WZB

Berlin Social Science Center

Freie Universität Berlin

Interdisciplinary Perspectives on Decision Making

International Workshop

November 5–7, 2015

Organized by

Dorothea Kübler
WZB Berlin Social Science Center
Technische Universität Berlin,
School of Economics and Management

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Program

Thursday, November 5, 2015

From 3 p.m. ***Registration (Foyer 3rd floor)***

5 p.m. ***1st Panel: Influencing Choices***

- Peacocks, testosterone & luxury goods: Single-dose testosterone administration increases preference for status goods
  Hilke Plassmann (INSEAD)
- The standard portfolio problem in Germany
  Georg Weizsäcker (Humboldt-Universität zu Berlin)
- Best Abstract Talks I
  - The strategic value of emotions: Happiness and fear in market entry games
    Anna S. Vogt (Humboldt-Universität zu Berlin)
  - Nonlinear decision weights or skewness preference? A model competition
    Leonidas Spiliopoulos (Max Planck Institute for Human Development)
  - Eye movements in contextual choice
    Felix Molter (WZB Social Science Center Berlin & Freie Universität Berlin)

7 p.m. ***Welcome Reception (Foyer 3rd floor)***

Friday, November 6, 2015

10 a.m. *2nd Panel: Social Influences and Strategic Interactions*

- Neural mechanisms of social decision making
  Scott A. Huettel (Duke University)
- Strategizing and attention in games
  Giorgio Coricelli (University of Southern California)
- The interplay of game theory, experiments, and neuro economics in coordination games
  Rosemarie Ch. Nagel (Universitat Pompeu Fabra)

12 a.m. *Lunch and Poster Session (Foyer 3rd floor)*

1.30 p.m. *3rd Panel: Decision Making under Risk*

- Normative inference approach for optimal sample size in decisions from experience
  Dirk Ostwald (Freie Universität Berlin)
- Underdiversification in portfolio decisions
  Peter N. C. Mohr (WZB Social Science Center Berlin & Freie Universität Berlin)
- Perceiving the real value: How inflation communication affects the attractiveness of delayed consumption
  Thomas Langer (University of Muenster)

3.30 p.m *Coffee Break and Poster Session (Foyer 3rd floor)*

4 p.m. *4th Panel: Emotion and Decision Making*

- How incidental affect modulates decision making under risk
  Hauke Heekeren (Freie Universität Berlin)
- Stress and economic decisions
  Christiane Schwieren (University of Heidelberg)
- Dual processes, response times, and economic decision making
  Carlos Alós–Ferrer (University of Cologne)

7 p.m. *Conference Dinner at Hasir (Speakers, Poster Presenters, and Invited Guests only)*

Saturday, November 7, 2015

9 a.m. ***5th Panel: Economic Behavior***

- How the default mode network drives the decision to explore
  Michael L. Platt (University of Pennsylvania)
- Self-confidence and unravelling in matching markets
  Dorothea Kübler (WZB Social Science Center Berlin & Technische Universität Berlin)
- Best Abstract Talks II
  - Generalized negative reciprocity – how to interrupt the chain
    Sabrina Strang (Universität zu Lübeck)
  - Segregating normative and informational influences on conformity
    Ulf Toelch (Freie Universität Berlin)
  - Cooperation, motivation, and social balance
    Steven Bothworth (Kiel Institute for the World Economy)

11 a.m. ***Brunch and Poster Session (Foyer 3rd floor)***

12 a.m. ***6th Panel: Memory and Information Processing***

- Memory influences on judgment and decision making
  Bettina von Helversen (University of Basel)
- Framing the future first: Neural mechanisms of increased consumer patience
  Eric J. Johnson (Columbia University)
- The homo ignorans: Deliberately choosing not to know
  Ralph Hertwig (Max Planck Institute for Human Development)

2 p.m. ***Farewell Coffee (Foyer 3rd floor)***

Speakers List

Carlos Alós-Ferrer

Professor of Microeconomics, Department of Economics, University of Cologne, Germany

