of industrial buyers, the first stage probabilities do substantially influence the final choice probabilities.

An Empirical Test of the Adequacy of Expected Utility Theory and Prospect Theory

Carl S. Bozman - University of Delaware
Donald E. Stem, Jr. and U. N. Umesh - Washington State University

The objectives of this study were twofold. First, we wanted to conduct a comparative theory test of expected utility theory versus prospect theory. Second, we wished to introduce a construct which might impact risky decisions but was not incorporated in either theoretical framework, namely our findings indicate that neither theory provides an adequate explanation of the risky decision process. Product involvement, as well as the decision frame, was found to significantly affect respondent risk preference.

A Comparison of Stated and Revealed Preference Models of U.S. High School Students' Choice of College

Jordan Louviere - University of Alberta
Joel Horowitz - University of Iowa

The purpose of this paper is to compare two models of choice of college based on a random sample of U.S. high school students who took the A.C.T. (American College Testing) exams in 1985. Our model is based on a conjoint choice experiment in which 1200 students were randomly assigned into 12 different versions of a conjoint choice experiment. A second model is based on observations of colleges chosen by sampled students who could be followed up in Fall, 1986. To make the comparisons we employ a new regression test of equality developed by the authors that allows one to test whether the process represented by a particular model (in this case the stated preference model) is consistent with choices observed in a second condition (in this case the observed choices).

Importance of Advertising, Display and Consumer Choice Factors

Patricia M. Anderson - Quinnipiac College

This research focuses on the association between consumer response to advertising messages and/or display with consumers': (1) interest in the product itself, (2) image related to using/wearing the product, and (3) pleasure related to using/wearing the product. Other explanatory variables include risk, brand image and gender.

FB4: ORDER OF ENTRY, ENTRY TIMING AND BRAND EQUITY
Chairperson: Gary Russell, Vanderbilt University
Friday, March 23, 1990, 10:30 a.m.

Empirical Analyses of the Effects of Price and Promotion Competition on the Order of Entry
Gurumurthy Kalyanaram - University of Texas, Dallas
Glen L. Urban - Massachusetts Institute of Technology

First, in this paper a time-series, cross-sectional database is used to examine the dynamic effects of later entry, i.e., do later entrants approach their asymptotic shares at a slower or faster rate than pioneers? Second, this study examines the effects of order of entry on trial penetration and repeat purchases as well as market share. Third, the use of scanner data allows analysis of price, promotion and distribution. The empirical results suggest that the long run order of entry effect on market share is not moderated by the price and promotion competitive reactions, but the rate of growth of market share is considerably moderated. There are significant price and promotion competitive effects.

When Is It Better to Be Second: An Analysis of Entry Strategy
Atanu R. Sinha and Ambar G. Rao - New York University

Two variables of interest to firms are timing of entry and advertising rate. Our research provides insight into a number of firm decisions including: (a) Given firm I has introduced its product at time zero, with a certain rate of advertising, when should firm II enter the market? (b) What is the optimal advertising rate for firm II? (c) What is the effect of market parameters on the above outcomes?

Order of Entry Effects on Brand Attitude Polarization and Persistence
Gurumurthy Kalyanaram - University of Texas, Dallas
Frank R. Kardes - University of Cincinnati

In the long run, pioneer brands enjoy a competitive advantage over later entrants. The relationship between product knowledge and judgment may have additional effects that are beneficial to the pioneer, as well. We find, in a longitudinal study, that the order of entry influences the amount of information known about a brand which in turn influences brand attitude extremity and persistence.

Brand Equity and Shareholder Value in Mature Industrial Product Markets
Victor J. Cook, Jr. and John R. Page - Tulane University
Marjorie Fox Utsey - University of New Orleans

To articulate and test the relationship between brand equity and rate of return we must use an objective measure of "brand equity" that is compatible with financial data and incorporate both book and shareholder definitions of "rate of return." Four general hypotheses are tested in this research: the "efficient market" hypothesis, the "PIMS" hypothesis, the "Caught-in-the act" hypothesis, and the "Brand Equity" hypothesis. They are tested on each of five measures of book and shareholder rate of return. Parameters are estimated in a set of seemingly unrelated regressions using GLS procedures to maximize efficiency (Cooper and Nakanishi, 1988).

FB5: CHANNEL DESIGN AND EFFECTS OF EXTERNAL REPUTATION
Chairperson: Allen Weiss, Stanford University
Friday, March 23, 1990, 10:30 a.m.

Analyzing Product Distribution Decisions
Subramanian Balachander and Peter H. Farquhar - Carnegie Mellon University

We analyze firms' decisions about the intensity of distribution of their products. We use a game theoretic framework to address three aspects of distribution: (1) the distribution decision of an entrant firm competing with an incumbent firm; (2) the relationship between a firm's distribution decision and the choice of product quality; and (3) manufacturers' product and advertising decisions as a function of retailers' stocking rules.

Big Fish in a Small Pond, or..? Modelling Quality Perceptions in Distributor Selection Decisions
A. Ali and S. Seshadri - University of Maryland, College Park

This paper focuses on the distributor selection problem faced by the manufacturer of a new product. The solution to the distributor selection problem is not trivial since the product's perceived quality is influenced by the distributor's reference quality. In essence, the problem is the marketer's analogy of the aphorism "is it better to be a small fish in a big pond or a big fish in a small pond?" This paper seeks to model the effects outlined above in order to unravel and quantify the trade-offs involved in the distributor selection problem.

Public Goods Provision and Channel Management
Seth M. Norton - Washington University

National advertising by a manufacturer that generates benefits for retailers and high quality or service by retailers that benefits competing retailers is an example of public goods. Traditional public goods analysis assumes that the amount of a public good supplied would be the simple sum of the separate amounts of "society" (channel members). However, many other possibilities for public goods provision also exist. Applying several of these to common channel coordination problems suggests when several channel management devices might be used. Included here are the (i) choice of company owned versus franchised outlets, (ii) the motive and the severity of resale price maintenance policies, (iii) the use of exclusive territories, and (iv) the use of exclusive dealing. Theory and examples are presented here.

External Reputation and Productivity in Organizations
A. Basu and L. Buchanan - University of Illinois, Urbana-Champaign

This paper extends the traditional principal/agent paradigm by considering the case where the agent decides not only the level of effort he will expend but also the difficulty of the project he undertakes. The more difficult the project, the less likely the agent is to successfully complete the project. The agent nonetheless undertakes such projects on the assumption that the quality of the project, if completed, will be recognized and rewarded by the external environment, if not by the principal. We show that the presence of the external reputation factor reduces or even eliminates inefficiencies which might have resulted from the principal's inability to evaluate quality.

FB6: STRATEGIC ANALYSIS OF MARKETS AND INDUSTRY
Chairperson: Rabikar Chatterjee, University of Michigan
Friday, March 23, 1990, 10:30 a.m.

Strategic Market Analysis in the Real World: Towards a Representation of Inefficient Markets
Philip Boxer and Robin Wensley - University of Warwick

To develop a form of strategic market analysis which is more relevant to actual business experience, and particularly to common situations in which the critical role of long term inter-organizational relations is recognized, we need to develop a form of representation of market organization itself, which provides the opportunity to assess the economic substrate through the multiple perspectives or frames of the different participants. In this paper a form of such representation and analysis is presented which provides strong links with emerging work on both the ecological analysis of organizational strategies as well as in systems theory. The approach is illustrated with a number of examples from 'real-life' organizations and questions are raised about the nature and scope of future developments.

Strategy and Performance of Wholesalers and Retailers
David Georgoff and C. M. Sashi - Florida Atlantic University

Market evaluations of firm performance depend on the firm's strategy regarding output markets, value adding performed internally, and the inputs bought. The strategies adopted will differ depending on the type of value adding performed. We specifically study firms engaged in wholesaling and firms engaged in retailing and compare the strategies adopted in these two industry groupings (and their relationship to performance).

A Multi-Faceted Approach to Identifying the Competitive Structure in an Industry
Deepika Nath - York University

The appropriate definition of competition is instrumental in determining the choice and success of a firm's strategy. With three different perspectives on the same issue, it is pertinent to examine whether each gives a different structure, or if they converge. Also, which definition is appropriate in determining the competitive structure in an industry? With the objective of addressing these issues, the paper compares competitive structures in the health care provider "industry" using the following definitions: (a) strategic group membership, (b) consumer perception, and (c) managerial perceptions.

Gaining Comparative Advantage Through Discretionary Expenditures: The Returns to R&D and Advertising
Gary Erikson and Robert Jacobson - University of Washington

Contemporary strategic thinking posits that achieving superior performance requires a business to possess a comparative advantage. With some exceptions, previous empirical research indicates significant positive effects of advertising and R&D on a firm's accounting return. We find that once the effects of firm-specific factors and the influence of profitability on discretionary spending are taken into account, neither R&D nor advertising expenditures are evidenced to generate a comparative advantage allowing for supranormal returns. Increasing spending on R&D or advertising is, in and of itself, unlikely to generate a comparative advantage that leads to supranormal profits.

FCS: ADVERTISING AND PROMOTION: SUBSTITUTES OR COMPLEMENTS?

Chairperson: Subrata Sen, Yale University

Friday, March 23, 1990, 1:45 p.m.

Discussants: Randall Emond, Senior Vice-President and Partner in Marketing Planning - Foote Cone and Belding/ Leberkatz Partners

William Finnie, Director of Strategic Studies and Planning - Anheuser-Busch Companies, Inc.

Roger Godbeer, Director of Worldwide Media - Colgate-Palmolive Company

John Little - Massachusetts Institute of Technology

Leonard Lodish - University of Pennsylvania

Scott Neslin - Dartmouth College and Yale University

FC1: ON HETEROGENEITY IN CHOICE MODELS
Chairperson: Dick Wittinck, Cornell University
Friday, March 23, 1990, 1:45 p.m.

Does Heterogeneity Really Exist in Choice Models?
J. Morgan Jones and Jane T. Landwehr - University of North Carolina

A current controversy in the choice modelling literature concerns the nature of household-specific heterogeneity. Some authors would argue that, if we can include in the model enough characteristics of the household, and perhaps of the purchase situation, all household-specific variation would vanish. Others claim that two households will vary even when they have exactly the same household and purchase occasion characteristics. A method has now been developed, using an empirical Bayes technique, to obtain statistically appealing estimates of the household-specific heterogeneity parameters. This will help resolve the question of whether heterogeneity exists in choice models.

Unobserved Heterogeneity in Multinomial Logit Models: A Multiplicative Specification
Kannan Srinivasan and Fusun Gonul - Carnegie Mellon University

Multinomial models have been widely employed by marketing researchers. However, most models ignore unobserved heterogeneity across households. We propose a new method in which the unobserved heterogeneity is modeled as a random effect that is multiplicative on the intercept and is common across choices. Our results indicate that (a) considerable unobserved heterogeneity exists and (b) the simpler multiplicative model captures nearly as much heterogeneity as the complex additive specification. Also, using Heckman and Singer's (1984) non-parametric procedure we observe that parameter estimates are not sensitive to the distribution assumption of normality.

FC2: LOGIT MODELS AND THEIR USE
Chairperson: Rick Staelin, Duke University
Friday, March 23, 1990, 1:45 p.m.

Logit for the Boardroom: Simulating the Outcomes of Competitive Marketing Strategies
Douglas J. Honnold and Robert J. Brooks - Information Resources, Inc.
John D. C. Little - Massachusetts Institute of Technology

When marketers develop strategies, they consider, either explicitly or implicitly, many scenarios for their own products and those of their competitors in the category. A procedure for combining historical patterns of shopping trips with nested logit models of purchase incidence and brand choice makes possible the evaluation of alternative marketing scenarios. Using these procedure simulations have frequently yielded results that are non-obvious. In examples to be discussed, managers have gained a better understanding of marketing response and potential competitive reactions, and, as a result, have made substantial reallocations of marketing dollars.

Presenting Information on Attribute Variability to Managers: Effects of Format and Overall Decision Strategy
David E. Hansen - Duke University

Strategic marketing decisions are tested using two common representations of variability for uncertain decision variables: the worst case-best case and the best estimate plus or minus some variability frameworks. The two representations cause managers to reverse their decisions. Perceived control over outcomes is hypothesized to modify loss aversion and thus the decision itself. A behavioral model of these effects is based on the overall decision strategy used, as influenced by time pressure, and Slovic's concreteness principle.

A Methodology for Brand Specific Decision Making: An Empirical Comparison of Three Logit Models
Lakshman Krishnamurthi - University of Illinois, Chicago
S. P. Raj and K. Sivakumar - Syracuse University

This paper estimates and compares three formulations of the logit choice model for brand specific decision making--the formulations are discrete choice model with common price coefficients, discrete choice model with separate price coefficients and the seldom used multinomial logit formulation. The models are applied to consumer panel data for two product categories. The strengths, weaknesses and managerial applications of the three formulations of the logit model are discussed.

Random Parameter Estimates in Multinomial Logit Models
Kannan Srinivasan and Fusun Gonul - Carnegie Mellon University

While logit models have been widely employed in marketing, heterogeneity across households has received little attention. In this paper, we allow for the coefficients of price and promotion to vary across households. The parameters vary across households according to a joint bivariate normal distribution. The means are allowed to vary across choices. Our results indicate substantial improvement in the log-likelihood value and the likelihood ratio test strongly rejects the nested model of fixed parameters across households.

FC3: CONJOINT ANALYSIS: COMPARISON OF METHODS AND PERCEPTUAL MAPPING
Chairperson: Douglas MacLachlan, University of Washington, Seattle
Friday, March 23, 1990, 1:45 p.m.

An Analytical Comparison of Models for Predicting Choice Shares from Preferences
S. Krishna Kumar - Vanderbilt University

Conjoint choice simulators enable managers to estimate the share of potential customers that will choose a product described in terms of its attributes. This paper compares analytically the first choice rule with a general class of probabilistic rules for predicting the choice shares of alternative profiles. The results will be demonstrated using real life conjoint data.

Are Order and Practice Effects Task Dependent? Choices Versus Ratings
Richard D. Johnson, Jordan J. Louviere, and G. Douglas Olsen - University of Alberta

Context effects, such as the order in which questions or attribute information are presented or the opportunity for subjects to practice the experimental task, may influence the results obtained from practical and academic research. We hypothesize that choice tasks as compared to ranking tasks are less susceptible to these effects because of the nature of the task. Our empirical study finds that question order, attribute order, and practice effects occur in both ratings and choice tasks; however, all three context effects are significantly smaller and less frequent in choice tasks.

Relating Brand Perceptions to Attribute Descriptions in Conjoint Analysis: A Comparison of "Brand Anchored" and Traditional Descriptive Attribute Methods
Collen Collins-Dodd and Jordan Louviere - University of Alberta

A new way to use conjoint analysis, called "brand anchored" conjoint, involves the use of the names of brands to describe levels of various factors (e.g., conveience like McDonald's) to and model consumers' existing brand perceptions. The purpose of this paper is to: (a) empirically address the linkage of consumers' psychophysical judgments of branded products with evaluation of attributes as measured by conjoint analysis methods, and (b) compare traditional descriptive attribute and brand anchored attribute methods.

