VITA
 9-13-2017

**L. ROBIN KELLER**

**BACKGROUND**

Address

 The Paul Merage School of Business (949) 824-6348 (Office)
 University of California, Irvine LRKELLER@uci.edu
 SB2 300 (Mail), SB2 327 (Office) http://[www.merage.uci.edu/go/Keller](http://www.merage.uci.edu/go/Keller)

Irvine, California 92697-3125 <http://faculty.sites.uci.edu/lrkeller/>

Education

 Ph.D. UCLA Anderson Graduate School of Management, September 1982

 Management Science major with specialization in decision analysis, Marketing minor field

 Committee Chairs: Dr. Rakesh Sarin and Dr. Moshe Rubinstein

 M.B.A. UCLA Anderson Graduate School of Management, June 1976, Management Science

 Major, Thesis: "Customer Needs of First Los Angeles Bank"

 B.A. UCLA, June 1974. Mathematics major

Professional

History

 PROFESSOR OF OPERATIONS AND DECISION TECHNOLOGIES

 The Paul Merage School of Business, University of California, Irvine

 Full professor from July 2001; Assistant Professor, 1982-89; Associate Professor, 1989-2001

 ADMINISTRATIVE ROLES AT UCI:

 UC Irvine Campus

 Council on Academic Personnel, 3 year term beginning Sept. 2016

 Executive Committee, Institute for Mathematical Behavioral Sciences, 1991-Dec. 2009

 IMBS Recruiting Committee, 2005-06; Affiliated Faculty Member

 John S. and Marilyn Long U.S.- China Institute for Business and Law, Affiliated Faculty

 Compliance Lab, UCI Law School, Affiliated Faculty, beginning summer 2016

 Graduate Council (oversees graduate programs), 4/92-6/93; Fall 2002-Spring 2004

 Chair, Campus Review Committee for UCI Dept. of Education, 2002-04

 Committee on Committees, 1995-96, 1999-2000, 2005-06

 Ad hoc Conflict of Interest Oversight Committee, 12/95-1997

 Conflict of Interest Task Force Committee, 1997-98

 Affiliated member of Center for Health Care Management and Policy (when founded in 2004)

 Affiliated Core Faculty Member, Institute of Transportation Studies, 2006-on

 Graduate Dean’s Dissertation Fellowship Review committee chair, Spring 2010

 UCI Greek Woman/Man of the Year Judge, January 2014

 Merage School of Business (formerly Graduate School of Management)

 Task Force on Teaching Equity & Excellence, Chair, 2016

 Member, Search Committee for Merage School Dean, 2013-14

 Recruiting Committee for Long Chair in Business/Law, 2011-13

 Associate Dean, Full-Time MBA program, 8-06 to 6-30-08

 Associate Dean for Research, 1992-93

 Director, Doctoral Program, 1985-86, 2009-2013

 Chair, Ph.D. Program committee; Oversee PhD Brown Bag Series

 Host Annual Welcome Lunch and Alumni Panel in Fall ’09-’12

 Host Annual Ph.D. Research Fest in Spring ’10-’13

 Recruit US diversity students: PhD Project Conference, November ’10, ’11,’12

 Ph.D. Committee, 2002

 Dean’s Faculty Advisory Committee, 2000-2001

 Faculty Board (Personnel and advises Dean), 1997-98

 Chair, Personnel (promotion and tenure) Committee, 1992-93; Member, 1991-92

 Executive Committee (advises Dean), 1994-95

 Masters Program Committee, 1996-98; chair, 2002-04, 05-06

 Chair, Task Force on AACSB Accreditation, 1998-99

 Chair, GSM Computing Committee, 1999-2000

 Voting Rules Task Force, Winter 2001

 Organizations and Strategy Recruiting Committee, 2002-03

 Economics Recruiting Committee, 2003-04

 MBA Focus Committee, 2004; Curriculum Innovation Committee, 2005-06

 Operations and Decision Technologies Area

 Area Coordinator, ’94-5, ’96-7, ’97-8, ’02-3, ’03-4, S ’09, S ’10, S ’11, F ’12, W’ 13

 ODT Recruiting Committee, ’01-02, ’03-04, ’04-05, ’09-10, ’11-’12, ’12-’13

 Colloquium Coordinator, most recently in 1991-92

 Chair, Irvine Conference on Operations Research & Operations Management in the

 Information Technology Era, 2000

 SABBATICAL, COURTESY, VISITING AND OTHER APPOINTMENTS:

 President-elect (2014), President (2015), Past-President (2016), INFORMS

 (Institute for Operations Research and the Management Sciences)

 Editor-in-Chief, *Decision Analysis,* January 2007-Dec. 2012, published by INFORMS

 United States National Academies Committee Memberships:

**Committee to Assess the Distribution and Administration of Potassium Iodide in the Event of a Nuclear Incident**, Board of Radiation Effects Research, Division of Earth and Life Studies, National Research Council of the National Academies, 2003-2004.

**U. S. National Committee for the International Institute for Applied Systems Analysis (IIASA),** Board on International Scientific Organizations; January 2007-December 2012 (2 terms). <http://sites.nationalacademies.org/PGA/biso/IIASA/index.htm>

 **Committee on Ranking FDA Product Categories Based on Health Consequences**,

Phases I & II, 2008-11. Under the [Board on Environmental Studies & Toxicology](http://dels.nas.edu/best/) in the [Studies under the IOM Executive Office](http://iom.edu/About-IOM/Leadership-Staff/Boards/Studies-under-the-IOM-Executive-Office.aspx), Institute of Medicine of the National Academies; the IOM is the health arm of the National Academy of Sciences.

**Results of Phase I, reported in a Letter report**, February 17, 2009

**Ranking FDA Product Categories Based on Health Consequences, Phase II**

Full book available online in May 2011.

 **National Research Council of the National Academies Expert Meeting**

 **Empowering the Miner: Gaps and Needs- A Meeting of Experts**

Served as an invited expert for this “think tank” meeting, held to discuss how decision science, particularly in risky situations, can help to inform miner safety. The National Institute for Occupational Safety and Health (NIOSH) - Office of Mine Safety and Health Research asked the National Research Council to put together this meeting of experts at the Beckman Center in Irvine, CA on Feb. 19-20, 2014.

**Committee for a Study of Performance-Based Safety Regulation,** Transportation Research

 Board, National Research Council of the National Academies,2/2/2016-8/31/2017

Many countries, including the United States, use forms of performance-based regulation to promote safety and reduce risk in high-hazard industries. The term “performance-based” is often used to refer to (a) standards that mandate outcomes and give firms flexibility in how to meet them, or (b) requirements for firms to use management systems consisting of internal plans and practices for promoting safety and reducing risk. Performance-based regulation is usually contrasted with “prescriptive” regulation – sometimes called specification, design, or technology standards – that requires firms to adopt specific means to promote safety and reduce risks. This study will compare the advantages and disadvantages of prescriptive- and performance-based forms of safety regulation and identify possible opportunities for, and constraints on, making greater use of the latter. The study will be informed by experiences of performance-based safety regulation in the U.S. and abroad and will make recommendations about the application of this regulatory approach in high-hazard industries, such as off-shore oil and gas, pipelines, and other modes of transportation. <https://www8.nationalacademies.org/cp/CommitteeView.aspx?key=49767>

 USC Appointed Scientific Advisory Committee member, Homeland Security Center for Risk and Economic Analysis of Terrorist Events (CREATE), June 2005-October 2010.

 UC Santa Cruz (Proposed) School of Management Academic Advisory Group, 2007-2010.

 UCLA Visiting Scholar John E. Anderson Graduate School of Management, Fall 1993-Winter 1994.

 NSF Program Director National Science Foundation, Washington, D.C.; Decision, Risk, and Management Science Program, August 1990 - July 1991; Associate Program Director, August 1989-July 1990. Managed review of grant proposals from a $3.23 million annual budget and provided direction for research in decision analysis, risk analysis, and management science.

 UCI Assistant Professor of Social Sciences, School of Social Sciences, 1987-89,

 courtesy joint appointment.

 Duke Visiting Assistant Research Professor The Fuqua School of Business, Spring 1987.

### PUBLICATIONS

# Research

Interests

Creative Problem Structuring, Cross-Cultural Decision Making, Fairness in Decision Making, Decision Analysis Theory and Applications, Medical Decision Making, Multiple Attribute Decision Making, Probability Judgments, Ambiguity of Probabilities or Outcomes, Risk Analysis for Terrorism, Environmental, Health, and Safety Risks, Time Preferences and Discounting, Utility Models, Models of Risk

# Journal

# Articles

1. L. Robin Keller, "The Effects of Problem Representation on the Sure-Thing and Substitution Principles," Management Science, Volume 31, No. 6, June 1985, pp. 738-751.
2. L. Robin Keller, "An Empirical Investigation of Relative Risk Aversion," IEEE Transactions on Systems, Man, and Cybernetics, Volume 15, No. 4, 1985, pp. 475-482.
3. L. Robin Keller, "Testing the 'Reduction of Compound Alternatives' Principle," OMEGA, The International Journal of Management Science, Volume 13, No. 4, July-August, 1985, pp. 349-358.
4. L. Robin Keller, Rakesh K. Sarin, and Martin Weber, "Empirical Investigation of Some Properties of the Perceived Riskiness of Gambles," Organizational Behavior and Human Decision Processes, Volume 38, August 1986, pp. 114-130.
5. L. Robin Keller and Rakesh K. Sarin, "Equity in Social Risk: Some Empirical Observations," Risk Analysis, Volume 8, No. 1, March 1988, pp. 135-146.
6. L. Robin Keller and Joanna Ho, "Decision Problem Structuring: Generating Options," IEEE Transactions on Systems, Man, and Cybernetics, Vol. 18, No. 5, September 1988, pp. 715-728.
7. Peter H. Farquhar and L. Robin Keller, "Preference Intensity Measurement," Annals of Operations Research, Vol. 19, 1989, pp. 205-217.
8. L. Robin Keller, "The Role of Generalized Utility Theories in Descriptive, Prescriptive, and Normative Decision Analysis," Information and Decision Technologies, Vol. 15, 1989, pp. 259-271.
9. L. Robin Keller, "Decision Research with Descriptive, Normative, and Prescriptive Purposes-Some Comments," Annals of Operations Research, Vol. 19, (volume on Choice Under Uncertainty edited by Peter Fishburn and Irving H. LaValle), 1989, pp. 485-487. Entire edited volume won 1991 Decision Analysis Publication Award from the ORSA Decision Analysis Special Interest Group.
10. Richard L. Daniels and L. Robin Keller, "An Experimental Evaluation of the Descriptive Validity of Lottery Dependent Utility Theory," Journal of Risk and Uncertainty, Vol. 3, 1990, pp. 115-134.
11. Richard L. Daniels and L. Robin Keller, "Choice-Based Assessment of Utility Functions," Organizational Behavior and Human Decision Processes, Vol. 52, 1992, pp. 524-543.
12. L. Robin Keller, Uzi Segal, and Tan Wang, "The Becker-de Groot-Marschak Mechanism and Generalized Utilized Theories: Theoretical Predictions and Empirical Observations," Theory and Decision, 34:83-97, 1993.
13. Stuart Eriksen and L. Robin Keller, "A Multi-Attribute Utility Approach to Weighing the Risks and Benefits of Pharmaceutical Agents,” Medical Decision Making, 1993; 13:118-125.
14. Joanna Ho and L. Robin Keller, "The Effect of Inference Order and Experience-Related Knowledge on Diagnostic Conjunction Probabilities," Organizational Behavior and Human Decision Processes, 1994; 59: 51-74.
15. L. Robin Keller and Rakesh K. Sarin, “Fair Processes for Societal Decisions Involving Distributional Inequalities,” Risk Analysis, Vol. 15, No. 1 (February 1995), pp. 49-59.
16. Lauraine G. Chestnut, L. Robin Keller, William E. Lambert, and Robert Rowe, "Measuring Heart Patients' Willingness to Pay for Changes in Angina Symptoms," Medical Decision Making, January-March, Vol. 16, 1996, pp. 65-77.
17. L. Robin Keller and Craig W. Kirkwood, “The Founding of INFORMS: A Decision Analysis Perspective," Operations Research, 47 (1), January-February 1999, 16-28.
18. Young-Hee Cho, L. Robin Keller, and M. Lynne Cooper, "Applying Decision-Making Approaches to Health Risk-Taking Behaviors: Progress and Remaining Challenges," Journal of Mathematical Psychology, 43(2), June 1999, 261-285.
19. Wen-Qiang Bian and L. Robin Keller, “Chinese and Americans Agree on What Is Fair, but Disagree on What Is Best in Societal Decisions Affecting Health and Safety Risks,” Risk Analysis, 19 (3), 1999, 433-446.
20. Wen-Qiang Bian and L. Robin Keller, "Patterns of Fairness Judgments in North America and the People's Republic of China," Journal of Consumer Psychology, 8 (3), 1999, 301-320.
21. Monika I. Winn and L. Robin Keller, “A Modeling Methodology for Multi-Objective Multi-Stakeholder Decisions: Implications for Research," Journal of Management Inquiry, Vol. 10, No. 2, June 2001, 166-181. Winner of the “Breaking the Frame Award” at Western Academy of Management meeting in March 2002 by the Journal of Management Inquiry for best paper of 2001.
22. L. Robin Keller and Elisabetta Strazzera, “Examining Predictive Accuracy Among Discounting Models,” Journal of Risk and Uncertainty, Vol. 24:2, 143-160, 2002.
23. Jeffery L. Guyse, L. Robin Keller and Thomas Eppel “Valuing Environmental Outcomes: Preferences for Constant or Improving Sequences,” recipient of finalist award in Decision Analysis Society of INFORMS Student Paper Competition. Organizational Behavior and Human Decision Processes, 87, No. 2, March 2002, 253-277.
24. Joanna L. Ho, L. Robin Keller, and Pam Keltyka, “Managers’ Variance Investigation Decisions: An Experimental Examination of Probabilistic and Outcome Ambiguity,” Journal of Behavioral Decision Making, 14, 257-278, 2001.
25. Joanna L. Ho, L. Robin Keller, and Pam Keltyka, “Effects of Outcome and Probabilistic Ambiguity on Managerial Choices,” Journal of Risk and Uncertainty, 24 (2002) 1: 47-74.
26. Joanna L. Ho, L. Robin Keller, and Pamela Keltyka, “How Do Information Ambiguity and Timing of Contextual Information Affect Managers’ Goal Congruence in Making Investment Decisions in Good Times vs. Bad Times?” Journal of Risk and Uncertainty, 31 (Sept. 2005) 2: 163-186.
27. S. David Brazer and L. Robin Keller, "A Conceptual Framework for Multiple Stakeholder Educational Decision Making,” International Journal of Education Policy and Leadership, 1(3) 1-14. September 18, 2006, retrieved from http://www.ijepl.org. (As of 1-24-07, the article had been downloaded more than any other in this journal, new at the time (1,056 times). The next closest paper was 802 downloads.)
28. Tianjun Feng and L. Robin Keller, “A Multiple-Objective Decision Analysis for Terrorism Protection: Potassium Iodide Distribution in Nuclear Incidents,” Decision Analysis, (June 2006), 3 (2): 76-93, <http://da.journal.informs.org/content/3/2/76.abstract>.
29. L. Robin Keller, Rakesh K. Sarin, Jayavel Sounderpandian, “An Examination of Ambiguity Aversion: Are Two Heads Better Than One?” Judgment and Decision Making, (Dec. 2007) 2(5), 390-397. (Appeared in Dec. 2007, vol. 2, issue 6, but header on paper says issue 5.) Accepted 12-2007. Available online: <http://journal.sjdm.org/vol2.6.htm>. Earlier title of working paper with some data not included in final published version: <http://repositories.cdlib.org/anderson/dotm/kell001>. “An Examination of Ambiguity Aversion in Decisions Made by Dyads,” Working Paper kell001, UCLA Decisions, Operations, and Technology Management.
30. Tianjun Feng, L. Robin Keller, Xiaona Zheng. 2008. “Modeling Multi-Objective Multi-Stakeholder Decisions: A Case-Exercise Approach,” INFORMS Transactions on Education (online journal: <http://ite.pubs.informs.org/>). 8(3) 103-114, at [http://dx.doi.org/10.1287/ited.1080.0012](http://dx.doi.org/10.1287/ited.1080.0012%20) .
31. L. Robin Keller, Craig W. Kirkwood (Arizona State University), and Nancy S. Jones, (Baltimore Metropolitan Council). 2010. “Assessing Stakeholder Evaluation Concerns: An Application to the Central Arizona Water Resources System,” Systems Engineering. 13(1), 58-71. (Accepted on 8/20/08. DOI 10.1002/sys.20132. Published online in advance of printing on Wiley InterScience [www.interscience.wiley.com](http://www.interscience.wiley.com))
32. Tianjun Feng L. Robin Keller, Xiaona Zheng (Associate Professor at Peking University and former Merage PhD student), 2011, “Decision Making in the Newsvendor Problem: A Cross-national Laboratory Study,” OMEGA, The International Journal of Management Science. 39(1) 41-50. (Accepted on 2/17/10, submitted 5/17/09. Online publication in advance of print: 2/22/10. <http://dx.doi.org/10.1016/j.omega.2010.02.003>)

33. Tianjun Feng, L. Robin Keller, Liangyan Wang (UCI Merage PhD alumna, associate professor at Shanghai Jiao Tong University), and Yitong Wang. October 2010. “Product Quality Risk Perceptions and Decisions: Contaminated Pet Food and Lead-Painted Toys,” Risk Analysis, 30(10) 1572–1589 <http://onlinelibrary.wiley.com/doi/10.1111/j.1539-6924.2010.01459.x/abstract> (Accepted 5/5/10, appeared online prior to print. 0272-4332/10/0100-0001).

34. James M. Leonhardt (Marketing PhD student at the time, now Assistant Professor, Univ. Nevada, Reno), L. Robin Keller and Cornelia Pechmann.October 2011. “Avoiding the Risk of Responsibility by Seeking Uncertainty: Responsibility Aversion and Preference for Indirect Agency When Choosing for Others,” Journal of Consumer Psychology*,* 21(4)405-413.Accepted 1-28-11, [doi:10.1016/j.jcps.2011.01.001](http://dx.doi.org/10.1016/j.jcps.2011.01.001). <http://www.sciencedirect.com/science/article/pii/S1057740811000155> Working paper version: Available at SSRN: [http://ssrn.com/abstract=2015956](http://ssrn.com/abstract%3D2015956). Leonhardt received a finalist award in the 2013 Decision Analysis Society of INFORMS Student Paper competition for this paper.

Uncertainty-seeking behavior is currently understood as the result of loss aversion which motivates a preference for the possibility to avoid or lessen an otherwise sure loss. However, when choosing among negative options on behalf of others, we offer responsibility aversion as another possible motive for uncertainty-seeking behavior. Within our conceptual model, responsibility aversion is defined as the preference to minimize one’s causal role in outcome generation. Compared to certain options, uncertain options lessen the decision maker’s causal role in outcome generation because the outcomes are partially determined by chance. The presence of chance increases indirect agency on behalf of the decision maker and lessens his or her perceived risk of responsibility. The results of five studies support a responsibility aversion motivation behind uncertainty-seeking behavior.

35. Dipayan Biswas (UCI Merage PhD alumnus, Bentley College at the time, now Associate Professor, University of South Florida), L. Robin Keller, Bidisha Burman (Appalachian State). April 2012. “Making probability judgments of future product failures: The role of mental unpacking,” Journal of Consumer Psychology, 22(2) 237-248. Accepted 3-9-11, [doi:10.1016/j.jcps.2011.03.002](http://dx.doi.org/10.1016/j.jcps.2011.03.002), *Available online 27 April 2011.*

<http://www.sciencedirect.com/science/article/pii/S1057740811000283>.

When consumers mentally unpack (i.e., imagine) the reasons for product failure, their probability judgments of future product failures are higher than when no mental unpacking is undertaken. However, increasing the level of mental unpacking does not lead to monotonically increasing effects on probability judgments but results in inverted U-shaped relationships. Using a two-factor structure, we propose that when consumers undertake mental unpacking, there will be two conflicting processes; while imagining causes for an event will lead to greater perceived probability, the greater difficulty in generating reasons for an event will lead to lower perceived probability.

36. Yitong Wang (UCI Merage doctoral alumnus, Assistant Professor, Tsinghua University when accepted, now a Lecturer (i.e., assistant professor), University of Technology, Sydney), Tianjun Feng, L. Robin Keller. December 2013. “A Further Exploration of the Uncertainty Effect,” Journal of Risk and Uncertainty*,* 47(3) 291-310, accepted 1-25-2013.(Request print copy from author [http://link.springer.com/article/10.1007%2Fs11166-013-9180-x](http://link.springer.com/article/10.1007/s11166-013-9180-x), only working paper version can be posted online.). Published on 11-24-13 in 'Online First' on SpringerLink.

