EMPIRICAL MODELS IN MARKETING
(MKTG 956/957)

Spring 2017

Professor Eric T. Bradlow
The K.P. Chao Professor, Professor of Marketing, Statistics, Economics and Education

Marketing Department Small Conference Room: 757 JMHH
Friday 9am – 12:00pm

Objectives:

This seminar-based class is designed to introduce doctoral students to the fundamental empirical models and estimation methods utilized in quantitative academic marketing papers. That is, if this class is successful, you should know the basic purpose, data requirements, mathematical formulation, and equally important the jargon/verbiage, associated with a wide assortment of quantitative marketing models.

Outline of Each Class Session:

Each class session will have a similar structure. We will review two published papers (in some rare cases possibly three), consisting of a "classic marketing paper" that seminally introduced a concept/model to the literature, followed by a more recent updated version of the same concept. In this manner, students will become familiar with the tradition of marketing science, but also gain knowledge of "modern updates" to those papers. Given that only two papers are assigned for each week, a deep and detailed coverage of each paper, with detailed pre-reading on the students' part, is expected.

Course Materials and Website:

Copies of the papers sit on the course canvas site which can be accessed by logging into (https://wharton.instructure.com/login).

Grading:

Your grade in the course will consist of three parts.

(i) Each week, you are required to turn in <u>AT THE BEGINNING OF CLASS</u>, a no more than 5-page summary of the papers from that week. These short summaries will be graded based on your ability to: (i) concisely summarize the papers, (ii) provide a description of opportunities to extend these papers into novel research areas, (iii) your ability to raise critical questions about any aspect of the paper of your choosing, and (iv) most importantly, tie one or more of the papers to a problem that YOU ARE WORKING ON.

(ii) The reason that we are meeting as a class is for you to share your ideas with others. Come to class prepared to discuss both papers that are assigned.

(iii) As a final project, I will ask each of you to construct a no more than 30-minute presentation summarizing "Lecture N+1". That is, if there was one additional lecture, what would it be on? You pick the paper, or two papers, write up a summary of them (20 pages or less), and prepare a presentation on the topic.

Contact Information

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Course Outline

<u>Session</u>

1. **January 13th   Choice Models/Loyalty**

   <u>Paper 1</u>: Guadagni, P.M. and Little, J.D.C. (1983), "A Logit Model of Brand Choice Calibrated on Scanner Data", *Marketing Science*, Vol. 2, No. 3, pp 203-238.

   <u>Paper 2</u>: Dube, J-P, Hitsch, G, and Rossi, P.E. (2010), "State Dependence and Alternative Explanations for Consumer Inertia", *RAND Journal of Economics*, Bol. 41, No. 3, pp 417-445.

2. **January 20th   Conjoint Analysis**

   <u>Paper 1</u>: Green, P.E., Krieger, A.M., and Wind, Y. (2001), "Thirty Years of Conjoint Analysis: Reflections and Prospects", *INTERFACES* 31: 3, Part 2, pp. S56-S73.

   <u>Paper 2</u>: Marshall, P. and Bradlow, E.T. (2002), "A Unified Approach to Conjoint Analysis Models", *Journal of the American Statistical Association*, 97:459, pp. 674-682.

   <u>Paper 3</u>: Iyengar, R., Jedidi, K, and Kohli, R. (2008), "A Conjoint Approach to Multipart Pricing", *Journal of Marketing Research*, Vol. XLV, pp. 195-210.

3. **January 27th   Integrated Models for Multiple Outcomes/Product Categories**

   <u>Paper 1</u>: Chintagunta, P.K. (1993), "Investigating Purchase Incidence, Brand Choice and Purchase Quantity Decisions of Households, *Marketing Science*, Vol. 12, No. 2, pp. 184-208.

   <u>Paper 2</u>: Ma, Y., Seetharaman, P.B., and Narasimhan, C. (2012), "Modeling Dependencies in Brand Choice Outcomes Across Complementary Categories", Journal of Retailing, 88 (1, 2012, pp. 47-62.

4. **February 2nd (6:00-9:00pm)   Diffusion Models**

   <u>Paper 1</u>: Mahajan, V., Muller, E. and Bass, F.M. (1990), "New Product Diffusion Models in Marketing: A Review and Directions for Research", *The Journal of Marketing*, Vol. 54, No. 1, pp. 1-26.