Capturing Consumer Heterogeneity in Perceptual Maps
Naveen Donthu - George Institute of Technology
Roland T. Rust and Terry Elrod - Vanderbilt University

This paper addresses the isue of how four alternative approaches to modelling consumer heterogeneity, given sample ideal points perform, under varying conditions, with respect to producing accurate estimates of market shares and the effective positioning of new or repositioned products. We present results obtained from two simulation studies in which the sample size, distribution of ideal points; and error variance in deal point estimate are varied.

FC4: NEW PRODUCT DIFFUSION MODELS
Chairperson: Fareena Sultan, Harvard University
Friday, March 23, 1990, 1:45 p.m.

Competitive Effects in Diffusion Models: An Empirical Analysis
Philip M. Parker - INSEAD
Hubert Gatignon - University of Pennsylvania

The objectives of this research are (1) to provide a systematic analysis of competing alternative manners in which competitive effects can be represented in diffusion models and (2) to empirically assess in a product category the fit of these alternative model specifications. In particular, the competitive diffusion process is modeled so as to capture the dynamics of brand-specific competitive interpersonal influences, price elasticities, and advertising elasticities. This study offers empirical evidence about the effects of competition on the diffusion of innovations.

Adoption Rates for Non-Durables: Evaluating the Marketing Mix and Generating Early Forecasts
Greg M. Allenby - Ohio State University
Robert C. Blattberg - University of Chicago

The purpose of this paper is to (1) introduce a new model of first purchases that accounts for differences in price, promotion (including couponing activity) and distribution across stores in a market as well as differences in reservation price and purchase timing across consumers, and (2) propose a Bayesian method of estimating the model that facilitates early forecasts and yet maintains computational ease and efficiency (i.e., closed form calculations). The model is used to predict and evaluate first purchases of three food products in two cities.

Marketing Mix Effects on the Diffusion of Innovations
Dipak Jain - Northwestern University

We propose an alternative approach to modeling the effects of marketing mix variables on the diffusion process. To be specific, we are interested in determining (a) whether the marketing mix variables alter the adoption rate, i.e., the probability of adoption for a durable, (b) whether they accelerate or decelerate an individual's timing of adoption. Our results on modeling the price effect indicate that price has a significant impact on the adoption rate of the price consumer durables considered in this study.

Diffusion of Consumer Durables in Heterogeneous Markets
Hirokazu Takada - University of California, Riverside
Yu-Min Chen - University of Texas, Dallas

The coefficients of innovation and imitation provided by the Bass diffusion model are utilized to analyze the diffusion process in different geographical regions of the U.S. market. We have developed the modeling framewok to test the heterogeneity of the market and to model the diffusion process using cross-sectional time series data by specifying a random coefficient model. Empirical results for VCRs clearly indicate that there is a significant difference in the diffusion process among the different regions. Managerial implications of the findings are discussed.

FC5: SELECTION AND CONTROL IN DISTRIBUTION CHANNELS
Chairperson: George John, University of Minnesota
Friday, March 23, 1990, 1:45 p.m.

Prices and Prizes: Selection and Control in Industrial Procurement (in Supply Channels)
Sudi Seshadri - University of Maryland, College Park

This paper examines the ability of industrial buyers of expensive custom-made products to control their suppliers through the use of contests. Several questions arise in such contests, such as: What risk and incentive trade-offs do vendors face when competition over shares of the business subsequent to selection is added to competition in price prior to selection? How can the buyer decide on the number of suppliers to maintain? This paper addresses these questions, among others, by modeling the decrease in the selection risk for vendors under multiple source bidding competitions and the countervailing increase in the share of business risk for suppliers. A single period game-theoretic formulation captures the main issues.

Dual Sourcing with Risk Averse Bidders
Dorothy E. Raffel - Pennsylvania State University

Most procurement awards are made after an organized auction or after bargaining or some composite of both. We expand upon the basic single-stage auction model by explicitly modeling the entry decisions of the bidders. Our model also considers risk aversion and that each bidder's profit alternative and cost estimate for the project are correlated. We can show that for certain market conditions, if bidders are sufficiently risk averse, splitting an award among two suppliers can lead to lower expected procurement costs even in a single-stage auction.

Quasi-Vertical Integration in Channels of Distribution: A Dyadic Field Study
Erin Anderson - University of Pennsylvania
Barton Weitz - University of Florida

Conventional distribution channels, characterized by arms'-length contracts between independent manufacturers and channel members, often fail to perform in the longer term. Vertically integrated distribution channels may solve this problem but introduce many others. A compromise which has generated considerable management interest is the quasi-integrated distribution channel, wherein manufacturers and distributors develop high levels of mutual commitment and make sacrifices to sustain their relationship. This field study uses data from over 300 pairs of manufacturers and their distributors to develop a simultaneous equation system representing the determinants of mutual commitment to the business relationship. The results suggest that (1) binding actions have a powerful impact on commitment, and (2) neither the manufacturer nor the distributor is heavily influenced by the other side's actual level of commitment.

Switching Costs and the Disintegration of Manufacturing/Sales Agent Relationship: A Field Study
Allen Weiss - Stanford University
Erin Anderson - University of Pennsylvania

We model a manufacturer's intention to terminate its rep and integrate forward into selling (set up its own sales force) is cast as a function of six factors: costs of switching, dissatisfaction with current rep, organizational slack, time horizon, market potential, and availability of good sales agencies. The intention-to-integrate model and its associated submodels (switching costs and dissatisfaction with the rep) are estimated using survey data from 256 manufacturers currently using manufacturers' representatives to sell a broad range of electronic components to the U.S. market.

FC6: RETURNS TO AND VARIATIONS IN DISCRETIONARY EXPENDITURES
Chairperson: Gary Erickson, University of Washington, Seattle
Friday, March 23, 1990, 1:45 p.m.

Determinants of Brand Advertising Intensity
Siva K. Balasubramanian - University of Iowa

Relatively little is known about the factors which determine advertising intensity for a brand at any given time period. Since advertising intensity for a given brand is vital from a managerial viewpoint, the factors affecting it demand research attention. This study allows for dual causality among variables in the model estimation process, captures cross-sectional as well as temporal dynamics, and enables elaborate model validity tests to enhance managerial relevance.

Analyzing Variations in the Advertising and Promotion Costs-to-Sales Ratio: Model Parsimony, Optimality Considerations and Empirical Evidence
S. Balasubramanian - University of Iowa
V. Kumar - University of Houston

This study takes an in-depth look at past results explaining variations in advertising and promotion to sales ratios. We offer market-based theoretical reasons that are plausible, derives analytical results, and provides empirical support and analyses that offer new insights.

Exploring Further the Links Between ROI and Market Share
William W. Alberts - University of Washington

The PIMS data base seems to show that industrial business units with higher market shares tend to generate higher ROIs. Ordinarily, ROI and market share trade off: a strategy that works to increase ROI tends to cost share points while a strategy that works to increase share tends to cost ROI points. So what is it that PIMS units do that apparently reverses this trade off, that makes it possible to increase one without sacrificing the other? My aim in this paper is to develop some preliminary answers to this question.

A Disaggregate Model of Market Share - ROI Functional Relationship
Vasudevan Sundararajan - Auburn University
Mark M. Moriarty - Purdue University
Rabikar Chatterjee - University of Michigan

This study investigates the functional relationship between market share and ROI in different industry categories. The study considers three market characteristics, differentiation, segmentation and value added to obtain homogeneous groups of industries. Then it proposes a U shaped relationship in high value added and differentiated industries, an inverted U shaped relationship in homogeneous-low value added industries and a monotonic J shaped relationship in highly segmented industries. Large scale empirical analysis of the PIMS database provide sound evidence for these theoretical relationships. Interesting patterns of industry structure were also observed. The market share-ROI performance curves were displaced vertically upwards in the high value added and differentiated industries than in the low value added and segmented industries. Chow tests confirmed the utility of the disaggregate analysis.

FD1: NONSTATIONARY PURCHASE PROBABILITIES AND THE NBD MODEL
Chairperson: Don Morrison, University of California, Los Angeles
Friday, March 23, 1990, 4:00 p.m.

Modelling of Nonstationary Purchase Probabilities
Kin-Nam Lau and William W. Wilson - North Dakota State University

A dynamic model is developed in this paper to analyze purchasing behavior of buyers in which the transition matrix is nonstationary. The model is empirically estimated for selected importing regions in the world wheat market. In this market differing marketing policies are used by the exporting countries which impact the elements of the transition probability matrix.

The Impact of Nonstationarity in Conditional Trend Analysis Using the Negative Binomial Distribution
Peter J. Lenk - University of Michigan
Ambar G. Rao - Stern School of Business

In this paper we develop the analogue of the NBD. We replace the stationary Poisson purchase process with rate λ by a time heterogeneous Poisson process with intensity $\lambda\psi(t)$. Here $\psi(t)$ can be any bounded function and can contain explicit representations of marketing variables, thus overcoming a criticism of the NBD approach. For example $\psi(t)$ can be cyclical and may include a trend or step function or spike. These patterns correspond to seasonality, increasing use and sustained or temporary marketing effort respectively. Conditional trend analysis estimates are derived as a function of $\lambda\psi(t)$. Now suppose an analyst ignores nonstationarity and incorrectly specifies a stationary Poisson process. What systematic biases would be obtained? In particular how would the zero class forecasts be affected? We present analytical results for the general case and for various specific forms of nonstationarity.

An Investigation of the Robustness of the NBD Model with Respect to Departures of Its Distributional Assumptions
Patrick Duparcq and Udo Wagner - Purdue University

There are quite some research papers which deal with discussing and/or analyzing the basic assumptions on individual buying patterns which result in the NBD as an aggregated market model: (1) individual purchase behavior can be described by a Poisson process, (2) the mean purchase rate of this Poisson process is distributed Gamma across the population, and (3) this mean purchase rate is constant over time. The present study aims to add some structure to comparison of NBD and alternative models by systematically analyzing the effects of departures from these assumptions in a simulated environment.

Accounting for Non-Stationary Household Preferences in a Cross-Sectional Model of Consumer Purchase Behavior
Peter Fader - University of Pennsylvania
James M. Lattin - Stanford University

In most brand choice models, a single term captures the effects of differences in brand preferences across households (heterogeneity) and over time (non-stationarity). This study demonstrates that such a combination can adversely affect the validity of estimated preference parameters, and can also harm a model's fitting ability. First we present a simulation showing that a single preference term is unable to properly distinguish the effects of heterogeneity from non-stationarity, consistent with the results of Massy, Montgomery, and Morrison (1970). Next we introduce a two-term preference measure that improves fit and isolates the effects of non-stationarity while also providing diagnostic measures about heterogeneity.

FD2: BRAND EQUITY MEASUREMENTS AND BRAND LOYALTY
Chairperson: Marjorie Fox Utsey, University of New Orleans
Friday, March 23, 1990, 4:00 p.m.

A Scanner-Based Measure of Brand Equity

Wagner A. Kamakura and Gary J. Russell - Vanderbilt University

We define brand equity as the utility created by product consumption which cannot be explained on the basis of objective product attributes and environmental constraints such as price. We use Nielsen scanner data and Consumer Reports brand quality ratings to calibrate the brand equities of products in the liquid and powdered detergent markets. Two key conclusions emerge from our analysis. First, brand equity is strongly related to order of brand entry. Second, cumulative advertising expenditures are strongly correlated with brand equity. This latter result lends support to advertising agency arguments that advertising is a long-run investment designed to define and to maintain a brand's positioning.

The Role of Brand Equity in Modeling the Impact of Advertising and Promotion on Sales

Donghoon Kim - State University of New York, Buffalo

A model of brand equity is proposed where brand equity is defined as a function of various variables. We propose a description of the process through which advertising and promotion exert their short-term and long-term influence. We provide a way of measuring brand equity at both the individual and brand level. Finally, the model is calibrated and the long-run impact of advertising examined using a heretofore unavailable single-source scanner data in which advertising viewing data is collected for the purchase panelists.

Structural Analysis of Brand Equity Across Product Categories

Jean-Noel Kapferer, Michel Tenenhaus, and Gilles Laurent - Centre HEC-ISA

We analyze three-dimensional data: product categories (nine categores of consumer durables) by brands (17 established brands) by questions (four questions: aided awareness of the brand, trust in the brand, first choice, is the brand the "reference" brand?). Data were collected in a survey of 400 consumers. Is it possible to linearize the relationships across response rates through Rasch models, in order to obtain a better understanding of their structures? Is it possible to speak of an "umbrella" brand equity, or can we identify contrasted "equity profiles" across brands? Can we say that the same relationships between the four questions exist in all nine product categories? Are there interactions between brands, categories, and questions?

Alternative Brand Loyalty and Ad Exposure Definitions in Brand Choice Models

Vinay Kanetkar and Charles B. Weinberg - University of British Columbia
Doyle L. Weiss - University of Iowa

Brand loyalty has consistently been found to be the most important explanatory variable when included in consumer brand choice models implemented with scanner panel data. Why this is so, the brand loyalty-advertising exposure relationship, and the effect of alternative definitions of brand loyalty are still unknown. We attempt to answer these questions by developing a new measure of brand loyalty that weights last purchase incidence with the elapsed time between purchases. We individually parameterize this model with panel data and we find that this new measure significantly outperforms previously available measures. A similar analysis is performed for ad exposures.

FD3: CONJOINT ANALYSIS
Chairperson: Richard D. Johnson, University of Alberta
Friday, March 23, 1990, 4:00 p.m.

Telephone-Based Conjoint Analysis

Terry Elrod and Anthony J. Zahorik - Vanderbilt University

We present a conjoint analysis technique which can be effectively administered by telephone. Respondents make a series of pairwise choices between alternatives that differ on only two attributes. A simple experimental design allows brief interviews in which respondents choose from as many pairs of alternatives as there are attributes under study, which means that conjoint studies of 15 or more attributes can readily be administered by telephone without recourse to written materials. The cyclical experimental design controls for order effects and guarantees orthogonal differences across attributes and respondents. We also present improved estimation procedures. An industrial application of the procedure is described along with a test of the external validity of its share predictions.

A Reservation-Price Model for Optimal Pricing of Multiattribute Product Concepts in Conjoint Analysis

Rajeev Kohli - University of Pittsburgh
Vijay Mahajan - Southern Methodist University

This paper describes a model for optimal pricing of new product concepts in the context of conjoint analysis, incorporating the effect of measurement and estimation error on the predicted performance of a new product concept. The proposed model uses profit maximization as the objective function. We assume that the conjoint data collected uses price as an attribute and that an idiosyncratic part-worths function is estimated for each consumer. The part-worth functions are used to estimate the maximum (i.e., reservation) price at which a consumer selects a new item over his/her most-preferred item among current offerings. However, rather than assume that the reservation prices are error free, we assume that they are observations from idiosyncratic reservation-price distributions. We examine three alternative individual reservation price distributions: normal, lognormal, and exponential.