Individual valuation of a binary lottery at values less than the lottery’s worst outcome has been designated as the “uncertainty effect”.  Our paper aims to explore the boundary conditions of the uncertainty effect by investigating a plausible underlying process and proposing two possible methods.   First, we examine how providing an exogenous evaluation opportunity prior to judging the value of the lottery affects individuals’ judgments, and find that first valuing the worst outcome and then the lottery eliminates the uncertainty effect.  Second, we explore if introducing additional cognitive load dampens how far decision makers correct their initial evaluations, and find that additional cognitive load is able to eliminate the uncertainty effect.

37. Tianjun Feng (UCI Merage doctoral alumnus, Associate Professor at Fudan University), L. Robin Keller, Ping Wu (Fudan University), Yifan Xu (Fudan University). 2014. “[An Empirical Study of the Toxic Capsule Crisis in China: Risk Perceptions and Behavioral Responses](http://faculty.sites.uci.edu/lrkeller/files/2011/03/Capsule-R2-accepted.doc),” 34(4) 698-710, Risk Analysis, accepted 6-18-2013, online in early view on 7-16-13, doi: 10.1111/risa.12099, [http://onlinelibrary.wiley.com/doi/10.1111/risa.12099/abstract.](http://onlinelibrary.wiley.com/doi/10.1111/risa.12099/abstract) (Request print copy from author, only working paper version can be posted online 6 months after print.)

The outbreak of the toxic capsule crisis during April 2012 aroused widespread public concern about the risk of chromium-contaminated capsules and drug safety in China. In this paper, we develop a conceptual model to investigate risk perceptions of the pharmaceutical drug capsules and behavioral responses to the toxic capsule crisis and the relationship between associated factors and these two variables. An online survey was conducted to test the model, including questions on the measures of perceived efficacy of the countermeasures, trust in the State FDA (Food and Drug Administration), trust in the pharmaceutical companies, trust in the pharmaceutical capsule producers, risk perception, concern, need for information, information seeking, and risk avoidance. In general, participants reported higher levels of risk perception, concern, and risk avoidance, and lower levels of trust in the three different stakeholders. The results from the structural equation modeling procedure suggest that perceived efficacy of the countermeasures is a predictor of each of the three trust variables; however, only trust in the State FDA has a dampening impact on risk perception. Both risk perception and information seeking are significant determinants of risk avoidance. Risk perception is also positively related to concern. Information seeking is positively related to both concern and need for information. The theoretical and policy implications are also discussed.

38. Jay Simon (Merage doctoral alumnus, Assistant Professor, at time of publication at Defense Resources Management Institute, Naval Postgraduate School, now American University, Wash. DC), Craig W. Kirkwood, (W. P. Carey School of Business, Arizona State University), L. Robin Keller. Jan.-Feb. 2014. “Decision Analysis with Geographically Varying Outcomes: Preference Models and Illustrative Applications,” Operations Research, 62(1) 182-194. Online in *Articles in Advance* on Dec. 16, 2013. <http://pubsonline.informs.org/doi/abs/10.1287/opre.2013.1217>. *Supplement:*

[*http://pubsonline.informs.org/doi/suppl/10.1287/opre.2013.1217/suppl\_file/opre.2013.1217-sm.pdf*](http://pubsonline.informs.org/doi/suppl/10.1287/opre.2013.1217/suppl_file/opre.2013.1217-sm.pdf)

This paper presents decision analysis methodology for decisions based on data from geographic information systems. The consequences of a decision alternative are modeled as distributions of outcomes across a geographic region. We discuss conditions which may conform with the decision maker’s preferences over a specified set of alternatives; then we present specific forms for value or utility functions that are implied by these conditions. Decisions in which there is certainty about the consequences resulting from each alternative are considered first; then probabilistic uncertainty about the consequences is included as an extension. The methodology is applied to two hypothetical urban planning decisions involving water use and temperature reduction in regional urban development, and fire coverage across a city. These examples illustrate the applicability of the approach and the insights that can be gained from using it.

39. Lindsey E. Minion, MD (Univ. of Arizona Cancer Center & Creighton University at St. Joseph’s Hospital and Medical Center, Phoenix); Jiaru Bai (Merage doctoral student); Bradley J. Monk, MD (Gynecologic Oncology, UCI); L. Robin Keller, PhD; Ramez N. Eskander, MD (Gynecologic Oncology, UCI); Gareth K. Forde, MD, PhD, MBA (Gynecologic Oncology, UCI); John K. Chan, MD (California Pacific Palo Alto Medical Foundation, Sutter Cancer Institute, San Francisco), Krishnansu S. Tewari (Gynecologic Oncology, UCI), “A Markov Model to Evaluate Cost-Effectiveness of Antiangiogenesis Therapy Using Bevacizumab in Advanced Cervical Cancer,” Gynecologic Oncology, 137 (3), June 2015, 490-496. Accepted 2-28-2015. Available online on 10 March 2015. [http://www.sciencedirect.com/science/article/pii/S0090825815006769#](http://www.sciencedirect.com/science/article/pii/S0090825815006769).

Objective: To evaluate the cost-effectiveness of bevacizumab in recurrent/persistent and metastatic cervical cancer using recently reported updated survival and toxicology data.

Methods: A Markov decision tree based on the Gynecologic Oncology Group 240 randomized trial was created. The 2013 MediCare Services Drug Payment Table and Physician Fee Schedule provided costs. In the 5-year model subjects transitioned through the following states: response, progression, minor complications, severe complications, death. Patients experiencing a health utility per month according to treatment effectiveness were calculated. Because cervical cancer survival is measured in months rather than years, results were reported in both quality adjusted cervical cancer life months and years (QALmonth, QALY), adjusted from a baseline of having advanced cervical cancer during a month.
 Results: The estimated total cost of therapy with bevacizumab is approximately 13.2 times that for chemotherapy alone, adding $73,791 per 3.5 months (0.29 year) of life gained, resulting in an incremental cost-effectiveness ratio (ICER) of $21,083 per month of added life. The ICER increased to $5,775 per month of added life and $24,597/QALmonth ($295,164/QALY) due to the smaller difference in QALmonths. With 75% bevacizumab cost reduction, the ICER is $6,737/QALmonth ($80,844/ QALY), which translates to $23,580 for the 3.5 month (0.29 year) gain in OS.
 Conclusions: Increased cost is primarily related to the cost of drug and not the management of bevacizumab-induced complications. Cost reductions in bevacizumab result in dramatic declines in the ICER, suggesting that cost reconciliation in advanced cervical cancer may be possible through the availability of biosimilars, and/or less expensive, equally efficacious anti-angiogenesis agents.

Erratum: In the transitions probability Table 2, the probability of going from “severe complications” to “progress” in one month is 0.9 (not 0), and the probability of going from “severe complications” to “die” is 0 (not 0.9), for both treatment options.

40. Yitong Wang (University Technology Sydney lecturer, i.e., asst. prof.), Liangyan Wang (Shanghai Jiao Tong University assoc. prof. and Merage PhD alumna), L. Robin Keller, “Discounting over Subjective Time: Subjective Time Perception Helps Explain Multiple Discounted Utility Anomalies,” International Journal of Research in Marketing, 32 (2015), pp. 445–448, <http://dx.doi.org/10.1016/j.ijresmar.2015.08.006>. Final version published online: 30-NOV-2015. Accepted in August 2015.

Consumers often face choices involving intertemporal tradeoffs. Existing research suggests that decision makers in general do not obey discounted utility theory because their discount rates are context dependent. Recent literature incorporates decision makers’ subjective perception of time into the classic discounted utility model and finds relatively constant discount rates over subjective time. In addition to replicating previous work, we investigated the missing component – the magnitude effect, provided a holistic view via a more comprehensive experiment including multiple anomalies, and found that subjective time perception was able to explain most of the anomalies simultaneously in a single scenario.

41. Baozhou Lu (School of Economics & Management, China University of Petroleum (UPC)), Tao Zhang (Shanghai Jiao Tong Ph.D. student & UPC), Liangyan Wang (Merage Ph.D. alumna, Assoc. Prof. Shanghai Jiao Tong), L. Robin Keller, “Trust Antecedents, Trust and Online Microsourcing Adoption: An Empirical Study from the Resource Perspective,” Decision Support Systems, 85 (May 2016) pp. 104–114, accepted March 2016.

 <http://www.sciencedirect.com/science/article/pii/S0167923616300288>.

The online microsourcing marketplace is a new form of outsourcing that is organized over online platforms for the performance of relatively small service tasks. Microsourcing offers a more flexible way to hire contract workers or to outsource. Prior research indicates the importance of individual-level trust when choosing providers in online sourcing marketplaces. We argue that institution-based trust is also crucial for online microsourcing adoptions. Drawing on a trust framework adapted from prior literature, this paper uncovers the trust-building mechanisms in online microsourcing marketplaces, as well as the marketplace-related attributes for online microsourcing adoption. The proposed research model is tested with a data set collected from the clients of a typical marketplace in China – zhubajie.com. The findings suggest that perceptions of resource-based attributes of a marketplace, together with the perceived effectiveness of its intermediary role, can help to build trust towards the marketplace, enhancing trust towards the community of providers and driving the intent to adopt online microsourcing. Thus, this paper confirms the roles of online marketplaces as both the resource pool and the transaction intermediary from the perspective of clients. Finally, this paper not only indicates the relevance of resource theories in understanding this new trend in outsourcing, but also suggests the importance of trusted relational governance in governing online microsourcing transactions.

42. Liangyan Wang (Merage alumna and Associate Professor of Marketing, Antai Management School, Shanghai Jiao Tong University), Shijian Wang (just graduated student of marketing), L. Robin Keller, Jie Li (Assoc. Prof. of Market., Shanghai Jiao Tong Antai Mgt Sch.), “Thinking Styles Affect Reactions to Brand Crisis Apologies,” European Journal of Marketing, 50(Issue 7/8), Sept. 2016, pp. 1263-1289. abstract: <http://www.emeraldinsight.com/doi/abs/10.1108/EJM-07-2014-0457>, accepted in March 2016.

 Permanent link: <http://dx.doi.org/10.1108/EJM-07-2014-0457>.

Purpose – This article examines how a person’s thinking style, specifically holistic versus analytic, and a firm’s crisis apology with the remedial solution framed in “why” (vs. “how”) terms can interactively impact consumers’ perceived efficacy of the firm to respond to the crisis and their impression or evaluation of the brand.

Design/methodology/approach – Hypotheses were tested through three experimental studies involving 308 participants recruited in China. Participants answered survey questions investigating the interactive effects from consumers’ thinking style (culture as a proxy in study 1, measured in study 2 or primed in study 3) and a brand’s crisis apology with the remedial solution framed in “why” (vs. “how”) terms on consumers’ perceived efficacy and evaluation of the firm.

Findings –The frame of the remedial solution resulting in a higher evaluation improvement depended on a consumer’s thinking style. For holistic thinkers, a “why” (vs. “how”) framed remedial solution resulted in a higher evaluation improvement; however, for analytic thinkers, a “how” (vs. “why”) framed remedial solution resulted in a higher evaluation improvement. Additionally, the results showed that a consumer’s perceived efficacy of the brand being able to successfully respond to the crisis mediated the interactive effects of the remedial solution framing and thinking styles on the evaluation improvement.

Research limitations/implications – Different ways of framing the remedial solution in a firm’s apology will have different impacts on people with different thinking styles. Participants in studies 2 and 3 were recruited from samples on campus in China. Additionally, the automobile brand used in this study is fictional to avoid prior brand name or brand commitment impact.

Practical implications – Our findings provide evidence that framing of the remedial solution can be leveraged as a tool to reduce negative impact resulting from a brand crisis. Specifically, our results suggest that companies may do well to employ a “why” framed remedial solution, particularly in cases where consumers are likely to process information holistically. Conversely, a “how” framed remedial solution may be effective in situations where consumers are likely to process information analytically.

Originality/value – This research contributes to the literature, being among the first to consider how the remedial solution framing in a firm’s apology can enhance people’s evaluation of the brand and decrease the perceived negative impact resulting from the brand crisis.

This research was funded by the National Natural Science Foundation of China Grant (71072059) and Shanghai Shuguang Program Grant (13SG16) to Liangyan Wang.

43. Jiaru Bai (Merage PhD student), Cristina del Campo **(**Universidad Complutense de Madridand UCI visitor in 2016), L. Robin Keller, “Markov Chain Models in Practice: A Review of Low Cost Software Options,” Publication in English, Spanish version also available: “Modelos de Cadenas de Markov en la Práctica: Una Revisión de Opciones de Software de Bajo Coste,” Investigación Operacional, 2017, Volume 38 (Issue 1), pp. 56-62, accepted May 30, 2016.
<http://rev-inv-ope.univ-paris1.fr/spip.php?article64>.

This paper was written in Spanish (and English) to facilitate communication with Spanish-speaking scholars in Cuba and elsewhere, who aim to conduct Markov cost effectiveness analyses and would benefit from low cost software alternatives. The working paper is in English and Spanish versions: [investigacion\_operacional\_2016\_06\_28\_Bai\_delCampo\_Keller\_English](http://faculty.sites.uci.edu/lrkeller/files/2016/06/investigacion_operacional_2016_06_28_Bai_delCampo_Keller_English.pdf),
[investigacion\_operacional\_2016\_Bai\_delCampo\_Keller](http://faculty.sites.uci.edu/lrkeller/files/2016/06/investigacion_operacional_2016_Bai_delCampo_Keller.pdf)

Markov processes (or Markov chains) are used for modeling a phenomenon in which changes over time of a random variable comprise a sequence of values in the future, each of which depends only on the immediately preceding state, not on other past states. A Markov process (PM) is completely characterized by specifying the finite set S of possible states and the stationary probabilities (i.e. time-invariant) of transition between these states. The software most used in medical applications is produced by TreeAge, since it offers many advantages to the user. But, the cost of the TreeAge software is relatively high. Therefore in this article two software alternatives are presented: Sto Tree and the zero cost add-in program "markovchain" implemented in R. An example of a cost-effectiveness analysis of two possible treatments for advanced cervical cancer, previously conducted with the Treeage software, is re-analyzed with these two low cost software packages.

44. L. Robin Keller and Yitong Wang (Merage doctoral alumnus) “Information Presentation in Decision and Risk Analysis: Answered, Partly Answered, and Unanswered Questions,” 2017, Risk Analysis, *37(6): 1132–1145,* accepted August 7, 2016.

Appeared online in early view prior to print: [Information Presentation in Decision and Risk Analysis: Answered, Partly Answered, and Unanswered Questions](http://onlinelibrary.wiley.com/doi/10.1111/risa.12697/full), Version of Record online: 21 SEP 2016 | DOI: 10.1111/risa.12697

[Abstract](http://onlinelibrary.wiley.com/doi/10.1111/risa.12697/abstract) [Article](http://onlinelibrary.wiley.com/doi/10.1111/risa.12697/full) [PDF(120K) References](http://onlinelibrary.wiley.com/doi/10.1111/risa.12697/full?scrollTo=references)

For the last thirty years, researchers in risk analysis, decision analysis, and economics have consistently proven that decision makers employ different processes for evaluating and combining anticipated and actual losses, gains, delays and surprises. While rational models generally prescribe a consistent response, people’s heuristic processes will sometimes lead them to be inconsistent in the way they respond to information presented in theoretically equivalent ways. We point out several promising future research directions by listing and detailing a series of answered, partly answered, and unanswered questions.

45. Luping Sun, Xiaona Zheng, Meng Su, L. Robin Keller (2017), "Intention-Behavior Discrepancy of Foreign versus Domestic Brands in Emerging Markets: The Relevance of Consumer Prior Knowledge," Journal of International Marketing, published by the American Marketing Association, Vol. 25, No. 1, pp. 91-109, accepted October 20, 2016. **doi:** <http://dx.doi.org/10.1509/jim.15.0123>.

Most research on the performance of foreign versus domestic brands in emerging markets examines measures of product evaluation or purchase intention. However, consumers intending to buy a product may switch to competing brands, displaying an intention-behavior discrepancy (IBD). Drawing upon literature on country associations and dual process theory, we examine the difference in IBD of foreign versus domestic brands in emerging markets and the moderating role of prior knowledge. We conducted an intention survey followed by a post-purchase survey in the Chinese automobile and smartphone industries. We found that foreign brands have an advantage on IBD relative to domestic brands, indicating that they have the dual advantage of higher evaluations and lower IBDs. Furthermore, foreign brands’ advantage on IBD is smaller for consumers with inaccurate prior knowledge, as they are more likely to systematically reprocess information and discount foreign brands’ favorable country associations. For these consumers, overestimating the product reduces foreign brands’ advantage to a smaller degree than underestimating it due to confirmation bias. These findings provide implications for brands in emerging markets.

46. L. Robin Keller, Jay Simon (Merage PhD alumnus), print version forthcoming, “Preference Functions for Spatial Risk Analysis”, Risk Analysis, accepted 7-31-17.Version of Record online: 7 SEP 2017 | DOI: 10.1111/risa.12892. Appeared online in early view prior to print:

 [http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1539-6924/earlyview](http://onlinelibrary.wiley.com/journal/10.1111/%28ISSN%291539-6924/earlyview)
[Abstract](http://onlinelibrary.wiley.com/doi/10.1111/risa.12892/abstract) [Article](http://onlinelibrary.wiley.com/doi/10.1111/risa.12892/full) [PDF(1822K)](http://onlinelibrary.wiley.com/doi/10.1111/risa.12892/epdf)

When outcomes are deﬁned over a geographic region, measures of spatial risk regarding these outcomes can be more complex than traditional measures of risk. One of the main challenges is the need for a cardinal preference function that incorporates the spatial nature of the outcomes. We explore preference conditions that will yield the existence of spatial measurable value and utility functions, and discuss their application to spatial risk analysis. We also present a simple example on household freshwater usage across regions to demonstrate how such functions can be assessed and applied.

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115. Candice H. Huynh, Jay Simon, L. Robin Keller. February 2016. “Decision Technologies,” Invited chapter 32 in volume II, (pages 903-923). in Wiley-Blackwell Handbook of Judgment and Decision Making- 2 Volume Set*,*  eds. Gideon Keren and George Wu. Malden (MA): Blackwell. Submitted 1/2013, Refereed. (Accepted June 2014; contact authors for a copy of the working paper.) ISBN: 978-1-118-46839-5. <http://www.wiley.com/WileyCDA/WileyTitle/productCd-1118468392.html>

114. Jay Simon, Yitong Wang, and L. Robin Keller. Copyright 2010, Online June 25, 2010; January 2011 in print. “Paradoxes and Violations of Normative Decision Theory,” in James J. Cochran, Louis Anthony Cox, Jr., Pinar Keskinocak, Jeffrey P. Kharoufeh, and J. Cole Smith (eds.), Wiley Encyclopedia of Operations Research and Management Science, Hoboken (NJ): Wiley. [[Chapter PDF](http://faculty.sites.uci.edu/lrkeller/files/2011/06/Paradoxes-and-violations-of-normative-decision-theory.pdf) link] (7 pages). <http://onlinelibrary.wiley.com/doi/10.1002/9780470400531.eorms0636/full> (Invited and refereed. Accepted 10/12/2009, submitted 3/2009. Proofs completed 3/16/2010. DA section, Topical editor Ali Abbas invited this submission.)

113. L. Robin Keller, Tianjun Feng, and Yitong Wang. Copyright 2010, Online January 14, 2011, January 2011 in print. “Fairness and Equity in Societal Decision Analysis,” in JJ Cochran et al. (eds.), Wiley Encyclopedia of Operations Research and Management Science, Hoboken (NJ): Wiley. [[Chapter PDF](http://faculty.sites.uci.edu/lrkeller/files/2011/06/FAIRNESS-AND-EQUITY-IN-Societal-decision-analysis.pdf) link] (9 pages). <http://onlinelibrary.wiley.com/doi/10.1002/9780470400531.eorms0317/full> (Invited and refereed. Accepted 4/29/10, submitted 2/22/10. Proofs completed 7/12/10, DA section, Topical editor Ali Abbas invited this submission.)

112. Yitong Wang, L. Robin Keller, and Jay Simon. Copyright 2010. Online January 14, 2011, January 2011 in print. “Descriptive Models of Perceived Risk,”in JJ Cochran et al. (eds.), Wiley Encyclopedia of Operations Research and Management Science, Hoboken (NJ): Wiley. [[Chapter PDF](http://faculty.sites.uci.edu/lrkeller/files/2011/06/Descriptive-models-of-perceived-risk.pdf) link] (9 pages) <http://onlinelibrary.wiley.com/doi/10.1002/9780470400531.eorms0250/full> (Invited and refereed. Accepted. 5-3-10, submitted 8-31-2009. Proofs completed 7-2-10. Risk analysis section, Topical editor Vicki Bier invited this submission.)

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104. L. Robin Keller. 1992. "Properties of Utility Theories and Related Empirical Phenomena," in Ward Edwards (ed.), Utility Theories: Measurements and Applications, Kluwer (hardback), pp. 3-23. (Also in paperback, 1993, Kluwer.)

