

PhD Course

Behavioral Management: Theory and Experiments

Block course: Tuesday, 6th – Friday 9th September 2016

Time: 9 a.m. – 6 p.m., room tba

Course Instructor: Professor Guido Voigt (UHH)

Course Value: 2 SWS or 4 LP

Teaching language: English (if only German-speakers: German), but slides in English

Course overview & contents:

The course discusses the basic steps of performing behavioral research that is inspired by normative, game-theoretic models. We start with discussing game theoretic pricing models that are frequently employed as building blocks in the marketing, supply chain management, and industrial organization literature. We identify assumptions that seem critical from a behavioral perspective and hypothesize what happens when these assumptions are lifted. We are then designing laboratory experiments that test these behavioral hypotheses. We discuss how to analyze the data from laboratory experiments with the statistical software package STATA (non-parametric tests, regression analysis incl. robust standard errors, random/fixed effects models). Students will analyze (already gathered) data and present their conclusions. Based on these insights, students will develop a behavioral model that accounts for behavioral phenomena such as fairness preferences and bounded rationality. We use maximum likelihood estimation (using the software R) to calibrate the behavioral parameters of the model.

Software:

Much of this course focuses on application of statistical methods using STATA, MATLAB or R.

Prerequisites:

- basic background in game theory and statistics
- solid programming skills (any programming language, e.g. VBA, will be sufficient)

Assessment:

Assessment will be based on active participation. Grading for students of University of Hamburg will be pass/fail.

Registration: lennart.johnsen@uni-hamburg.de (first come – first served)

Schedule (tentative):

Day	Topic	Suggested Readings	Suggested Assignments
Tuesday 06.09.2016	Game theoretic models & critical assumptions Laboratory Experiments	Spengler 1950 Katok 2011	Identify critical behavioral assumption in game theoretic model (article provided) Develop behavioral hypotheses Design and present laboratory experiment
Wednesday 07.09.2016	Statistical methods: non-parametric tests random and fixed effects regression	Baum 2006 Sheskin 2011	Analyze experimental data and present the results.
Thursday 08.09.2016	Fairness preferences & bounded rationality	Fehr and Schmidt 1999 Luce 2005 McKelvey and Palfrey 1995 Hartwig et al. 2015	Develop a behavioral model based on Spengler's double marginalization problem
Friday 09.09.2016	Maximum Likelihood estimation of behavioral parameters	Henningsen and Toomet 2011	Estimate behavioral parameters with R (or, if more convenient, MATLAB or Maple)

Recommended Texts:Statistical analysis

- Baum, C. F. 2006. An introduction to modern econometrics using Stata. Stata press
- Sheskin, D. J. 2011. Handbook of parametric and nonparametric statistical procedures. 5. ed. CRC Press.
- Henningsen, A., O. Toomet. 2010. maxLik: A package for maximum likelihood estimation in R. Computational Statistics 26(3) 443-458

Behavioral biases in contracting

- Lim, N., T. Ho. 2007. Designing price contracts for boundedly rational customers: Does the number of blocks matter? Marketing Science 26(3) 312-326
- Ho, T. H., J. Zhang. 2008. Designing pricing contracts for boundedly rational customers: Does the framing of the fixed fee matter? Management Science 54(4) 686-700.

Double marginalization:

- Spengler, J. J. 1950. Vertical Integration and Antitrust Policy. *Journal of Political Economy* 58(4) 347-352

How to design laboratory experiments

- Katok, E. 2012. Using laboratory experiments to build better operations management models. *Foundations and trends in technology, information and operations management* 5(1) 1-88
- Bendoly, E., K. Donohue, K. L. Schultz. 2006. Behavior in operations management: Assessing recent findings and revisiting old assumptions. *Journal of Operations Management* 24(6) 737-752

Bounded rationality & Fairness Preferences

- Luce, R. D. 2005. Individual choice behavior: A theoretical analysis. Courier Corporation.
- McKelvey, R. D., T. R. Palfrey. 1995. Quantal Response Equilibria for Normal Form Games. *Games and economic behavior* 10(1) 6-38
- Fehr, E., K. M. Schmidt. 1999. A Theory of Fairness, Competition, and Cooperation. *The Quarterly Journal of Economics* 114(3) 817-868.
- Katok, E., V. Pavlov. 2013. Fairness in supply chain contracts: A laboratory study. *Journal of Operations Management* 31(3) 129-137
- Hartwig, R., K. Inderfurth, A. Sadrieh, G. Voigt. 2015. Strategic Inventory and Supply Chain Behavior. *Production and Operations Management* 24(8) 1329-1345