

DISSERTATION DEFENSE

Taking the World as It Is: Three Essays in Marketing

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Wednesday, November 30, 2011

9:00 am

GSIA 324

“Alas, we must take the world as it is.”

– Herbert A. Simon (1976, p. 144)

When discussing two different approaches for modeling human decision-making, Herb Simon nonchalantly made clear what he considered the better approach. If trying to understand the world, you have to attempt to model it as it is, rather than abstracting away from reality for analytical ease. In this thesis, we apply this maxim to three different contexts. First, we analyze the reliability of the Implicit Association Test, as reliable (and valid) measurement tools are an essential step to ‘taking the world as it is.’ Second, we apply the maxim in a business-to-business context to answer a supplier’s real-world concern about stockouts. Finally, we go back to the original context of human decision making and estimate the first empirical model of Simon’s satisficing decision rule.

Essay 1: Adding Significance to the Implicit Association Test

The Implicit Association Test (IAT) has not only become one of the most widely used research tools in psychology, but has also been employed frequently by marketing academics and practitioners to measure consumers' implicit attitudes towards brands and other things. However, we argue that the IAT's reliability varies from application to application, depending on the attitudes to be measured, the stimuli used, etc. Thus, the reliability cannot be established a priori. Instead, we propose a straightforward post-hoc method based on pairwise significance tests (i.e., comparing the IAT-effects of two participants at a time) to check whether the underlying measurement assumptions were satisfied in a particular application, giving the IAT a sufficiently high reliability to be analyzed confidently. Using extensive simulations as well as an empirical application, we illustrate the underlying problem and show that the proposed method is sensitive to otherwise unobserved sources of error.

Essay 2: Stockouts and Restocking: Monitoring the Retailer From the Supplier’s Perspective

In this essay, we develop a Bayesian model to estimate the occurrence of stockouts at the daily level using data that is readily available to suppliers (daily sales and shipment data). This allows the suppliers to monitor the retail outlets if the incentives to avoid stockouts are not perfectly aligned, without having to physically check for stockouts in the stores. Incorporating detailed information from conversations with store managers as well as

from inspection of the data, we find that the average stockout rates vary widely between stores, identifying two stores with stockout rates twice as high as for most other stores. Thus, the model identifies stores that may have management issues. Similarly, we find that the amount of shrinkage varies significantly across stores, where the maximum estimated shrinkage rate in our data is 20 times larger than the minimum estimated shrinkage rate. Since we also infer unobserved inventory, the model can distinguish between store stockouts (i.e., zero inventory in the store) vs. shelf stockouts (i.e., an empty shelf, but some inventory in other parts of the store), a crucial distinction to identify the root cause of the problem..

Essay 3: A Satisficing Choice Model

While the assumption of utility-maximizing consumers has been challenged for decades, empirical applications of alternative choice rules are still very recent. We add to this growing body of literature by proposing a model based on Simon's idea of a "satisficing" decision maker. In contrast to previous models (including recent models implementing alternative choice rules), satisficing depends on the order in which alternatives are evaluated. We therefore conduct a visual conjoint experiment to collect search and choice data. We model search and product evaluation jointly and allow for interdependence between them. The choice rule incorporates a conjunctive rule for the evaluations and, contrary to most previous models, does not rely on compensatory trade-offs at all. The results strongly support the proposed model. For instance, we find that search is indeed influenced by product evaluations. More importantly, the model results strongly support the satisficing stopping rule. Finally, we perform a holdout prediction task and find that the proposed model outperforms a standard multinomial logit model.

Reference

Simon, Herbert A. 1976. From substantive to procedural rationality. S. J. Latsis, ed., *Method and Appraisal in Economics*. Cambridge University Press, 129–148.