Carlos Alós-Ferrer graduated in Mathematics at the University of Valencia (Spain) in 1992 and obtained a Ph.D. in Economics at the University of Alicante (Spain) in 1998. After his Ph.D. he moved to Vienna as Assistant Professor. He became associate professor at the University of Salamanca in 2002 and moved back to Vienna as associate professor in 2004, before becoming a full professor in Konstanz (Germany) in 2005. He is Full Professor of Microeconomics at the University of Cologne (Germany) since 2012. His research concentrates on decision making and game theory, covering topics from mathematical economics to psychology and neuroscience. Since 2012, he is the speaker of the DFG interdisciplinary Research Unit "Psychoeconomics". He has published in journals as the Journal of Economic Theory, Games and Economic Behavior, Economic Journal, Management Science, Journal of Experimental Social Psychology, and Social Cognitive and Affective Neuroscience.

Abstract:

Dual processes, response times, and economic decision making

The Dual-Process Diffusion Model (DPDM) is a simple formal-analytical model delivering qualitative predictions for response times in binary-choice experiments. It combines a dual-process/multi-strategy approach with the standard diffusion model, modeling a utility decision process and a heuristic decision process as diffusion processes of evidence accumulation. For experiments with objective alternatives (including many tasks in judgment and decision making), the model predicts that errors will be quicker than correct responses in case of process conflict and slower in case of alignment, capturing a well-documented asymmetry regarding slow or fast errors. These predictions have been shown to hold in experiments in the realm of economic decision making, e.g. in incentivized paradigms where reinforcement heuristics conflict with or support optimal decision-making under Bayesian updating of beliefs. Further, the model also predicts that correct responses are slower in case of conflict than in case of alignment, capturing the well-known Stroop effect. The DPDM is also extended to cover experiments with subjective alternative evaluations (preferential choice). In this case, results depend on whether trials are hard or easy, i.e. on whether the heuristic can be interpreted as relatively automatic or not.

Giorgio Coricelli

Associate Professor of Economics and Psychology, Department of Economics, University of Southern California, Los Angeles, CA, USA

My research experience, including my current situation as Associate Professor of Economics and Psychology at USC, is characterized by an ongoing curiosity with and concern for game theory, behavioral economics, and neuroscience. I developed two main projects. The first one concerned the role of emotions in decision-making, and the second was aimed at investigating the relational complexity in social interaction. Our findings contributed to the understanding of the relationship between emotions and cognition in decision-making, and of the neural basis of strategic thinking in games.

Abstract:

Strategizing and attention in games

I will present the results of two related experimental studies (work in collaboration with Luca Polonio) in which we used eye-tracking to measure the dynamic patterns of visual information acquisition in games. In a first study, participants played one-shot two-player normal-form games in which either, neither, or only one of the players had a dominant strategy. Our method allowed us to predict whether the decision process would lead to equilibrium choices or not, and to attribute out-of-equilibrium responses to limited cognitive capacities or social motives. Our results suggest the existence of individually heterogeneous-but-stable patterns of visual information acquisition based on subjective levels of strategic sophistication and social preferences. In a second study we used eye-tracking technique to test whether players' actions are consistent with their expectations of their opponent's behavior. Participants played a series of two-player 3 by 3 one shot games and stated their beliefs about which actions they expect their counterpart to play (first-order beliefs) or about which actions their counterparts expect them to play (second-order beliefs). Using eye-tracking study we could identify a larger consistency between actions and stated beliefs compared with previous studies, and we could characterize the behavioral rules associated with choice-beliefs inconsistency. Implications for the theories of bounded rationality will be discussed.

Hauke Heekeren

Professor for Biological Psychology and Cognitive Neuroscience, Department of Education and Psychology, Freie Universität Berlin, Germany

Hauke Heekeren is Professor of Biological Psychology and Cognitive Neuroscience at Freie Universität Berlin. He received his doctoral degree in medicine from the Charité University Medicine Berlin in 2000. His primary research interest is the cognitive neuroscience of human decision making, including perceptual decision making, the roles of motivation and affect in decision making, as well as the influence of social information on decision making. To this end, he uses techniques such as cognitive modeling based on behavioral data as well as measures of brain function such as functional magnetic resonance imaging (fMRI). Hauke Heekeren is a past president of the Society for Neuroeconomics, Chief Editor of Frontiers in Human Neuroscience, and Dean of the Department of Education and Psychology at Freie Universität Berlin.