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100. Moshe F. Rubinstein, L. Robin Keller, and Edward A. Kazmarek. 1980. "Patterns of Problem Solving: A Campus wide Course at UCLA," in James Lubkin, ed., The Teaching of Elementary Problem Solving in Engineering and Related Fields, American Society for Engineering Education, One Dupont Circle, Suite 400, Washington, D.C., pp. 11-20.

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1. Tianjun Feng,Nancy S. Jones (ASU), Lowell Kessel, Jay Simon, L. Robin Keller and Craig Kirkwood (ASU), “Survey of Key Stakeholder Evaluation Concerns and Tradeoffs for Central Arizona Water Resource Planning: Methods and Results,” Technical Report, July 5, 2007, <http://faculty.sites.uci.edu/lrkeller/files/2013/08/Keller-204.pdf>. Decision Center for a Desert City, Global Institute of Sustainability, Arizona State University, P.O. Box 878209, Tempe, AZ 85287-8209.

This technical report contains a summary of the methods and a compendium of survey responses and analysis results for a web-based survey of Central Arizona water experts that addressed water planning factors and important forthcoming water management decisions and policy recommendations. The experts were asked for their priorities among approximately thirty specific concerns within the seven categories of: Central Arizona socio-economic impacts, financial and technical requirements, health and safety, impacts on the natural/biophysical environment, indirect/external impacts, political impacts & governance, and sufficiency of water supplies. Responses were obtained from experts in policy, planning, engineering, hydrology, and other fields within governmental, private sector, and interest group organizations. The results show areas of agreement and disagreement among stakeholders, as well as some priorities that may have implications for the role of the Decision Center for a Desert City.

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Book is authored by the “Committee”

DAVID J. TOLLERUD, *Chair,* University of Louisville

DAVID V. BECKER, New York Presbyterian Hospital-Weill Cornell Medical College

LEWIS E. BRAVERMAN, Boston University School of Medicine

L. ROBIN KELLER, University of California, Irvine

KAREN S. LANGLEY, University of Utah

TIMOTHY J. MAHER, Mass. College of Pharmacy & Health Sci.

KENNETH MILLER, Penn. State Hershey Medical Center

CHRISTOPH H-J REINERS, University of Würzburg

JOHN J. RUSSELL, Washington State University, Richland

ROBERT H. VOLLAND, Federal Emergency Mgt. Agency (ret.)

EDWARD L. WILDS, Conn. Department of Environ. Protection

Sir E. DILLWYN WILLIAMS, Christ's College, Cambridge

LAUREN ZEISE, California Environmental Protection Agency

302. Letter Report on the Development of a Model for Ranking FDA Product Categories on the Basis of Health Risks. 2009. Committee on Ranking FDA Product Categories Based on Health Consequences, February 17, Board on Environmental Studies and Toxicology, Division on Earth and Life Studies, National Research Council, Institute of Medicine.

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 Report is authored by the “Committee”

ROBERT LAWRENCE, *Chair*, Johns Hopkins University, Baltimore

JAMES ANDERSON, Case Western Reserve University, Cleveland

FRANCISCO DIEZ-GONZALEZ, University of Minnesota, St. Paul

KATHRYN EDWARDS, Vanderbilt University, School of Medicine

SUSAN ELLENBERG, University of Pennsylvania

PAUL FISCHBECK, Carnegie Mellon University

HELEN JENSEN, Iowa State University

 L. ROBIN KELLER, University of California, Irvine

 DAVID MELTZER, University of Chicago

 SANFORD MILLER, University of Maryland

 RICHARD PLATT, Harvard Medical School

 KIMBERLY THOMPSON, Harvard School of Public Health

303. A Risk-Characterization Framework for Decision-Making at the Food and Drug Administration. Book, May 2011. Committee on Ranking FDA Product Categories Based on Health Consequences Phase II Report, Board on Environmental Studies and Toxicology, Division on Earth and Life Studies, National Research Council, Institute of Medicine, Sponsored by the U.S. Department of Health and Human Services, for the FDA. <http://dels.nas.edu/Report/Risk-Characterization-Framework-Decision/13156>.

Book is authored by the “Committee”

ROBERT S. LAWRENCE, *Chair*, Johns Hopkins

JEFFREY B. BENDER, University of Minnesota

FRANCISCO DIEZ-GONZALEZ, University of Minnesota

KATHRYN M. EDWARDS, Vanderbilt University

SUSAN S. ELLENBERG, University of Pennsylvania

PAUL S. FISCHBECK, Carnegie Mellon University

KAREN E. JENNI, Insight Decisions LLC, Denver

HELEN H. JENSEN, Iowa State University

L. ROBIN KELLER, University of California, Irvine

JAMES D. MCKEAN, Iowa State University

DAVID O. MELTZER, University of Chicago

SANFORD A. MILLER, University of Maryland

RICHARD PLATT, Harvard Pilgrim Health Care Institute, Harvard Medical School

JOHN T. WATSON, University of California, San Diego

304. Designing Safety Regulations for High-Hazard Industries, Book in progress. Transportation Research Board Special Report, A Report of the National Academies of Sciences, Engineering, and Medicine. Late 2017 expected publication date, to external reviewers in early August 2017. Committee for a Study of Performance-Based Safety Regulation,National Research Council of the National Academies.

“Many countries, including the United States, use forms of performance-based regulation to promote safety and reduce risk in high-hazard industries. The term “performance-based” is often used to refer to (a) standards that mandate outcomes and give firms flexibility in how to meet them, or (b) requirements for firms to use management systems consisting of internal plans and practices for promoting safety and reducing risk. Performance-based regulation is usually contrasted with “prescriptive” regulation – sometimes called specification, design, or technology standards – that requires firms to adopt specific means to promote safety and reduce risks. This study will compare the advantages and disadvantages of prescriptive- and performance-based forms of safety regulation and identify possible opportunities for, and constraints on, making greater use of the latter. The study will be informed by experiences of performance-based safety regulation in the U.S. and abroad and will make recommendations about the application of this regulatory approach in high-hazard industries, such as off-shore oil and gas, pipelines, and other modes of transportation.”

Book is authored by the “Committee” <https://www8.nationalacademies.org/cp/CommitteeView.aspx?key=49767>

DETLOF VON WINTERFELDT, USC, chair

KENNETH ARNOLD, WorleyParsons

CARY COGLIANESE, University of Pennsylvania

LOUIS ANTHONY (Tony) COX, Cox Associates, LLC

ROBIN L. DILLON-MERRILL, Georgetown University

LOIS EPSTEIN, The Wildlife Society

ORVILLE HARRIS, O.B. Harris, LLC

L. ROBIN KELLER, University of California, Irvine

ALLISON MACFARLANE, George Washington University

RACHEL McCANN, Health and Safety Executive, UK

ARTHUR MEYER, Enbridge Pipeline (retired)

DONALD MOYNIHAN, University of Wisconsin, Madison

SUSAN SILBEY, Massachusetts Institute of Technology

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521. L. Robin Keller, March 2012, “Decisions over Time (Exploding Offers or Purchase Regret) in Game Settings (Embedded Nash Bargaining or Adversarial Games)- From the Editor” Decision Analysis 9(1) 1-5.

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Bimonthly INFORMS

President’s Desk

Columns in professional

magazine OR/MS Today

601. L. R. Keller, President’s Desk: “Resolve, follow through”, *OR/MS Today*, Vol. 42 (1), Feb. 2015, page 8, <http://viewer.zmags.com/publication/a1b5d46b#/a1b5d46b/10> or

<https://www.informs.org/ORMS-Today/Public-Articles/February-Volume-42-Number-1/PRESIDENT-S-DESK>

602. L. R. Keller, President’s desk: “Our international roots”, *OR/MS Today*, Vol. 42 (2), April 2015, page 8, <http://viewer.zmags.com/publication/e9a496eb#/e9a496eb/10> or

<https://www.informs.org/ORMS-Today/Private-Articles/April-Volume-42-Number-2/PRESIDENT-S-DESK>

603. L. R. Keller, President’s desk: “AmbassadORs for operations research and analytics”, *OR/MS Today*, Vol. 42 (3), June 2015, page 8, <http://viewer.zmags.com/publication/2e5dda2c#/2e5dda2c/10> or

<https://www.informs.org/ORMS-Today/Public-Articles/June-Volume-42-Number-3/PRESIDENT-S-DESK>

604. L. R. Keller, President’s desk: “Focus on careers”, *OR/MS Today*, Vol. 42 (4), August 2015, page 8, <http://viewer.zmags.com/publication/a5f1d0f8#/a5f1d0f8/10> or

<https://www.informs.org/ORMS-Today/Public-Articles/August-Volume-42-Number-4/PRESIDENT-S-DESK>

605. L. R. Keller, President’s desk: “Exploring analytics”, *OR/MS Today*, Vol.42 (5), Oct. 2015, page 8, <http://viewer.zmags.com/publication/ec0198b9#/ec0198b9/10> or

<https://www.informs.org/ORMS-Today/Public-Articles/October-Volume-42-Number-5/PRESIDENT-S-DESK>

606. L. R. Keller, President’s desk: “Forward progress”, *OR/MS Today*, Vol. 42 (6), Dec. 2015, page 8, <http://viewer.zmags.com/publication/1f1b89a8#/1f1b89a8/10> or

<https://www.informs.org/ORMS-Today/Private-Articles/December-Volume-42-Number-6/PRESIDENT-S-DESK>

Teaching

Case

Tianjun Feng, L. Robin Keller, Xiaona Zheng, “Home Depot in San Juan Capistrano: Multiple Objective Multi-Stakeholder Decision,” Excel-based case, recipient of finalist award, November 2005, INFORMS Case Competition sponsored by INFORMS Forum on Education. To obtain case files, see online publication Paper #30 by Feng, T., L. R. Keller, X. Zheng. 2008. <http://pubsonline.informs.org/doi/abs/10.1287/ited.1080.0012>, *INFORMS Trans. Ed.* 8(3) 103-114, for supplemental files ([HomeDepotCase.xls](http://www.informs.org/site/ITE/downloadfile.php?i=d9d4f495e875a2e075a1a4a6e1b9770f) , [SummaryofHomeDepotCase.xls](http://www.informs.org/site/ITE/downloadfile.php?i=67c6a1e7ce56d3d6fa748ab6d9af3fd7)).

# Research

# Projects

James M. Leonhardt (University of Nevada, Reno, Merage PhD alumnus) and L. Robin Keller, “Pictographs and Multiple-risk Options: Impact on Vaccine Risk Perception and Probability Comprehension”, May 2017.

A limitation of previous research on risk graphics is that it has focused on single rather than multiple-risk options. The present research conducts a behavioral experiment to assess the effects of risk graphics (i.e. pictographs) on risk perception and probability comprehension for single and multiple-risk options. The creation of the experimental stimuli was informed by a review of vaccine information sheets from the Centers for Disease Control and Prevention. The results of the experiment provide initial evidence that, in the context of childhood vaccines, the inclusion of pictographs alongside numeric (e.g. 1 in 5) probability information can result in lower risk perception and higher probability comprehension for multiple-risk options but not for single-risk options. These findings should help to inform how health, and other, risks are communicated to the public.

Partially funded by a fellowship (Leonhardt) from the Newkirk Center for Science and Society and conducted under UCI Institutional Review Board’s approved research protocol HS# 2009-7037.

L. Robin Keller and Jay Simon, “Preference Functions for Spatial Risk Analysis,” June 2017.

When outcomes are defined over a geographic region, measures of spatial risk regarding these outcomes can be more complex than traditional measures of risk. One of the main challenges is the need for a cardinal preference function that incorporates the spatial nature of the outcomes. We explore preference conditions that will yield the existence of spatial measurable value and utility functions, and discuss their application to spatial risk analysis. We also present a simple example on household freshwater usage across regions to demonstrate how such functions can be assessed and applied.

Liangyan Wang (Merage PhD alumna and Associate Prof. Shanghai Jiao Tong), Qin Wang (graduate student, Shanghai Jiao Tong, PhD student as of Fall 2016 at ASU, qin.wang.5@asu.edu), L. Robin Keller, Eugene Y. Chan (University of Technology, Sydney), “Caught in the Act: Being Caught With Counterfeits Increases Preference for Genuine Versions,” March 2017.

While there is a wide body of work on the antecedents to the consumption of counterfeit products, there is less work on what happens after such consumption. We examine consumers’ preference for genuine products after they are caught using counterfeit versions. We examine two conditions – one dispositional (self-construal) and one situational (product type) – that could impact this preference. Across six experiments, we find that consumers who are caught wearing counterfeit products show greater preference for the genuine versions, but this effect is primarily for consumers with a collectivistic (vs. an individualistic) mindset and products that offer symbolic (vs. functional) value. This is because interdependent consumers who are caught sporting a counterfeit symbolic are more embarrassed and thus motivated to restore their face, which the genuine version of the same product can facilitate. We confirm these effects on preference for genuine products, embarrassment, and face restoration among consumers from a collectivistic culture, namely China, as well as by priming consumers from an individualistic culture, namely Australia, to think in collectivistic terms. Our findings contribute to research on the post-purchase stages of counterfeit consumption, a phenomenon that is growing in Asia and other developing countries, by examining the role of face in the counterfeit industry.

Cristina del Campo (Facultad de Ciencias Económicas y Empresariales, Campus de Somosaguas, Universidad Complutense de Madrid), Jiaru Bai (UCI Merage PhD student), L. Robin Keller, “Healthcare Cost-effectiveness and Disease Progression Models,” June 2017.

The cost of new medical treatments raises budgetary issues for purchasing authorities. If decision makers are to accept increasing drug acquisition costs, they need information about the predicted effects, both in terms of health and financial impacts. Those estimates can be made by extrapolation of clinical study trial results through modeling the medical prognosis under different treatments. Markov modeling allows medical prognosis to be modeled with health state transitions over time and is particularly useful for decisions regarding diseases where uncertain events and outcomes may occur. A different approach uses survival curves to directly model the fraction of patients in each state at each time period without the Markov property. We provide details of how models can be developed from clinical trial data and show options for analysis, using the analysis of treatments for cervical cancer as an example case. These models provide insights about both the effectiveness of treatments and the associated costs.

Jiaru Bai, L. Robin Keller, Cristina del Campo, Working paper: Challenges in Modelling Time Dependent Transitions in Cost-effectiveness Analysis

Juliet Wolford, MD, Jiaru Bai, Ramez Eskander, MD, Robin Keller, Lindsey E. Minion, MD, Gareth K. Forde, MD, PhD, MBA, John K. Chan, MD, Bradley J. Monk, MD, Krishnansu S. Tewari, MD, “A Markov Model To Evaluate Cost-Effectiveness of Parp Inhibitor Olaparib For Fourth Line Treatment Of Recurrent Ovarian Cancer,” 2015, updated 2017.

Objective: Evaluate cost-effectiveness of the recently approved, PARP inhibitor, olaparib, in the setting as it is approved, 4th line therapy for women with BRCA-deficient ovarian carcinoma. Since olaparib is an oral preparation, and therefore Medicare is not authorized to pay for the drug; we hypothesize that the assumed cost prohibitive oral olaparib will be balanced to the cost of the frequently used more toxic, chemotherapeutic agents when factoring in the infusion costs, pretreatment costs, and toxicity costs.

Methods: Overall costs were calculated for each drug regimen employing toxicity costs, individual drug cost, pretreatment costs and infusion costs. Therapies were divided into groups: olaparib, non-platinum agents, chemotherapy with bevacizumab, and platinum regimens. A Markov model was created using Data 4.0 (TreeAge Pro 2014) and showed patients transitioning through response, hematological complications, non-hematological complications, fifth line and onward, and death. Ovarian cancer survivability is measured in months rather than years; therefore results were reported in quality adjusted ovarian cancer life months (QALmonth), adjusted from a baseline of having advanced ovarian cancer during a month. Utilizing data extracted from the associated registration trials, complications costs were compiled using the Medicare data for 2015 to determine the overall costs of treatment and associated complications.

Results: In the model we created, the platinum group dominated, with olaparib exhibiting an estimated cost approximately 5.3 times more than the platinum therapy group, adding $81,108 prior to progression. In comparing the cost-effectiveness calculated from the model utilizing the average PFS for each group, the platinum group proved to be most cost-effective at $1,672, next was the non-platinum group at $6,688, olaparib at $10,291, and lastly the bevacizumab group at $12,482. The only positive incremental cost-effectiveness ratio [ICER] was of the nonplatinum group with an ICER of $35,567, which shows a $35,567 increase in cost over the 1.2 months progression free survival [PFS] with olpaparib therapy. The last two regimens, platinum and bevacizumab have negative ICERs of -$54,435 and -$56,091, respectively, representing the increased progression free survival [PFS] yet low cost of platinum therapy to olaparib and the high cost of bevacizumab and decreased PFS to olaparib.

Conclusion: The primary expense of olaparib lies in the high cost of the drug, rather than the complications associated with its use. Reconciliation of incremental clinical benefits with exponentially rising costs remains problematic. Even minimal reductions in olaparib will prove to be beneficial to the cost-effectiveness and will allow access to an effective medication that is better tolerated and easier to administer.

Jay Simon (assistant professor American University and Merage PhD alumnus), Don Saari (UCI IMBS Director), L. Robin Keller, “Modeling Altruistic Preferences,” Working paper, 5/15/10. Under revision. January 2011.

Altruism, or the desire to improve the well-being of others even at one’s own expense, can be difficult to incorporate into traditional economic utility models. It is straightforward to construct a multi-attribute preference structure for one decision maker which includes the outcomes experienced by others. However, this becomes philosophically and mathematically difficult when multiple individuals incorporate one another’s well-being into their decision making, as this creates complex interdependencies. We first consider pairwise altruistic preferences, discussing the appropriate utility models, and what meaningful conclusions can be drawn. We then extend this analysis to a general model for multiple altruistic individuals, and to group decisions in which each individual is concerned with both individual and group outcomes. We find that in most cases, it is possible to resolve the utility interdependencies, and that modeling the preferences of multiple altruistic individuals is tractable. These results can apply not only to altruism, but to any scenario in which individual utilities have externalities.

Jay Simon and L. Robin Keller, “Modeling Decisions with Multiple Health Conditions with Reference-Dependent Multi-Attribute Expected Utility,” working paper, 6/2009.

Medical and other health-related decisions often do not incorporate all of the available information, and may not adequately address the preferences of the decision maker. These decisions involve some interesting theoretical and modeling issues when analyzed using multi-attribute utility. They arise frequently in the medical domain, but also in regard to personal lifestyle choices. It is possible to formulate a reasonably straightforward expected utility model, provided that we impose some conditions on the preferences of the decision maker. These conditions help determine the types of contexts for which the model will be valid. We then extend the initial work to a novel reference-dependent expected utility model, which captures the notion of adaptation, and thus gives a better approximation of the level of utility actually experienced by the decision maker. This work is supported by a doctoral dissertation grant from the National Science Foundation in Decision, Risk and Management Science (Award # 0823458).

Jeffery L. Guyse and L. Robin Keller, “Valuing Sequences of Lives Lost or Saved over Time: Evidence of Gain/Loss Asymmetry,” working paper at UCI Institute for Mathematical Behavioral Sciences MBS 03-09 (Keller) and California State Polytechnic University, Pomona (Guyse), 6-21-2003.

Dipayan Biswas and L. Robin Keller, “The Effects of Peer Presence and Warning Signs on Beach-Goers’ Perceived Probabilities of Going in Polluted Beach Water: Implications for Public Policy Regulations,” Working paper, June 2003.

L. Robin Keller and Jeffery L. Guyse on decision problem structuring; generating possible events. (MBS Working paper 99-19)

Xiaona Zheng, Tianjun Feng, L. Robin Keller, and Dipayan Biswas on “Using a Time-weighted Approach to Measure Multiple Attribute Utility,” working paper Dec. 2005.

Dipayan Biswas, Tianjun Feng, L. Robin Keller and Xiaona Zheng, “Modeling MultiobjectiveMultistakeholder Perspectives for Environmental Problems: Two Huntington Beach Pollution Decisions.”

Tianjun Feng and L. Robin Keller, “Modeling the Effects of Reference Point Dependence on Supplier Selection and Competition.” Working paper, August 2008.

We introduce a buyer’s value functions in both a standard non-reference dependent model and a reference point dependent model to study the buyer’s supplier choices over two time periods on a two-attribute space, over price and delivery time guarantee. Homogeneous buyers are considered in a service market. We provide an analysis to show that early entrants can attain a first mover advantage due to the effects of reference point dependence and loss aversion. In addition, we analytically show that buyers may have asymmetric responses to price promotions of the suppliers (i.e., asymmetric patterns of price competition) if buyers are more loss averse on delivery time guarantee than they are on price. We also provide an analysis for asymmetric patterns of competition on delivery time guarantee if buyers have higher loss aversion on price. Some managerial insights are discussed for a competitive service market based on our model analysis.