The Usefulness of Brand-Anchored Attributes in Assessing Preference Structures

Ajay Kalra and Joel Huber - Duke University
Jordan J. Louviere - University of Alberta

Consumers very often may evaluate products or features of products in terms of other brands rather than in terms of absolute attribute levels. Brand Anchored Attributes can be used to specify the levels of attributes in conjoint analysis. Brand Anchored Attributes expresses new product concepts as a combination of features of existing products or brands. We explore the contexts in which Brand Anchored Attributes provide a truer measure of consumer preferences than the more common attribute based measure using a conjoint methodology. The choice context is the selection of a restaurant on an automobile trip in which the restaurants are evvaluated both in Brand Anchored terms and Absolute attribute terms.

A Multinomial Probit Choice Simulator for Conjoint Studies: An Application to the Market for Loanable Funds

Lester W. Johnson - Bond University

The purpose of the present paper is to describe the use of the multinomial probit (MNP) model as a choice simulator in conjoint studies. We provide an empirical example of its use in a conjoint study of the market for loanable funds. We compare the results of using our MNP choice simulator with results using the usual logit choice simulator and find the MNP results much more intuitively appealing in the empirical study at hand.

FD4: THE CONSUMER ADOPTION DECISION IN DIFFUSION MODELS AND FOREIGN ENTRY
Chairperson: Greg M. Allenby, Ohio State University
Friday, March 23, 1990, 4:00 p.m.

Information Availability and the Adoption of Innovations: A Two-Stage Tobit Model
Stephane Gauvin - Pennsylvania State University
Rajiv K. Sinha - Arizona State University

In this research, we model the adoption of office equipment innovations using micro-level data. Two sets of behavioral assumptions were tested. First, a deterministic process is modeled by a truncated-normal (TOBIT) model to take into account the censoring problem created by such data. Second, we presume that adoption is a two-stage process (Heckman, 1979). The models were calibrated for Personal Computer purchase decisions on a sample of 1082 U.S. industrial establishments. TOBIT and two-stage models supported our hypotheses.

Simulation-Based Estimation of Market Structure Dynamics
Eileen Bridges, Katherine Ensor, and James Thompson - Rice University

The purpose of this research is to develop a stochastic model of the number of products in a class which are based on a new technology as a function of time. Our model is designed to include internal influences leading to introduction of a product based on a new technology (e.g., easily imitated technology or low R&D commitment in competitive firms) as well as external influences (e.g., extensive in-house R&D activity or high expected profitability). Because this model cannot be solved analytically for optimal parameter values, we make use of a simulation technique to obtain nearly optimal values.

Trial Intention Instability and Bias: The Effects of Situational Noise
Linda F. Jamieson - Northeastern University

Morrison (1982) proposed a model which links stated intentions and purchase behavior. A unique aspect of this model is that the propensity of individual purchase intentions to change and the bias in the stated intensions can be statistically estimated, but only when both survey results and follow-up purchase data are available. The purpose of the present paper is to report and compare these crucial parameters of Morrison's model for new product trial behavior within the context of various situational conditions.

Operationalization and Testing of Dunning's Foreign Market Entry Model
Sanjeev Aggarwal and Sridhar N. Ramaswamy - Iowa State University

The choice of an appropriate entry mode in each foreign market is critical for long term global competitiveness of a firm. Among the many explanations provided for foreign market entry choices, Dunning's (1971) Eclectic Model has been acknowledged as being the most comprehensive paradigm. This model suggests that the mode of foreign market entry is a function of three determinant factors, namely, firm specific characteristics, market specific characteristics and firm internalization needs. The major contribution of this study rests in it being the first attempt at operationalizing and testing the complete framework of the Eclectic Model. This model could be used as a guide by managers making choice decisions related to foreign market entry.

FD5: FRANCHISING AND EXCLUSIVE TERRITORIES
Chairperson: Melvyn Menezes, Harvard University
Friday, March 23, 1990, 4:00 p.m.

Using Exclusive Territories When Dealers Divert: The Manufacturer's Perspective
Shantanu Dutta and George John - University of Minnesota

Diverting is the practice where dealers sell merchandise across territories or areas in seeming violation of territorial agreements with manufacturers. The principal insight from the extant work can be summarized as generally supportive of territorial restrictions as a useful device for manufacturers. In the current paper, we develop a formal model of exclusive territories where the restraints are only partially enforceable. We look at a manufacturer's profit when two retailers compete on an intrabrand basis compared to profits when these retailers have assigned territories but nevertheless can bootleg up to some degree without being detected instantly. Our results are much less favorable regarding the use of exclusive territories than the previous analyses.

Downstream Moral Hazard and Signalling in Franchising
Preyas Desai and Kannan Srinivasan - Carnegie Mellon University

A major problem in any franchise arrangement is that a franchisee (he) has an incentive to shirk the responsibilities of providing local inputs, particularly when these inputs affect the demand stochastically and the franchisor (she) cannot observe and verify them. On the other hand, a new franchisor may obtain better contract terms by making false claims about her demand potential. We model the unobservability of the franchisee's local inputs in the agency theoretic framework as a moral hazard problem. We show that when the franchisee is risk averse, a risk neutral franchisor charges strictly positive franchise variable fees in the "first best" contract. In the presence of the moral hazard, the franchisor has to increase the risks of a risk averse franchisee to motivate him to work harder. Later, a signalling game is introduced to examine the effects of the deceptive claims of a low potential (low type) franchisor on the contracts and profitability of a high potential (high type) franchisor.

An Empirical Look at Franchise Contracts as Signaling Devices
Francine Lafontaine - Carnegie Mellon University

In the presence of asymmetric information, the notion that firms may use a variety of instruments to provide relevant information about themselves or their product is now well established. The purpose of this paper is to assess the capacity of signaling models to explain franchisors' contractual decisions. The main implication of signaling in the context of franchising, which involves linear payment schemes, is that franchisors with high-quality tradenames should choose an initial franchise contract with higher royalties (and lower fixed fees) to distinguish themselves from low-quality franchisors. Data on 148 franchisors will be used to perform the proposed empirical analysis.

Price Discounting in Multi-Echelon Distribution Systems
Ramachandran Jaikumar and V. Kasturi Rangan - Harvard University

We analyze the question of how to obtain prices which allocate order to different stages in a multi-echelon distribution system. We have in mind an environment where the firm or agency announces the price of a product independent of the location from which it is delivered and a rebate which is a function of the delivery location. In this paper we explicitly consider a trade-off between transportation inventory and material handling costs and the cost of revenue losses and construct an algorithm to compute the optimal rebates to be offered at each echelon. The model and the algorithm are demonstrated by means of an illustrative application.

FD6: ANALYZING MARKET STRUCTURE
Chairperson: Phipps Arabie, University of Illinois, Urbana-Champaign
Friday, March 23, 1990, 4:00 p.m.

Using Population Ecology Analysis to Assess Competitive Position

Charlotte H. Mason and George Milne - University of North Carolina, Chapel Hill

Although competition is central to the understanding of marketing strategy, many theories of competition cited in the marketing literature are incomplete in their explanation of market realities. By extending the concepts of ecological models, marketers can gain insights about the nature of competition in both static and dynamic time frames. This research will present an overview of key concepts from the population ecology literature, highlight some of the challenges and opportunities for applying biological metaphors in marketing, and present empirical results from one phase of an ongoing research program. This approach to assessing competitive position is empirically illustrated using data for 102 major magazines.

The Role of Price Versus Non-Price Factors in Product Class and Brand Competition: An Empirical Investigation

Roderick J. Brodie and Andy van Amyede - University of Auckland
Geoff Lorigan, Managing Director - New Zealand Holding Ltd.

This paper presents the results of an empirical study which investigates the role of price versus non-price factors in product class and brand competition for New Zealand lamb and other meat products on the United Kingdom market. We discuss what has been learned from the empirical study and identify areas for future research which further clarify the differences in competitive strategy at different market levels.

Use of the Generalized Fechner Thurstone Functional Form Model for the Study of Market Structure

James H. Barnes, Jr. - University of Mississippi

Vilcassim recently extended the work on demand analysis of Clements and Selvanathan by incorporating coefficients to capture the effects of advertising and other nonprice marketing mix variables. Unfortunately the system of demand functions (Rotterdam model) can be shown to reduce to a system of double logarithmic functions and any attempt to estimate the key elasticities is futile. In this study, we first show that every system of demand functions necessarily result in the maximization of a direct utility function of the Generalized Fechner Thurstone (GFT) form. Using the Information Resources, Inc. "Crackers" scanner data base, we show how the GFT model can be used for the study of market structure and discuss the properties of the utility functions estimated by the GFT direct utility approach. We also compare and contrast the GFT with other functional forms.

Corporate Relations and Substitutability

Dawn M. Iacobucci - Northwestern University

In communicating points of difference, sellers suggest there are no direct competitors, or "substitutes," for the services they alone can provide. In this paper, methods from social networks are introduced to identify sellers with unique advantages, and those with numerous competitors, by analyzing the structure of corporate relations. These methods are also used to form segments of buyers whose network interactions based on observed behavior are similar. These methods are illustrated on two data sets--one resulting from an experimental setting, and the other from a naturalistic business setting.

SAS: 1989 FRANZ EDELMAN AWARD WINNER
Chairperson: Dominique Hanssens, UCLA
Paper: Dennis Gensch, University of Wisconsin, Milwaukee
Discussant: Wayne Desarbo, University of Michigan, Ann Arbor
Saturday, March 24, 1990, 8:15 a.m.

SA1: EFFECTS OF CROSS SECTIONAL AGGREGATION
Chairperson: Kannan Srinivasan, Carnegie Mellon University
Saturday, March 24, 1990, 8:15 a.m.

The Effects of Aggregation on Logit Esitmation of Brand Choice

Susan Higgins - Texas Christian University
Frank Bass - University of Texas, Dallas

Prior research by the authors using scanner panel data for the toilet tissue category has shown that choice shares obtained from estimating logit models for each household and then aggregating those models fit the data better than does a homogeneous-in-parameters model (using rho^2 as the quality of fit measure). In addition, using a decompositional assessment of total model error, the aggregation error in the homogeneous-in-parameters models was found to be twice as large as the error attributable to model specification. This research seeks to confirm the original findings by replicating the research process using scanner panel data for the cat food category. Should systematic biases be found in the cat food analysis, the common approach of focusing on model specification errors without regard for aggregation errors in the explanation of lack of fit must be questioned.

Pooled (Store-Level) versus Aggregate (Market-Level) Scanner Data for Estimating Promotional Effects

Dick R. Wittink - Cornell University
John C. Peter - A. C. Nielsen

In this paper we discuss, apart from theoretical arguments, conceptual issues in favor of and against the use of aggregate and disaggregate data. We also provide empirical comparisons, and find that the absolute parameter estimates tend to be substantially greater for aggregate than for pooled data. The estimated effects based on aggregate data also show greater variability (instability) than the corresponding effects for pooled data.

The Effects of Spatial Aggregation in Price-Promotion Modeling

Phillip A. Cartwright, R. Carter Hill, and Julia F. Arbaugh - A. C. Nielsen

In this paper, we carry out a Monte Carlo study based on the linear statistical model

$$y_{kit} = x'_{kit}\,\beta_{kt} + e_{kit},$$

for $i = 1,2,\ldots,n_k$ (stores in chain/price zone), $t = 1,2,\ldots,104$ (weeks), $k = 1,2,\ldots,6$ (chain/price zones). The matrix of explanatory variables will include the prices of the target brand and competitors plus promotional effects, and monthly indicators. The Monte Carlo simulation will be based on 1000 samples of randomly generated data using antithetic random deviates. The estimators' performance will be evaluated using mean-square error criteria for ensemble and individual parameters and mean-square error of out-of-sample forecasts.

SA2: SEGMENTATION
Chairperson: Frederick Winter, University of Illinois, Urbana-Champaign
Saturday, March 24, 1990, 8:15 a.m.

Market Segmentation - Milestone or Millstone

Philip Stern and Sally Dibb - University of Warwick

Curiously the literature often fails to question whether market segments really exist at all. Instead, the "segment then target" view is simply accepted as an absolute truth in marketing management and frameworks for its implementation sought. However, the marketer still needs to be clear about the relevance of these segments. That is, that they exist both in the mind and the actions of the consumer rather than his or her own imagination. We discuss several key issues regarding segmentation methods and their convergence, and the usefulness and benefits of segmentation.

Evaluating the Performance of Market Segmentation Systems

Thomas P. Novak - Columbia University
Bruce MacEvoy - SRI International
Jan de Leeuw - University of California, Los Angeles

When assessing the performance of a segmentation system, our fundamental goal is to evaluate systems in the context of the business objectives to which they will be applied. Because segmentation systems usually divide the population into several groups, the evaluative criteria must combine information about the richness of each segment into information about the system as a whole. Richness curves, and statistics derived from them form a simple and direct way of evaluating segmentation schemes. The impact of measurement error on both segment membership and consumption rates, as well as the possibility of a numerical approximation to the degree of bias, are also explored.

Market Segmentation on the Basis of Store Image

Jan-Benedict E. M. Steenkamp - Pennsylvania State University
Michel Wedel, TNO-CIVO, The Netherlands

Fuzzy Clusterwise Regression Analysis (FCR) (Wedel and Steenkamp, 1989) is a segmentation technique that is explicitly developed to meet the limitations of the traditional methods for benefit segmentation. The empirical application of FCR concerned the segmentation of consumers with respect to their image of outlets selling meat. Note that in this research situation, traditional benefit segmentation u sing inferred weights is not even possible. In addition, information about socioeconomic, demographic, and store involvement was obtained. The paper will report the segmentation results.

A New Methodology for Improving Sales Forecasts Based on Purchase Intent: Which "Definitely Will Buy's" Will Buy?

Vicki G. Morwitz and David C. Schmittlein - The Wharton School

This work is concerned with predicting future sales of a product based on consumers' stated purchase intent. CART (Classification and Regression Trees) (Breiman et al. 1984), a relatively new methodology to marketing, is used to group panel households into homogeneous segments with respect to intention. Separate intentions forecasts are then prepared within each segment. These forecasts are aggregated to provide an overall forecast. The main empirical result is that more accurate sales forecasts may be obtained by this market segmentation methodology. We find that the conversion of purchase intention into actual purchase "works differently" for different demographic segments.

SA3: MODELING CHOICE
Chairperson: Terry Elrod, Vanderbilt University
Saturday, March 24, 1990, 8:15 a.m.

The Consumer Durable Replacement Buyer
Barry L. Bayus - Cornell University

The general focus of this paper is in developing a better understanding of the characteristics, attitudes and perceptions, and search behavior of those consumers who replace items during the early part of a product's lifetime in comparison to those who make replacement purchases much later in the product's lifetime. Automobiles, as well as home appliances are studied. Results indicate that "early" replacement buyers have higher usage rates, are of a "lower" social class, and search less than "late" replacement buyers. Finally, our results suggest that marketing efforts have differential effects on the replacement buyer segments.