Abstract:

How incidental affect modulates decision making under risk

Decision research has shown that incidental affect, i.e. a baseline affective state that is unrelated to the decision itself, can influence choices. In my talk, I will discuss how two different incidental affective states elicited by acute psycho-social stress and the presentation of fear cues, respectively, alter decision making under risk.

Bettina von Helversen

Research Scientist, Department of Psychology, University of Basel, Switzerland

Bettina von Helversen is a research scientist in the Economic Psychology group at the Department of Psychology at the University of Basel. She is interested in understanding and modeling how people make judgments and decisions. In her work she focuses on the different cognitive strategies people use to solve these tasks and the factors that influence strategy selection such as task structure, memory, affect or stress. Her broader research interests include the cognitive development of judgment and decision-making processes and legal and economic decision-making.

Abstract:

Memory influences on judgment and decision making

Memory and decision-making are closely intertwined cognitive functions. Making judgments or decisions can involve a variety of memory processes. Which memory processes, however, are involved in a specific judgment or decision differs depending on the decision strategy people employ. For instance, judging the price of a product by updating ones initial estimate based on the information about the product attributes may heavily rely on working memory processes. In contrast, making a judgment by retrieving the price of similar products from memory involves episodic memory processes. This suggests that to understand the influence of memory processes on judgment and decision-making it is necessary to consider the decision strategies people rely on. In the present talk I'll report research investigating how judgment and decision strategies differ in the memory processes they involve. In addition, I'll show how differences in the decision strategies people rely on in a given task impact how memory abilities and memory processes such as forgetting influence judgment accuracy.

Ralph Hertwig

Director Adaptive Rationality, Max Planck Institute for Human Development, Berlin, Germany

Ralph Hertwig is the Director of the Center of Adaptive Rationality (ARC) at the Max Planck Institute for Human Development in Berlin. Before taking on his role as an MPI director in 2012, Hertwig was a professor for cognitive and decision sciences and later dean at the University of Basel, Psychology Department. Early in his career, he was a researcher at Columbia University, University of Chicago, and the MPI's Center for Adaptive Behavior and Cognition. He has been awarded several prizes for his research and teaching (e.g., the Charlotte and Karl Bühler Prize of the German Psychological Society). In 2010 Hertwig became an elected member of the German Academy of Sciences, the Leopoldina. The following year he was awarded the status of APS Fellow for his contributions to the science of psychology. Most recently, he became a member of the Wilhelm-Wundt-Society. He has co-authored two books and written numerous articles in top journals such as Psychological Review, Behavioral and Brain Sciences, Psychological Bulletin, and Psychological Science. His research focuses on models of bounded rationality such as simple heuristics and on decisions from experience.

Abstract:

The homo ignorans: Deliberately choosing not to know

This talk will give an introduction to a phenomenon that, so I believe, is in need of a truly interdisciplinary approach - but it is one that researchers have chosen to remain largely ignorant about. That topic is the potential value of ignorance (or uncertainty). Western history of thought abounds with claims that knowledge is venerated and sought. Yet people often choose not to know things. I will refer to this phenomenon as "deliberate ignorance" and define it as the conscious choice not to seek and consult knowledge (or information) in situations where the marginal acquisition costs are negligible and the potential benefits promise to be large, such that - from the perspective of the economics of information - acquiring information seems rational. In this presentation, I will, using survey data, present evidence suggesting that deliberate ignorance is a real and, in some domains, ubiquitous preference. I will then describe various types of deliberate ignorance, identify their functions, and discuss some ethical implications. Finally, I will briefly illustrate how deliberate ignorance, in its variant strategic ignorance, can be studied experimentally. I will conclude that the behavioral sciences have to date paid relatively little attention to the study of ignorance, let alone deliberate ignorance. The desire not to know is not an anomaly, however. It is a prevalent cognitive tool whose consequences - measured in terms of individual or collective welfare - require an interdisciplinary analysis of actor and environment.

