

# *Quantitative Marketing and Economics*

## 2005 Conference Schedule

October 21-22, 2005

*Sponsored by*  
James M. Kilts Center for Marketing  
University of Chicago, GSB  
Kluwer Academic Press

### **Friday, October 21**

Sessions 1 & 2 are in Room 400. The conference will then continue in Room 100.

**12:00 pm – 12:45 pm    Lunch**

**12:45 pm – 1:00 pm    Welcome**

**1:00 pm – 2:00 pm    Session 1**

#### ***Measuring Brand Equity in an Equilibrium Framework: A Structural Approach***

Avi Goldfarb (Toronto), Qiang Lu (Toronto) and Sridhar Moorthy (Toronto)

We propose a structural approach to measuring brand equity in an equilibrium framework using observational data. Brand equity is defined as the difference in equilibrium profit between the brand in question and its counterfactual unbranded equivalent on observable attributes. Our structural model allows us to make this computation rigorously. The calculations take into account competitors' reactions in the real situation and in the counterfactual situation. We illustrate our methods on aggregate and individual-level data in two product categories, ready-to-eat cereal and ketchup, and compare our brand equity estimates with those obtained from previously offered reduced-form methods.

Discussant: Brian Ratchford (Maryland)

**2:00 pm – 3:00 pm    Session 2**

#### ***Market Structure and Competition in the Retail Discount Industry***

Ting Zhu (CMU), Vishal Singh (CMU) and Mark Manuszak (CMU)

This paper uses a structural model of entry to investigate the determinants of cross-sectional differences in market structure in the retail discount store industry. Using a unique dataset, we analyze the factors influencing entry patterns across markets for Wal-Mart, Kmart, and Target chains. Firm's actions are formalized as a three-player game where firms make entry decisions and choose between discount store and supercenter formats. Each firm's payoff depends on market demand and cost characteristics, the actions of other firms, and market- and firm-specific unobservable factors. Unlike previous models, our framework allows for asymmetries across firms in their competitive effects as well as their sensitivities to exogenous market conditions. We solve the model numerically by backwards induction and use simulated maximum likelihood procedures for estimation. Estimates

from the latent payoff functions show that several demographic variables influence the entry and format choice decisions of the companies. All firms prefer markets with higher population, although the population threshold for entry varies significantly across firms and formats. Firms prefer markets where a larger proportion of population has children and vehicles, particularly for their supercenter format. There are also important differences in sensitivities to certain market conditions across firms, which are consistent with common perceptions of the positioning strategies and target consumer bases of the companies. In terms of competitive interactions, we find Wal-Mart to be the most formidable player in the industry, as our estimates indicate that Wal-Mart exerts a significant negative effect on its competitors' payoffs. Discount store format of Target is found to fare better under competition than its supercenter, but both formats are vulnerable to Wal-Mart's supercenters. Across companies, estimates from the payoff functions as well as store revenue regressions confirm the conventional wisdom that Wal-Mart is in the strongest position in the industry followed by Target. Conversely, Kmart is the most vulnerable chain as both competitors negatively impact its profitability, but it does not exert a similar negative effect on them.

Discussant: Catherine Tucker (MIT)

**3:00 pm – 3:30 pm    Break**

**3:30 pm – 4:30 pm    Session 3**

***\$1000 Cash Back: Asymmetric Information in Auto Manufacturer Promotions***

Meghan Busse (UC Berkeley), Florian Zettelmeyer (UC Berkeley) and  
Jorge Silva-Risso (UC Riverside)

Automobile manufacturers make frequent use of promotions that give cash-back payments. Two common types of cash-back promotions are rebates to customers, which are widely publicized to potential customers, and discounts to dealers, which are not publicized. While the payments nominally go entirely to one party or the other, the real division of the manufacturer-supplied surplus between dealer and customer depends on what price the two parties negotiate. These two types of promotions thus form a natural experiment of the effect of information asymmetry on bargaining outcomes: in the customer rebate case, the parties are symmetrically informed about the availability of the manufacturer-supplied surplus, while in the dealer discount case, the dealer will generally have an informational advantage. The aim of this paper is to compare, in appropriate settings and with appropriate controls, the price outcomes of transactions conducted under these two types of promotions in order to empirically quantify the effect of this information asymmetry. We show that customers obtain approximately 80% of the surplus in cases when they are likely to be well-informed about the promotion (customer rebate), and approximately 35% when they are likely to be uninformed (dealer discount). For a promotion of average size, this difference translates to customers being worse off by \$500 when they do not know that the promotion is being offered.

Discussant: Wes Hartmann (Stanford)

**4:30 pm – 5:30 pm    Session 4**

***Does Uncertainty Matter? Consumer Behavior under Three-Part Tariffs***

Anja Lambrecht (UCLA), Katja Seim (Stanford), Bernd Skiera (Frankfurt)

We analyze consumer tariff choice and demand for Internet access under three-part tariff pricing. With three-part tariffs, the provider charges an access fee that includes a usage allowance and a per-unit price for usage in excess of the allowance. Such pricing is commonly found in communication

industries including Internet access and wireless telecommunications. We develop a discrete/continuous model of tariff choice among three-part tariffs that takes into account tariff-specific characteristics, consumers' heterogeneous usage preferences, and their uncertainty about usage. We estimate the model based on an extensive set of usage data from a German Internet Service Provider. We estimate tariff choice and usage elasticities and show that under three-part tariff pricing consumers respond in their tariff choice primarily to changes in the tariff's access price and less to changes in the allowance or the usage price. We also find that consumers have a preference for flat-rate tariffs that cannot be explained by usage considerations alone. We examine the consequences of consumers' demand uncertainty from the perspective of consumers and the provider. We find that demand uncertainty steers consumers towards tariffs with high usage allowances and, on a given tariff, increases their expected bill. Consequently, demand uncertainty decreases consumer surplus but increases the provider's revenue. Based on our results we derive implications for pricing with three-part tariffs from the provider's perspective.