##### PRESENTATIONS AT SCIENTIFIC MEETINGS, UNIVERSITIES, AND COMMUNITY GROUPS

1084. Jiaru Bai (presenter, Binghamton University), L. Robin Keller, “Markov Cost-effectiveness Analysis For Cancer Treatment”, invited talk in Healthcare Decision Analysis session chaired by L. Robin Keller, INFORMS Annual Meeting, Houston, Oct. 2017.

We present a way to build a Markov decision tree to model cancer progression and cost-effectiveness analysis for two or more cancer treatments. We propose several problems researchers can encounter in this kind of research and provide possible solutions.

1083. L. Robin Keller, moderator, Meet the Editors Panel, in session co-chaired by L. Robin Keller and Saurabh Bansal, INFORMS Annual Meeting, Houston, Oct. 2017.

1082. Jay R. Simon (presenter), L. Robin Keller, Spatial decision analysis, invited talk, INFORMS Annual Meeting, Houston, Oct. 2017.

1081. Juliet Elizabeth Wolford (Poster presenter), Jiaru Bai, Ramez Hassef Eskander, L. Robin Keller, Lindsey E Minion, John K. Chan, Bradley J. Monk, Krishnansu Sujata Tewari, “Evaluating the cost-effectiveness of current FDA-approved PARP inhibitors for the treatment of recurrent ovarian cancer”,American Society of Clinical Oncology (ASCO) conference, June 3, 2017, Chicago, Poster abstract published in J Clin Oncol 35, 2017 (suppl; abstr 5516), <http://abstracts.asco.org/199/AbstView_199_193762.html>

**Background:** Unlike approved IV administered therapies, Medicare is under no obligation to cover prescription medicines. We sought to evaluate the cost-effectiveness of the two FDA-approved orally administered PARP inhibitors (PARPi), olaparib and rucaparib. **Methods:** A Markov model was created in TreeAge Pro 2015 with nodes in the chain allowing patients to transition through response, hematological complications, non-hematological complications, progression, and death. Separately, the PARP inhibitors were compared with IV administered drugs approved for recurrent ovarian cancers including platinum-based, non-platinum, and bevacizumab-based regimens. Toxicity and mean PFS rates for the different agents were obtained from registration trial data. Costs of IV chemotherapy, managing toxicities, infusions, and supportive care were estimated using 2015 Medicare data. Incremental cost-effectiveness ratios (ICER) were calculated and survival was reported in quality adjusted life months. **Results:** Platinum-based combinations were the most cost-effective at $1,672/PFS mo as compared to non-platinum agents ($6,688/mo), bevacizumab-containing regimens ($12,482/mo), olaparib ($13,3731/mo), and rucaparib ($14,034/mo). Considering a cost of $114,478 for olaparib and $137,068 for rucaparib prior to progression, costs associated with PARPi were 7.1 to 8.3X more than platinum combinations. To better compare the registration trial data to PARPi data, probability was adjusted to 2nd line for rucaparib, revealing it’s ICERs’ of per month of life added to be $26,997 for bevacizumab, $17,757 for non-platinum, and $79,585 for platinums. Using the adjusted-to-2nd-line probabilities for olaparib, exhibited ICERs were $16,549 for bevacizumab, $25,637 for non-platinums and $72,083 for platinums. **Conclusions:** The high costs of PARPi were not balanced by costs of infusion and managing toxicities of IV drugs typically associated with lower response rates and shorter PFS in the recurrent space. Balancing incremental clinical benefit with novel therapies remains problematic and could widen disparities among those with limited access to care.

1080. Jiaru Bai (presenter and session chair), Cristina Del Campo and L. Robin Keller, “Challenges In Markov Modeling of Cancer Treatment,” invited talk in cluster on Computational Decision Analysis under cluster chair Jay Simon, INFORMS Computing Society ICS2017 conference, January 2017, Austin, Texas.

We present a way to build a Markov decision tree to model cancer progression and cost-effectiveness analysis for two or more cancer treatments. We propose several problems researchers can encounter in this kind of research and provide possible solutions.

1079. Jay Simon (presenter), L. Robin Keller, “Spatial preference functions for risk analysis,” invited talk in Spatial Multicriteria Analysis session, INFORMS Annual Meeting, Nashville, Nov. 2016.

When outcomes are defined over a geographic region, measures of spatial risk regarding these outcomes can be more complex than traditional measures of risk. One of the main challenges is the need for a cardinal preference function that incorporates the spatial nature of the outcomes. We explore preference conditions that will yield the existence of spatial measurable value and utility functions, and discuss their application to spatial risk analysis.

1078. L. Robin Keller, Invited Panelist on “Advice from Award Winning Researchers” in Decision Analysis Society Cluster, joint with Junior Faculty Interest Group, INFORMS Annual Meeting, Nashville, Nov. 2016.

Robin Keller is the 2016 INFORMS Past President and an INFORMS Fellow. She was the 2015 Ramsey Medalist and the Editor-in-Chief of *Decision Analysis* (2007-2012). Hints: Read widely, make small commitments at first to new co-authors, and figure out how to not procrastinate on revisions.

1077. Jiaru Bai (presenter), L. Robin Keller, “Challenges in Markov modeling of cancer treatment,” invited talk in Models in Medical Decision Making session, INFORMS Annual Meeting, Nashville, Nov. 2016.

We present a way to build a Markov decision tree to model cancer progression and cost-effectiveness analysis for two or more cancer treatments. We propose several problems researchers can encounter in this kind of research and provide possible solutions.

1076. Ali Esmaeeli (presenter), L. Robin Keller, “Geographically weighted multi-attribute decision making for taxi assignment,” invited talk in Spatial Multicriteria Analysis session, INFORMS Annual Meeting, Nashville, Nov. 2016.

The taxi assignment problem is usually considered as one part of the more general vehicle routing problem (VRP) with a known value function. In this work, we extend this viewpoint to match the problem more with the real world conditions. We consider a map with weighted regions and propose a method to find the best option for each taxi request based on two different attributes. These attributes are the average response time for each region and the rate of accepted requests for each region. We show how to combine these attributes and how to include the region weights into the main value function. Moreover, we present a method for finding the best assignment option based on our defined value function.

1075. Ali Esmaeeli (presenter) and L. Robin Keller, “Real-time Multiple Attribute Taxi Assignment on Weighted Regions,” INFORMS International conference, Kona, Hawaii June 2016.

In this paper we provide a model for the assigning problem in a taxi company from a decision modeling perspective. In our model, different regions of a map have different values for the taxi company. We calculate the desirability of the assignment using two attributes. These attributes are the average response time and the rate of accepted requests for each region. We show how we can calculate weights for regions and attributes in our model. Moreover, we define a value function and an algorithm which can be used to evaluate the value of an assignment in our model.

1074. Jiaru Bai (presenter) and L. Robin Keller, based on work with UCI Physician co-authors, “A Markov Decision Tree Model to Evaluate Cost-Effectiveness of Ovarian Cancer,” INFORMS International conference, Kona, Hawaii June 2016.

We present a way to build a Markov decision tree to model cancer progression and cost-effectiveness analysis for two or more cancer treatments. Olaparib, platinum-based combinations, non-platinum agents, and bevacizumab-containing regimens are compared for the treatment of recurrent ovarian cancer using the Incremental Cost Effectiveness Ratio (ICER). We also propose several problems researchers can encounter in this kind of research and provide possible solutions.

1073. L. Robin Keller, “Nudges,” invited talk to UCI Merage alumni, May 14, 2016.

1072. Plenary speaker, Program Committee Member, and Special Track Organizer, 12th International Conference on Operations Research (ICOR 2016), Havana, Cuba; March 8-11, 2016, <http://samm.univ-paris1.fr/12th-ICOR-2016>, co-sponsored by INFORMS. L. Robin Keller (presenter), Jiaru Bai, Cristina del Campo, “A Markov Decision Tree Model to Evaluate Cost-Effectiveness of Cervical Cancer Treatments.” Also organized a set of talks by INFORMS members for the program committee.

 We evaluated the cost-effectiveness of adding the new drug bevacizumab to chemotherapy treatment of advanced cervical cancer. A Markov decision tree was created using recent clinical trial data. In the 5-year model, subjects transitioned through the following monthly states: response to the treatment, progression of the disease, minor complications, severe complications, and death. The 2013 US MediCare Services Drug Payment Table and Physician Fee Schedule provided costs, in US dollars.

 On average, patients survived 14.7 months at a US medical system cost of $5,938 with chemotherapy alone vs. 17.7 months at a cost of $79,097 with chemo plus bevacizumab. The estimated total cost of therapy with bevacizumab is approximately 13.3 times that for chemotherapy alone, adding $73,159 per 3.0 months of life gained. So the incremental cost effectiveness ratio (ICER) is $24,386 extra cost/extra month.

 Patients experienced a health quality level each month depending on the treatment effectiveness and on any complications, ranging from 0 for death to 1 for the baseline of 1 month responding to advanced cervical cancer treatment. Patients survived 11.2 quality adjusted life months (QALmonthscc) with chemo alone vs. 13.9 QALmonthscc with chemo plus bevacizumab. The ICER ratio increased to $27,096/QALmonthcc due to the smaller difference in QALmonthscc.

 Increased costs associated with bevacizumab therapy for advanced cervical cancer are primarily due to the cost of the drug and not the management of bevacizumab-induced complications. Possible future cost reductions in bevacizumab or biosimilars would result in dramatic declines in the added cost of gaining more months of life.

 We present two low-cost software alternatives to the Treeage software to compute Markov decision trees: StoTree by Gordon Hazen and a program we wrote in R using the Markov chain package.

1071. L. Robin Keller, invited talk, Multi-Objective Multi-Stakeholder Decision Analysis,” Systems Analysis 2015 Conference, Session 5: Addressing Diversity in Social Systems, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria. Nov. 11-13, 2015.

Recording: <https://www.youtube.com/watch?v=cdMfVlIAWzg> Robin Keller IIASA talk

A key component of systems analysis is examining the perspectives and actions of multiple stakeholders. Constructing a hierarchy of each stakeholder’s objectives with respect to a decision situation can provide insights on areas of agreement and disagreement. Sometimes, one objectives hierarchy is suitable for a set of stakeholders, and differences in opinions across stakeholders can be characterized by differences in the multiple objectives’ weights. Examples include planning for protection against radioactive iodine releases in nuclear incidents and analysis for the merger of the Operations Research Society of America and The Institute of Management Sciences to become INFORMS. In other cases, an objectives hierarchy will be constructed for each stakeholder because their objectives are so different that construction of separate hierarchies better represents their divergent perspectives. Examples include a tuna fish supplier source selection decision (from the perspectives of the StarKist company, environmentalists, and the San Diego tuna fishing fleet), a prostate cancer treatment decision (of former Intel CEO Andy Grove, his family, his company, and his doctors), and the potential siting of a new Home Depot building supply store.

Having modeled stakeholders’ objectives, dynamic sensitivity analysis can be conducted using sliders in Excel on the objectives’ weights, to rapidly see how the preferred action may change with weight changes. It would also be possible to examine the perceived fairness across stakeholders of anticipated environmental changes or proposed societal policies. Just as groups may differ in objectives, they may also differ in their perception of risks. In particular, scientists and laypeople often judge the magnitude of risks very differently.

1070. L. Robin Keller, “Ramsey Medal Acceptance Speech,” INFORMS conference, Philadelphia, Nov. 2015.

1069. Jay Simon (Presenter), based on work in collaboration with Craig W. Kirkwood and L. Robin Keller, “Decision Analysis with Geographically Varying Outcomes,” invited talk in session on spatial MCDA, INFORMS conference, Philadelphia, Nov. 2015.

This work develops theory to support decisions based on data from geographic information systems (GIS). Preference conditions are introduced, leading to corresponding value and utility functions over GIS data for both single-attribute and multiple-attribute cases. These models of preferences are then applied to example decisions based on GIS data.

1068. Jiaru Bai (presenter), L. Robin Keller, “Markov Cost-Effectiveness Analysis for Cancer Treatment,” invited talk, INFORMS conference, Philadelphia, Nov. 2015.

We present a way to build a Markov decision tree to model cancer progression and cost-effectiveness analysis for two or more cancer treatments. We propose several problems researchers can encounter in this kind of research and provide possible solutions.

1067. Jiaru Bai (presenter), L. Robin Keller, “Markov Cost-Effectiveness Analysis for Cancer Treatment,” invited talk, INFORMS Healthcare conference, Nashville 7-29 to 7-31-15.

We present a way to build a Markov decision tree to model cancer progression and cost-effectiveness analysis for two or more cancer treatments. We propose several problems researchers can encounter in this kind of research and provide possible solutions. The method is used for a clinical study comparing two cervical cancer treatments. This talk is based on “A Markov Model to Evaluate Cost-effectiveness Antiangiogenesis Therapy Using Bevacizumab in Advanced Cervical Cancer” by Lindsey E. Minion, Jiaru Bai, Bradley J. Monk, L. Robin Keller, Eskander N. Ramez, Gareth K. Forde, John K. Chan, Krishnansu S. Tewari.

1066. Jay Simon, Craig W. Kirkwood, L. Robin Keller (presenter), “Decision Analysis with Geographically Varying Outcomes: Preference Models and Applications,” invited talk in session on spatial MCDA in the Multiple Criteria Decision Aiding stream at the EURO Conference, Glasgow, Scotland, July12 – 15, 2015.

We present decision analysis methodology for decisions based on data from geographic information systems. We discuss conditions that may conform with the decision maker’s preferences over a set of alternatives, and we present specific forms for value or utility functions that are implied by these conditions. The methodology is applied to two hypothetical urban planning decisions involving water use and temperature reduction in regional urban development, and fire coverage across a city.

1065. L. Robin Keller (presenter), Jay Simon, “Teaching Multi-Objective Multi-Stakeholder Decision Modeling With Cases,” presented as a main talk at the 11TH International Workshop on Operations Research, Havana, Cuba, March 10-13, 2015,<http://samm.univ-paris1.fr/11th-IWOR-Habana-March-10-13-2015>.

Many operations researchers know about the use of decision analysis to decide among alternative investments (such as pharmacological research and development) using decision trees with chance nodes to compute expected monetary value of different alternatives. Such an analysis aims to maximize a single evaluation measure for a single decision maker. We demonstrate less widely known decision analysis techniques using spreadsheet models of the multiple objective perspectives of the decision stakeholders. We show how to teach students to analyze real-life decision problems using case examples and discuss specific skills students are expected to learn, such as dynamic sensitivity analysis using sliders in Excel on objectives’ weights, and typical student questions and errors during case discussion. This methodology has been taught successfully in business courses for both MBAs (including health care executive MBAs) and undergraduate students.

Sometimes, one objectives hierarchy is suitable for a set of stakeholders, and differences in opinions across stakeholders can be characterized by differences in the multiple objectives’ weights. Examples include the analysis for the merger of the Operations Research Society of America and The Institute of Management Sciences to become INFORMS and planning for protection against radioactive iodine releases in nuclear incidents. In other cases, an objectives hierarchy will be constructed for each stakeholder because their objectives are so different that construction of separate hierarchies better represents their divergent perspectives. Examples include a prostate cancer treatment decision (of former Intel CEO Andy Grove, his family, his company, and his doctors), a tuna fish supplier source selection decision (from the perspectives of the StarKist company, environmentalists, and the San Diego tuna fishing fleet), and the potential siting of a new Home Depot building supply store. Sources: <http://pubsonline.informs.org/doi/pdf/10.1287/educ.1090.0066>, <http://dx.doi.org/10.1287/ited.1080.0012>.

1064. L. Robin Keller (poster presenter), with Tianjun Feng (UCI Merage doctoral alumnus, Associate Professor at Fudan University), Ping Wu (Fudan University), Yifan Xu (Fudan University), “An Empirical Study of the Toxic Capsule Crisis in China: Risk Perceptions and Behavioral Responses,” Society for Risk Analysis conference, Dec. 7-10, 2014, Denver.

The outbreak of the toxic capsule crisis during April 2012 aroused widespread public concern about the risk of chromium-contaminated capsules and drug safety in China.  In this paper, we develop a conceptual model to investigate risk perceptions of the pharmaceutical drug capsules and behavioral responses to the toxic capsule crisis and the relationship between associated factors and these two variables.  An online survey was conducted to test the model, including questions on the measures of perceived efficacy of the countermeasures, trust in the State FDA (Food and Drug Administration), trust in the pharmaceutical companies, trust in the pharmaceutical capsule producers, risk perception, concern, need for information, information seeking, and risk avoidance.  In general, participants reported higher levels of risk perception, concern, and risk avoidance, and lower levels of trust in the three different stakeholders.  The results from the structural equation modeling procedure suggest that perceived efficacy of the countermeasures is a predictor of each of the three trust variables; however, only trust in the State FDA has a dampening impact on risk perception.  Both risk perception and information seeking are significant determinants of risk avoidance.  Risk perception is also positively related to concern.  Information seeking is positively related to both concern and need for information.  The theoretical and policy implications are also discussed.

1063. Yitong Wang (poster presenter, Merage alumnus, University of Technology, Sydney); Liangyan Wang (Merage alumna, Shanghai Jiaotong University); L. Robin Keller, “Discounting over Subjective Time: One Step towards a Unified Theory of Intertemporal Choice,” Society for Judgment and Decision Making conference, Long Beach, Nov. 2014.

Decision makers often face choices involving inter-temporal tradeoffs. Existing research suggests that decision makers in general do not obey discounted utility theory as their discount rates are context dependent. Looking at discounting behavior from a rather different angle, we first showed that the difference in temporal perception was able to explain the magnitude effect, and further we showed that subjective time perception was able to explain multiple anomalies of discounted utility theory simultaneously in a single context. Our finding helps in developing a unified theory for inter-temporal decision making.

1062. James Leonhardt (Merage alumnus, New Mexico State University, poster presenter); L. Robin Keller, “Risk Perception of Multi-risk Options: Health Consumers' Perceived Vaccine Risk,” Society for Judgment and Decision Making conference, Long Beach, Nov. 2014.

We compared the effect of probability format on risk perception of single- vs. multi-risk options to understand how probability format may affect health consumers' perceived vaccine risk. The results of two experiments, involving 1,000 parents, suggest that the presence (vs. absence) of pictographs increases the evaluability and influence of side effect probability (vs. symptom) on risk perception. However, for the presence of pictographs to lower risk perception, an evaluation mode (e.g., joint) or a risk option type (e.g., multiple) that allows for the comparison of probability values is necessary.

1061. Jay Simon (co-presenter, Merage doctoral alumnus, Assistant Professor, Defense Resources Management Institute, Naval Postgraduate School), Craig W. Kirkwood (W. P. Carey School of Business, Arizona State University), L. Robin Keller (presenter), “Decision Analysis with Geographically Varying Outcomes: Preference Models and Applications,” INFORMS National meeting, San Francisco, Nov. 2014, in invited session on Spatial Analysis for Multicriteria Decisions, chaired by Jay Simon.

We present decision analysis methodology for decisions based on data from geographic information systems. We discuss conditions that may conform with the decision maker’s preferences over a set of alternatives, and we present specific forms for value or utility functions that are implied by these conditions. The methodology is applied to two hypothetical urban planning decisions involving water use and temperature reduction in regional urban development, and fire coverage across a city.

1060. Jiaru Bai (presenter, Merage doctoral student) and L. Robin Keller (co-author), “Markov Cost-Effectiveness Analysis For Cancer Treatment.” INFORMS National meeting, San Francisco, Nov. 2014, in invited session on Spatial Analysis for Multicriteria Decisions, chaired by Jay Simon.

We present a way to build a Markov decision tree to model cancer progression and cost-effectiveness analysis for two or more cancer treatments. We propose several problems researchers can encounter in this kind of research and provide possible solutions. The method is used for a clinical study comparing two cervical cancer treatments.

1059. L. Robin Keller, “Risk Aversion” is Mislabeled and Misleading,” accepted oral presentation at the Advances in Decision Analysis conference, Georgetown, June 16-18, 2014.

Labeling a concave utility function as risk averse is misleading. Comparing shapes of the value and utility functions, a person is actually relatively risk prone when the concave utility function is below the value function. To improve insight, we should stop telling decision makers “You are risk averse” when their utility function is concave. First, we should determine the shape of the value function, which might be concave, representing decreasing marginal value, and compare it with the shape of the utility function. If the utility function is always above the value function, the person is relatively risk averse. If the utility function is the same function as the value function, the person is relatively risk neutral. If the utility function is below the value function, the person is relatively risk prone.

1058. Yitong Wang (University of Technology, Sydney, Australia), Liangyan Wang (Shanghai Jiaotong University, Shanghai, China), L. Robin Keller, “Discounting over Subjective Time: Towards a Unified Theory of Intertemporal Choice,” accepted poster presented at 2014 Boulder Summer Conference on Consumer Financial Decision Making, May 18-20, 2014.