Scott A. Huettel

Jerry G. and Patricia Crawford Hubbard Professor, Department of Psychology and Neuroscience, Duke University, Durham, North Carolina, USA

Scott Huettel is the Jerry G. and Patricia Crawford Hubbard Professor and Chair of the Department of Psychology and Neuroscience at Duke University, with secondary appointments in the Departments of Psychiatry and Neurobiology. He received his undergraduate degree from the University of Texas at Austin and his Ph.D. degree from Duke University. His research uses a combination of behavioral, genetic, physiological, and neuroscience techniques to discover the neural mechanisms that underlie higher cognition, with a focus on economic and social decision making. Much of his research – which includes collaborations with neuroscientists, psychologists, behavioral economists, and business and medical faculty – falls within the emerging interdiscipline of neuroeconomics, where he is a Past-President of the Society for Neuroeconomics. He was also the founding Director of the Duke Center for Interdisciplinary Decision Sciences (D-CIDES), which brings together faculty and students from throughout campus for interdisciplinary research and educational programs.

Abstract:

Neural mechanisms of social decision making

Embedding choices in a social context often changes both the process and outcome of decision making. In this talk, I will describe recent work from my laboratory that uses measures of behavior and brain function to examine social decision making in multiple contexts: interactive and competitive games, altruistic and other-regarding resource allocations, and choices involving rewards with social content. These studies converge on the idea that specific regions within a larger social network establish a social context for decision making – a result that that has implications not only for the neuroscience of social cognition but also for longstanding problems in social science.

Eric J. Johnson

Norman Eig Professor of Business, Marketing and Co-Director Center for the Decision Sciences, Columbia Business School, Columbia University New York, USA

Eric Johnson is a faculty member at the Columbia Business School at Columbia University where he is the inaugural holder of the Norman Eig Chair of Business. He is also a co-director of the Center for Decision Sciences. His research examines the interface between behavioral decision research, economics, and the decisions made by consumers, managers, and their implications for public policy, markets, and marketing. Among other topics, Johnson has explored how the way options are presented to decision makers affect their choices in areas such as organ donation, the choice of environmentally friendly products, and investments. He has published in Science, Psychological Review, Nature Neuroscience, Harvard Business Review, the Journal of Economic Theory, and other publications. He has coauthored two books, Decision Research: A Field Guide and The Adaptive Decision-Maker, and is working on a book on choice architecture. He is currently a visiting scholar at the Consumer Financial Protection Bureau.

Abstract:

Framing the future first: Neural mechanisms of increased consumer patience

Consumers select rewarding short-term options that undermine long-term goals, yet framing choices as decisions to accelerate compared to delay consumption encourages patience. Query Theory, a model of preference construction, explains this asymmetric discounting1-2, yet current neuroscientific models of intertemporal choice3-4 do not explain acceleration versus delay differences in choice.

The present research studied the mechanisms underlying asymmetric discounting using process tracing methods and fMRI. Study 1 (N = 200) replicated standard asymmetric discounting effects2,5-6 ($p < .001$). Using MouseLab Web, analyses revealed several process differences. For example, when options were framed as acceleration decisions, participants were more likely to choose patiently when they engaged in attribute-based, rather than alternative-based, comparisons ($p < .001$).

Query Theory posits that differences in memory queries during preference construction underlie differences in choices. We hypothesized that neural regions implicated in prospection (querying memory and simulating events) and control (managing impulses) would be differentially engaged by decision frames. In Study 2, participants (N = 20) completed an adapted intertemporal choice paradigm3 while undergoing fMRI. Delay-framing increased activation in regions implicated in prospection compared with acceleration-framing. Additionally, greater activation was observed in delay-framing in regions implicated in self-control, consistent with the notion that delay-framing is associated with greater temptation and exertion of control. Finally, the medial prefrontal cortex, an area implicated in simulating future events and processing rewards, not only predicted participants' choices but also significantly mediated the effect of option framing on choice. Our results provide neural evidence that acceleration-framing increases patience without enhancing demand on control regions. Framing the future first is a simple yet powerful intervention that can reduce consumer impulsiveness.