Discussant: Eric Anderson (Northwestern)

**6:00 pm Reception/Dinner Room 621**

## **Saturday, October 22**

Saturday sessions are in Room 100.

**7:30 am – 8:30 am Breakfast**

**8:30 am – 9:30 am Session 1**

### ***A “Memory-Jamming” Theory of Advertising***

Jesse M. Shapiro (Chicago)

I present a model in which advertising affects consumers' recollections of their past experiences with a product. The model sheds light on two important features of advertising behavior in mature markets: more familiar brands often advertise more, not less; and brand advertising levels frequently oscillate from low to high levels, suggesting non-concavities in consumers' response to advertising. I discuss psychological evidence in support of the model's assumptions, as well as evidence on firm and consumer behavior consistent with the model's predictions.

Discussant: Mark Israel (Northwestern)

**9:30 am – 10:30 am Session 2**

### ***Modeling Key Item Effects***

Kirthi Kalyanam (Leavey), Sharad Borle (Rice), and Peter Boatwright (CMU)

Retailers believe that their product categories contain key items. The belief is that the presence of a key item lifts the sales of the entire category over and above the contribution of the item's own sales. We use information on item sales and stockouts in point of sale data to investigate the existence of key items. We develop a store sales model to measure the following effects of the stockout of an item: (1) impact on own sales, (2) substitution to other items (3) and impact on overall category sales. The model controls for demand shocks and over dispersion of sales. We confirm the existence of key item

effects, finding that the absence of certain items sharply depresses sales of the entire category. Out of stocks of many moderately selling items also depress category sales lending support to the conventional wisdom that variety is indeed the price of entry in retailing. We also find that the category effect of an out of stock swamps the own sales loss and substitution effects for many items.

Discussant: Andrew Ainslie (UCLA)

**10:30 am – 11:00 am Break**

**11:00 am – 12:00 pm Session 3**

***Supermarket Pricing Strategies***

Paul B. Ellickson (Duke) and Sanjog Misra (Rochester)

Most supermarket firms choose to position themselves by offering either “Every Day Low Prices” (EDLP) across several items or offering temporary price reductions (promotions) on a limited range of items. While this choice has been addressed from a theoretical perspective in both the marketing and economic literature, relatively little is known about how these decisions are made in practice, especially within a competitive environment. This paper exploits a unique store level dataset consisting of every supermarket operating in the United States in 1998. For each of these stores, we observe the pricing strategy the firm has chosen to follow, as reported by the firm itself. Using a system of simultaneous discrete choice models, we estimate each store’s choice of pricing strategy, conditional on its expectation over the choices of its rivals. We find evidence that firms cluster by strategy, choosing actions that agree with those of its rivals. We also find a significant impact of various demographic and firm characteristics, providing some qualified support for several specific implications from marketing theory.

Discussant: Pat Bajari (Michigan)

**12:00 pm – 1:00 pm Lunch**

**1:00 pm – 2:00 pm Session 4**

***A Survey of Empirical Work in Auctions***

Ken Hendricks (Texas) and Robert Porter (Northwestern)

A preliminary draft, forthcoming in Handbook of Industrial Organization, Vol. III, edited by R. Porter and M. Armstrong, Vickers, Amsterdam: North-Holland.

**2:00 pm – 3:00 pm Session 5**

***The Effects of Costs and Competition on Slotting Allowances***

Dmitri Kuksov (Washington) and Amit Pazgal (Washington)

We consider the optimal two-part tariff contract between a manufacturer and a retailer. We show that retail competition (in the presence of either fixed costs or bargaining power) may lead to slotting allowances in an optimal contract, even with a monopoly manufacturer and no information asymmetry. On the other hand, slotting allowances do not arise with a monopoly retailer and no information asymmetry, whether the manufacturer is a monopoly or not. We consider a number of potential factors affecting the incidence and magnitude of slotting allowances and show that more intense retail competition, higher retail bargaining power, larger retailer fixed costs, and lower

marginal costs of retailing have a positive impact on slotting allowances. Our results also indicate that retailer market share, whether due to an operating cost advantage or a location advantage, may positively affect the slotting allowances the retailer receives in the equilibrium. The opposing effects of the fixed and marginal operating costs on slotting allowances, as well as the impact of retailer competition and retailer bargaining power on profits, underscore the importance of careful definitions of competition, bargaining power, and retailer costs in empirical research, and may reconcile some differences in the empirical findings of past literature.

Discussant: Preyas Desai (Duke)

**3:00 pm – 3:30 pm      Break**

**3:30 pm – 4:30 pm      Session 6**

***Optimal Selling in Dynamic Auctions: Information versus Commitment***

Robert Zeithammer (Chicago)

Durable goods are increasingly being sold in sequences of auctions, in both business and consumer markets. This paper studies optimal selling strategies of a durable-goods monopolist facing long-lived strategic forward-looking bidders in such sequential auction markets. Two new market-equilibrium models of the game between the seller and the buyers are developed, and both models imply that commitment does not always dominate adaptive selling as it does in posted-price durable-goods markets. Because the auction-market demand is inherently uncertain, the seller can benefit from an adaptive selling strategy that interprets past bids to learn about demand. However, adaptive selling does not dominate commitment selling universally, because the forward-looking buyers undermine the seller's monopoly power analogously to the situation in posted-price markets (Coase conjecture). This paper characterizes when adaptive selling dominates commitment selling and vice versa, concluding that overall gains from trade in the market play a crucial role in the seller's preferences over the two selling regimes.

Discussant: Miguel Villas-Boas (Berkeley)