Discrete Choice Models of Consumer Durable Demand and Marketing Mix Models of Product Diffusion: An Application of the Cooley-Prescott Model
William P. Putsis, Jr. - Cornell University

In this paper, the author uses a previously developed model of discrete choice as the basis for developing a "marketing-mix" model of consumer durable purchase. There are three principal contributions to the literature contained in this paper. First, a derivation of the relationship between economic models based in the discrete choice paradigm and an entire class of diffusion models is presented. Second, it is shown that, as the basis for demand changes from primarily first-time to predominantly replacement demand, changes in a diffusion model's parameters may occur over time even if behavioral relationships are constant through time. Third, by incorporating marketing mix variables and cross-product effects in the theoretical model, and hence the empirical model, an evaluation fo the effects of marketing mix and product line choice can be made. Examples, using estimates for three consumer durable products are presented and discussed.

Models for "Pick-any-of-K" Choice Data
James Wily, Jordan Louviere, Jack Kulchitsky, and Joan White - University of Alberta

Several models have been developed that are not subject to the IIA restriction, including a class of models that McFadden (1978) calls "Mother" Logit models. Cooper and Nakanishi (1988) and DeSarbo and Batsell (1987) map estimated cross effects, representing these paramters with spatial models that incorporate notions of similarity. These and other researchers have suggested that cross-effects models capture and measure IIA violations due to similarities which arise from substitutability and complementarity among alternatives. We see two problems with this interpretation. To overcome this problem, we generalize Mother Logit models to "pick-any-of-k" choice data. We illustrate the many applications of this new class of choice models in a series of choice experiments involving household cleaners.

A Study of Returns to Search for Brands and Discounts
Brian T. Ratchford - State University of New York, Buffalo
Pola Gupta - Rutgers University

While Ratchford and Srinivasan (1989) study the role of time and other variables in producing discounts on automobiles, they did not consider how time affects search for a best brand of car. The purpose of the current work is to extend the above study to consider the role of time and other variables in the production of both an optimal choice of car and a discount. Our basic conceptual framework is that search is a production process which employs time to increase the utility of a purchase. The results will provide evidence about whether consumers appear to allocate their time optimally. They will also allow insights into the productivity of the search process, and into how this varies between consumer types as defined by demographics and experience with cars.

SA4: VALUES, BIASES AND UNCERTAINTY IN CONSUMER CHOICE
Chairperson: Imran Currim, University of California, Irvine
Saturday, March 24, 1990, 8:15 a.m.

Learning About Consumer Risk from Experience: Biases in Inductive Judgments About Multinomial Likelihoods

Robert J. Meyer and John C. Cripps - University of California, Los Angeles

Most contemporary models of product choice under uncertainty are guided by the assumption that buyers conceive of uncertainty in terms of subjective likelihood distributions. They can be argued to provide only a limited portrait of how consumers resolve risky decisions in natural settings. In this presentation we will report the results of two empirical investigations designed to explore how consumers develop beliefs about multinomial distributions of product quality in markets through observation, and make choices in light of sample information. The central finding is that, when subjects draw inferences about likelihood from sample data, they made choices which, in some cases, dramatically differed from those made when the same sample data was summarized in terms of relative actual frequencies. We will conclude the presentation with a discussion of alternative process mechanisms which might explain the findings, and the implications of the work for applications of decision-theoretic models in marketing.

Quantifying Consumer Uncertainty

Kay L. Keck - University of Georgia

In this study we are concerned with the uncertainty inherent within a person's preferences. By this we mean that his/her preferences may be imperfectly formed or unstable. In this study, we evaluate the use of entropy to quantify the uncertainty in consumer preferences for two products, where one is a new generation of an existing product and the other is a more novel product concept.

Bargaining Games with Incomplete Information: Case of New Car Purchasing

Narashimhan Srinivasan, Kuang-Wei Wen - University of Connecticut

Our research will have the following contributions: (1) formulating auto pruchasing process as bargaining games with incomplete information that could be analyzed by traditional game theories, (2) identifying segments of auto buyers differing in their price information and risk postures based on sample population, and (3) exploring different strategies that could potentially reduce the uncertainties in the outcomes of the dyadic bargaining, as well as compress the duration of its process.

The Role of Consumer Values in Utility and Ownership of Durables

Kim P. Corfman - New York University
Donald R. Lehmann and Sunder Narayanan - Columbia University

This study proposes a conceptual model of consumer durable ownership which incorporates the effects of utility, time, and budget size on ownership, and the effects of values and ownership on utility. Implications of this model are tested and supported. Results also suggest that augmenting the List of Values (Kahle 1983) with a measure of materialism improves prediction of value-related consumer behavior.

SA5: ON SLOTTING ALLOWANCE/RETAIL PRICES
Chairperson: Sudi Seshadri, University of Maryland
Saturday, March 24, 1990, 8:15 a.m.

Strategic Motives for Resale Price Maintenance
Greg Shaffer - University of Michigan, Ann Arbor

Resale price maintenance (RPM) is the practice by which a manufacturer influences the retail price charged for his product by means of a price floor, a price ceiling, or a fixed price. I show that retailers have independent incentives to select products wholesaled under RPM in order to elevate the final goods' prices resulting from the rivalry between themselves and other retailers. This use of RPM to increase retail profits is then compared to the use for the same purpose of slotting allowances. Finally I discuss the conditions under which each will be observed.

Slotting Allowances: Extortion or Cost Compensation?
Mary W. Sullivan - University of Chicago

This paper analyzes the new retail practice of charging slotting allowances--lump-sum advance payments made by manufacturers for access to space, or "slots," on the retailers' shelves. Theoretical and empirical evidence suggests that slotting allowances are the retailers' response to the large increase in new product introductions by manufacturers. A stylized model shows that innovative retailers--i.e., retailers that stock new products--incur costs when the new products fail. Systematic data reveal a high rate of new product introductions and high product turnover in categories where slotting allowances are being charged. The data also show that large retailers with scanner equipment introduce many more new products than small retailers. Managerial implications of our analyses are discussed here.

Manufacturer's Use of Advertising and Wholesale Price to Signal Demand and Retailer's Use of Slotting Allowances to Screen Demand
Wujin Chu - Massachusetts Institute of Technology

The paper examines two different ways channel members deal with asymmetric information, where the manufacturer has private information about demand. In the first scenario, the informed manufacturer signals demand by carrying out a certain level of pre-launch advertising and by presenting the retailer with a take-it-or-leave-it offer of a wholesale price. In the second scenario, the uninformed retailer screens the potentially high demand products from the low demand products by stipulating a take-it-or-leave-it offer of a slotting allowance and a price at which the retailer will buy the product. The channel system profit implications of the two scenarios will be discussed.

Retail Prices and Margins Under Specific Allocation Rules
Alain Bultez - EIASM, Brussels
Els Gijsbrechts - Universitaire Faculteiten Saint Ignatius, Antwerpen

SA6: INVESTIGATING BUNDLING IN PROMOTIONS AND MEMORY
Chairperson: Frank Kardes, University of Cincinnati
Saturday, March 24, 1990, 8:15 a.m.

Investigating Bundling Contexts
Minette Drumwright - Harvard University
Peter H. Farquhar - Carnegie Mellon University
Meir Karlinsky - Burke Institute

Prior research by Karlinsky and Farquhar (1988) and Drumwright and Dolan (1989) indicates that bundling creates a context that affects buyers' evaluation and choice behavior. This paper further investigates these contexts in an effort to develop models for bundle composition and pricing policy. Our study reports on a series of three experiments about bundling contexts. The results of these experiments provide implications for managing bundle contexts as well as modeling buyers' evaluation and choice behavior.

Cross-Couponing as Bundling
Irene R. Foster - Indiana University

In this paper, the potential for profitability from the use of cross-coupons is examined from a price discrimination perspective. Focusing on the market for frequently purchased consumer goods, a model of product bundling is constructed. A key aspect of the model is the information consumers have about cross-coupons. An explicit treatment of strategic cross-couponing and its potential managerial implications is also provided.

The Framing and Bundling of Cohice Alternatives: Effects on Perceived Values and Choice
Pallab Paul and Dipankar Chakravarti - University of Arizona

This research examines how framing and bundling of choice alternatives affects perceived value, salience of the risk of product failure and ultimately choices. The results confirm predictions regarding how the presentation and framing of product and service bundles may influence sensitivity to risk and also value perceptions. They have implications for how managers present risk and performance data and price product and service bundles.

Finding Choice Alternatives in Memory: Stochastic Models of Brand Name Recall
Wes Hutchinson, Murali Mantrala, and Kalyan Raman - University of Florida

This paper examines two stochastic models of brand name recall. Both models focus on the probabilities of recalling particular items conditioned on which (and how many) other items have already been recalled and on the associated conditional interresponse times. The first model extends work by Millsap and Meredith (Psychometrika, 1987) by introducing an attribute-based formulation of the conditional parameters in their model. The second model is a stochastic formulation fo the qualitative model proposed by Gruenwald and Lockhead (JEP:HLM, 1980). Aspects of both models are tested using brand name recall data for soft drinks.

SB1: PURCHASE EVENT FEEDBACK: FACT OR FICTION?
Chairperson: Ambar G. Rao, New York University
Saturday, March 24, 1990, 10:30 a.m.

Purchase Event Feedback: Fact or Fiction?
V. Srinivasan and Thomas Kibarian - Stanford University

This research examines the validity of two alleged phenomena related to purchase event feedback in mature consumer packaged goods markets. The first phenomenon studied is that of promotional purchase feedback, viz., the purchase of a brand on promotion tends to depress the probability of repurchase of that brand. A second purchase event feedback phenomenon studied in this research examines the empirical finding that previous purchases of a brand tend to increase the probability of repurchase of that brand. The present research argues that if the data were time-reversed, then the observed purchase event feedback phenomenon should decrease significantly, because it is the past purchases which should affect brand choice probability. An empirical study comparing the Logit model results of the time-forward and time-reversed data indicates that the purchase event feedback effects are minimal.

Modeling Inertia and Variety-Seeking Tendencies in Brand Choice Behavior
Kapil Bawa - New York University

In this study I hypothesize that consumers may not be "purely" inertial or variety-seeking, as previously believed by researchers in marketing, but may exhibit "hybrid" behavior--i.e., mixtures of inertia and variety-seeking. I present an individual-level model of brand choice, termed the Hybrid model, that allows the consumer's tendency to seek or avoid variety to vary from one purchase occasion to the next, as a function of the consumer's choice history. The model is estimated at the household level using panel data on purchases in three product classes by 1069 households. The empirical application revealed that more than half the households analyzed exhibited hybrid behavior rather than simpler types of behavior. Further, the choice patterns exhibited by these Hybrid households were exactly as predicted by Berlyne's (1970) theory of exploratory behavior.

Advertising and the Formation of Preferences
Giles D'Souza and Ram C. Rao - University of Texas, Dallas

This paper develops a model of consumer response to advertising based on: probabilistic copy and spending effects, advertising forgetting and response to brands through retrieval of stored advertising messages from memory. In the first case advertising accumulates in consumers. It is shown that for this situation, consumers' response to brands, in equilibrium, will be probabilistic and moreover, their response to brands can be described by a DIRICHLET distribution of probability of preference. We consider a second model in which advertising effects are completely transient. In this situation, preferences are seen to be Markovian in the choice process. Moreover, we obtain a theoretical rationale for the use of interpurchase times as a basis for segmenting consumers.

A Comparison of Parametric and Semiparametric Approaches to Modeling Household Interpurchase Times
Naufel J. Valcassim and Dipak C. Jain - Northwestern University

The purchase timing decision is an important element of household's purchase decision, and knowledge of it is essential in understanding the dynamics of purchase behavior. Previous studies involve a parametric specification for the probability distribution governing the interpurchase times. In this study we propose the use of a semiparametric approach that obviates the need for specifying a parametric form for the probability distribution. The motivation being that often there is no theory of household purchase behavior that specifies a priori the probability distribution underlying the interpurchase times.

SB2: SEGMENTATION USING BRAND SWITCHING DATA
Chairperson: Rajiv Grover, University of Pittsburgh
Saturday, March 24, 1990, 10:30 a.m.

On the Simultaneous Identification of Market Structure, Marketing Mix Effectiveness, and Latent Market Segments in Scanner/Panel Data

Wayne D. Desarbo - University of Michigan, Ann Arbor
Venkatram Ramaswamy - University of Texas
Eugene W. Anderson - University of Michigan, Ann Arbor

A new methodology is developed for the simultaneous identification of latent market segments, the impact of specified household background variables on segment membership, the effectiveness of marketing mix variables, and market structure for use with scanner/panel data within a designated product class. A Monte Carlo analysis of the performance of the methodology using synthetic data is provided in order to fully understand the overall efficiency of the procedure. An emprical application of the proposed methodology is described using scanner data for a packaged good.

Charting the Course of Choice Set Formation: Unique Opportunities for Segmentation and Marketing Mix Strategies

Michael S. Morgan and Frank Bass - University of Texas, Dallas

In the work presented here, consideration set formation at the individual level is modelled on the basis of decision-maker forecasting of consumption utilities and preferences for variety. Aggregation over individuals yields a probability-of-consideration for specific brands based on the existing brand configurations of considered sets. This in turn provides new insights into the consideration probability for large share, small share and new brands. Empirical analyses confirm the models. In addition, a new picture of the brand-loyal and stochastic switching consumer emerges, with implications for optimal marketing mix strategies.

Brand Choice, Purchase Incidence, and Segmentation: A Simultaneous Modeling Approach

Randolph E. Bucklin and Sunil Gupta - University of California, Los Angeles

The purpose of this research is to develop an approach that segments consumers along the dimensions of both brand choice and purchase timing. Our approach, based on the EM-algorithm for maximum likelihood estimation, permits simultaneous determination of segment weights and the parameters describing choice and incidence behavior. We illustrate our approach using a sample of 300 households from the A. C. Nielsen scanner data on heavy-duty liquid detergents. The data encompasses seven popular brands of liquid detergent in a market composed of 13 competing stores.

Truth in Concentration in the Land of (80/20) Laws

David C. Schmittlein - University of Pennsylvania
Lee B. Cooper and Donald B. Morrison - University of California, Los Angeles

In Twedt (1964) the question "How important to marketing strategy is the 'heavy user'?" was asked. We will highlight some of the subtleties that are almost never discussed when looking at heavy half statistics or quoting that old saw, the 80/20 Law--"20% of the customers account for 80% of the sales." In this paper we will not tell managers how to target the important heavy users. But we will show the manager where he or she is most likely to encounter true heavy users who are most worthwhile to target. Data on tuna, catsup, soup, detergent, orange juice, toilet tissue, soap, margarzine, and yogurt are presented. These analyses are done at both the category and brand level. Some rather surprising results occur, which cause us to rephrase Twedt's 1964 qustion: "How many and just how heavy are the important users?"

SB3: MODELING CONSUMER PERCEPTIONS
Chairperson: Don Lehman, Columbia University
Saturday, March 24, 1990, 10:30 a.m.