Dorothea Kübler

Director Market Behavior, WZB Berlin Social Science Center
Professor of Experimental Economics, School of Economics and Management, Technische Universität Berlin, Germany

Dorothea Kübler is the director of the research unit 'Market Behavior' at the WZB Berlin Social Science Center since 2009 and a professor for economics at the Technische Universität Berlin since 2004. Her research focuses on behavioral and experimental economics and market design. In particular, she works on matching markets (school choice, university admissions, labor markets) and the role of bounded rationality and biased decision making for the design of these markets, as well as the economics of privacy. She conducts research through CRC 649, CRC 1026 as well as RTG 1659, funded by the DFG. She currently serves on the review board for economics (Fachkollegium) of the German Research Foundation (DFG), on the board of the Einstein Foundation Berlin, is vice-chair of the scientific advisory board of the Potsdam Institute for Climate Impact Research (PIK), and member of the executive committee of the Economic Science Association (ESA).

Abstract:

Self-confidence and unravelling in matching markets

Matching markets often show a tendency to unravel where transactions take place earlier and earlier. Unraveling can lead to inefficiencies when less information is available and inferior matches are formed. We investigate lack of self-confidence as a possible source of unravelling. We run experiments in which a worker's relative productivity is determined with a real-effort task. By employing a hard task in one treatment and a relatively easy task in another, we influence the level of relative self-confidence. When workers believe that they are of low productivity, they are more likely to accept early offers because they do not expect to find a better matching partner later on. In line with this prediction, we find that lower self-confidence leads to more unraveling. Although women are on average less confident then men in our experiment, they do not accept early offers more often.

Thomas Langer

Professor of Finance, Finance Center Münster, University of Muenster (WWU), Germany

Thomas Langer is a full professor of Finance at the University of Muenster (Germany) since 2004. He studied mathematics and computer sciences at the University of Kiel and received his PhD (1998) as well as his habilitation (2004) in business administration from the University of Mannheim. His habilitation thesis dealt with "Behavioral Aspects of Individual Retirement Savings Decisions". His current research is in the field of experimental and behavioral finance with a strong emphasis on decision making in the context of retirement provisions. He was a visiting scholar at Duke's Fuqua School of Business (2000/2001) and at CalTech (2008/2009) and is a coauthor of the textbook "Rational Decision Making".

Abstract:

Perceiving the real value: How inflation communication affects the attractiveness of delayed consumption

The ignorance of the effects of inflation in retirement provision decisions can have disastrous consequences for individual well-being and society as a whole. It thus seems important to make investors explicitly aware of the discrepancy between nominal monetary wealth and real purchasing power. The relevance of inflation can be communicated in various ways, from simply mentioning the expected annual inflation rate to presenting long-term payoff distributions in real instead of (or next to) nominal terms. In an experimental study we explore how different forms of inflation communication affect the attractiveness of savings products and thus the propensity to delay consumption. Using a novel experimental approach that mimics the distinction between nominal wealth and real purchasing power by a declining conversion rate mechanism, we find systematic behavioral patterns that are more subtle than naïve intuition would suggest. The role of inflation communication differs strongly between scenarios with positive and negative real returns. Being on the verge of observing negative real returns in many leading economies, our insights thus promise to be particularly relevant for current policy making.

Peter N. C. Mohr

Junior Professor for Neuroeconomics, School of Business and Economics, Freie Universität Berlin
Head of FU-WZB Junior Research Group Neuroeconomics, WZB Berlin Social Science Center, Germany

Peter N.C. Mohr is Junior Professor at Freie Universität Berlin and head of the FU-WZB Junior Research Group Neuroeconomics. He studied Business Administration in Münster, Germany, and received his PhD in Psychology from Freie Universität Berlin. His research interests include situational and contextual influences on economic decision making as well as individual differences in this domain. He thereby focuses on behavioral modeling of decision processes as well as on their neural underpinnings.