   <u>Paper 2</u>: Van den Bulte, C. and Lilien, G.L. (1997), "Bias and Systematic Change in the Parameter Estimates of Macro-Level Diffusion Models", *Marketing Science*, Volume 16, Issue 4, pp. 338-353.

Paper 3: Van den Bulte, C. and Joshi, Y.V. (2007), "New Product Diffusion with Influentials and Imitators", *Marketing Science*, Vol. 26, No 3, pp. 400-421.

5. February 10th, ATTEND WHARTON MARKETING CAMP

6. February 15th   (6:00pm – 9:00pm) CLV/Attrition Models

Paper 1: Schmittlein, D.C., Morrison, D.G. and Colombo, R. (1987), "Counting Your Customers: Who Are They and What Will They Do Next?", *Management Science*, Vol. 33, No. 1, pp. 1-24.

Paper 2: Schweidel, D. A. and Knox, G. (2013), "Incorporating Direct Marketing Activity into Latent Attrition Models," *Marketing Science*, 32 (3), pp. 471-487.

7. February 24th   VARX Models

Paper 1: Dekimpe, M. and Hanssens, D.M. (1999), "Sustained Spending and Persistent Response: A New Look at Long-Term Marketing Profitability", *Journal of Marketing Research*, Vol. XXXVI, pp. 397-412.

Paper 2: Srinivasan, S., Vanhuele, M. and Pauwels, K. (2010), "Mind-Set metrics in Market Response Models: An Integrative Approach", *Journal of Marketing Research*, Vol. XLVII, pp. 672-684.

8. March 3rd   Learning Models

Paper 1: Erdem, T. and Keane, M.P. (1996), "Decision-Making under Uncertainty: Capturing Dynamic Brand Choice Processes in Turbulent Consumer Goods Markets", *Marketing Science*, Vol. 15, No. 1, pp. 1-20.

Paper 2: Erdem, T., Keane, M.P., and Sun, B. (2008), "A Dynamic Model of Brand Choice When Price and Advertising Signal Product Quality", *Marketing Science*, Vol. 27, No. 6, pp. 1111-1125.

9. March 10th   SPRING BREAK [NO CLASS]

10. March 17ᵗʰ   Heterogeneity

Paper 1: Rossi, P.E., McCulloch, R.E., and Allenby, G.M. (1996), "The Value of Purchase History Data in Target Marketing", *Marketing Science*, Vol. 15, No. 4, pp. 321-340.

Paper 2: Kim, J.G., Menzefricke, U, and Feinberg, F.M. (2004), "Assessing Heterogeneity in Discrete Choice Models Using a Dirichlet Process Prior", *Review of Marketing Science*, Vol. 2, Article 1.

11. March 24ᵗʰ   Hidden Markov Models

Paper 1: Netzer, O., Lattin, J.M., and Srinivasan, V. (2008), "A Hidden Markov Model of Customer Relationship Dynamics", *Marketing Science*, Vol. 27, No. 2, pp. 185-204.

Paper 2: Schweidel, D.A., Bradlow, E.T., and Fader, P.S. (2011), "Portfolio Dynamics for Customers of a Multiservice Provider", *Management Science*, Vol. 57, No. 3, pp. 471-486.

12. March 31ˢᵗ   Endogeneity

Paper 1: Villas-Boas, J.M. and Winer, R.S. (1999), "Endogeneity in Brand Choice Models", *Management Science*, Vol. 45, No. 10, pp. 1324-1338.

Paper 2: Manchanda, P., Rossi, P.E, and Chintagunta, P.K. (2004), "Response Modeling with Nonrandom Marketing-Mix Variables", *Journal of Marketing Research*, Vol. XLI, pp. 467-478.

Paper 3: Petrin, A. and Train, K. (2009), "A Control Function Approach to Endogeneity in Consumer Choice Models", *Journal of Marketing Research*, Volume XLVI.

13. April 7ᵗʰ   Choice Models with Aggregate Data

Paper 1: Berry, S., Levinsohn, and Pakes, A. (1995), "Automobile Prices in Market Equilibrium", *Econometrica*, Vol. 63, No. 4, pp. 841-890.

Paper 2: Nair, H., Dube, J-P, and Chintagunta, P, (2005), "Accounting for Primary and Secondary Demand Effects with Aggregate Data", *Marketing Science*, Vol. 24, No. 3, pp. 444-460.

14. April 14ᵗʰ and April 21ˢᵗ   Student Presentations of Lecture N+1