Cognitive Geometry: An Empirical Analysis of Structure Underlying Representations of Consumer Perceptions

Rashi Glazer - University of California, Berkeley
Kent Nakamoto - University of Arizona

Our focus in this paper is the formal analysis of the structure underlying representations of consumer perceptions; more specifically, the extent to which the models are formally consistent with each other as well as theoretically representative of cognitive activity. The purpose of the current effort is to demonstrate the practical measurement implications of the theoretical analysis through two empirical applications. First, using simulated data, we show how similarity measures which satisfy one representation, say an ultrametric tree (the basis for hierarchical clustering), cannot (non-trivially) satisfy another, say a Euclidean space. Second, we describe the results of an experiment in which subjects were asked to provide similarity judgments over stimuli presented in ways designed to encourage one or another of the various cognitive representations, where the performance of the different models can be tested against the predictions of the theoretical analysis.

Development and Testing of a Model of Consideration Set Formation

John H. Roberts - AGSM
James M. Lattin - Stanford University

In this paper, we develop a model of consideration set formation, discuss its implications, and test its predictive performance relative to a one-stage choice model. Assuming a utility-maximizing consumer, we describe the criterion for brand consideration as a closed-form function of expected utility and mental processing costs. We develop a measurement methodology to test the model and apply it to the ready-to-eat cereal market.

Relative Influence in Husband-Wife Decision Making: Threats to Validity in the Key Informant Problem

Donna L. Hoffman - Columbia University
Gary Lilien - Pennsylvania State University

The true extent and significance of spousal disagreement is not known, as studies in household decision making typically employ small convenience samples. Our aims in this paper are twofold: first, to document the extent and significance of disagreement in perceived relative influence between husbands and wives using a large survey sample, and second, to examine the nature and types of disagreement and determine whether it leads to bias when building models that predict influence.

Process Models for the Analysis of Product Categorizations

Wayne S. DeSarbo and Michael D. Johnson - University of Michigan, Ann Arbor
Kamel Jedidi - Columbia University

This research seeks to: (1) develop a comprehensive conceptual framework for understanding consumers' brand categorizations, and (2) develop new psychometric procedures that will operationalize this conceptual framework. In particular, we present a class of spatial and non-spatial models for deriving brand positions and individual differences that provide information regarding: (a) how different consumers weight/use derived dimensions/clusters differently in their own categorization judgments; (b) the relationship/membership of the different brands on the derived latent dimensions/clusters derived; and (c) individual consumer level threshold information concerning the discrimination levels made among the brands and its relationship to experience/expertise/usage.

SB4: INFORMATION PROCESSING AND SEARCH
Chairperson: Carolyn Simmons, University of Illinois, Urbana-Champaign
Saturday, March 24, 1990, 10:30 a.m.

The Relative Importance of Internal and External Information in Consumer Choice Environments

John S. Hulland - University of Western Ontario

This study investigates the roles of both memory-based evaluations and individual items of attribute information stored in memory play in choice processes. A cost-benefit framework is employed to identify factors that are likely to influence the relative use of internal and external information sources. The results of an experiment conducted to test this framework are reported.

A Transition Model of Consumer Choice Heuristics

Byong-Duk Rhee - Washington University
Moonkyu Lee - University of Illinois, Urbana-Champaign

We propose a model that describes how the consumer internal factors (decision goals, knowledge, motivation, etc.) and the external factors (task variables, context variables, external restrictions, etc.) influence the choice of a decision rule (i.e., conjunctive, disjunctive, or compensatory rule) in the editing stage, and how the transition of the decision rule can be traced in the subsequent stages in the choice process. We present empirical findings from the application of the model in consumer choice settings.

The Association Strength Construct

Pamela W. Henderson - Carnegie Mellon University

The association strength of a stimulus affects many variables of interest in marketing such as recall, recognition, familiarity, liking, and even the perceived fittingness of brand names. Association strength (AS) is defined as the availability, quantity, variety, and dominance of associations evoked by a stimulus. The purpose of this paper is to review AS variables and present a study of their interrelationships. An empirical investigation of the interrelationships is reported.

Using Moderator Variables to Define Segments of Search

Paul Sauer - University of Buffalo
Narasimhan Srinivasan - University of Connecticut

This research extends the previous research in that demographic and household characteristic variables are treated as moderator variables not direct determinants of search in a cost-benefit framework of extent of external search. The theoretical basis for this approach derives from the constraint effects specified by Carlson and Gieseke (1983) in a model of price search. The moderator variable approach, however, allows for the explicit testing of the moderator role--homologizer versus "pure" moderator--in the context of the cost-benefit framework.

SB5: POWER AND INCENTIVES IN CHANNELS OF DISTRIBUTION
Chairperson: Amiya Basu, University of Illinois, Urbana-Champaign
Saturday, March 24, 1990, 10:30 a.m.

Growth in Size and Power of Supermarkets

Paul Messinger and Chakravarthi Narasimhan - Washington University

In this paper, we examine the causes and effects of growth in supermarkets, and decline in number of grocery stores, in the past three decades. In studying this issue, our objectives are: (1) to empirically assess the sources of growth of supermarkets, (2) to develop an analytical model which specifies how certain exogenous factors influence the balance of power in the grocery channel, (3) to test hypotheses from this model using primary/secondary data, and, more generally, (4) to further the formalization of the notion of power in a channel.

Pricing and Markdowns as Incentives in Channel Relationships

Wanru Su and Lauranne Buchanan - University of Illinois, Urbana-Champaign

Markdown is a common practice in retailing businesses, yet it has not been systematically researched. This research addresses this practice using a one-period Stackelberg game for a simple dyad composed of a manufacturer and a retailer. For each of the three markdown sharing policies, we evaluate (1) the impact of the manufacturer's decisions upon the retailer and the subsequent profits for both parties, and (2) the impact of demand uncertainty and demand elasticity upon the channel members' decisions and the subsequent impact on consumer welfare.

Cooperative Advertising

Mark Bergen - University of Chicago
George John - University of Minnesota

In this essay, an analytic model is presented that describes the impact of cooperative advertising on each of the channel participants. From a managerial perspective this approach indicates variables that affect promotion and retail store loyalty. It also suggests how managers should set co-op allowances depending on their particular situation. Finally it shows how combinations of contractual variables may affect the choice of co-op allowances in a channel setting.

Economic Basis of Relative Power in the Channel: A Degree of Monopoly Analysis

T. C. Srinivasan - Virginia Polytechnic Institute and State University

The economic aspects of market power is an important component of relative power in the channel, and has been studied by economists and marketing scientists. This paper investigates market power using the implementation of demand and product differentiation characteristics employed by McGuire and Staelin (1983). Equilibrium conditions are derived and the implications of the relative power for the profits, price, and quantity are discussed.

SB6: DEFENSIVE STRATEGIES
Chairperson: Steve Shugan, University of Chicago
Saturday, March 24, 1990, 10:30 a.m.

Empirical Validity Tests of the Defender-Assumptions

Berend Wierenga and Eric Waarts - Erasmus University, The Netherlands

As far as we know the literature contains only one systematic approach to empirically testing the Defender model: Hauser & Gaskin (1984). This contribution deals with the results of a study in The Netherlands, where the underlying assumptions of the Defender model were tested for a fast moving consumer good in the category food and beverages with 13 different brands. Although we only have the results here for only one particular product class in one country the outcomes are interesting enough to think about the implications for the future use of the Defender model for theoretical as well as managerial purposes.

Defensive Marketing Strategies: An Empirical Examination Using a Brand Share Attraction Model with Coupled Response Functions

Thomas Gruca - University of Massachusetts
D. Sudharshan - University of Illinois, Urbana-Champaign

We examine the ability of a new analytically tractable model of competitive interaction to capture incumbent marketing responses to a new product entry. Optimal equilibrium defensive strategies are predicted using our calibrated model and compared to observed reactions using scanner panel data. It was found that firms tried to maximize sales revenue in responding to a new entrant. This is in concert with the stated goals of the firms in the industry.

Endogenous Product Development with Entry

Devavrat Purohit - Duke University

We study the problem facing a monopolist seller of a durable good given the threat of entry in a future period. Specifically, we model this as a two-period problem, characterized by a monopoly in period 1 and a duopoly in period 2. In addition, the monopolist has the opportunity to introduce a new and higher quality product in period 2. We present comparative statics results and consider the various options available to the monopolist firm in period 1.

General Results Within the GAMEl Brand Competition Framework

Aharon Hibshoosh - San Jose State University

This paper presents a more general theory of oligopolistic brand competition in attribute space following my earlier work (e.g., Hibshoosh (1974), Libove and Hibshoosh (1981), Hibshoosh (1982), Dutra and Hibshoosh (1985)). The central unifying result is that a principle of brand balancing as centroids is robust under changes in the nature of market factors, changes in the type of the conjectural variations, and changes in the mobility of brands.

SCO: UNDERSTANDING PROMOTIONS TO CONSUMERS
Chairperson: Rajiv Lal, Stanford University
Saturday, March 24, 1990, 1:45 p.m.

Use of Shrinkage Estimators in Estimating Promotional and Price Elasticities

Robert C. Blattberg and Edward S. George - University of Chicago

The purpose of the talk will be to discuss alternative shrinkage estimators which can be used to improve the estimation of promotional and price elasticities. These shrinkage models will be described briefly. Then empirical results will be presented using store level scanner data in which the shrinkage estimates are compared to alternative estimates including ordinary least squares. The paper will conclude with a discussion of future research directions.

A Beta-Logic Model of Purchase Incidence

Sunil Gupta - University of California, Los Angeles

Specifically, the objective of this paper is to incorporate two key elements in the purchase incidence model: heterogeneity in consumers' response to marketing variables, and nonstationarity due to time-varying marketing variables. We follow the approach suggested by Davies (1984) to generalize the beta-logistic model to incorporate both heterogeneity and nonstationarity. In contrast to Jones and Landwehr (1988) approach, the proposed approach assumes a parametric form of heterogeneity. We will present the model and some preliminary results.

An Idealized Model of Trade Promotion, Merchandising Forward Buying and Brand Switching

Rajiv Lal - Stanford University
John D. C. Little - Massachusetts Institute of Technology

Observations in the consumer packaged goods industry indicate that (1) manufactures tend periodically to offer promotions, (2) retailers accept some of these promotions (including requirements for in-store merchandising) and also stock up on products using the trade-promotion discounts (forward buy), (3) within a product category, promotions tend to alternate among brands, and (4) consumer purchases shift among brands. Using game theoretic methods, we analyze an idealized model that includes two manufacturers, one retailer, and a consumer market. All of the phenomena mentioned are permitted but none are required. We show conditions under which the equilibrium strategies for the various actors are as described above.

Consumer Perceptions of Promotional Activity

Aradhna Krishna - Columbia University
Imran Currim - University of California, Irvine
Robert Shoemaker - New York University

In the course of deciding whether to buy a brand, some consumers consider how often the brand is offered on deal and the brand's price when it is on deal. We report the results of a survey to determine consumer perceptions of deal frequency and sale price. These perceptions are compared with the actual deal frequency and deal prices observed in the supermarket where the consumer shops and are related to various consumer characteristics.

SC1: MODELLING CONSUMER EXPECTATIONS
Chairperson: Robert J. Meyer, University of California, Los Angeles
Saturday, March 24, 1990, 1:45 p.m.

Modelling the Impact of Consumer Expectations About Deal Frequency and Sale Price on Consumer Purchase Behavior

Aradhna Krishna - Columbia University

We build a purchase quantity model that incorporates consumer expectations of deal frequency and sale price. Two prior inventory models are nested within the proposed model. This model is applicable for multiple brands. Predictions from the proposed model are evaluated using a laboratory experiment and also compared with predictions of prior models from which they differ.

Optimal Sales Promotion Schedules: A Price Expectations Approach

Manohar U. Kalwani - Purdue University
Chi-Kin Yim - Rice University

We use a computer-interactive labor experiment to study the impact of alternate sales promotion schedules on a brand's expected price. The results from this lab experiment are used to obtain insights into the optimal sales promotion policy under different market conditions. Specifically, we use a micro-simulation to determine the best sales promotion schedule for different cost conditions, competitive scenarios, and customer preference distributions. We study the sensitivity of the optimal sales promotion policies to changes in the market conditions and summarize our qualitative results in propositional form.

Preliminary Study of Consumer Processing and Updating of Price Information in Supermarket Choice

Jordan Louviere, Cynthia Carlson, and Tulin Erdem Oncu - University of Alberta

Research indicates that few consumers know the prices of the products they purchase in supermarkets. We propose and test two possible explanations for this result. The price expectations experiment was designed by treating each of the 19 items as a factor with two price levels (20% higher or lower than the mean selling price for each item in the six stores). This design allows us to make inferences about which items and types of items consumers use in forming price perceptions about stores.

SC2: AUTOMATED MARKETING DECISION SUPPORT
Chairperson: John MaCann, Duke University
Saturday, March 24, 1990, 1:45 p.m.

An Expert System for Screening Telecommunication Innovations
S. Ram and Sudha Ram - University of Arizona

The authors describe their initial research efforts in developing an expert system which can assist telecommunication firms to screen product/service innovations. They discuss the following aspects of system development: (1) identification of knowledge sources, with special reference to choice of human experts; (2) knowledge elicitation methods; (3) choice of expert system shell; (4) prototype implementation and DMSXDC545E, and (5) preliminary prototype validation.

A Knowledge-Based System for New Product Screening
Hoon Young Lee, Raymond Burke, and Jerry Wind - The Wharton School

We report our efforts to develop an analogical reasoning system for evaluating new product concepts in the financial services area. The system organizes empirical knowledge on the performance of a large set of past product introductions into a class hierarchy of object relationships. The system treats each of these cases a detailed scenario which can be used to predict the future performance of similar cases. We discuss our experiences with the system, compare its performance with statistical approaches to forecasting new product performance, and describe how the system can be extended to other new product development decisions.

Bringing Retailers to the State-of-the-Art in Decision Support
David Ing - IBM Canada Ltd.

The quickly changing environment of the marketplace demands that analytical methods be married with the power of "desktop" information technology. As examples of DIS applications which were created by end-users, three example application areas in Retail Fashion Accessories, jointly developed by IBM, Metaphor Computer Systems and Carter Hawley Hale, will be briefly shown: (1) merchandise acquisition, (2) merchandise distribution, and (3) merchandise liquidation. Technical issues, enfironmental issues, and methodological issues in implementing and using such systems will be discussed.

Automated Model-Selection Interpretation and Reporting With Scanner Data
N. Viswanathan and U. V. Subba-Rao - Warner-Lambert Company

At Warner-Lambert, we are making some initial efforts towards setting up a "data refinery," that would sort through the millions and millions of numbers to report the essential information in the form of interesting highlights, major oddities such as large deviations from expectations, and a general summary of information. In the presentation, we will discuss our modeling approach, as well as the issues related to the general concept of a "data refinery."

SC3: NEW METHODS FOR PERCEPTUAL MAPPING
Chairperson: Thomas S. Gruca, University of Massachusetts, Amherst
Saturday, March 24, 1990, 1:45 p.m.

Best-Worst or Maximum Difference Scaling: A Brand-by-Attribute Illustration

Jordan Louviere - University of Alberta
George Woodworth - University of Iowa

The purpose of this paper is to describe a new approach to scaling brands or objects on one or more dimensions, such as attributes. We illustrate the approach by means of a study of fast-food restaurants scaled on nine attribute dimensions. A major advantage of the approach is that it is easy for subjects, can be administered over the phone and provides scale values (brand positions) with known measurement properties.