Abstract:

Underdiversification in portfolio decisions

According to Portfolio Theory investors should always hold a well-diversified portfolio, i.e. combine investments to reduce the variance of possible returns (i.e., risk) while keeping the expected return constant. In real life, however, investors hold fairly underdiversified portfolios. One reason for this observation might be that investors substantially neglect the correlation between returns of different investments, resulting in distorted perceptions of risk. We tested this hypothesis in an fMRI experiment, in which subjects made a series of investment decisions. The choice situations differed in three within-subject conditions: (I) choices between 5% fixed return and a single risky investment, (II) choices between 5% fixed return and a risky portfolio of 2 single investments with correlated returns (r=1), and (III) choices between 5% fixed return and a risky portfolio of 2 single investments with uncorrelated returns (r=0). Importantly, the return history of the risky options (either single investment or portfolio) was exactly the same in all three conditions. We found that the save investment was chosen significantly more often when the portfolio with uncorrelated returns was displayed compared to the other two conditions. We compared two models, Portfolio Theory and a simplified model, assuming that individuals compute the portfolio risk simply as the average of the standard deviations of the investments in the portfolio. We found that the simplified model performs better then Portfolio Theory. In line with these behavioral results, we found higher brain activity in the risk network (aINS, DMPFC, and parietal cortex) when the portfolio with uncorrelated returns was displayed compared to the other two conditions. Our results indicate that individuals fail to compute the portfolio return of portfolios with uncorrelated returns correctly and thus might have distorted perceptions of portfolio risk.

Rosemarie Ch. Nagel

ICREA Research Professor, Department of Economics, Universitat Pompeu Fabra, Barcelona, Spain

Rosemarie Nagel studied economics in Bonn and did her doctorate of economics in the European Doctoral Program in Bonn and LSE with a thesis in 1994 under the supervision of Reinhard Selten. After her postdoc in Pittsburgh with Al Roth, she joined the faculty of Business and Economics of the Universitat Pompeu Fabra, where she is a ICREA research professor and research director of the Beslab (Behavioral and Social Science Lab UPF) since February 2007. Her main fields of interest are Experimental Economics, Behavioral Economics, Neuroeconomics, Game Theory, Industrial Organization, and Negotiation. She has published in international journals as American Economic Review, Econometrica and Economic Journal. Her work has been discussed in the popular press as in Financial Times, New York Times, Spektrum der Wissenschaft (German version of Scientific American). She has gained grants from the German Science Foundation, the Spanish Government and the Human Frontier Science Program. She is collaborating with economists, neuro scientists, biologists and psychologists. Currently her research project is defined as "re-framing perception or rules to (de) anchor beliefs using lab and field experiments and biological measures like eye-movement and brain activity with interactive strategic decision making or choice behavior.

Abstract:

The interplay of game theory, experiments, and neuro economics in coordination games

In this talk I present a broad class of coordination situations starting with a classification through theoretic modeling defined by three main dimensions: 1. Play against nature vs interaction between individuals; 2. Continuous vs discrete choices; and for games 3. strategic complements vs substitutes, adapted from Camerer and Fehr (Science 2006). The experimental results are based on data from Beauty contests, stag hunt, and entry games combined with fMRI data. We show how game theoretic and behavioral modeling structure well the experimental data using a level k model. This model defines three basic types of reasoning: 1. Random behavior or focal point choices without using much the information of the rules of the situations, 2. Best response to type 1 behavior which does not take into account strategic reasoning of others and is best described as statistical reasoning. 3. Higher order reasoning which is best reply to type 2 and higher order types which might result in game theoretic reasoning. In BC games behavioral data can be very well structured by such kind of model. We then show with fMRI data that play against nature is very different from play against players in BC games as manifested in the mPFC, TPJ, ACC. However, also type 1 reasoning and type 2 reasoning is very different, in particular with respect to mPFC which shows high activity when being classified as type 2. We use these biological results to classify subjects into type 2 and 3 reasoners in entry games when behavior cannot reveal higher order beliefs. In stag hunt games, which is a game of complements higher order reasoning is not necessary, as they all collapse game theoretically in the type 1 behavior. This is also confirmed by our brain data.