Discounted utility theory is widely used across many fields and is considered the normative theory of decision making over time (Samuelson 1937). It employs a single and context-independent discount rate to model people’s preferences over time. And researchers have found that people’s behaviors often are inconsistent with the key assumption of the discounted utility theory – the discount rate actually varies across contextual factors (Frederick et al. 2002, Thaler 1981).

From a behavioral perspective, we believe that attributing all variations to the discount rate diminishes the descriptive value of the discounted utility theory, as the discount rate is essentially an economic construct rather than a psychological one. Prior studies have already found some evidence that the variation in perceived temporal distance may contribute to some specific anomalies of discounted utility theory (Zauberman et al. 2009, Bilgin and LeBoeuf 2010).  However, to the best of our knowledge, there is little research on the impact of perceived temporal distance on the magnitude effect, nor on bringing multiple anomalies together in one scenario and testing them simultaneously. We investigated the missing components and provided a holistic view via a decision over subjective time model.  We tested the proposed model across multiple anomalies and found that subjective time perception is able to explain multiple anomalies simultaneously in a single context.

More specifically, we first show that participants’ subjective perceptions of temporal duration are not independent of the outcome magnitudes, where larger monetary outcomes are associated with shorter subjective time perception (experiments 1a and 1b), and our results replicate the magnitude effect when taking only objective time into account but show a constant discount rate when taking subjective time perception into account (experiment 1c). Then we show that subjective time perception was able to explain multiple anomalies of discounted utility theory (i.e., magnitude effect, long term/short term asymmetry, and delay/date asymmetry) simultaneously in a single context (experiment 2).

Our findings can help reconcile the observed inconsistency in preference over time and make a step forward towards a unified theory of intertemporal decision making.

1057. L. Robin Keller, “Recalling Duncan Luce at UC Irvine,” in R. Duncan Luce Memorial Session, SJDM Annual Meeting, Toronto, November 2013.

1056. James Leonhardt (New Mexico State University) and L. Robin Keller, both presented poster on “Possibilities and Probabilities in the Bean Game,” SJDM Annual Meeting, Toronto, November 2013.

This study was designed to test whether when faced with a possible gain decision makers exhibit a preference for options having less possible outcomes, whereas when faced with a possible loss decision makers exhibit a preference for options having more possible outcomes. Herein an outcome is considered unique when it is qualitatively (rather than quantitatively) different than other possible outcomes. The study found that in the gain condition, there was a greater preference for 2 versus 4 possible outcomes, whereas in the loss condition, this preference was reversed.

Sponsored Session co-chaired by L. Robin Keller and Candice Huynh, “Panel Discussion: Teaching Decision Analysis”, INFORMS, Minneapolis, October 2013, in Decision Analysis Society Cluster.

1055. Candice Huynh (presenter) and L. Robin Keller,

“Introduction to Panel Session and Tips for Teaching Decision Analysis Software”

This session will run as a panel discussion. Each panelist will make a short presentation on their perspective on the facets of teaching decision analysis. Then, an open discussion will follow. After introducing the session, I will provide tips on teaching decision analysis software based on MBA teaching experience.

1054. L. Robin Keller, “Quick Decision Analysis for MBAs”

If you only have a few sessions to teach decision analysis to MBAs, what should you do? What are realistic objectives that can be achieved, useful "take aways" for students, the role of experiential learning, and appropriate instructional materials and software?

1053.James M. Leonhardt (poster presenter), L. Robin Keller, and Riana S. Beals, “Parents and Pictographs: Probability Format Affects Parents’ Perceived Vaccine Risk,” UCI Merage Ph.D. Research Fest, April 18, 2013.

Research Question: When presenting an option (vaccine) that has many possible risks (side-effects) does probability format (1-in-X, N-in-X·N, Pictograph + N-in-X·N) affect perceived (vaccine) risk?

1052. Invited faculty guest attendance at Kauffman Foundation Event Reception for Dissertation Fellows (UCI’s Russ Nelson), American Economic Association Meeting, San Diego, Jan. 2013

1051. James M. Leonhardt, L. Robin Keller (poster presenter), “Parents and Pictographs: Probability Format Affects Parents’ Perceived Vaccine Risk,” Society for Judgment/Decision Making conference, Minneapolis, November 2012.

1050. L. Robin Keller (panelist), October 2012, Women in OR/MS cluster, Panel Discussion on Women in OR/MS: Publishing, Recruitment, and Retention, chaired by Laura McLay, INFORMS, Phoenix.

1049. L. Robin Keller (presenter), Yitong Wang, INFORMS, October 2012, “Ranking FDA Risks: The Medical Devices Case,” invited talk in session chaired by L. Robin Keller, INFORMS, Phoenix.

1048. Tianjun Feng (presenter) with Yitong Wang and L. Robin Keller, “Counteracting the Uncertainty Effect Bias.”INFORMS Beijing, June 2012.

1047. L. Robin Keller (poster presenter), Yitong Wang, Tianjun Feng. “Shifting Perception of Risks Experienced at Different Times,” BDRM Conference, Boulder, CO, June 2012 (held in conjunction with the Boulder Summer Conference on Consumer Financial Decision Making). Peer-reviewed.

1046. Leonhardt, J. (poster presenter), Keller, L. R, Barone, D., & Pechmann, C. (April 2012). “Likelihood Estimates Across Probability Levels With and Without Pictographs.” Merage PhD Research Fest. University of California, Irvine. Irvine, CA.

1045. Leonhardt, J. (poster presenter), Keller, R., & Pechmann, C. (Jan. 26, 2012). “Pictographs and probabilities.” Judgment and Decision Making Preconference. Society for Personality and Social Psychology. San Diego, CA. Peer Reviewed Conference Presentation (Poster).

1044. Tianjun Feng, L. Robin Keller (presenter), Yitong Wang, “Time Inconsistency of Risk Perception,” Society for Risk Analysis, Charleston, SC, Dec. 2011. Peer-reviewed.

In this paper we investigate inter-temporal changes of risk perceptions in decisions under uncertainty. Time inconsistency of preference has been well documented in the literature, but any possible time inconsistency of risk perception has not received much attention. Two competing theories predict opposite results. The risk-as-feelings hypothesis (Loewenstein et al., 2001) states that payoffs and probabilities have different roles: when more emotional, people are less sensitive to variation in probability and more sensitive to variation in payoffs. Thus it predicts that an increment in time delay before receiving a binary gamble will lead to a higher impact of probability and a lower impact of payoff on risk perception when judged in the present time, assuming larger temporal distance leads to less emotional reactions. However, construal level theory (Liberman at al., 2002) and time-dependent gambling (Sagristano et al., 2002) proposed that probability is subordinate to payoff in preferences for gambles, which means payoffs can be regarded as being at a higher level of construal in gambles while probabilities can be regarded as at a lower level. This predicts temporal distance increases the influence of payoffs and decreases the influence of probability on preferences. In this study, we propose that temporal distance has different influences on attributes of a decision alternative with respect to risk perception as well. Experiments are conducted with hypothetical scenarios to examine this proposition where either probability (payoff) is controlled to estimate the influence of time and the payoff (probability) and provide a detailed discussion of our empirical results. Research results will help in developing a useful framework for evaluating anticipated risk consequences, which can be used by DHS to deliver information on anticipated consequences of future societal or natural risks to the public. Possible implications on risk perception of terrorism risks and natural disasters are discussed.

1043. Leonhardt, J. (poster presenter), Keller, R., Beals, R., & Pechmann, C. (Nov. 2011). “Using Risk Graphics Across Probability Levels.” Society for Judgment and Decision Making. Seattle, WA. Peer Reviewed Conference Presentation (Poster).

Invited presentations in session chaired by L. Robin Keller and Tianjun Feng, INFORMS conference, Nov. 2011, Charlotte, NC:

1042. Tianjun Feng, L. Robin Keller (presenter), Yitong Wang, “Time Inconsistency of Risk Perception.”

Time inconsistency of preference has been studied by numerous researchers. However, little attention has been paid on time inconsistency of risk perception. In this talk we try to test people’s intertemporal changes in their risk perception on abstract gambles. And we found that at different time points, probabilities of losses and potential losses had different roles.

1041. Tianjun Feng (presenter), L. Robin Keller, Yitong Wang, “Counteracting the Uncertainty Effect Bias.”

When exhibiting the uncertainty effect, individuals value a binary lottery less than the lottery's worst outcome. Our paper explores how to counteract the uncertainty effect bias by investigating a plausible underlying anchoring-and-adjustment process. Two experiments were conducted to examine if providing an anchor prior to judgments, or introducing additional cognitive load is able to counteract the uncertainty effect bias.

1040. L. Robin Keller, “Behavioral Aspects of Decision Analysis,” 10-15-11, presented at the Decision Analysis: Visions for the Future Conference, organized by Ali Abbas, Stanford Park Hotel, Menlo Park, California. (Keller also spoke at the conference on the *Decision Analysis* journal.)

1039. Leonhardt, J. (presenter), Keller, L. R., & Pechmann, C. (Summer 2011). “Does Uncertainty Act as a Causal Buffer?” Summer Institute on Bounded Rationality. The Center for Adaptive Behavior and Cognition. Max Planck Institute. Berlin, Germany. Peer Reviewed Conference Presentation (Oral).

1038. L. Robin Keller, “How to Make Smart Choices,” Irvine Presbyterian Church, Primetimers, May 19, 2011.

1037. James M. Leonhardt (presenter, marketing doctoral student), L. Robin Keller and Cornelia Pechmann,Jan. 12-14, 2011, “Avoiding the Risk of Responsibility by Seeking Uncertainty: Responsibility Aversion and Preference for Indirect Agency When Choosing for Others,” reworded as “I’d Feel Better if You Were Killed by Chance.” Edwards Bayesian Research Conference. Fullerton, CA. Peer Reviewed Conference Presentation (Oral).

1036. Leonhardt, J. (presenter), Keller, L. R., & Pechmann, C. (Nov. 2010). “Avoiding the Risk of Responsibility by Seeking Uncertainty: Responsibility Aversion and Preference for Indirect Agency.” Society for Judgment and Decision Making. St. Louis, MO. Peer Reviewed Conference Presentation (Poster).

1035. Jeffery L. Guyse and L. Robin Keller, “Preferences and Subjective Valuation of Sequences of Lives.” Invited presentation in session organized by Keller at upcoming INFORMS conference in Austin, TX, Nov. 2010.

Survey results on individuals’ preferences and valuation for temporal sequences of survival/mortality outcomes are presented and compared to previous results on monetary outcomes. Results and insights are discussed.

1034. Jay Simon and L. Robin Keller, “Modeling Reference-Dependence Under Uncertainty.” Invited presentation in session organized by Keller at INFORMS conference in Austin, TX, Nov. 2010.

Reference-dependent models have become increasingly accepted as descriptive of human behavior, and normative models are now being developed to guide and structure the formation of preferences which induce this behavior. In this paper, we examine the implications of reference-dependence when studying preferences over gambles with intertemporal outcomes. We discuss various (normative) forms of utility functions, and develop the required conditions and assumptions.

1033. Yitong Wang, L. Robin Keller, Tianjun Feng, “Exploration and Extension of the Uncertainty Effect: Probabilistic Ambiguity and Comparison Direction.” Invited presentation in session organized by Keller at INFORMS conference in Austin, TX, Nov. 2010.

1032. James Leonhardt (presenter) and L. Robin Keller (with Connie Pechmann), “Accountability-Aversion and a Preference for Uncertainty.” Invited presentation in session organized by Keller at INFORMS conference in Austin, TX, Nov. 2010.

1031.Yitong Wang and L. Robin Keller, "Preference over Ambiguous Time," Poster presented at Behavioral Decision Research in Management conference, June 2010, Pittsburgh.

In this paper, we examine the impact of an ambiguous temporal distance on an individual’s discounting behavior. Specifically, we find that people generally discount more when facing an ambiguous point in a time span than when facing either boundary of this time span. One potential explanation is found by conducting further experiments. And one way to aid people to make consistent decisions over ambiguous time is also discussed in detail.

1030. Southern California Operations Research/Operations Management Conference at UCI, served as arrangements chair, co-sponsored with Pepperdine. May 2010. Conference rotates annually between UCLA, USC, and UCI.

1029. Yitong Wang and L. R. Keller, “Decision Over Ambiguous Time,” Merage Research Fest, with doctoral student posters. April 2010 (Wang presented the poster, Keller was organizer of research fest, as doctoral program director).

1028. James Leonhardt (Merage doctoral student), L. Robin Keller, and Peter H. Ditto (UCI Social Ecology), “Avoiding Risk by Seeking Uncertainty,” peer-reviewed poster presented by Leonhardt at Society for Personality and Social Psychology conference, January 2010.

1027. Yitong Wang, Tianjun Feng, L. Robin Keller, “Time Inconsistency of Risk Perception,” presented by Wang, San Diego INFORMS conference, October 2009.

Time inconsistency of preference has been well documented in the literature. In this paper we investigate intertemporal changes of risk perceptions in decisions under uncertainty. We propose that temporal distance has different influence on different attributes of decisions (e.g., loss and probability of loss in a gamble) with respect to risk perceptions. We further conduct experiments to examine the proposition and provide a detailed discussion of our results.

1026. Jay Simon and L. Robin Keller, “Reference-dependent Expected Utility: Possibilities and Challenges,” presented by Simon, San Diego INFORMS conference, October 2009.

Reference-dependent utility has become a popular method for modeling intertemporal preferences. While it does confer advantages as a descriptive model, one significant challenge is that it can make expected utility very difficult to compute a priori, which limits its prescriptive applicability. In this work, we discuss specific utility formulations that can circumvent this issue, and we analyze general properties that will lead to tractability in reference-dependent expected utility modeling.

1025. L. Robin Keller, Jay Simon (assistant professor, Naval Postgraduate School and Merage doctoral alumnus), Yitong Wang (Merage doctoral student), 2009, "Multiple Objective Decision Analysis Involving Multiple Stakeholders," invited 90 minute tutorial at the San Diego INFORMS conference in October 2009.

1024. L. Robin Keller, INFORMS Practice tutorial, Phoenix, April 2009, “Decision Analysis for Multiple Objective Decisions Involving Multiple Stakeholders.*"*

1023. Jay Simon and L. Robin Keller, “Decisions with Health Outcomes,**”** Presented by co-author Jay Simon (not attended by Keller), INFORMS Western Regional Conference, Arizona State University, April 25, 2009.

 Health-related decisions are often based on heuristics and incomplete information, and may not adequately incorporate decision maker preferences. We formulate a reasonably straightforward expected utility model by imposing some conditions on decision maker preferences. We then extend the initial work to a reference-dependent expected utility model, which captures the notion of adaptation and gives a better approximation of the utility actually experienced by the decision maker.

1022. L. Robin Keller, “Effective Decision Making,” MBA update, executive education seminar, UC Irvine, February 26, 2009.

1021. L. Robin Keller, Participant in invitation-only conference on "The Irrational Economist” in celebration of Howard Kunreuther’s 70th birthday, at Wharton on Dec. 4 and 5, 2008, bringing together researchers in Decision Sciences and Economics of Information and in Catastrophe Risk Management & Insurance.

1020. Tianjun Feng, L. Robin Keller (poster presenter), Liangyan Wang, Yitong Wang, “Biases and Patterns in Consumers’ Estimates of Product Health and Safety Risks: The Pet Food and Lead-tainted Toys Cases,” Judgment/Decision Making conference, November 15-17, 2008, Chicago.

1019. Participant, 2008 SJDM Preconference, “Using Human Nature to Improve Human Life,” University of Chicago Graduate School of Business, Nov. 2008.

INFORMS Annual Meeting, Washington DC, Oct. 12-15, 2008, 3 papers in session chaired by L. Robin Keller on Decisions and Risk Perceptions involving Ambiguity, Health, Safety, and Savings:

1018. Jay Simon (presenter), L. Robin Keller, “Life Decisions with Health Outcomes”

1017. L. Robin Keller (presenter), Tianjun Feng, Liangyan Wang, Yitong Wang, “Product Quality Risk Perceptions and Decisions: Pet Food and Lead-tainted Toys”

1016. Yitong Wang (presenter), Tianjun Feng, L. Robin Keller, “A Behavioral Model of Consumption under Anticipated Health and Income Risks”

Abstract: We study an individual's consumption decisions along an inter-temporal horizon when health, safety and financial risks are involved. Specifically, we propose a behavioral model to analyze individual consumption decisions by linking disparate streams of work on risk perception, time discounting, and consumption vs. savings patterns together. We further conduct a survey on Chinese subjects to test the model and obtain some managerial implications.

1015. Craig Kirkwood (presenter) and L. Robin Keller, “Decision Research,” presentation to External Advisory Committee, Decision Center for a Desert City, Arizona State University, Sept. 9, 2008.

1014. L. Robin Keller (based on discussions with doctoral students Yitong Wang and Jay Simon), “Decision Analysis Research Perspective on Opportunities and Challenges in Dealing with Terrorism and Security Issues,” talk at Behavioral Economics and Terrorism Risks Workshop, Aug. 15-16, 2008 at Homeland Security Center for Risk and Economic Analysis of Terrorist Events (CREATE), USC.

Decision analysis provides a valuable perspective to address decisions involving terrorist and security issues. First, at the problem structuring phase, we need to refine methods for individuals, groups, and organizations to generate future possible events. We do not yet even have good methods for generating states of nature which occur randomly. While actions of terrorists can be modeled as random states of nature, it is much more complicated to foresee events created by an opponent acting strategically. Second, at the preference and perception assessment stage, we need to understand the objectives of different (and competing) stakeholders in such decisions. We also need to understand how risk perception and risk adaptation changes over time, using discounting models or other temporal models. There will probably be a disparity in assessed valuation of security if people are asked their willingness to accept (WTA) a reduction in safety or if they are asked their willingness to pay (WTP) for an increase in safety. Finally, at the decision making stage, we could examine methods for resource allocation among safety expenditures in a game setting, decisions in contest games between a government and terrorists, and decisions using dynamically changing decision trees.

1013. Dipayan Biswas (presenter), L. Robin Keller, Bidisha Burman, "Predicting Future Product Failures: The Effects of Mental Unpacking and Regulatory Focus," Session on Regulatory Focus and Luxury Consumption in Consumer Behavior Track,American Marketing Association Summer Educator's Conference, San Diego, Sheraton San Diego, August 8-11, 2008.

1012. Dipayan Biswas (presenter, Bentley College), L. Robin Keller, Bidisha Burman (Appalachian State), "Making Probability Judgments of Future Product Failures: The Role of Mental Unpacking," Academy of Marketing Science Annual Conference, Vancouver, May 28-31, 2008.

1011. Jay Simon (presenter), with L. Robin Keller, Craig Kirkwood, “Decisions Using Geographic Information Systems,” UCLA/USC/UCI Annual OR/OM Conference, USC, May 20, 2008.

### 1010. Jay Simon (presenter), working with L. Robin Keller, “Life Decisions with Health Outcomes,” Sixth Annual IMBS Graduate Student Conference, May 21, 2008, UCI Institute for Math. Behavioral Sci.

1009. Career night panel member at the UCI Alpha Phi (Sorority) about MBA admissions and MBA careers, UC Irvine, May 12th, 2008.

**1008. Panel member for event sponsored by Social Enterprise Institute (**[www.SE-Institute.org](http://www.SE-Institute.org)**), co-sponsored with Net Impact and Pepperdine alumni,** “Profits with Principles- Closing the Responsibility Gap,” Newport Beach, April 22, 2008.

Posters presented at Behavioral Decision Research in Management conference, April 25-26, 2008, La Jolla (UC San Diego):

1007. Tianjun Feng (presenter) and L. Robin Keller, “Analyzing Decisions Involving Product Quality Risks in China and the United States: An Example of Pet Food and Lead-tainted Toys.”

1006. Jay Simon and L. Robin Keller (presenter), on “Multiple Attribute Utility in Medical Decision Making.”

In medical decision problems, patients are usually concerned with multiple attributes. These decisions are rather unique, because the outcomes are defined over a variable length of time, which is itself one of the attributes being considered. The goal of this work is to develop and analyze a general structure for utility functions to be applied in these situations. One useful concept that has been widely discussed in the literature is quality-adjusted life years (QALYs). This work extends the QALY concept by incorporating the possible occurrence of various conditions as probability curves over time.

1005. L. Robin Keller, “How to Make Smart Choices: Operations and Decision Technologies,” Merage School , UC Irvine, Brown Bag Seminar, February 14, 2008.

