

INDUSTRIAL & SYSTEMS ENGINEERING SEMINAR

Wednesday, April 11

3:15 PM – Refreshments before the seminar

3:30 PM – Graduate Seminar

Mechanical Engineering Room 4125 A & B



Price Distributions, Store Sequencing, and Opportunistic Shopping Behavior

Professor John H. Semple
Management Information Sciences
Cox School of Business
Southern Methodist University

Building on panel data that suggests buyers that split their grocery purchases overwhelming shop at just two stores per trip, we investigate the optimal sequence of store visits for items whose prices are unknown. Focusing solely on the costs store managers control—purchase costs—we find that the shape of the price distribution plays an influential but sometimes non-intuitive role in lowering expected costs for the buyer. For example, we find that skewness in the price distribution can play an important role in the sequencing decision, whereas symmetry can lead to customer indifference. Given a population of buyers that split their baskets, we then derive equilibrium price distributions for stores in a duopoly. Both discrete and continuous price distributions are considered. In general, we find the store sequence decision is an important factor in the profits obtained from opportunistic buyers. As loyal customers are introduced into the population, we show how the equilibrium price distributions change and approach what we often see in practice.

BIO: John Semple is The Charles Wyly Professor of Management Information Sciences and Chairman of the Information Technology and Operations Management Department in the Cox School of Business at Southern Methodist University. He holds a B.Sc. and M.Sc. in Mathematics from McGill University and a PhD in Management Science and Mathematics from The University of Texas at Austin. His research area involves mathematical modeling, broadly interpreted, as it applies to business problems. His work has appeared in Management Science, Operations Research, Marketing Science, Mathematical Programming, and JOTA, among others. He currently serves as a senior editor for POM.

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