NEWFOLD: A New UnFOLDing Methodology

Chulwan Kim - Georgia Institute of Technology
Arvind Rangaswamy - University of Pennsylvania

At the Marketing Science Conference in 1988, we introduced a new unfolding technique called NEWFOLD which is not prine to degenerate configurations. We show here that the new technique results in well-intermixed configurations that are nondegenerate and interpretable for marketing decision making based on extensive simulations and analyses of synthetic and real data sets. Overall, NEWFOLD convincingly dominates ALSCAL and MDSCAL when the resulting configurations are obtained in two or higher number of dimensions. In this talk, we present these results and discuss their implications for unfolding analysis.

Can Less Be More? Reduced Data Sets for Probabilistic Multidimensional Scaling

Joseph L. Zinnes - Temple University
David B. MacKay - Indiana University

Using a probabilistic multidimensional model, this paper explores the conditions under which a reduced set of pair comparison data can be expected to give more accurate results than the full set.

Preference Analysis with Individualized Sets of Attributes Using the Generalized Procustes Perceptual Mapping Technique

Jan-Benedict E. M. Steenkamp - Pennsylvania State University

The results of two studies provide encouraging evidence on the predictive accuracy of the proposed Generalized Procrustes perceptual mapping technique. Our experience with the data collection procedure thus far indicates that subject interest in and involvement with the task is higher than for factor analysis or MDS tasks because subjects feel that they are really asked for their opinions instead of passively responding to the concepts of the researcher. Thus, GPA perceptual mapping may deserve further study in marketing research.

SC4: MODELLING VARIETY SEEKING AND SATISFACTION
Chairperson: Doyle Weiss, University of Iowa
Saturday, March 24, 1990, 1:45 p.m.

Variety Seeking and Attitude-Behavior Consistency: Alternative Choice Strategies

Ida E. Berger and Vinay Kanetkar - University of Toronto

It is argued in this paper that variety seeking and attitude-behavior consistency represent different consumer decision making strategies. In a between subject, laboratory experiment, advertising was used to manipulate attitude strength toward five new brands of candy bars. The modeling task was to determine the extent to which brand choices reflected attitude-behavior consistency or variety seeking. It was found that consumers with strongly held attitudes were more likely to reflect attitude-behavior consistency than variety seeking. Conversely, consumers with weak attitudes were more likely to exhibit variety seeking behavior.

A Theoretical and Empirical Framework for the Analysis of Stochastic Choice, Attributes, and Variety Seeking

Minakshi Trivedi - State University of New York, Buffalo

In this research, we propose a new class of stochastic variety seeking models. The model holds that each individual has an internal, inherent need for variety which may vary in intensity and consistency over different individuals. The model is empirically tested using choice and perceived similarity data over three product categories. An important contribution of this research is the facility provided to the manager, of linking variety seeking levels to product positioning issues. We offer a powerful took with which to approach and resolve the problem of where to position, and whom to target.

Customer Satisfaction as a Function of Product-Market Structure

Eugene Anderson - University of Michigan
Mary Sullivan - University of Chicago

The objective of our research is to begin to understand how customer satisfaction might vary across product categories. Satisfaction is captured as a nonlinear, asymmetric function analogous to the reference function of Prospect Theory. Consumers follow a Bayesian decision process and choose products which will maximize their expected satisfaction. In keeping within the Bayesian framework, consumer expectations are updated after each product experience. We test our hypotheses using data collected by the Customer Satisfaction Project at the University of Michigan.

Modelling Brand Switching: A Comparative Test of Two Hypotheses with Scanner Data

Frank Winter and Ken Miller - University of Technology, Sydney
John Rossiter - University of New South Wales

We view brand "switching" as dynamic oscillatory events that are essentially unaffected by short term marketing activity as postulated in Howard and Sheth's four stages of buyer behavior. This paper reports the results from testing a binary linear (non-oscillatory) likelihood model and a binary non-linear (oscillatory) likelihood model. Our research indicates that buyers "switch" about half the time. This leads to the hypothesis that buyers may only respond to advertising when their pattern tells them it is time to "scan" the shelves for "other" brands.

SC5: RETAIL MARKETING STRATEGIES
Chairperson: Vithala Rao, Cornell University
Saturday, March 24, 1990, 1:45 p.m.

Retail Marketing Strategies: An Investigation of Everyday Low Pricing vs. Promotional Pricing Policies
Anne T. Coughlan and Naufel J. Vilcassim - Northwestern University

We seek to explain how a retailer should price and price promote its overall line. Our results indicate that everyday low pricing is an equilibrium retail pricing strategy for both retailers in our duopoly model, but one exhibiting prisoners' dilemma characteristics. Retailers using this strategy are unable to make economic rents in our model framework. Given this basic result, we then discuss some institutional ways out of this situation. It turns out that some of the suggestions for increasing retail profits that result from our model are actually consistent with the tactics observed by the mass merchandisers since their initial declarations of everyday low pricing strategies.

Can Bait and Switch Benefit Consumers?
Eitan Gerstner and James D. Hess - North Carolina State University

Retailers who advertise low-priced brands and understock these brands to encourage customers to switch to more profitable brands practice illegal bait and switch. In this paper we show that if utility is created through brand specific in-store promotions, then bait and switch can benefit consumers because price competition is enhanced. Therefore, we present an argument that suggests that the FTC investigate further its ban on bait and switch. The model also yields answers to questions such as, Which brand should be featured? Which brand should be in-store promoted? How should they be priced most profitably?

Store Brand Penetration - Analytical and Empirical Results
Raj Sethuraman - University of Iowa

The objective of this research is to study the antecedents and consequences of store brand penetration through analytical and empirical work. We analyze store brand penetration using simple game theoretic models. We then develop a comprehensive model that relates store brand penetration to the following antecedent and consequent factors: price sensitivity, advertising sensitivity, national advertising, product life cycle, brand proliferation, manufacturer concentration, excess capacity, retailer concentration, store loyalty, retailer power, price differential, and product differentiation.

WHOLSTOR: A Model to Estimate the Within- and Across-Department Effects of Retail Marketing Efforts
Marcia H. Flicker - Fordham University

The purpose of this paper is to develop and test a parsimonious response model that includes both the direct effect of marketing activity within a merchandise department on its sales and profit and the indirect effects of marketing by all other store promotions.

SC6: COMMUNICATIONS AND NEW PRODUCT DEVELOPMENT
Chairperson: John H. Roberts, University of New South Wales
Saturday, March 24, 1990, 1:45 p.m.

The Nature of Innovation Networks

David F. Midgley, Pam D. Morrison, and John H. Roberts - University of New South Wales

Word-of-mouth is thought to play a significant role in the diffisuion of technological innovations amongst a population of adopting organizations. This paper reports empirical research on the nature of the communication networks between a sample of leading edge organizations and other, more typical, organizations. The results are related to both the characteristics of the organization and the attributes of the innovation--within a contingent theoretical framework.

A New Stochastic Path Length Tree Methodology for Constructing Communication Networks

Jaewun Cho - Arizona State University

There are various marketing problems involving personal relations among members of a relevant population including diffusion of new products through a group of consumers, the interdependence among channel members, etc. This study presents a new methodology which can analyze various types of relational data. The model provides a network representation for binary sociometric data that indicate whether there is a contact between a pair of members or not, by estimating networks via path-length trees. Distinguishing characteristics of the new methodology are consideration of the asymmetry in communicatin process, simultaneous representation of structural characteristics, and specialized communication roles of each member. A penalty function algorithm is developed and its performance is investigated via Monte Carlo analysis on synthetic data. Several applications are also illustrated.

Organizational Processes in the Development of Computer Services

John Workman, Jr. - Massachusetts Institute of Technology

My research focuses on the development of new computer systems within a single firm, and specifically, how it is that information about user needs is shared within the organization to guide new product development decisions. The ethnographic research method of participant observation was used to observe the new product development activities, with the author following the day to day activities of people in the engineering, marketing, sales, and sales support groups on a full time basis for nine months.

New Product Development: A Quantitative Analysis of Interfunctional Communication

Abbie Griffin - University of Chicago
John R. Hauser - Massachusetts Institute of Technology

In this paper we review the evidence reported by Dougherty and Griffin and demonstrate the need for understanding the effect of QFD (and other management processes) on interfunctional communication in new product development. We then describe a quasi-experiment which begins to help us understand the communication process. We examine both the amount of communication and the patterns of communication. We provide initial insight on how QFD compares to a traditional new-product process.

SD1: SCANNER DATA FOR MARKETING RESEARCH
Chairperson: Naufel Vilcassim, Northwestern University
Saturday, March 24, 1990, 4:00 p.m.

Measurement of Advertising Response With Single Source Data
Al Rohloff - Market Science Associates

Increasingly, single source data is being made available for academic study. It is important to recognize, when reporting or reviewing findings from these studies, that there are inherent difficulties in fully measuring advertising response, difficulties that are not present in controlled split-cable tests. This paper will illustrate with specific examples, why the promise of single source data for measuring advertising response has been overstated.

Evaluating Advertising Media Plans With Single-Source Data
James H. Pedrick and Fred S. Zufryden - University of Southern California

In this study, we utilize single-source UPC scanner data that have recently been made available by the A. C. Nielsen company. Here, we propose a new model approach to examine the impact of advertising and other purchase-explanatory variables on market performance measures that include market share and purchase dynamics, such as trial/repeat and depth of repeat purchase patterns, over time. The approach is based on a non-stationary stochastic model that integrates brand choice, for a multi-brand market, and purchase incidence components and considers various aspects of consumer heterogeneity.

An Investigation of the Relative Predictive Effectiveness of the Variety Seeking and Reinforcement Models Using Scanner Data
Emine Sarigollu - McGill University
David Schmittlein - University of Pennsylvania

The objective of this research is to investigate the predictive effectiveness of the well-known representation of variety seeking and reinforcement behaviors. In particular, we will assess the predictive ability of the Dynamic Attribute Satiation (DAS) model against that of non-attribute-based stochstic models of variety seeking and reinforcement.

Using Scanner Data for Behavioral Research
Itamar Simonson and Russell S. Winer - University of California, Berkeley

In this paper, we argue that scanner panel can and should be used for testing behavioral hypotheses of the type that are tested in experimental settings. While the element of total experimental control is lost in a scanner panel, such data provide a natural setting in which one can potentially examine a wide variety of behavioral hypotheses with a high degree of external validity. We will provide two examples of such research. Examples 1: The effect of purchase quantity on variety seeking. Example 2: Testing consumer response to advertising.

SD2: SALES FORCE COMPENSATION THEORY
Chairperson: Amiya Basu, University of Illinois, Urbana-Champaign
Saturday, March 24, 1990, 4:00 p.m.

Sales Quota Plans: Mechanisms for Adaptive Control of Salesperson Performance
Murali K. Mantrala, Kalyan Raman, and Ramarao Desiraju - University of Florida

Taking the adaptive control approach, we derive the optimal quotas for the N time periods under three different scenarios. In the first scenario, the realized sales are viewed as the state variable controlled by the firm through the quota mechanism. Next, the expended selling effort is treated as the state variable and the realized sales are used as an error laden measure of the effort. Finally, we extend the above analysis by modifying the error term to capture the salesperson's subjective reaction to the quota level. The results from these analyses are compared with common quota-setting practices such as the 'Ratchet' rule.

Design of Sales Contracts With Resource Allocation: An Agency Theoretic Perspective
Kissan Joseph - Purdue University

We examine the joint problem of intrafirm resource allocation and corresponding optimal compensation plans under the twin asymmetries of information with respect to productivity of resource and effort expended. Considering first a single agent, we derive closed form expressions for the optimal compensatino plan. We are also able to design a menu of contracts such that the agent selects a level of resource allocation which reveals the agent's productivity of the resource to the principal and is congruent with the principal's objectives. We also look at the multiple agent case and focus our efforts on the more interesting case where the agent's have heterogeneous productivities for the resource.

Incentives in Salesforce Compensation Plans: Using Relative Versus Absolute Performance Measures
Anne T. Coughlan - Northwestern University
Chakravarthi Narasimhan - Washington University

Our work seeks to explain in what circumstances a firm would use incentives based on relative versus absolute performance. We model this problem in two stages. In the first stage, the firm chooses whether to use a contest or a commission as an incentive component in the salesforce compensation plan (and what form each should take). In the second stage, given a compensation plan, salespeople choose sales effort to maximize their utilities. A Nash equilibrium concept is used to solve this stage of the game. If a commission is used as the incentive component, however, it is not necessary to formulate the second stage as a game, since a salesperson's compensation is independent of other salespeople's actions.

Sales Force Compensation Plans: An Empirical Test of the Agency Theory Framework
Donald Outland - Duke University
Rajiv Lal - Stanford University
Richard Staelin - Duke University

Several studies in salesforce management suggest that salesforce performance is affected not only by factors specific to the salesperson such as motivation, skill and aptitude but also by the reward structure used by a company. This study can be viewed as a natural field experiment where different compensation plans are being used in different selling environments within the same company.

SD3: SOME THEORETICAL PRICE STRUCTURE EXPLANATIONS AND VALUE OF BRAND EQUITY
Chairperson: Eitan Gerstner, North Carolina State University
Saturday, March 24, 1990, 4:00 p.m.

Price Posting as an Equilibrium Characteristic
Birger Wernerfelt - Massachusetts Institute of Technology

In the context of a simple example, I evaluate the sustainability of price posting, instead of bargaining, as a supergame equilibrium. The result is that one side can credibly commit to take-it-or-leave-it offers when trade is frequent, the products are cheap, and valuation by the other side is highly uncertain. In some markets either side could commit in different equilibria, in others only one side can do so. The ability to commit is enhanced by being long-lived, nonanonymous, and having less uncertain valuations. Further, more competition will tend to favor price posting.

Market Information as a Determinant of Price Leadership
Abhik Roy - University of California, Riverside
Jagmohan S. Raju - University of California, Los Angeles

We examine the problem of optimal pricing in a competitive system where there is uncertainty of demand. More specifically, we examine a two-firm market in which both firms collect "signals" of future demand through market research to deal with uncertainty, but one obtains better information as measured by its signal error variance. It is shown that the 'better informed as leader' system always dominates a (Nash) system of independent pricing, which in general dominates the system in which the poorly informed firm acts as the price leader.

The Measurement and Determinants of Brand Equity: A Financial Approach
Carol J. Simon and Mary W. Sullivan - University of Chicago

Brand equity can be defined as the incremental cash flows which accrue to a branded product over and above the cash flows which would result from the sale of a product with no brand name. Brands with equity command a price premium over generic products. Several pilot studies are used to demonstrate our methodology. First, brand equity is estimated for a sample of companies. The results verify that companies specializing in consumer products have higher brand equity.