Participation in Symposium on "Focus the Nation at UC Irvine: Sustainability and Climate Change Solutions," Jan. 30-31, 2008. Focus the Nation events were held at over 1,400 campuses nationwide to address global climate change, discuss sustainable solutions, and take action to implement collaborative approaches to this intergenerational crisis. Two posters in Sustainability Showcase:

1004. Poster presenter: Tianjun Feng, collaborating with L. Robin Keller, Craig Kirkwood, Nancy S. Jones, Jay Simon, and Lowell Kessel, “A Multiple-objective, Multiple-stakeholder Decision Analysis Approach for Water Resources Planning”

1003. Poster presenter: Jay Simon, collaborating with L. Robin Keller, Craig Kirkwood, and Tianjun Feng, “Preference Functions for Environmental Decisions with Spatially-Varying Attributes”

Posters presented at the Society for Judgment/Decision Making conference, Long Beach, November 2007:

1002. L. Robin Keller (presenter), Craig Kirkwood, Arizona State Univ., and Jay Simon, “Modeling Decision Situations with Spatially-Varying Attributes”

1001. Tianjun Feng (submitter) and L. Robin Keller (presenter), "Modeling the Effects of Reference Point Dependence and Loss Aversion on Supplier Selection"

1000. Dipayan Biswas (UCI alumnus at Bentley College), L. Robin Keller, Bidisha Burman (Appalachian State)**,** “Making Probability Judgments of Future Product Failures: Packing versus Unpacking the Problem,” 2007 Association for Consumer Research Conference, accepted on 7-27-07 for a) presentation by Biswas in competitive paper session at Oct. 25-28, 2007 Memphis conference and b) extended abstract for publication in conference proceedings. ACR:

<http://www.acrweb.org/acr/assets/program.pdf>.

L. Robin Keller, “Panel Comments from Editor-in-Chief of *Decision Analysis*,” 2007 Annual Conference, INFORMS, Seattle, in Meet the Editors session, Nov. 2007.

L. Robin Keller (presenter) and Craig Kirkwood, Arizona State Univ., “Preference Functions for Decisions with Geographically-Varying Attributes,” 1) Merage School at UCI Brown Bag presentation, April 19, 2007, 2) INFORMS International Conference, Puerto Rico, July 2007, Invited presentation in session organized by Keller.

L. Robin Keller, "How to Make Smart Choices," UCI Mesa Court Community Center, February 1, 2007, to freshmen living in two UCI Mesa Court dorms: Puente (the Leadership Hall) and the Ciudad Freshman Residence Hall.

Craig Kirkwood, Arizona State University (presenter) and L. Robin Keller, “Geographically-Oriented Preference Functions,” INFORMS conference, Pittsburgh, November 2006. Invited presentation in session organized by Keller.

Tianjun Feng (presenter), L. Robin Keller, UC Irvine, Lowell Kessel, Craig Kirkwood, Nancy Jones, Jay Simon, “A Multiple-objective, Multiple-stakeholder Decision Analysis Approach for Water Resources Planning,” INFORMS International Meeting, Hong Kong, June 2006. Invited presentation in session organized by Keller.

L. Robin Keller, Dipayan Biswas (Bentley College), Tianjun Feng , Xiaona Zheng (Peking University), “Using a Time-Weighted Approach to Assess Multiple Attribute Utility,” presented as a poster at the Behavioral Decision Research in Management Conference, June 2006, Santa Monica.

Tianjun Feng, L. Robin Keller, and Xiaona Zheng, “Home Depot in San Juan Capistrano: A Multi-Objective Multi-Stakeholder Decision Case,” presented as a poster at Teaching pre-conference of the Behavioral Decision Research in Management Conference, June 2006, Santa Monica.

L. Robin Keller, Dinner speaker on “How to Make Smart Choices: Value-Focused Decision Making,” Life Office Management Association, Orange County, June 7, 2006.

L. Robin Keller, “Medical Decision Analysis,” Grand Rounds presentation for the Department of Psychiatry & Human Behavior, UCI Hospital, May 2, 2006.

Craig Kirkwood, ASU (presenter), L. Robin Keller, Nancy Jones, ASU, “Assessing Stakeholder Decision Concerns and Tradeoffs for the DCDC Water Model,” With thanks to Bill Edwards, ASU Decision Center for a Desert City (DCDC) and UC Irvine students Tianjun “TJ” Feng, Jay Simon, and Lowell Kessel, Presentation to ASU DCDC External Advisory Committee, April 14, 2006.

Craig W. Kirkwood, L. Robin Keller (presenter), and Nancy Jones, “Water Resource Management Priorities for Central Arizona Water Experts” March 1, 2006, Arizona State University Decision Center for a Desert City Water Briefing.

Craig Kirkwood, L. Robin Keller, and Nancy Jones, “Decision Research in Water Resources Management: A Multiple-Objective, Multiple-Stakeholder Analysis,” poster presentation at Central Arizona – Phoenix Long-Term Ecological Research (CAP LTER), Eighth Annual Poster Symposium, January 19, 2006, Arizona State University.

Tianjun Feng, L. Robin Keller (presenter), and Xiaona Zheng, “Home Depot in San Juan Capistrano: Multi-objective Multi-stakeholder Decision Case,” Fall 2005, Presentation at INFORMS conference Case Competition sponsored by INFORMS Forum on Education, recipient of Finalist award.

L. Robin Keller, Craig Kirkwood (presenter), W.P Carey School of Business, ASU, Nancy Jones, Decision Center for a Desert City, ASU, “Decision Research in Water Resources Management: A Multiple-objective, Multiple-stakeholder Analysis,” invited presentation for New Orleans (moved to San Francisco) INFORMS conference, November 2005.

Tianjun Feng (presenter) and L. Robin Keller, “Modeling the Effects of Reference Point Dependence on Supplier Selection,” invited presentation at IFORS conference, July 2005, Honolulu.

L. Robin Keller, “How Decision Analysis Approaches Can Complement Risk Assessments to Improve Environmental Decision Making,” Society for Risk Analysis Annual Meeting, December 2004, Palm Springs.

L. Robin Keller, Tianjun “TJ” Feng and Qiang “David” Zeng, “Multiple Objective Decision Analysis for Potassium Iodide Distribution in Nuclear Incidents,” Denver, Oct. 2004, INFORMS Conference.

Tianjun Feng and L. Robin Keller, “Modeling the Effects of Reference Point Dependence on Supplier Selection,” Denver, Oct. 2004, INFORMS Conference, presented by Feng.

S. David Brazer and L. Robin Keller, “The Multiobjective Multistakeholder Decision Making Model–Revealing Decision Making as it Happens,” July 7, 2004, UCSB Center for Educational Leadership Summer Forum.

L. Robin Keller, Dipayan Biswas, Tianjun Feng and Xiaona Zheng, UCI GSM Doctoral Student-Faculty Brown Bag Lunch Series, (February 26, 2004) “The Times of Your Life: Using a Time-weighted Approach To Assess Multiple-Objective Value.”

L. Robin Keller co-chaired a session on “Advances in Decision Analysis,” October 2003, conference of the Institute for Operations Research and the Management Sciences (INFORMS).

Dipayan Biswas, L. Robin Keller, Xiaona Zheng, and Tianjun Feng. “Time-Weighted Utility for Multiobjective Multistakeholder Perspectives for Environmental Problems.” (Subtitle: “How Much Do I Like a Day at the Beach: To Go in for a Dip or Not? The Time-Weighted Utility of a Day at the Beach”),Oct. 2003, INFORMS, Atlanta.

Dipayan Biswas, L. Robin Keller, and Xiaona Zheng, “To Go in for a Dip or Not? The Time-Weighted Utility of a Day at the Beach,” presented at Bayesian Research Conference, San Fernando Valley, February 2003.

L. Robin Keller, “Multiple Stakeholders’ Perspectives on Huntington Beach Ocean Pollution,” presented to Men’s Forum, Regents Point (Retirement Home), Irvine, January 23, 2003.

Jeffery L. Guyse and L. Robin Keller, “Valuing Lives Lost Over Time,” presented at INFORMS conference, San Jose, Nov. 2002.

Dipayan Biswas and L. Robin Keller, “To Go in for a Dip or Not? Perceived Probabilities of Swimming Despite Beach Risk Warning Signs: Impact of Peer Presence and Frequency of Beach Visits,” Presented at the Behavioral Decision Research in Management Conference, University of Chicago, Spring 2002.

L. Robin Keller, Jeffery L. Guyse and Dipayan Biswas, “Multiple Stakeholders’ Perspectives on Management of Water Systems and Pollution,” presented at 1) the Miami INFORMS conference, November 2001, 2) the Society for Risk Analysis conference, Seattle, December 2001, and 3) International Federation of Operations Research Societies (IFORS) Conference, Edinburgh, July 2002.

L. Robin Keller, “Preferences for Environmental Outcomes: Consistent with Discounting Models or Not?” presented at Stanford University, Decision Analysis Colloquium, Decision and Ethics Center, Department of Management Science and Engineering; April 12, 2001.

L. Robin Keller, “Preferences for Environmental Outcomes: Consistent with Discounting Models or Not?” presented at the EPA conference on "Economic Valuation of Mortality Risk Reduction: Assessing the State of the Art for Policy Applications," Silver Spring, MD, Nov. 6-7, 2001. Proceedings (written by EPA staff) are posted on the National Center for Environmental Economics web site. Follow the link to download the proceedings from Session IV, Risk Characteristics. <http://yosemite.epa.gov/ee/epa/eerm.nsf/vwRepNumLookup/EE-0464?OpenDocument>

Jeffery L. Guyse and L. Robin Keller, “Valuing Lives Lost Over Time,” presented at INFORMS International conference, Maui, June 2001, and Society for Medical Decision Making, San Diego, October 2001.

L. Robin Keller, Rakesh K. Sarin and Jay Sounderpandian, “Shift in Choices and Willingness to Pay when Individuals or Pairs Face Ambiguous and Less Ambiguous Risky Choices,” presented at the Research Colloquium in Operations and Decision Technologies, Graduate School of Management, UCI, May 5, 2000; Salt Lake City INFORMS Conference, May 2000, in session co-organized by Keller and Sounderpandian; Behavioral Decision Research in Management conference, May 2000, Tucson; Foundations of Utility and Risk conference X, Turin, Italy, May 2001, presented by Sounderpandian.

L. Robin Keller, “Moving Decision Analysis towards a Naturalistic Modeling Methodology for Multi-Objective Multi-Stakeholder Decision Cases,” presented in Naturalistic Decision Making session, Salt Lake City INFORMS conference, May 2000.

Jeffery L. Guyse, L. Robin Keller, and Thomas Eppel, "Assessing Preferences for Environmental Decisions with Long-Term Consequences," Society for Risk Analysis, Scottsdale, December 1998; "Preferences for Sequences of Long-Term Environmental Consequences," Subjective Probability, Utility and Decision Making Conference, Mannheim, Germany, August 1999, Los Angeles Judgment/Decision Making meeting in November 1999. Presented by Guyse at INFORMS Cincinnati, May 1999; Current Research in OR and OM Conference at UCLA, June 1999; INFORMS Philadelphia in November 1999 in session on Decision Analysis involving Outcomes over Time and Environmental Risks organized by Keller; and Atlanta Society for Risk Analysis, December 1999.

Monika I. Winn (presenter) and L. Robin Keller, “Harnessing Complexity, Idiosyncrasy and Time: A Modeling Methodology for Corporate Multi-Stakeholder Decisions,” presented at International Association for Business and Society Conference, Paris, France, June 1999.

Joanna L. Ho, L. Robin Keller and Pam Keltyka, “Managers’ Variance Investigation Decisions: An Experimental Examination of Probabilistic and Outcome Ambiguity,” presented by Ho at American Accounting Association annual meeting, 1999 and (combined with paper on managers’ investment choices) at 1998 Accounting Behavior and Organizations Research Conference.

L. Robin Keller and Craig Kirkwood, Co-chaired panel on founding a decision analysis journal, INFORMS Seattle, October 1998. Also served on “Panel on the Future of Decision Analysis Society Awards”.

Young-Hee Cho, L. Robin Keller, and M. Lynne Cooper, "Predicting Health Decisions: The Application of Subjective Expected Utility and Remaining Challenges," at INFORMS, Montreal, April 1998, and "Applying Decision-Making Approaches to Health Issues: Progress and Remaining Challenges," at Mathematical Psychology Conference, August 1997, presented by Cho.

Wen-Qiang Bian and L. Robin Keller, "What's Fair and What's Best: Chinese and North Americans in Decisions Affecting Health and Safety Risks and Decisions in a Market Economy," presented by Bian at Dallas INFORMS National Meeting, October 1997, and "Reductionist Thinking in Chinese Decision Making and a Framework to Add Culture into Decision Making Models: Interviews with Chinese Executives and a Case Study of a Service Quality Program," and "Chinese and Americans Agree on What's Fair, but Disagree on What's Best in Societal Decisions Affecting Health and Safety Risks," presented at the Seventh Behavioral Decision Research in Management Conference, Miami, June 1998.

L. Robin Keller and Craig W. Kirkwood, "The Role of Decision Analysis in Forming INFORMS," presented at International Workshop on Decision Analysis Applications, sponsored by the Instituto de España, Madrid, Spain, July 1997, as one of 12 special invited international speakers.

Wen-Qiang Bian and L. Robin Keller, "Decisions and Fairness Judgments on Risks and Prices by North Americans versus Chinese," presented at EURO XV/INFORMS XXXIV Joint International Conference, Barcelona, Spain, July 1997, and at 8th International Conference on the Foundations and Applications of Utility, Risk and Decision Theory, Mons, Belgium, July 1997.

Wen-Qiang Bian and L. Robin Keller, "Chinese and American Fairness Perceptions and Decisions in Health and Safety Related Situations, " presented by Bian at the 5th Southern California OM/OR Day, Irvine, California, June 1997.

Wen-Qiang Bian and L. Robin Keller, “Chinese and Americans Agree on What’s Fair, but Disagree on What’s Best in Societal Decisions Affecting Health and Safety Risks,” by Bian at San Diego INFORMS Conference, May 1997, by Keller at UCI GSM Brown Bag Seminar, May 1997.

L. Robin Keller, Panel Session Moderator, National Science Foundation Research Opportunities, at San Diego INFORMS Conference, May 1997.

L. Robin Keller and Monika I. Winn, "The Evolution of a Multiple Stakeholder Decision: StarKist's Environmentally Motivated Strategic Decision," presented at the Southern California Conference of Operations Research/Operations Management at UCLA, May 1996.

L. Robin Keller, "Applications of Multi-attribute Utility for Decision Analysis," presented at the Ninth Annual Workshop of the Southern California Society for Risk Analysis on "Current Issues in Risk Management and Human Health," USC, May 1996.

L. Robin Keller, "Decision Sciences Directions," presented to the Department of Decision Sciences, Georgia State University, February 1996.

L. Robin Keller, “Improving Problem Structuring,” INFORMS Meeting, New Orleans, Fall 1995; “Toward a Theory of Problem Structuring,” ORSA/TIMS Meeting, Phoenix, Fall 1993.

L. Robin Keller and Monika Winn, "Stakeholder Value Tree Analysis in the Case of StarKist's Environmentally Motivated Corporate Decision: Retrospective Analysis and Strategic Implications," Society for Risk Analysis, San Diego, December 1992; TIMS/ORSA Meeting, Boston, Spring 1994; Behavioral Decision Research in Management, MIT, May 1994 (Winn presented); EURO Conference, Glasgow, Scotland, July 1994; Decision Research Colloquium, University of Texas, Austin, March 1995.

L. Robin Keller and Rakesh K. Sarin, “Fair Processes for Societal Decisions Involving Distributional Inequalities,” University of Oregon, Feb. 1994; UCI Research Symposium in Operations Research and Operations Management, GSM, May 1994.

L. Robin Keller and Rakesh K. Sarin, "Fair Processes for Siting Hazardous Facilities," presented at Society for Risk Analysis, San Diego, December 1992; Bayesian Research Conference, San Fernando Valley, February 1993; UCI Decision Sciences Colloquium, February 1993; (with different title) TIMS/ORSA Joint National Meeting, Chicago, May 1993.

L. Robin Keller, "How Congress Allocates Research Funds to the National Science Foundation," UCI University Club Forum, January 1993.

Stuart P. Eriksen and L. Robin Keller, "Assessing the Relative Risk Attitude of Physician Decision Makers," Society for Risk Analysis, San Diego, December 1992; TIMS/ORSA Joint National Meeting, Chicago, May 1993.

L. Robin Keller, "Research Support," ORSA Doctoral Colloquium, Stanford University, October 1992.

Joanna L. Ho and L. Robin Keller, "The Effect of Inference Order on Diagnostic Probability Judgments," Behavioral Decision Research in Management Conference, UC Berkeley, May 1992.

L. Robin Keller, "Decision Problem Structuring," presented at Decision Systems Seminar, University of Southern California, December 1991.

Ivy Broder and L. Robin Keller, "Equity Considerations in Managing Risks in Antarctica," presented at UCI conference on "Preference, Risk, and Choice," June 1991; Joint International meeting of the Institute of Management Sciences and the Brazilian Society of Operations Research, Rio de Janeiro, July 1991.

L. Robin Keller, "Descriptive Validity of Assessed Utility Functions and Choice-Based Assessment," talk based on joint work with Richard Daniels, Wharton School, University of Pennsylvania, Decision Sciences Seminar, March 1990; and Carnegie-Mellon University, School of Urban and Public Affairs Seminar, September 1990.

Richard Daniels and L. Robin Keller, "Choice-Based Assessment of Utility Functions," presented at University of Virginia, Darden School, January 1991; Harvard University Decision Sciences Colloquium, December 1990; Renssalaer Polytechnic Institute, Decision Sciences and Engineering Systems, November 1990; FUR V Conference, Duke University, June 1990; ORSA/TIMS Joint National Meeting, New York, Oct. 1989; Bayesian Research Conference, February 1990.

L. Robin Keller and Uzi Segal, "An Experimental Study of Certainty Equivalents Assessed via the Becker-de Groot-Marschak Mechanism," presented at the TIMS/ORSA Joint National Meeting, Las Vegas, May 1990.

L. Robin Keller talks to Social-Personality Psychology Club, University of California, Santa Barbara, June 1989; and the class on "How Society Deals with Technological Hazards" at University of Maryland (Prof. V. Bier), February 1990.

L. Robin Keller, "The Role of Generalized Utility Theories in Descriptive, Prescriptive, and Normative Decision Analysis," invited presentation at the "Utility: Theories, Measurements and Applications" Conference, June 1989, Santa Cruz, CA.

Lauraine G. Chestnut, L. Robin Keller, and William E. Lambert, "Modeling Heart Patients' Preferences over Health States," presented at the ORSA/TIMS Joint National Meeting, Denver, CO, October 1988.

Richard Daniels and L. Robin Keller, "An Experimental Evaluation of the Descriptive Validity of Lottery Dependent Utility Theory," presented at the TIMS/ORSA Joint National Meeting, Washington, D.C., April 25-27, 1988; University of British Columbia, Nov. 1988; Purdue University, Jan. 1989.

L. Robin Keller, "Artful Science or Scientific Art? Towards a Prescriptive Paradigm for Decision Problem Structuring," invited presentation at the ORSA/TIMS Joint National Meeting, St. Louis, October 25-28, 1987. Also presented at the 26th Annual Bayesian Research Conference, Los Angeles, February 1988.

L. Robin Keller and Rakesh K. Sarin, "Equity in Social Risk: Some Empirical Observations," presented at the University of Wisconsin, Department of Industrial Engineering, March 11, 1987; Annual Meeting of Public Choice Society in conjunction with the Economic Science Association, Tucson, AZ, March 1987; Conference on the Health and Behavioral Impacts of Environmental Hazards, UCI, May 1987; Behavioral Decision Research in Management Conference, University of Texas, Austin, June 1987.

L. Robin Keller and William E. Lambert, "Multiattribute Utility Modeling of Cardiac Health Effects from Carbon Monoxide Exposure," Center for Health Policy Research and Education, Duke University, March 19, 1987.

L. Robin Keller and Rakesh K. Sarin, "I'm Fairly Fair About Fairness; or Equity in Social Risk: Some Empirical Observations," 25th Annual Bayesian Research Conference, Los Angeles, CA, February 1987.

L. Robin Keller, "Towards a Prescriptive Paradigm for Problem Structuring," Decision Analysis Workshop, The Fuqua School of Business, Duke University, Jan. 29, 1987.

L. Robin Keller and Rakesh K. Sarin, "Equity in Social Risk: Some Empirical Observations," invited presentation at the Operations Research Society of America - Institute of Management Sciences Joint National Meeting, Miami, Florida, October 27-29, 1986. Also presented to local Orange County Chapter of ORSA/TIMS, September 10, 1986.

L. Robin Keller and William E. Lambert, "Multiattribute Utility Modeling of Cardiac Health Effects," invited presentation at the VIIth International Conference on Multiple Criteria Decision Making," August 18-22, 1986, Kyoto, Japan.

L. Robin Keller, "It's Risky to Speak About Perceived Risk," presented at the 24th Annual Bayesian Research Conference, Los Angeles, California, February 1986.

L. Robin Keller, Rakesh K. Sarin, Martin Weber, "Evaluation of Some Properties of Perceived Risk Measures," invited presentation at the Institute of Management Sciences - Operations Research Society of America Joint National Meeting, Boston, Massachusetts, April 29 - May 1, 1985.