Dirk Ostwald

Professor for Computational Cognitive Neuroscience, Department of Education and Psychology, Freie Universität Berlin
Max Planck Institute for Human Development, Berlin, Germany

Dirk Ostwald is Assistant Professor for Computational Cognitive Neuroscience at Freie Universität Berlin. He has a background in neuroscience and mathematics and obtained his PhD at the University of Birmingham in 2010. After post-doctoral research at the Bernstein Center for Computational Neuroscience Berlin (2010-2012) and the Max-Planck-Institute for Human Development (2012-2014), he joined the Center for Cognitive Neuroscience Berlin at the Department of Education and Psychology in 2014. The mission of Dirk Ostwald's research group is to formulate quantitative theories of human brain function and to empirically validate these using behavioral and non-invasive functional neuroimaging methods (EEG and fMRI). Current work clusters in four project areas that are fundamentally related by the notions of probabilistic modeling and inference: (1) The neural dynamics of statistical learning, (2) the neural dynamics of sequential decision-making under uncertainty, (3) probabilistic EEG-fMRI integration and (4) variational and empirical Bayesian methods for stochastic time-series analysis.

Abstract:

Normative inference approach for optimal sample size in decisions from experience

"Decisions from experience" (DFE) refers to a body of work that emerged in research on behavioral decision making over the last decade. One of the major experimental paradigms employed to study experience-based choice is the "sampling paradigm," which serves as a model of decision making under limited knowledge about the statistical structure of the world. In this paradigm respondents are presented with two payoff distributions, which, in contrast to standard approaches in behavioral economics, are specified not in terms of explicit outcome-probability information, but by the opportunity to sample outcomes from each distribution without economic consequences. Participants are encouraged to explore the distributions until they feel confident enough to decide from which they would prefer to draw from in a final trial involving real monetary payoffs. One commonly employed measure to characterize the behavior of participants in the sampling paradigm is the sample size, that is, the number of outcome draws which participants choose to obtain from each distribution prior to terminating sampling. A natural question that arises in the development of neuro-computational models for DFE concerns the "optimal" sample size, which could be used as a normative benchmark to evaluate human sampling behavior in DFE. In this theoretical talk, I will relate the DFE sampling paradigm to the classical statistical decision theoretic literature and, under a probabilistic inference assumption, evaluate optimal sample sizes for DFE. I will show how a classical statistical decision theoretic framework can be used to derive optimal sample sizes under arbitrary, but numerically evaluable, constraints. Finally, I will critically evaluate the value of deriving optimal sample sizes under this framework as testable predictions for the experimental study of sampling behavior and their neural constraints in DFE.

Hilke Plassmann

Associate Professor of Marketing, INSEAD & Cognitive Neuroscience Unit Ecole Normale, Fontainebleu, France

Hilke Plassmann is an Associate Professor in INSEAD's Marketing Area, where she has built a Decision Neuroscience Group. Since 2009 she is an affiliated faculty at the Cognitive Neuroscience Laboratory INSERM U960 of the École Normale Supérieure. She was also on the faculty of the California Institute of Technology and Stanford University and has been visiting faculty at The Wharton School and the Stern School of Business.

Hilke's primary research area is judgment and decision-making in the intersection of neuroscience, psychology and economics applied to marketing questions. In recent and current research projects she investigates the neural basis of different decision-making related value signals and ways to self-regulate these signals. Hilke is also interested the influence of pricing, branding and health information on consumer decision making. Her work has implications for both, management and public policy.

