

MATTHEW THOMAS BOGARD
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EDUCATION

M.S. Agriculture

Graduate Research Project Title: *An Econometric and Game Theoretic Analysis of Producer and Consumer Preferences Toward Biotechnology*
Western Kentucky University, Department of Agriculture (2005)
GPA: 4.0

B.A. Economics

Minor(s): Mathematics, Agriculture
Western Kentucky University, Gordon Ford College of Business (2002)
GPA: 3.8 *Summa Cum Laude*

KNOWLEDGE, SKILLS, AND ABILITIES

I have a quantitative and analytical background in the areas of applied economics and statistical genetics. I leverage my training with experience in machine learning and predictive modeling using SAS, R, and Python to solve problems. I can understand complex research and analysis and discuss the application with a scientist, sales representative, or the customer whose problem ultimately drives the analysis. I can code my own estimators, execute SQL queries, parse text files, and visualize a social network.

Certification: SAS ® *Certified Predictive Modeler Using SAS Enterprise Miner 6*

Graduate Work: Biostatistics, Experimental Design, Population Genetics, Plant Genetics, Applied Microeconomic Theory, Advanced Managerial Finance, Agricultural Finance, World Food Development

EXPERIENCE

Humana, Inc.

Bowling Green, KY

May 2015-Present

Research Scientist, Wellness Science and Analytics

Accomplishments: Developed and implemented strategies and research protocols for novel data integration and analysis of the effectiveness of Humana's suite of Wellness products. Provided thought leadership in the area of applied econometrics and quasi-experimental designs.

Responsibilities:

- Develop and maintain a suite of predictive analytics (descriptive, predictive, and experimental and quasi-experimental methods) to drive Humana's Wellness strategy and enhance the overall Wellness portfolio
- Work with large datasets and analyze high volume, high dimension data from a myriad of sources including enterprise, product specific, and partner data.
- Write technical briefs, white papers, and publish results in peer reviewed academic journals to drive thought leadership in the area of Wellness

Humana, Inc.

Bowling Green, KY

February 2014-May 2015

Clinical Guidance Metrician, Humana Wellness-Well Being Solutions

Accomplishments: Developed the first analytical solutions platform to strategically position our newly developed Well-Being product.

Responsibilities:

- Work with process managers, analysts, consultants, actuaries, and other leaders to develop customized analytic solutions that meet their business requirements and drive Humana's Well-Being strategy and operations
- Utilize advanced statistical analysis and modeling techniques including multivariable regression, quantile regression, simulation, power and sample size analysis, structural equation modeling, and exploratory data analysis

Western Kentucky University

Bowling Green, KY

August 2008-Dec 2016

Instructor, Department of Economics

- Taught the following courses: Principles of Macroeconomics, Statistics, Financial Data Modeling, and Managerial Economics

Western Kentucky University

Bowling Green, KY

July 2011-February 2014

Market Research Coordinator, Office of Institutional Research

Accomplishments: Developed a 'Moneyball' analytical modeling platform for strategic recruitment and retention.

Responsibilities:

- Use advanced analytics and reporting to inform strategic decision making related to recruitment, scholarships, admissions policies, and programs to improve educational outcomes and drive smart enrollment growth at Western Kentucky University
- Use SAS Enterprise Miner for the development and enterprise wide implementation and automation of predictive models including decision trees, neural networks, logistic regression, and ensemble models
- Use SAS for forecasting and time series analysis
- Write SAS macros to extend capabilities for data mining applications and improve efficiency
- Use SAS Text Miner to mine unstructured textual data to derive new variables as candidates for predictive models
- Develop SAS programs for creating data sets used for applied research, analytics, and ad hoc decision support reporting

Western Kentucky University

Bowling Green, KY

April 2008-July 2011

Market Research Coordinator, Enrollment Management

Accomplishments: Developed the first analytical and reporting framework for applications, admissions, and enrollment for WKU using SAS and R.