L. Robin Keller, Decision Problem Representation," invited presentation at the Lehrstuhl fur Unternehmensforschung (Operations Research), Rheinisch-Westfalische-Technische-Hochschule, Aachen, Federal Republic of Germany, June 1984.

L. Robin Keller, "Trends in Utility Conformance with Variations in Decision Problem Parameters," presented at the Twenty-sixth International Conference of the Institute of Management Sciences, Copenhagen, Denmark, June 1984.

L. Robin Keller and Peter H. Farquhar, "Decisions Under Certainty: Assessment Methods for Value Functions," invited presentation at the Institute of Management Sciences-Operations Research Society of America Joint National Meeting, San Francisco, California, May 1984.

L. Robin Keller, "I Differ with Gamblers About Comparing Differences: Measurable Value Function Assessment," presented at the 22nd Annual Bayesian Research Conference, Los Angeles, California, February 1984.

L. Robin Keller, "Measurable Value Function Assessment," presented at the Operations Research Society of America/Institute of Management Sciences Joint National Meeting, Orlando, Florida, November 1983.

L. Robin Keller, "The Effects of Decision Problem Representation on Utility Conformance," presented at the Operations Research Society of America/Institute of Management Sciences Joint National Meeting, San Diego, California, October 1982.

L. Robin Keller, "Inducing Rational Decision-Making Behavior," presented at the Operations Research Society of America/The Institute of Management Sciences Joint National Meeting, Houston, Texas, October 1981.

L. Robin Keller, "An Empirical Investigation of Relative Risk Aversion," presented at the Institute of Management Sciences/Operations Research Society of America Joint National Meeting, Washington, D.C., May 1980.

**AWARDS, GRANTS AND HONORS**

**Ramsey Medal**, for distinguished contributions to decision analysis, highest award of the Decision Analysis Society of INFORMS, 2015, <https://www.informs.org/Recognize-Excellence/Community-Prizes-and-Awards/Decision-Analysis-Society/Frank-P.-Ramsey-Medal>

**Best Reviewer** for *Risk Analysis*, 2010

UCI Merage School of Business **Faculty Service Award**, June 2008

Recognized in Who’s Who in Science and Engineering

**Kimball Medal** Recipient for 2006, presented at Pittsburgh INFORMS conference, for distinguished service contributions to Operations Research and the Management Sciences. <https://www.informs.org/Recognize-Excellence/INFORMS-Prizes-Awards/George-E.-Kimball-Medal>

 <https://www.informs.org/Recognize-Excellence/Award-Recipients/L.-Robin-Keller>

Tianjun Feng, L. Robin Keller, and Xiaona Zheng, “Home Depot in San Juan Capistrano: Multi-objective Multi-stakeholder Decision Case,” Fall 2005, Presentation at INFORMS conference Case Competition sponsored by INFORMS Forum on Education, recipient of Finalist award.

**INFORMS Fellow**, awarded Oct. 25, 2004, for contributions to Operations Research and the Management Sciences, <https://www.informs.org/Recognize-Excellence/Fellows>

Winner of the “**Breaking the Frame Award**” at Western Academy of Management meeting in March 2002 by the Journal of Management Inquiry for best paper of 2001, co-authored with GSM doctoral alumna Prof. Monika I. Winn of University of Victoria.

UCI Graduate School of Management **Faculty Service Award**, May 1993.

UCI Graduate School of Management **Excellence in Teaching** Award, to the best teacher of the year,
upon vote by students, 1982-83, 1985-86.

UCLA Graduate School of Management Outstanding Graduate, 1982-83. Recognition of academic
distinction upon vote by faculty and sponsored by UCLA Alumni Association.

UCLA Academic Senate's Special Commendation as a Teaching Assistant, 1975-76.

Member of Beta Gamma Sigma, the national business honorary society.

Listed in Who's Who in the West, Who's Who of Emerging Leaders in America, Who's Who in American Education, Who's Who in California, International Directory of Distinguished Leadership Dictionary of International Biography, 2000 Notable American Women, and International Who's Who of Professional and Business Women.

 Awards to students based on research collaborations:

**Dispayan Biswas**, dissertation proposal awards:

Winner, Association for Consumer Research–Sheth Foundation dissertation Proposal Award, $2,000 check and plaque awarded at October 2002 conference

Runner-up, Academy of Marketing Sciences Mary Kay Dissertation competition, presented at May 2003 conference.

**Xiaona Zheng**, awarded a Decision Analysis Society student travel grant ($200) on 8/13/03 to attend October 2003 INFORMS Conference and present EPA funded work on “Time Weighted Utility for Multiobjective Multistakeholder Perspectives for Environmental Problems,” with L. Robin Keller, Dipayan Biswas and Tianjun Feng.

**Jay Simon**, Sanli Pastore & Hill Excellence in Economics Writing Award. UCI Institute for Mathematical Behavioral Sciences, Third Place, based on his paper on prostate cancer decision making in Interfaces. June 2009 press coverage of his paper:

 <http://www.sciencedaily.com/releases/2009/06/090615144429.htm>

**James M. Leonhardt**, Finalist in 2013 Decision Analysis Society of INFORMS Student Paper competition for his paper with L. Robin Keller and Cornelia Pechmann.October 2011. “Avoiding the Risk of Responsibility by Seeking Uncertainty: Responsibility Aversion and Preference for Indirect Agency When Choosing for Others,” in Journal of Consumer Psychology, [http://ssrn.com/abstract=2015956](http://ssrn.com/abstract%3D2015956). (He was a Marketing doctoral student at the time the paper was published, and is now an Assistant Professor, New Mexico State.)

**Jeffery L. Guyse**, Decision Analysis Society of INFORMS, finalist in 1999 student paper competition (for papers with student as lead author) for Guyse, Keller, and Eppel’s “Valuing Environmental Outcomes: Preferences for Constant or Improving Sequences.”

Grants and

Fellowships

USC CREATE Center (subcontract from Department of Homeland Security funds), “The Effects of Time on Anticipated Consequences of Risks,” Keller (PI), Yitong Wang (student investigator), March 2011-Sept. 2011, $19,982; Oct. 2011-Sept. 2012, $15,000 (Candice Huynh and Yuhong He, student investigators)

The John S. and Marilyn Long Institute for U.S.-China Business and Law, $5000 grant on 7-2-2011 to Tianjun Feng (Fudan University), L. Robin Keller, and Yitong Wang (Tsinghua University), “A Cross-national Study of Food Safety Management: Comparisons between the United States and China”

National Science Foundation Dissertation Grant, 2010-2011, “Doctoral Dissertation Research in DRMS: Decision Research on Time, Risk, and Ambiguity.” Keller (PI), Yitong Wang (Co-PI). $6,270

UCI Environment Institute Grant, Winter 2009-, Principal Investigators: Bill Tomlinson (Informatics), Brett Sanders (Civil & Environmental Engineering), and Robin Keller (Merage School), “*Using IT to Compress Perceived Time and Space in How People Think About Global Change: A Step Towards Behavioral Change.”* $12,051 to Keller and RAs, total $48,000= $38,000 from Institute + $10,000 from UCI UWRC

Many people find it difficult to engage with environmental issues, in part because global change occurs on scales of time and space that are relatively large compared to the usual scope of human decision making. People respond enthusiastically to fast-acting disasters such as fires and earthquakes, but less so to issues that occur more gradually over many years, even when the consequences are far greater. To date, there has been little research on how to connect long-term global environmental change to human scales of time and space in a systematic way, thereby enabling behavioral change. Our efforts will focus on the science and public perception of sea level rise.

National Science Foundation, L R. Keller (PI) and Jay Simon (co-PI), to University of California, Irvine, Proposal ID  SES-0823458, “Doctoral Dissertation Research in DRMS:  Cross-Disciplinary Analyses Using Multi-Attribute Utility Theory,” submitted Feb. 7, 2008, notified of recommended funding 5-28-2008, $5,200. To support Jay Simon’s dissertation expenses. (Start date 8-1-08, 12 months.) The e-Synopsis for the project: <http://apps.research.uci.edu/awardsynop/>. At the prompts, enter the following information:  Award Number:  SES-0823458 , Synopsis Cycle:  1.

National Science Foundation, Research Center to Arizona State University, “Decision Center for a Desert City” for a 5 year Center grant, $6.9 million, 2004-2009, subsequently extended for another 5 year term, Keller served on decision research team with Craig Kirkwood of ASU, Supported former doctoral students Tianjun Feng (non-salary research) and Jay Simon (RA support) and partial faculty summer salary in summer 2009

U.S. Environmental Protection Agency, “Identification and Control of Non-Point Sources of Microbial Pollution in a Coastal Wetland,” Co-Principal Investigator with PI Brett Sanders, UCI Dept. of Civil and Environmental Research, grant R-82801101-0, 8/1/00-7/31/04, $895,234, with $145,020, under Keller’s supervision on stakeholders’ perspectives (Supporting Dipayan Biswas, Xiaona Zheng, & Tianjun Feng)

U.S. Environmental Protection Agency, "Assessing Preferences for Environmental Decisions with Long-Term Consequences," Principal Investigator L. Robin Keller, $181,851, 8/1/98 - 7/31/2001, under EPA/NSF STAR Partnership for Environmental Research EPA grant R826611-01-0, and a subcontract to Decision Insights, Inc., Dr. Thomas Eppel (Supported Jeff Guyse’s doctoral dissertation work)

National Science Foundation Grant #SBR-9605826, “The Chinese vs. North American Perceptions and

 Decision Making Concerning Fairness and a Framework to Incorporate Culture into Decision Making,” Principal Investigator L. Robin Keller and Co-Principal Investigator Wen-Qiang Bian, $9,030, 1997-98 (Supported Bian’s doctoral dissertation work)

National Science Foundation Grant, "Foundations of Risk Analysis: Theoretical and Empirical
Investigation," Faculty Associate (with Co-Principal Investigators Rakesh K. Sarin and Robert L.
Winkler), 1988-90, $119,000

U.S. Environmental Protection Agency, Office of Policy Analysis grant, "Economic Analysis of Risk to
Heart Disease Patients from Exposure to Carbon Monoxide," Co-Principal Investigator, 1985 (with
Steven D. Colome)

National Science Foundation Grant, "Foundations of Risk Analysis," Senior Associate, 1984-86 (with
Rakesh Sarin), $82,000

UCI Committee on Research Faculty Research Grant:
 1986-87 - "Foundations for a Normative Theory of Decision Problem Structuring"
 FHP Research awards:
 1986-87 - "Risk Analysis and Equity"
 1986-87 - "The Management of Emergency Medical Services," with Bruce Lamar

UCI Faculty Fellowships administered through GSM:

 1983-84 - "Modeling Preferences: Theoretical and Empirical Investigation"
1984-85 - "Foundations of Risk Analysis"
1985-86 - "Biases in the Modeling of Preferences"
1986-87 - "Risk Analysis and Equity"

UCI Instructional Improvement Grant, 1983-84, with Carlton Scott

GSM Instructional Improvement Grant, 1986, with Bruce Lamar

University of California Intercampus Activities Award, "Determinants of Risk Perception," 1985-86

 UCI Career Development Awards:
 "Foundations for a Normative Theory of Decision Problem Structuring," W 1987, sabbatical supplement "Modeling of Perceived Risk," June 1984, research travel
 "Modeling Preferences: Theoretical and Empirical Investigations," Spring 1984, course release

### PROFESSIONAL SOCIETIES

 **Decision Analysis Society of INFORMS**

 Advances in Decision Analysis conference at Georgetown, June 2014,

 sponsored by the Decision Analysis Society of INFORMS

 Steering committee member (high level advice)

 Appointed session chair for Research Incubator session

 DA 50-Year Celebration Program Committee- 2014

 Past-Chair (renamed Past-President), 2002-04
 Chair, Spring 2000-2002
 Chair-Elect, Spring 1998-2000

 Publications Award Competition in 2012, for a 2010 paper, member of committee

 Chair, Practice Award Competition, 2002 and 2003

 Session chair activity is listed above under conference talks.

 **Institute for Operations Research and the Management Sciences (INFORMS)**

 President, 2015; President-Elect, 2014; Past-President, 2016 (Executive Board Member)

 <https://www.informs.org/About-INFORMS/History-and-Traditions/Miser-Harris-Presidential-Portrait-Gallery>

 Board Liaison to INFORMS Roundtable (heads of OR groups in companies)- 2014

 Board Liaison to INFORMS History and Traditions Committee, 2016 (as Past President)

 INFORMS Strategic Planning Committee, Co-chair, 2016

 President’s Award Committee Chair, 2015; Member 2016 and 2017.

 Nominations Committee Member for 2015 election- 2014, Chair for 2017 election- 2016

 Committee on the Board Member, 2016

 Ad Hoc Committee on Diversity Member, 2016

 Master INFORMS Judge for Posters (walk through posters with attendees & moderate discussion

 with presenters, judge posters), INFORMS Annual Meeting, Nov. 2016

 Conference Board of the Mathematical Sciences, Investments Committee Member,

 [www.cbmsweb.org](http://www.cbmsweb.org/) (as INFORMS President, 2015)

 Ad Hoc Board Committee on Open Access Chair, 2014

 Kimball Medal Committee Member 2011 and 2012, Chair, 2013

 Special Ad Hoc Committee on Publication Strategy Member, appointed 9-07

 INFORMS Board of Directors: Founding Director-at-Large, ’95, ’96, Liaison for Education Cluster
 Finance Committee Member, 1995

 NSF Liaison Committee Member, 1995-98

 **The Institute of Management Sciences**

 Elected Vice President-Finance, Sept. 1993 - Dec. 1994, served simultaneously as chair of TIMS Investment Committee

 TIMS Nominations Committee, Spring 1993
 Chair, Cost-Benefit Subcommittee to Evaluate TIMS/ORSA Merger, Fall 1993

 Council Member, 1991-93

 Chair, Editorial review committee for Organization Science, 1992

 OR/MS Board Finance Committee member, 1992-94
 **Operations Research Society of America, Elected to Full Member, 1985**

 Nominations Committee Member, 1990

 Employment Opportunities Chair, TIMS-ORSA Joint National Meeting, Los Angeles, April 1986

 Orange County ORSA-TIMS Joint Chapter, Founder, Member through 1989

 ORSA Special Interest Group on Decision Analysis

 Elected Council Member, 1986-89
 Student Paper Competition: Judge (1986), Chair (1987)

 **Society for Risk Analysis**

 **Society for Judgment and Decision Making**, Charter Member

 **European Association for Decision Making**

International Federation of Operations Research Societies (IFORS) member of Program Committee for

 2002 Conference in Edinburgh; 2005 conference in Hawaii

Invited Nominator of Candidates for Bank of Sweden Prize in Economic Sciences in Memory of Alfred

 Nobel, most recently 1/2016

Member in 6/2009 of the International Programme Committee of the International Conference on "Uncertainty and Robustness in Planning and Decision Making." INESC Coimbra, an R&D unit of the University of Coimbra, conference organized in the framework of the COST Action IC0602 on Algorithmic Decision Theory ([www.algodec.org](http://www.algodec.org)), held April 15-17, 2010.

**EDITORIAL SERVICE**

# Editorial

Appointments

 Decision Analysis Editor-in-Chief, Term 1:1/2007-12/2009

 Term 2 and final term: 1/2010-12/2012 Founding Member of Editorial Board (2004-on)

 Management Science Decision Analysis department Departmental Editor, 4/1994-4/1998

 Associate Editor, 1989-March 1994

 EURO Journal on Decision Processes Founding Member, Editorial Board 2012-

 Journal of Risk and Uncertainty Editorial board, 1995-February 2011

 Journal of Behavioral Decision Making Editorial board, Winter 1994-Fall 2010

 Organizational Behavior and Human Decision Processes Editorial board, Jan. 2000–June 30, 2004

 Information and Decision Technologies (formerly Large Scale Systems), Associate Editor, 1989-93

Reviewer In addition to journals above: Operations Research, IEEE Transactions on Systems, Man, and

Activity Cybernetics, Risk Analysis, OMEGA, Medical Decision Making, Naval Logistics Research Quarterly, European Journal of Operations Research, Decision Sciences, Information Systems and Operational Research, Psychological Science, Journal of Mathematical Psychology, Environmental Management, American Economic Review, Geneva Risk and Insurance Review, Wiley Encyclopedia of OR/MS

 National Academies/National Research Council

 External Reviewer

 (Summer 2011- “Improving Metrics for the Department of Defense Cooperative Threat Reduction Program”)

 National Science Foundation (U.S.A.)
 Panelist: Decision, Risk, & Management Science Program Advisory Panel, Fall 2000-Spring 2002

 Integrative Graduate Education and Research Training Program

 Human Dimensions of Global Change Centers and Teams

 National Center for Environmental Decision Making

 Reviewer: Decision, Risk, and Management Science Program

 Law and Social Sciences Program (Dissertation proposal- 2011)

 Economics Program, Geography and Regional Science Program

 Research Grants Council (Hong Kong)

 Reviewer: Decision Analysis Proposals and Center Proposals

 Decision Sciences Institute (formerly American Institute for Decision Sciences)
 National Meeting paper reviewer

 American University (Washington, DC)

 Reviewer: Faculty Sabbatical Research Proposals

# Journal

# Planning Spearheaded effort to found Decision Analysisjournal.

#  Organized planning meeting in San Francisco, February 1999, and conference panel discussion.

Chair, Decision Analysis Journal Founding Editor Search Committee, Dec. 2000-April 2001.

**TEACHING**

Doctoral Student

Development

Alexander Robinson, Ph.D. advisor, Fall 2017-.

Jiaru Bai, Operations and Decision Technologies (ODT) PhD student (Decision Analysis, Markov Models), advisor, Sept. 2012-March 2014. Continuing advice on Markov decision tree modeling for cervical and ovarian cancer cost-effectiveness analysis, April 2014-May 2015. Co-chair of dissertation committee with Prof. Shuya Yin, June 2015-June 2017. Advancement proposal, “Markov cost-effectiveness analysis for cancer treatment,” advanced in June 2015, graduation June 2017, Thesis title: “Interdisciplinary research in operations management: Applications in healthcare, retailing and on-demand service platforms”, assistant professor, Binghamton University, Fall 2017. First place, POMS 2017 Supply Chain Management College student paper competition (May 2017), POMS conference, Seattle, based on her joint work with Rick So and Chris Tang at UCLA. 6 papers were in the finalist list including papers from CMU, MIT, UT Dallas and University of Toronto. <http://poms.org/2017/04/2017_college_of_supply_chain_m_1.html>.

Ali Esmaeeli, ODT PhD student, data driven models, social networking support for tobacco cessation, advisor, June 2015-. Advancement to candidacy Sept. 1, 2017.

Yuhan Wang, ODT PhD student dissertation committee member, 2017, “Managing Demand Uncertainty in Collaboration Mechanism Design for Carrier Alliances”

Vahid Nourbakhsh, ODT PhD student advancement committee, Sept. 2016, “A Global Optimization Algorithm for Routing Heterogeneous Jobs to Heterogeneous Servers.”

Percy Mistry, Cognitive Science, advancement committee, 7-27-15 (information search, learning effects and decision making under dynamic (changing) conditions).

Bart Knijnenburg, ICS, proposal defense, 6-9-14, “A user-tailored approach to privacy decision support”, dissertation defense 7-27-2015, Clemson University Assistant Prof. in Human-Centered Computing, Fall 2015.

Rico Bumbaca, Marketing doctoral student, independent study on decision theory, Summer-Fall 2013.

James Leonhardt, Marketing, advancement committee (Spring 2012) and dissertation committee (May 7, 2013), “The Name-Control Effect in Consumer Judgment and Decision Making”, Assistant Professor, New Mexico State Univ., Fall 2013-June 2016, University of Nevada, Reno, Fall 2016-.

Kim McCarthy, Organization and Management (O&M), “Is E-Rudeness At Work Contagious? The Impact of Rude Email on Employee Performance”**,** June 14, 2013.

Greg Autry, Policy, “In New Space, No One Can Hear Them Scream: Government Roles in Community Emergence,” advancement committee, July 2012.

Yuhong He, ODT PhD student, working committee member, March 2011-, advancement and dissertation committee member, advanced in August 2011, graduated June 2014, “Joint Selling of Complementary Suppliers under Competition and Alliance Formation among Complementary Suppliers for Durable Products”, Assistant Professor, Clemson University, Fall 2014. Assistant Professor, Cal State Fullerton, Fall 2015.

Hannah Oh, Marketing, 3-person working committee member, Spring 2011-graduated July 2014. Assistant Professor, UT Rio Grande Valley (former Univ. of Texas- Brownville). As of 9-16, at Univ. of Nebraska, Omaha.

Brent Miller, Cognitive Science, dissertation committee member, “The Wisdom of Crowds and Rank Ordering Problems Can We Aggregate Where We Cannot Average?” Sept. 2011.