Dynamic Retail Pricing Behavior with Uncertainty and Learning
Anne T. Coughlan - Northwestern University
Murali K. Mantrala - University of Florida

Our model explicitly considers two key features of a duopoly retail pricing problem: (1) the conjectures each retailer has about the rival's reaction function, and (2) each retailer's uncertainty about the impact of competitive investments in marketing activities. Further, the retailers can change their expectations over time about the rival's reactions. In modeling the adaptive behavior of the retailers, we use the Bayesian approach proposed by Cyert and DeGroot (1970) in the Economics literature, but deviate from their partial treatment that permits only one of the two retail firms to learn about the rival. We also contrast the multiperiod duopoly model equilibrium with the standard Nash and collusive equilibria.

SD4: REFINEMENTS IN ECONOMIC MODELS OF DEMAND
Chairperson: Timothy Devinney, Vanderbilt University
Saturday, March 24, 1990, 4:00 p.m.

Interdependent Demand Models
Chris Miller - University of Oregon
Shelby H. McIntyre - Santa Clara University

The goal of this article is to begin the development of interdependent demand models that more completely account for the range of social influences. A theoretical framework of the fashion process is used as an example of specifying an interdependent demand model. The framework keys on the symbolic interaction between individuals in a social system and represents a case where all demand is due to interpersonal influence.

Couponing-Demand with a Self-Selection Problem
Jeongwen Chiang - University of Rochester

Incremental sales from coupon promotion is the focus of the study. In this study, we proposed a model where a consumer's couponing activities are considered as the result of a self-selection problem. That is, to respond to coupon promotion or not, as well as how much to purchase with or without coupons, are integrated parts of a utility maximization problem. Hence, there are no prior market segmentations. The responses to couponing are endogenized and linked to consumer demographic characteristics. A demand system is derived under the structure and a scanner data is used to see whether there are incremental sales due to coupon promotions.

Price Discrimination versus Most-Favored Customer Provisions in Selling Over Time
I. P. L. Png - University of California, Los Angeles

This paper aims to analyze the pricing of perishable production capacity by a monopolist faced with a heterogeneous customer population. In my model, the seller has a fixed capacity, faces a fixed number of potential customers, and has two periods of sale. Each customer's valuation of the product--high or low--is private information. I show that the seller will maximize profits by setting a first-period price that just draws high-valuation customers. In the second period the seller cuts the price.

Household Demand for Brands in a Product Class: Incorporating an Income Effect
Greg B. Allenby - Ohio State University
Peter E. Rossi - University of Chicago

The advent of electronic scanner panel data in marketing has increased the demand for models that are both firmly grounded in economics and are capable of reflecting the realities of purchase decisions. Current discrete choice models allow for only a substitution effect. The purpose of this research is to allow for an income effect as well.

SD5: HOW DO STORES COMPETE?
Chairperson: Louis (Pete) Bucklin, University of California, Berkeley
Saturday, March 24, 1990, 4:00 p.m.

Determinants of Primary Demand Sensitivity: A Cross-Category Analysis
Michael J. Zenor and Venkatram Ramaswamy - University of Texas, Austin

In a cross-category analysis of UPC scanner data, we identify (1) brands with high primary demand coefficients, (2) categories with high primary demand coefficients, and (3) consumers with high primary demand coefficients. Predictive hypotheses are then tested by relating these coefficients to brand, category and consumer descriptor variables. Results of the analysis provide a framework for understanding the types of brands, categories and consumers for which primary demand might be effected.

How Do Stores Compete? Determining the Structure of Retailer Competition for a Product Class
Randolph E. Bucklin - University of California, Los Angeles
James M. Lattin - Stanford University

This research investigates how supermarkets compete for business within a product class. We focus on the question, "Why are significant cross-store price effects observed for a brand at an aggregate level when there is a low likelihood of attracting new shoppers based on a single item's price?" We calibrate the disaggregate logit models on a sample of 300 households from the A. C. Nielsen database on heavy-duty liquid detergents. The data encompasses seven popular brands of liquid detergents and 13 competing stores.

Incorporating Signal-Only Promotions Into Retailer Promotion Policy Planning
J. Jeffrey Inman and Leigh McAlister - University of Texas, Austin

Our purpose is to develop a prescriptive model of promotions from the perspective of the retailer that explicitly considers the sales-stimulating effect of conventional and signal-only promotions. We examine the conditions under which a retailer should conventionally promote a brand versus signal-only promoting the brand. We also seek to empirically test the analytical results.

Fractional Tit for Tat Strategy in Promotional Competition
Yong June Kim - University of British Columbia
Ehud Kalai - Northwestern University

The major objective of this study is to develop a competitive marketing strategy incorporating the anticipation of the competitive actions and reactions in intertemporal rivalry. We explicitly model the intertemporal rivalry in the context of a duopoly supergame where each firm maximizes discounted profits. We consider a family of reaction functions that are linear in the rival's prior period marketing efforts. We develop the Fractional Tit for Tat strategy as a competitive promotional strategy in a dynamic duopoly where market structure is represented as a form of market share attraction model.

SD6: NEW PRODUCT DECISION SUPPORT MODELS
Chairperson: Allan Shocker, University of Minnesota
Saturday, March 24, 1990, 4:00 p.m.

Optimal New Product Positioning: A Dynamic Perspective

Rabikar Chatterjee - University of Michigan, Ann Arbor
Jehoshua Eliashberg and Ajay Manrai - Wharton
Lalita Manrai - University of Delaware

The focus of this research is on an analytical examination of the dynamics of product positioning over time, for a discontinuous innovation. We consider that consumer preferences for the new product (or service) may shift over time. We conduct experimental studies to test the hypotheses of (a) the attraction effect and (b) the demand effect that determine the nature of the dynamics of consumer ideal points. The results of our analysis provide insights into the dynamic product positioning problem and yield normative guidelines for a firm launching a discontinuous innovation.

Integrating Retailers' Preferences into New Product Development Process

Marcel Corstjens, Philip Parker, Lydia Price, and Wilfried Vanhonacker - INSEAD

In this paper, the authors try to integrate the retailers' preferences in the manufacturer's new product development process. The increasing importance of the retailer might influence the new product design derived by the manufacturer from consumer preferences. A normative model is proposed to deal with this issue.

Experiences With the Leo Burnett New Product Forecasting and Planning Model

David W. Olson - Leo Burnett Company

This paper will describe a new product forecasting and planning model and procedure which has been in continuous use at the Leo Burnett Company since the early 1970s. The model is used to provide sales forecasts for new packaged goods, at various stages of a product's life. The paper will also describe some recent work which has been undertaken to improve the model's forecasts in some specific areas.

SuA1: ADVERTISING PROMOTION, PLANNING, AND OPTIMIZATION
Chairperson: Naufel Vilcassim, Northwestern University
Sunday, March 25, 1990, 8:15 a.m.

An Advertising Planning and Optimization Model

S. Bienstock - AT&T Bell Laboratories

This talk describes a framework which focuses on improving the coordination of messages and media, and the allocation of advertising resources. This is achieved by developing metrics for estimating the current and potential value to the firm of each market (by program and customer segment) in order to "balance" advertising delivery to this market "potential." The talk defines and discusses different market potential metrics, and motivates the need to adjust advertising resources to "potential." An example is discussed to illustrate the concepts presented.

Multi-Regional Profit Maximization Through the Optimal Allocation of National and Regional Advertising Expenditures

Charles A. Ingene - University of Washington
Mark Parry - The Darden School

In this paper we utilize the basic precepts of microeconomic theory, especially as applied in international trade theory (Batra 1973, 1975) and interregional trade theory (Ingene and Yu 1981) to analyze the steady state advertising decisions of a multi-regional firm. We have chosen to develop our analysis within the framework of a multi-region advertising decision; however, regional advertising decisions are a special case of the generic problem of allocating marketing expenditures across market segments. Moreover, segmentation decisions often involve segment-specific and multiple-segment marketing efforts.

Optimal Resource Allocation in a Dynamic Duopoly

Pradeep Chintagunta, Naufel J. Vilcassim - Northwestern University

We use the Lanchester model of combat to capture the dynamics of competitive shifts in market shares due to the accumulated goodwill functions of advertising and detailing. We restrict our analysis to a duopoly as it enables us to derive analytical results. We use two sets of data in the empirical analysis. Our analysis provides some interesting insights into the nature of competition in the cola and prescription drug markets.

On Optimal Couponing Policy

Uri Ben Zion - Technion, Israel
Uriel Spiegel - Bar-Elan University, Israel
Aharon Hibshoosh - San Jose State University

The paper presents a two-stage model for an optimal couponing policy for a profit-maximizing firm. The firm decides on both the number of coupons to be issued per customer and the value of the cent-off coupon. The paper extends and departs from the early models of Narasimhan (1984), Levedhal (1986), and La Croix (1983), in several dimensions. Similar to Levedahl, the model is analytical, non-linear, and takes into account the effect of repeat purchases by new customers.

SuA2: PREDICTING RESPONSE TO PROMOTIONS AND THE IMPACT OF PRODUCT WARRANTY
Chairperson: Aradhana Krishna, Columbia University
Sunday, March 25, 1990, 8:15 a.m.

An Event-Based Model for Predicting Promotion Response
Vithala R. Rao - Cornell University
Darius J. Sabavala - New York University
Eric G. Wruck - Analysis Group, Inc.

Predicting the sales effects of a manufacturer's trade promotions requires an accurate sales response model. Research in market response modeling has focused on the consequences of aggregation, suggesting the collection and use of more disaggregate data. We explicitly consider what time unit is most appropriate. Theoretical resolution of this temporal analysis problem does not appear feasible in general. Instead, we develop and apply a practical event-based approach. In our applications, the event-based model performs better than traditional alternatives.

An Empirical Examination of Factors Moderating the Effect of Price Promotions on Category Sales Volume
Jagmohan S. Raju - University of California, Los Angeles

Our focus in this research is to examine why overall sales of some product categories respond more to sales promotions than others. We hypothesize that after accounting for trends and seasonal effects, promotions in the category are the primary reason for a change in overall category volume. The theoretical hypothesis are tested on sales data of 2500 different brands belonging to 25 different SAMI codes, and is obtained from a major grocery chain in Southern California. The results support our basic hypotheses.

A Model for Evaluating the Optimal Face Value of Coupons
Robert P. Leone, Venkatram Ramaswamy, and Swaminathan Srinivasan - University of Texas, Austin

In an attempt to attract consumers, marketers use a number of tactics--refunds, coupons, rebates on next purchase, etc. This paper presents an analytical framework that integrates the findings of Reibstein and Traver (1982) with the model of Neslin and Shoemaker (1983). This study will help managers decide on the optimal coupon face value to be utilized.

An Approach for Determination of Warranty Length
Melvyn A. J. Menezes - Harvard Business School
Imran S. Currim - University of California

This paper treats product warranty as a marketing variable and focuses on aiding managerial decisions on what warranty length to offer. The paper derives mathematical results that show how factors such as warranty and price elasticities, product failure rates, and costs are normatively related to warranty length. Managerial use of the derived results to guide decisions on warranty length is also illustrated.

SuA3: SPECIFICS OF PRICE SETTING
Chairperson: Michael Hagerty, University of California, Davis
Sunday, March 25, 1990, 8:15 a.m.

How to Quote a Price? $0.50 each or 2 for $1.00
Eitan Gerstner and Katherine Klien - North Carolina State University

Price is usually quoted as number of dollars per quantity unit. Suppose a seller changes the quantity unit for which his price is quoted but unit price and purchase requirements are unchanged (for example, quoting airfare to Paris "$249 one way based on a roundtrip purchase" instead of "$498 roundtrip"). Can such an artificial change help affect consumer response and increase sales? We conducted experimental research to find an answer.

Buy N Get One Free
Albert Kagan and Kin-Nam Lau - North Dakota State University

In this research, a model is proposed to determine the optimal "Buy N Get One Free" pricing policy (N is the number of units purchased by a consumer to attain one free unit) for vendors who sell consumer nondurables to heterogeneous buyers in a highly competitive market.

Peak-Load Pricing With Uncertain Demand
Martin A. Koschat, Padmanabhan Srinagesh, and Linda J. Uhler - Bell Communications Research

For many products and services demand has characteristic daily, weekly, or seasonal variations. For local telephone service flat rate tariffs as well as measured tariffs are widely used alternatives. The RAND study on measured tariffs, while highly innovative, has been criticized for various conceptual shortcomings, sparking an active research effort at Bellcore regarding the economic efficiency of local telephone tariffs. This presentation will describe the current status of this effort. The statistical and economic analysis of the telecommunications example presented here may serve as a guideline for similar analyses in other industries.

SuA4: CONFLICT RESOLUTION IN MARKETING: THEORY AND EXPERIMENTAL EVALUATION
Chairperson: Rami Zwick, Pennsylvania State University
Discussant: Kalyan Chatterjee, Pennsylvania State University
Sunday, March 25, 1990, 8:15 a.m.

An Empirical Test of the New Analytical Process Model of Two-Party Negotiation in Channels of Distribution

P. V. Balakrishnan - Ohio State University
Jehoshua Eliashberg - University of Pennsylvania

We present a new analytical model of two-party negotiation. This model captures both behavioral as well as economic aspects of the negotiation process. Survey data and experimental results are used to compare the predictive ability of the proposed model with alternative models.

Investigating Variety Seeking and Reinforcement Behaviors in Households

Sunil Gupta - Columbia University
Joel H. Steckel - New York University

This paper deals with the process of resolving conflicts among the individual members of the household. They show that it may be possible that individual members of the household are variety seeking or last brand loyal, and yet the process of resolving the conflict among the individuals may lead to the household transition matrix that appears to represent a "coin tossing" process.

An Experimental Study of Two-Person Bargaining with Random Termination

Rami Zwick and John C. Howard - Pennsylvania State University
Amnon Rapoport - University of Arizona

We deal with buyer-seller negotiation with full information (and common knowledge), and with an exogenous risk of breakdown. We model the conflict using a noncooperative game in which bargainers have to divide a given surplus ("pie") sequentially. Two basic motives that may induce the parties to reach an agreement rather than to insist indefinitely on incompatible demands are examined. Psychological and theoretical implications are discussed.

SuA5: MODELLING COMPETITIVE ADVERTISING
Chairperson: Hirokazu Takada, University of California, Riverside
Sunday, March 25, 1990, 8:15 a.m.

A Competitive Advertising Game
Hanan Polansky - Cornell University

It's a rough world out there; the other guy has just hit the market with an incredible new ad campaign. Now what? What is your best response to the campaign? How should you advertise your own product? This paper suggests the optimal response to the incredible campaign.

Competitive Advertising and Consumer Price Sensitivity
Raymond R. Burke and Hubert Gatignon - University of Pennsylvania

In this research, we investigate the impact of competitive advertising on consumers' price sensitivity. In particular, we analyze the impact of the similarity of competitive advertising in terms of two dimensions of similarity: message execution and brand positioning. The results of this study using a computer-controlled experiment support the impact of both the presence and the nature of competitive advertising on how sensitive to price consumers are and suggest advertising strategies to control the effect of advertising on price elasticity.