Responsibilities:

- Used SAS programming language and SAS Web Report Studio to create data sets and ad hoc reports for decision support for the Associate Vice President of Enrollment Management
- Used SAS programming language for predictive modeling, forecasting, and statistical analysis
- Used R programming language for data mining and predictive modeling using decision trees, neural networks, and support vector machines, as well as data visualization, spatial data analysis, and social network analysis
- Supported development of data warehousing and reporting framework to support all prospect, recruitment, applications, and admissions data requirements for the Vice President of Enrollment Management

CONSULTING PROJECTS

Project & Clients:

Peter W. B. Phillips July 2013
Principal Investigator for *Value Addition through Genomics and GE3LS (VALGEN)* Project
Professor of Public Policy, Johnson Shoyama Graduate School of Public Policy
University of Saskatchewan

Camille (Cami) D. Ryan, B.Comm., Ph.D.
Professional Research Associate
Departments of Plant Science & Bioresource Policy, Business & Economics
College of Agriculture
University of Saskatchewan

- Made recommendations regarding experimental design and statistical analysis related to research involving social network data

Prof. Jose Iparraguirre, Chief Economist, Age UK. April 2013

- Discussed the use of interrupted time series models in the analysis of policy implications of benefits changes for seniors in the UK.

The 7th Chamber, New York NY; London, U.K. August 2012-October 2012

- Made recommendations on the use of advanced analytics to optimize seeding strategies for viral marketing including decision trees, neural networks, social network analysis, and generalized method of moments estimators

Dr. Charles Smith, Western Kentucky University Libraries August 2010-March 2011

- Extracted data sets from via International Monetary Fund data bases
- Developed R code to merge large numbers of data sets stored in csv files into a single data base
- Implemented k-means clustering and data visualization in R

Body Surface Translations Athens, GA August 2008-April 2009

- Conducted exploratory analysis for the initial model supporting the underlying algorithm used in the development of the WeightReader™ device

PAPERS

“A Data Driven Analytic Strategy for Increasing Yield and Retention at Western Kentucky University Using SAS Enterprise BI and SAS Enterprise Miner.” Matt Bogard. Paper 044-2013. *SAS Global Forum 2013 Proceedings*. North Carolina; SAS® Institute. Available at: <http://support.sas.com/resources/papers/proceedings13/044-2013.pdf>

“Assessing the Success of the State Quarter Program as a Model of Collecting Behavior.” Catherine Carey and Matt Bogard. *Academy of Business Research Journal*. Volume 4. 2013.

“Analytics in Action: Using SAS® Enterprise Business Intelligence Server and SAS® Enterprise Miner to Reduce Student Attrition.” Matt Bogard, Chris James Tuesdi Helbig, Ph.D., Gina Huff. Paper 031-2012. *SAS Global Forum 2012 Proceedings*. North Carolina; SAS® Institute. Received Honorable Mention for Best Applied Business Intelligence Contributed Paper. Available at: <http://support.sas.com/resources/papers/proceedings12/031-2012.pdf>

POSTERS

“Getting to Goals: Understanding the Nature and Achievement of Health-Related Goals in Coaching.” Anne Wallace, PhD, Matt Bogard, MS, Varun Kukreja, MBA, Kevin Prybol, MS, Susan M Zbikowski, PhD. *Humana Society for Behavioral Medicine*. Washington, DC. April 1, 2016.

WORKING AND UNPUBLISHED PAPERS

“Evaluating the Impact of Advisement Contacts on Fall to Spring Retention Using Propensity Score Methods.” Matt Bogard. (2013) (working paper) Available at: http://works.bepress.com/matt_bogard/25

“The Right Time at the Right Place: An Intuitive Understanding of Referencing Time Dependent Covariates in Survival Models with PROC PHREG.” Matt Bogard. (2012). (working paper)

“An Introduction to Game Theory: Applications in Environmental Economics and Public Choice with Mathematical Appendix.” Matt Bogard. (2012)
Available at: http://works.bepress.com/matt_bogard/22

“Notes on Support Vector Machines.” Matt Bogard (2012) Available at: http://works.bepress.com/matt_bogard/20

“A Survival Analysis of GMO vs Non-GMO Corn Hybrid Persistence Using Simulated Time Dependent Covariates in SAS.” Matt Bogard (2012).
Available at: http://works.bepress.com/matt_bogard/19

“A Comparison of Empirical Models for Predicting Student Retention.” Matt Bogard, Tuesdi Helbig, Chris James, Gina Huff. August 2011. White Paper. Office of Institutional Research, Western Kentucky University. Available at: http://www.wku.edu/instres/documents/comparison_of_empirical_models.pdf