Patricia Wellmeyer, Accounting, visiting doctoral student from NHH Norway, dissertation advice, 2011, Decisions under ambiguity and group choice (June 2016 final defense, lecturer appointment at UCI).

Laura Huang, Organization and Management, dissertation committee member, “A Test of the Impact of Gut Feel on Entrepreneurial Investment Decisions,” March 15, 2011 advancement, Assistant Professor at Wharton as of Fall 2012. (Graduated Winter 2013).

Yeong Seon Kang, Marketing, dissertation advancement committee, “Essays on Marketing Strategy: Quality Competition, Distribution Channel Structure, and Downsizing,” committee formed in Sept. 2010, official advancement in Spring 2011. Final defense on Dec. 5, 2012.

Yitong Wang, ODT PhD student, advisor and dissertation chair, ODT doctoral student, beginning September 2007, advanced to candidacy in Winter 2010, “Decision Research on Time, Risk, and Ambiguity,” graduated Sept. 2011, Assistant Professor, Tsinghua University, Beijing, Industrial Engineering, from Fall 2011-summmer 2013; Lecturer in marketing (i.e., assistant professor) University of Technology Sydney, Fall 2013-.

Candice Huynh, ODT PhD student, advisor, Summer 2010-June 2014, passed Phase I exam 10-2011. Advancement to candidacy, chair, “Risk Attitudes in the Supply Chain, Proxy Attributes and Personal Consumption”, May 14, 2013. Assistant Professor, Cal Poly Pomona, Fall 2014.

Heidi Tucholski, IMBS Doctoral student independent study of decision theory, Winter/Spring 2010, “Incentivized Decisions in the U.S. Air Force: Stepping Back to Look at the Big Picture”, March 4, 2013, Advancement committee. Graduated Winter 2014.

Matthew Feldmann, IMBS Doctoral student independent study of decision theory, Winter 2010.

Jay Simon, 9/2005-6/2009, ODT PhD student, advisor and dissertation chair, “Cross-Disciplinary Studies in Multiattribute Utility.” Advanced to candidacy 3/20/08. Graduated 6/14/2009. Assistant Professor, Naval Postgraduate School, Monterey, CA, as of 8-1-09. Moved to American University in Washington DC, summer 2015.

Wenting Pan, ODT PhD student, advancement committee member, May 2009-2012, Three Essays in Inventory Management, dissertation title: "Optimal Operational Strategies for an Assembly System Under Supply Uncertainty,” final defense 5-21-2012. St. Mary’s, CA, Assistant Prof., Fall 2012.

Dante Pirouz, Marketing, advancement to candidacy committee, “**The Dark Side of Product Attachment: Reactivity of Addicted Users to Ad Cues” on** neuroscience and tobacco smoking ads, Dec. 2008, graduated 6/2010. Assistant Professor, Ivey School, University of Western Ontario, starting Fall 2010.

Anitza Ross Grubb, Organization and Management, Dissertation Committee, “The Effect of Mood on Escalation of Commitment,” 2008-10, advanced 2/12/2010, final defense July 2011.

David Tannenbaum, Social Ecology, Psychology and Social Behavior, 2/24/10, advancement to candidacy committee member, “A Reasons-based Framework for Policy Defaults”, post doc at UCLA in 2011-14 and U. of Chicago 2014-16, University of Utah assistant prof., Fall 2016.

Ofer Mintz, Marketing, advancement to candidacy committee, “What Drives Managerial Use of Metrics and Does it Matter to Performance?”, 4-29-10, final defense, 11-28-11, Visiting Professor, Interdisciplinary Center (IDC) Herzyila in Israel in Spring 2012, Assistant Professor, marketing, LSU, Fall 2012, Lecturer (i.e., assistant professor), University of Technology, Sydney, July 2017-.

Smith Williams. Department of Economics, Advancement to candidacy committee, 5-2009.

Tianjun Feng, ODT PhD student, 2002-June 2008, advisor, dissertation chair, advanced to candidacy on 3-15-06, graduated June 2008, “Three Essays in Supplier Management”. Assistant Professor, Fudan University, Shanghai, as of Sept. 1, 2008. Promoted to Associate Professor, Jan. 2012.

Burçak Ertimur,Marketing, advancement to candidacy committee, “The Impact of Customer Generated Advertising on Corporate and Brand Images: The Issue of Source Effects,” September 2007. Assistant Professor of marketing, Fairleigh Dickinson University, as of Fall 2009.

Jiana-Fu (Jeff) Wang, Transportation Studies, UCI, advancement to candidacy committee, “Operational Strategies for Single-Stage Crossdocks,” March 2007, final dissertation defense, 10-27-08. Assistant professor, Department of Industrial and Systems Engineering, Chung Yuan University, as of February 2009. Department of Marketing at National Chung Hsing University (Taiwan) since August 2009.

Liangyan Wang, Marketing, advancement to candidacy committee, “Toward a Hierarchy of Reference Group Messages: Distinguishing the Effects of Informational, Value-expressive, and Utilitarian Reference Groups,” September 2006. Assistant Professor, Shanghai Jiao Tong University, beginning Fall 2008, Associate Professor as of 2010.

Shaoxuan Liu, ODT PhD student, doctoral dissertation committee, “The Impact of Uncertain Supply on Marketing and Inventory Decisions,” September 2006. Assistant professor, Shanghai Jiao Tong University, beginning Fall 2008. Assoc. Prof. 2013-2016. Summer 2016 went to become founding Executive Director, [Ningbo Supply Chain Innovation Institute China (NSIIC)](http://r20.rs6.net/tn.jsp?f=001FqUY9SsX0zLUQ3y-DunINztkGy4XB2SChVezk18yoU1sjAaLJ4kJfTOvicYSu5IjuIp6svBlDk11TbtF2Ql7Zu71xl8CXMy0jJ97rYMt0BthUxXnBAqzZoJkVpQbHz8ecWkqDF2bMgEmb3NM7TywOKQ5xf4EKWu84RG7V9OZ9tlnrw6tv10uKvdRUzn0xG4wltn1uxz8JEFdRZF72qymlQ==&c=Xkcrg5Y8rfAHATLR6Tc7dkcN4VSWd-nbaUbT-2q9LS74VxfK3vi12g==&ch=cUIRlJROkeZ8aMi6FMHC1J_1KJ0F7g1s8bjcqyVqpqX1iAkzUi05_Q==), established in a partnership of the Center for Transportation & Logistics (CTL) at MIT with the government of Ningbo; the NSIIC is part of the MIT Global Supply Chain and Logistics Excellence (or SCALE) Network.

Merlyn Griffiths, Marketing, advancement to candidacy committee, Consumer territoriality behavior, 7-06, graduated 2007. Assistant Professor, University of North Carolina, Greensboro, Fall 2007. Professor as of 2013.

Qiang “David” Zeng, ODT PhD student, 2004-05, advisor.

Xiaona Zheng, ODT PhD student, research assistant, summer 2002-summer 2003, co-author 2004-05, moved to Duke University to complete degree with Prof. Jeannette Song, named Assistant Professor at Peking University in summer 2005, Associate Professor from 2010.

Daniela Balkanska, advancement to candidacy committee member, August 2005, “Disposition effect and heterogeneous beliefs.” Assistant Professor, San Francisco State.

Tom Moliterno, dissertation committee member, graduated 6/05, “Behavioral Antecedent to Firm-Level Resource Replacement and Acquisition, "Assistant Professor of Management, Moore School of Business, Univ. of So. Carolina, appointed summer 2005. Associate Professor, U. Mass Amherst, as of 2013.

Guangzhi “Terry” Zhao, Marketing, Spring 2002, dissertation committee member, advanced 9/03, graduated 2005, “Regulatory Focus, Message Framing, and the Persuasiveness of Antismoking Ads Targeted at Youths.” Received dissertation award of $60,000 from Tobacco Related Disease Research Program. Assistant Professor of Marketing, School of Business, University of Kansas, summer 2005. Assistant Professor, Loyola U., Maryland as of 2013.

Dipayan Biswas, Marketing, Fall 2001-04, dissertation committee member, advanced in summer 2002. Graduated 6/04, "Information Formats for Presenting Negative Product Information: Managerial and Regulatory Perspectives," Assistant Professor. Bentley College, Fall 2004. Associate Professor, U. South Florida, as of 2013.

Zhu Liu, 8/04, Advancement to Candidacy Committee, “Forecast Properties and Impact of Belief Updating.”

Gary Henderson, Organizational Behavior, Summer 2003, advancement to candidacy committee.

Kevin Shang, ODT PhD student, dissertation committee, June 2001-June 2002 (Assistant Professor, Fuqua School of Business, Duke University, beginning 7/02). Associate Prof. with tenure, 7/10-.

Jeffery Guyse, ODT PhD student, 9/96-12/2000, doctoral committee chair. Dissertation title: An Empirical Investigation into Preferences over Sequences of Monetary and Environmental Outcomes: A Decision Analysis Approach (Professor, Calif. State Polytechnic University, Pomona.)

Ping Lin, Fall 2002-03, dissertation committee member (Assistant Professor of Accounting, University of Texas, Pan American, beginning 7/02).

Steve Mattingly, 1999 and 2000, Civil Engineering, dissertation committee. (Asst. Prof., Univ. of Alaska).

Jiongjiong Song, Engineering, advancement to candidacy, Sept. 2000, dissertation defense, Spring 2003.

Rod Smith, Accounting, advancement to candidacy, May 2000 (Asst. Prof., Univ. of Arkansas).

Kuntara Pukthuanthong, Finance, advancement to candidacy, June 2000.

Yanbo Jin, Finance, advancement to candidacy, June 2000.

 Alan Meister, Economics, 1998, advancement committee.

 Annaliese Franz, Chemistry, 1998, advancement committee.

 Gerald Fisher, Social Science, 1997-99, advancement and dissertation committee.

 Robert Sneddon, Social Science, 1997-99, advancement and dissertation committee (Cal Tech).

 Niramol Jindanuwat, 1993-99, Phase II committee, research assistant, dissertation committee. (Price WaterhouseCoopers, Bangkok).

Yung Jae Lee, ODT PhD student,, 1992-93, phase II committee, 1994, advancement committee. “A Framework for Understanding the Impacts of Every Day Pricing”. Assistant Professor, St. Mary’s. Full professor and Dept. Chair as of 2013.

Wen-Qiang Bian, ODT PhD student, phase II committee, phase II advisor, dissertation chair, 1994-9/1998. Dissertation title: “Fairness Perception in China (vs. North America) and Cultural Elements in Decision Making”. (With start-up company in 2002, previously with InCubeNet).

 Jiachu Song, TA, Spring 1993 (In IT firm).

 Jeanne Pickering, Computer Science, advancement to candidacy committee, summer 1994.

Maria Lourdes Roldan, AGSM UCLA, research assistant, 1993-95 (Assistant Professor, San Jose State, Associate Dean as of 8-2016)

Brenda Nordenstam, Social Ecology, 1992, advancement to candidacy committee (Assistant Professor, SUNY)

Young Hee Cho, Social Science, 1992-96, supervisor of research assistant, advancement committee.
(Assistant Professor, Cal State Long Beach; Professor as of 2013)

Monika Winn, Strategy, 1992-, supervisor of research assistant; 1993, advancement to candidacy committee, 1994 (Tenured Associate Professor as of 7/02, Professor as of 2013, University of Victoria, BC Canada)

Pam Keltyka, Accounting, 1992, phase II committee, dissertation committee, 1995-99 (Assistant Professor, University of Akron, Associate Professor as of 2013)

Stuart Eriksen, ODT PhD student, 1987-90, phase II comm. chair, dissertation comm. chair, “Decision Making with Information from Apparently Non-Comparable Studies” (USC adjunct professor)

Alan Brothers, Social Science, 1989-90, dissertation committee (Battelle Pacific Northwest National Lab)

Diane Roberts, Accounting, 1991-1994, dissertation comm. (Assistant Prof., Univ. of San Francisco)

Ed Schumann, Social Ecology, 1988, advancement to candidacy committee.

William Lambert, Social Ecology, 1987, examination committee (Assistant Professor at University of New Mexico School of Medicine)

Ali Peiravi, Engineering, 1983, dissertation committee

 Soheila Jorjani, ODT PhD student, 1983-86, phase II comm. (Professor, Cal State San Marcos)

 Ken Poertner, ODT PhD student, 1984-86, phase II committee

 Masoud Tehrani, Engineering, 1984, examination committee

 Tom Sabol, UCLA, Engineering, 1984-85, dissertation committee

 Mahmood Noii, Engineering, 1985-86, dissertation committee

 Maria Hozbor, Chemistry, 1986, advancement to candidacy committee

Courses Taught

 **Undergraduate**

University Studies 3 Make Smart Choices (Winter ’06), freshman seminar; <http://eee.uci.edu/06w/87582/>

 Mgt. 183 Quantitative Methods Undergraduate Minor (Fall 1994)

 **PhD**

 Mgt. PhD 297A Doctoral Proseminar

 (Fall ’91, ’92, ’95, F/W 99/00, Fall ‘00, ’03, ’09, ’10, ’11, ’12)

 Mgt. PhD. 299 Behavioral Decision Theory indep. studies Win. & Spr. 2005, Fall 2013

Mgt. PhD 297T-SWTDecision Theory Doctoral Research Seminar, Spring ’11,’13,’17, Fall 2014

 Mgt. PhD 291 Decision Theory Doctoral Research Seminar (Falls ’04, ’06, ’08)

 Mgt. 290 Decision Theory Doctoral Research Seminar (Sp ’88, Sp ’99, W ’01, W ’03)

 Mgt. 290 Advanced Topics in Operations & Decision Technologies (co-taught doctoral seminar) (Spring 1995, 1997, Winter 1998)

 **Full-time MBA**

 Mgt. 201A Statistics for Management (Fall 1984, 1985, 1986, 1987, 1988, 1996, 1997)

 Mgt. 201A Quantitative Methods for Management (Fall 1982)
 Mgt. 201B Quantitative Methods for Management (Winter and Spring 1983)

 Mgt. 201B Operations Research for Management (Winter 1984; Winter 1992)

 Mgt. 201B Management Science (Winter 1995, 1996)

 Mgt. 289 Field Studies in Operations Management (Winters 1997, 1998, 2006)

 Mgt. 290 Decision Analysis (Spring and Fall 1983; Spring 1986; Winter 1988)

 Mgt. 290 Decision Analysis and Creative Problem Solving (Spring 1992, Winter 1993)

 Mgt. FT 283 Decision Analysis
(Sp. 2000, Fall 2003, Fall ’05, Fall ’07, Spr. ’10, ’12, ’13, ’16, Winter ’14)

 **Fully Employed MBA**

 Mgt. FE 201B Operations Research for Fully Employed MBA Students (Spr. 1992, 1993, 1994) Mgt. FE 290 Decision Analysis for Fully Employed MBA (Fall 1999, Winter 2001)

 Mgt. FE 283 Decision Analysis for FEMBA

 (Spring ’02, ’03, ’04, ’18, Fall ’04, ’05, ’06)

 **Executive MBA**

 Mgt. E 283 Decision Analysis for EMBA (Spring 2003, Spring 2006)

 **Health Care Executive MBA**

 Mgt. HC201B Operations Analytics for Healthcare Executives (new title, Fall 2016, Fall 2017)

 Mgt. HC201B Management Science for HCEMBA (Fall ’13, ’14, ’15, Co-taught W ’97 & ’98)

 Mgt. HC 283 Decision Analysis for HCEMBA

 (Sum. ’03, Sp ’04, Sum.’05, Sum. ’08, Spr. ’09,’10, ’11, ’12)

 Mgt. 290 Medical Decision Analysis for Health Care Executive MBA (Fall 1999, 2000)

 **Economics**

 Econ. 219A Advances in Utility Theory (with Duncan Luce) (Winter 1995)

Field Studies

and Independent Studies

Fall 2017 Technical advisor- Mgt. 298 Experiential Learning class- FTMBA Field Study team, Microvention Terumo, Aliso Viejo medical device company (pioneered the development of catheter-based technologies for the treatment of diseases of the brain, <http://www.microvention.com/>). Develop analytical/evaluation tools and frameworks to quantify growth opportunities via acquisitions, licensing, distribution, partnerships/alliances.

Fall 2016 Technical advisor- Mgt. 298 Experiential Learning class- FTMBA Field Study team, Edison Water Resources, analyze business models to deliver water efficiency and conservation services

Spring 2016 Francisco Ugalde, FTMBA- Renewable energy industry analysis

Fall 2015 Technical advisor- Mgt. 298 Experiential Learning class- FTMBA Field Study team, RAJ Manufacturing’s (Tustin) SwimSpot retail division’s strategic evaluation of alternative retail channels

Fall 2013 Technical advisor- Mgt. 298 Experiential Learning class- FTMBA Field Study team, Parker Aerospace supply chain benchmarking and recommendations

Spring 2013 Sanket Mehta, FTMBA- Think Tank intern

F 2012-W 2013 Sri Jaya Sankar Malladi, FTMBA- HireRight intern

F 2012-W 2013 Kyung “Justin” Chai, FTMBA- Emerson Process Management-Rosemount Analytical intern

Fall 2012 Nitin Joshi, FTMBA- HireRight intern

Spring 2012 Anna Gawlicka, HCEMBA, Independent study on "Decision model for cost-effectiveness analysis of probe-based confocal laser endomicroscopy for diagnosis of indeterminate pancreaticobiliary stricture"

Spring 2012 Dotty Wang, FTMBA, Independent study for Johnson & Johnson on sourcing and procurement. Supervisor: Tiffany Shaw, Category Manager,Advanced Sterilization Products, Johnson and Johnson, 33 Technology Drive, Irvine, CA 92618

Fall 2011 Technical advisor- Mgt. 298 Experiential Learning class- FTMBA Field Study team. Hyundai Motor America on a brand awareness program for Hyundai’s Hydrogen Fuel Cell technology and environmental friendliness

F 2011-S 2012 Serge Sidorov, FTMBA, NEi Software (finite element analysis)

Fall 2010 Technical advisor- Mgt. 298 Experiential Learning class- FTMBA Field Study team. Ev3, Irvine, <http://www.ev3.net/about/> on improving the product launch process, sponsored by Tom Whalen, VP Operations, Tamanna Karnani, Director Materials & Planning

Summer 2010 Undergraduate summer research fellowship (also worked with him in 2010- Dec. 2011)

Raymond Wan, undergrad. business major, project on prospect theory, Summer Undergrad. Research Program (SURP)/Undergrad. Research Opportunities Program (UROP) appointment as a SURP Fellow at UCI for Summer 2010. $1700 award, "Does Prospect Theory Provide Empirically Verifiable Evidence for Understanding How Students at UCI Resolve Decisions under Risk?"

W 2010- S 2010 Saurabh Tyagi, B/S/H Logistics Intern BSH Home Appliances Corporation, Huntington Beach CA, MBA Independent study internship

Spring 2010 Geetanjali Singh, FTMBA- Social Enterprise: International Princess Project

 <http://www.intlprincess.org/>

Fall 2009 Technical advisor- Mgt. 298 Experiential Learning class- FTMBA Field Study team. Sponsored by Ed Fuller of Marriott, International: Identifying potential corporate partners to preserve Amazon Rain Forest in Brazil in the JUMA Reserve, Group members: Geetanjali Singh, Sudhish Subhash, Gaurav Bahal, Eric Higgins, Sandy Lou

Fall 2008 Technical Advisor- Mgt. 298 Experiential Learning class- FTMBA field study team with Hoag Hospital for Business Plan for Mary and Dick Allen Diabetes Center (MD/MBA students with regular Full-time MBAs on team)

F2008-W 2009 Kristen Parrinello, independent study for Social Enterprise Institute, Betsy Densmore,

 [www.se-institute.org/SEI](http://www.se-institute.org/SEI)

Spring 2007 UCI Avian flu planning for undergraduate business program

 Independent studies (199’s) by undergraduate minors Kyle Addiss and Brian Cho

Winter 2006 Medtronics (pig heart valve supplier management)

 Panda (restaurant operations improvement)

 Erin Gruwell Education Project (improving Freedom Writers educational program)

 Decision Center for a Desert City-ASU (water planning stakeholders analysis)

Spring 2004 John Matelis, decision analysis use at Booz, Allen, Hamilton

Winter 2000 Rong “Elaine” Zhang, WFS Financial Inc., Subsidiary of West Corp.

 (Data Warehouse Project Management)

Winter 1998 Disneyland Business Planning (Improving Throughput on Major Attractions)

 Decision Insights, Inc. (Software prototype for decision analysis on web)

Winter 1997 Disneyland Business Planning. (Replacement Parts Procurement Procedures)

 U.S. Bureau of Export Administration. (Process Evaluation)

Spring 1996 Kelly Hamerlinck, Disneyland (Labor Force Scheduling)

Predoctoral
Teaching

 UCLA Engr. 11 Patterns of Problem Solving (1975-81)

 UCLA Engr. 12 Applied Patterns of Problem Solving (1976-81)

 *(Revised 9/13/17 Word 2010)*