The Effect of Generic Butter Advertising on Butter and Margarine Purchases
Daniel S. Putler - U.S. Department of Agriculture

This paper develops and applies a new framework to analyze the effect of generic advertising on total household purchases of a product category on a shopping occasion. The framework is based on the use of a simultaneous tobit estimator that allows for the possibility that non-zero quantities of both butter and margarine are purchased, and the possibility that only one of these categories is purchased. The results of applying this framework to the split-cable advertising experiment data are presented.

A Dynamic Model of Market Share Competition and Optimal Advertising
Y. Edwin Tang - North Carolina State University

One aim of this article is to formulate a dynamic market share model in which market share is equivalent to choice probability and the choice axiom is satisfied. Another aim of the paper is to determine the conditions under which the market share will converge to the equilibrium attraction form, which we have assumed always to exist.

SuA6: PROCEDURES FOR AIDING MARKETING ANALYSIS
Chairperson: John Roberts, Australian Graduate School of Management
Sunday, March 25, 1990, 8:15 a.m.

Competition Based Market Share Forecasting

William T. Robinson - University of Michigan, Ann Arbor

The competition based forecasting procedure that is developed and empirically tested below is conceptually straightforward. It is based on two key assumptions. First, in the absence of competitive advantages and disadvantages, each business in a market should have an average industry market share (AVEMS). Second, competitive advantages and disadvantages are the primary forces that explain why a given business deviates from AVEMS. This competition based forecasting procedure is applied to cross-sections of start-up ventures and mature manufacturing businesses in the PIMS data.

On the Practical Usefulness of Meta-Analysis Results

Wilfried R. Vanonacker and Lydia J. Price - INSEAD

The natural experiment hypothesis underlying meta analysis and their extensive designs give rise to many empty or scarcely populated cells. The implications of this improper sampling can be severe when the results are incorporated in a Bayesian estimated framework. Using existing meta-analyses in marketing and a known recursive framework for updating estimates in linear regression models, the practical limitations of such priors are discussed and illustrated. Some suggestions are provided to alleviate some of the problems in performing meta-analyses.

Mapping the Structure Implied by Advertising Overlap

Lee G. Cooper - University of California, Los Angeles

One way of looking at the similarity of magazines, television or radio programs is by the overlap in the advertising they display. This talk will present the properties of conditional probabilities when they are transformed by this procedure into distances, and apply the method to study the structure of the home/decorator magazine market.

Variable and Attribute Importances for Summarizing Results in Marketing Analysis

Vithala R. Rao and Dick Wittink - Cornell University

Various theories of choice can be utilized for specifying the estimation model; some alternative models are the additive linear model, the ideal point model and the logistic regression model. In this paper, we specify a general framework for the specification and estimation of relations between criterion and predictor variables, discuss pitfalls associated with various summary measures used under different scenarios, discuss the use of summary measures for a number of studies and propose modifications that are designed to obtain more appropriate substantive conclusions.

SuB0: MODELING SALES RESPONSE
Chairperson: Jagmohan S. Raju, University of California, Los Angeles
Sunday, March 25, 1990, 10:30 a.m.

Meta-Analysis of Price, Media, Sales Force, and Promotion Elasticities
Michael R. Hagerty, Gary J. Russell, and James M. Carman - University of California, Davis

The object of this research is to develop a basic body of knowledge about elasticities and how they vary by industry. The elasticities we study compose most of the Marketing Mix, and include Price, Quality, Advertising, Promotion, and Sales Force. In this work we estimate elasticities from the PIMS data base and perform a MetaAnalysis on the elasticities, predicting a firm's elasticities based on the firm's characteristics.

Allocating Marketing Resources Geographically Using a Pooled Cross-Sectional Time-Series Analysis: A New Approach and Some Evidence from Practice
Richard O. Lightburn, Mitzi Desselles, and Jeri Moore - DDB Needham Worldwide Advertising

This paper will report on applications of a "new" approach to the problem of geographical allocation, and attempt to develop theoretical underpinnings for the approach. While the paper will present some empirical validation for the model, the substantial advantage in this approach is that it more closely mimics how managers think about their business.

Interactive Market Mix Responses: Implications for Modeling
Paul Prabhaker and J. Thomas Yokum - DePaul University
Albert R. Wildt - University of Missouri, Columbia

The purpose of this research is threefold. First, a taxonomy for marketing-mix interactions is proposed. Second, a general model for price-advertising interactions is suggested. Third, the predicative or forecast accuracy of various constant coefficient estimation procedures applied to both correctly specified and misspecified causal interactive market response models is considered.

Response Function Estimation Using the Equity Estimator
Lakshman Krishnamurthi - University of Illinois, Chicago
Arvind Rangaswamy - The Wharton School

The presence of multicollinearity often hampers the estimation of the "independent" effects of the marketing mix variables. In this study, we evaluate the performance of four estimators, namely, Equity, Ridge, OLS, and Principal Components in a marketing research setting involving the estimation of the response functions for 36 pharmaceutical products. Overall, constrained Equity outperforms the other three constrained estimators (with gains often in excess of 25%) on criteria such as estimated bias and variance.

SuB1: EFFECTIVENESS OF ADVERTISING AND PROMOTIONS
Chairperson: Charles A. Ingene, University of Washington, Seattle
Sunday, March 25, 1990, 10:30 a.m.

Advertising Effectiveness Research: A Survey of Agencies and Clients

M. P. Flandin and L. P. Simkin - University of Warwick

This paper presents findings of a survey conducted during the summer of 1989. Ten of the leading advertising agencies in the U.K. were contacted regarding their approach to assessing the effectiveness of their advertising. The survey revealed a number of interesting findings. Firstly, academic theory behind advertising effectiveness evaluation techniques is only marginally ahead of what is done in practice. There is growing pressure from clients for a more scientific approach to advertising. There is a clear difference between the views of agencies and clients on the evaluation approaches.

Measuring and Modeling the Effects of Advertising for Telecommunications Products

Elsa M. Ancmon and Martin A. Koschat - Bell Communications Research

Our model extends traditional models by explicitly accounting for the numbers of exposures required for an advertisement to be effective. Calibration results strongly suggest that for a particular product category, namely basic telephone calling, and a creative strategy that emphasizes the emotional benefits of making an extra call, two exposures or more within a sufficiently short time frame are required to stimulate that extra cell. Our results indicate that not only should the concept of frequency be explicitly included to increase statistical accuracy, but appropriate dynamic models can provide valuable information about effective frequency.

Time Series Analysis of Corporate Advertising In Japanese Market

Hirokazu Takada - University of California, Riverside
Takaho Ueda - Gakushuin University, Tokyo

In this study we try to investigate the role of corporate advertising vis-a-vis brand advertising within a firm. We will construct a model which is able to capture the firm's marketing activities including these forms of advertising. For empirical analysis, we employ the framework of time series modeling to the scanner data of a particular firm collected in a Tokyo market.

Promotional Price Elasticities: The Effect of Manufacturer Strategy, Retail Chain Strategy and Their Interaction

Leigh M. McAlister and Michael J. Zenor - University of Texas, Austin

We extend Bolton's work to suggest that a manufacturer's strategy should have an effect beyond the effect of the limited tactical variables mentioned above. Similarly, a retail chain's strategy should have an effect beyond the effects of the limited tactical variables mentioned above. Finally, we would expect the match between the manufacturer's strategy and the retail chain's strategy to have an effect (Weitz, Journal of Marketing, 1981).

SuB2: STATISTICAL ANALYSIS AND STRUCTURAL EQUATIONS
Chairperson: Ulf Bockenholt, University of Illinois, Urbana-Champaign
Sunday, March 25, 1990, 10:30 a.m.

Nonnested Testing With Scanner Data: The Advantage of Bayesiasn Methods
Greg B. Allenby - Ohio State University

A tractable Bayesian methodd of testing nonnested restrictions in a multivariate linear model is presented and compared to classical results using store level scanner data. The Bayesian tests are shown to be either equal or superior to classical tests in terms of objectivity, ease of use and ease of interpretation.

Recent Results of a New Approach for Market Structuring: Constrained Latent Class Analysis
Ingo Bockenholt - University of Karlsruhe
Ulf Bockenholt - University of Illinois, Urbana-Champaign

In this talk latent class analysis and probabilistic multidimensional scaling are combined and a synthesis of LCA and PMDS is presented for simultaneously classifying and scaling ordered categorical data typically obtained in marketing studies. While the LCA model part identifies homogeneous subgroups which are characterized by their choice probabilities for a set of alternatives, the PMDS model part provides a graphical representation of the classification results and models the heterogeneity in each latent class. A comprehensive application is presented to illustrate this new methodology for market structuring.

LISCOMP - An Alternative Sructural Equations Modeling Technique
Mrugank V. Thakor and Richard D. Fetter - Indiana University

LISCOMP, a new Covariance Structure Modeling program, is offered as an alternative to Least Squares (LSE) and/or MLE-based estimated techniques which are frequently used by marketing academicians and practitioners. We discuss two circumstances commonly encountered in marketing in which LISCOMP may be a preferred tool for empirical tests: (1) when data are highly skewed and (2) for multiple endogenous categorical variables.

SuB3: DECISION SUPPORT SYSTEMS
Chairperson: R. Sukumar, University of Pittsburgh
Sunday, March 25, 1990, 10:30 a.m.

The Design and Implementation of a Decision Support Aid
John Roberts, Pam Morrison, Colin Kennedy, and John Clark - University of New South Wales

This paper describes the design and implementation of a decision support aid to enable data analysis and simulation capabilities at a major packaged goods manufacturer. The paper closes with a consideration of some of the difficulties of implementing such a model, including lack of acceptance, over-acceptance, and maintenance.

A Decision Support System for Retail Promotions Using a Stochastic Parameter Model of Brand Sales
R. Sukumar and Rajiv Grover - University of Pittsburgh

A decision support model for retail promotions at the store level is proposed. The model provides the retailer with a tool to decide on which brand(s) to promote in a given time period. The use of the model in predicting the performance of retail promotions in future periods, and the use of a "game simulation" in making decisions on which brand(s) to promote in future periods is demonstrated.

Forecasting Market Penetration With MAT (Market Assessment Tools)
David L. Kendall, Program Director - Market Assessment and Forecasting Center for Economics Research

This paper reports research and development results for a new software-based system called MAT, and presents an empirical example of its use to forecast market size and market penetration for the Eagle-Picher 200 Nickel-Iron battery module. The EP 200 NiFe module is a new, high energy density battery designed to power electric vehicles, but it may have applications in other markets.

Towards a Marketing Geographical Information System (MGIS)
Jens R. Maier and David J. Grimshaw - University of Warwick

This paper provides an outline of how a GIS can be applied in the marketing context and integrated into a marketing decision support system (MDSS). The example used to illustrate its applicability is retail store location planning.

SuB4: EMPIRICAL EXAMINATIONS OF SALESFORCE PERFORMANCE AND COMPENSATION
Chairperson: C. Narasimhan, Washington University, St. Louis
Sunday, March 25, 1990, 10:30 a.m.

Measuring Sales Force Efficiency Using Data Development Analysis
Leonard J. Parsons - Georgia Institute of Technology

Assessing sales force performance is an important component of a sales manager's responsibilities. To improve performance, the manager would like to know the maximum output possible at given levels of inputs. A mathematical programming approach, Data Envelopment Analysis (DEA), can be used to measure the efficiency of sales people. DEA does not require pre-specification of a parametric functional form such as would be necessary for application of an econometric approach. The only assumption DEA makes is that the production possibility set be convex. DEA will be illustrated by examining the performance of one firm's sales force.

A Sales Force Model for Evaluating the Most Profitable Sources of Sales Representatives
Rene Y. Darmon - McGill University

This study proposes a systematic approach to identify the most profitable source(s) of salespeople for a given company. Using a Markovian model, this procedure estimates the long-run dollar profits that salespeople from various sources are likely to generate over their own career paths. The procedure is applied to a real (but disguised) case study.

SuB5: UNDERSTANDING RETAILERS' RESPONSES TO PROMOTIONS
Chairperson: Shumeet Bannerjee, University of Chicago
Sunday, March 25, 1990, 10:30 a.m.

Promotion Decisions

Francis J. Mulhern - Pennsylvania State University
Robert P. Leone - University of Texas, Austin

In this study, we begin with estimates of cross-elasticities between promoted and nonpromoted items and go on to demonstrate how retailers can determine optimal discount levels based on the variety of effects of price promotions. Additionally, trade relations between manufacturers and retailers may be enhanced by an increased understanding of the profitability and implications of price promotions.

A Model of Retail Responses to Trade Promotions

Marcia K. Armstrong - Washington University
Frank M. Bass - University of Texas, Dallas

In this research we develop a new model of retail response to trade promotions. The model considers how additional revenue offsets additional costs associated with trade promotion acceptance and compliance. In addition, we explore disparities in retail response based on brand and category differences in margins, volume, relative price and market share.

Effect of Retailer Decisions on Type, Timing, Frequency, and Magnitude of Promotions on Brands' Sales Performance

Arun Pereira and V. Kumar - University of Houston

The objective of this research is to focus on specific decisions on retail promotions made by retailers, such as type, timing, frequency, and magnitude of promotions, and study their effects on the objectives of the manufacturer.

Trading Stamps: Breaking Out of a Prisoner's Dilemma

Judy Bayer, Pamela Henderson, and Francine Lafontaine - Carnegie Mellon University

This research examines the theoretical reasons for the diffusion and discontinuance of trading stamps as a promotional tool. It is hoped that this approach will lead to testable implications that can be addressed empirically at a later stage in the research.

SuB6: ADVERTISING CONTENT AND RETAIL DECISION SUPPORT MODELS
Chairperson: Adam Finn, University of Calgary
Sunday, March 25, 1990, 10:30 a.m.

An Econometric Study of the Information Content of Magazine Advertisements
Seth M. Norton - Washington University

This paper examines the information content of a large sample of magazine advertisements. The results partially support Nelson's theory of advertising.

Revisiting PARM Revisited: A Psychometric Assessment of the Dimensionality of Syndicated Print and Effectiveness Scores
Adam Finn - University of Alberta

Specifically, our model evaluation process begins with first order confirmatory measurement models for the eight recall and recognition indicators, next considers second order confirmatory measurement models, and then turns to structural models consistent with the preferred measurement structure. The analysis of the reconfigured PARM data produces a number of interesting findings.

A Model of the Impact of Electronic Catalog Shopping
Paul L. Sauer and Myung-Soo Lee - State University of New York, Buffalo
Murray A. Young - University of Denver

In the retailing industry, understanding the demand for retailer's services from consumers is a critical problem considering the fact that retail businesses in most cases are "service" rendering. Pricing decisions of retailers are based on the amount of service offered to consumers and whether consumers are willing to pay a higher price for services they will get from retailers. In particular, we are interested in the impact of the various forms of catalog shopping on consumer and retailers' contribution to increased productivity resulting from adoption of videotex technology for purposes of electronic shopping.

Store Location Assessment Model: A Modelling Approach
Lyndon P. Simkin - Warwick Business School

SLAM is now in regular use with several of the UK's major multiple retailers and service businesses. This paper examines the model's development, the modelling process, its implications and exhibits examples of the model's output.

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