PRESENTATIONS

“A Data Driven Analytic Strategy for Increasing Yield and Retention.” Kentucky Association of Institutional Research Annual Convention. Louisville, KY. November 7, 2013. Available at: http://works.bepress.com/matt_bogard/28/

“A Guide to Quasi-Experimental Designs.” Kentucky Association of Institutional Research Annual Convention. Louisville, KY. November 7, 2013. Available at: http://works.bepress.com/matt_bogard/27/

“Enhanced Retention Through Decision Tree Risk Analysis.” Chief Academic Administrators Meeting. Tuesdi Helbig & Matt Bogard. WKU Office of Institutional Research. Frankfort, KY. January 11, 2013.

“Analysis to Action: A Closer Look at Retention Using Decision Tree Risk Analysis & Outreach.” Kentucky Council on Postsecondary Education Student Success Summit. Matt Bogard, Sharon Huner, and Tuesdi Helbig. WKU Office of Institutional Research and Enrollment Management. Louisville. KY. April 16, 2013.

“An Introduction to Social Network Analysis with Applications.” WKU Bioinformatics and Information Science Center Research Symposium. Jan 2012. Available at: http://works.bepress.com/matt_bogard/23

“The Economics of Water Utilization: Principles and Applications.” Guest lecturer for AGRI 315 *Water in Food Production*, October 2011.

“Empirical Methods: A Review with an Introduction to Data Mining and Machine Learning.” May 2011. Presented to the WKU Office of Institutional Research, 2011 Available at: http://works.bepress.com/matt_bogard/15

“Developing a Predictive Model of Student Retention.” Presented at the WKU Economics Department Workshop, 2009

“Career Related Applications of Economics in Enrollment Management.” Presented at the WKU Gordon Ford College of Business Major Fair, 2009.

“An Economic Approach to Climate Change.” Panel discussion participant for the Teach-In On Global Warming Solutions at Western Kentucky University, 2008.

“Teaching Hausman and Willig Using Mathematica.” Guest Lecture for Applied Microeconomic Theory course, Western Kentucky University, 2008 . Available at: http://works.bepress.com/matt_bogard/2

“The Economics of Water Utilization.” Presented as part of a WKU Department of Agriculture, Lecture Series related to water, 2006-2007.

“Power, Privilege, and Special Interests: Rent Seeking and Subsidies in Agriculture.” WKU Department of Agriculture Graduate Seminar, 2003. Available at: http://works.bepress.com/matt_bogard/4

“Student Perceptions of Genetically Modified Foods: An Empirical Investigation.” WKU Department of Agriculture Graduate Seminar, 2005.

“Budget Deficits and Monetary Policy.” WKU Department of Agriculture Graduate Seminar, 2004

“Using Marker Assisted Selection and Quantitative Trait Loci to Improve the Fatty Acid Profile of Soybeans.” Presented as part of completion of AGRO 414G Crop Improvement. Fall 2004.

“Externalities and Pollution.” WKU Department of Agriculture Graduate Seminar, 2003

“An Econometric Analysis of Propane Demand.” Presented at the Kentucky Economic Association Annual Meeting, 2002

ACTIVITIES AND ACHIEVEMENTS

Reviewer, *Decision Trees for Analytics Using SAS Enterprise Miner*. Barry de Ville and Padraic Neville, 2013

Interview, *The Convergence of Big Data and Genomics in Biotech*. Agritalk, Farm Journal Media. December 17, 2013.

Interview, *The Science and Economics of Genetically Modified Food Labeling Initiatives*. Agritalk, Farm Journal Media. April 4, 2013.

Honorable Mention, Best Contributed Paper for Applied Business Intelligence . SAS Global Forum, 2012

Reviewer, *Journal of Applied Economics and Policy*, 2010-2011

Western Kentucky University Bioinformatics and Information Science Center (BISC), Member 2010-present

Council of Economic Advisors, U.S. Senate Candidate, May 2009-November 2010

Western Kentucky University Libraries Staff Award for Outstanding Performance, 2006

Ramsey Award for Best Senior Paper in Economics, 2002