Abstract:

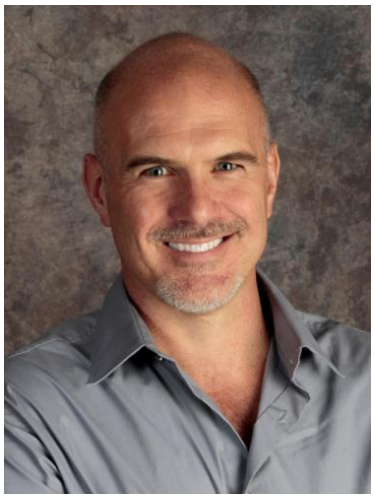
Peacocks, testosterone & luxury goods: Single-dose testosterone administration increases preference for status goods

Objective: Status is a major concern across social species and thus should have biological signatures. In humans, one way that complex societies accelerate status competition is by the consumption of luxury goods (Veblen 1899). Luxury goods represent social markers that elevate humans in the social hierarchy, either through increasing status or power (Magee and Galinsky 2008). Yet, the biological mechanisms underlying (costly) preferences for luxury goods remain poorly understood. The androgen male sex hormone testosterone (T) has been previously linked to social behavior such as fight & flight, mating and search for social status in humans and animals (Eisenegger, Haushofer & Fehr 2011). Moreover, correlational studies showed, for example, that driving Porches increased T levels of male participants, compared to driving a family Sedan (Saad & Vongas 2009). Thus, T is a prime biological candidate for modulating preferences for luxury goods. In this research, we hypothesized that (1) elevated T levels increase preferences for luxury vs. non-luxury goods and (2) that these effects can be causally linked to status-seeking but not quality- or power-seeking behavior.

Methods: We randomly assigned 243 male adults to a T or placebo (P) group in a double-blind exogenous administration protocol. They returned to the lab five hours later, when the T group experienced stable and elevated T levels as compared to the P group ($p<0.001$). Each participant took part in two tasks: (1) Participants were shown different pairs of fashion brands of similar quality but different associated social status (e.g., North Face versus Armani). Pairs were chosen based on a pre-test conducted in a demographically similar population (N=387). Participants were asked to rate which of the two brands they preferred using a 10-point rating scale. (2) To test the causal influence of testosterone on preferences for status goods, in study 2 we manipulated product quality, status or power associations using pre-tested (N=714) advertisements of consumer goods (e.g., car, sunglasses) for participants to rate their liking of the advertised products.

Results: As hypothesized, our first study revealed that participants who received T indicated greater preferences for brands associated with high status than with equivalent or higher quality ($p<0.01$). Complementing these findings, results of the second task revealed that T administration increased preference for brands advertised as status enhancing, but not as quality or power enhancing goods ($p=0.03$).

Conclusions: Our results provide evidence that preference for status signaling options in humans have indeed biological roots: pharmacologically elevated T levels increased consumer's preferences for status goods vs. non-status goods. Our findings are the first to show a causal relationship between single-dose T administration and preference for status goods and that T can be cause status- but not quality- or power-seeking behavior underlying consumer's product evaluations. The latter distinction is an important contribution for two reasons: first, most previous studies do not control for potential higher quality attributes of status products and are thus confounded. Second, as costly signals such as luxury brand consumption increase power and status in the social hierarchy, our results are the first to show that T acts specifically on status- but not power-seeking behavior.



Michael L. Platt

James S. Riepe University Professor
Department of Neuroscience, Perelman School of Medicine
Department of Psychology, School of Arts and Sciences
Marketing Department, the Wharton School
University of Pennsylvania, Philadelphia, USA

Michael received his B.A from Yale and his Ph.D. from the University of Pennsylvania, and was a post-doctoral fellowship at NYU. He has been supported by the National Institutes of Health, the Klingenstein Foundation, the McDonnell Foundation, the Broad Foundation, the Simons Foundation, US Department of Defense, and others. He won the Williams Research Prize and was an Alfred P. Sloan Foundation Fellow. He has authored over 130 papers, which collectively have been cited over 4,000 times. He is former president of the Society for Neuroeconomics and won the Master Teacher/Clinician Award at Duke. He is former Director of the Duke Institute for Brain Sciences and former Director of the Duke Center for Cognitive Neuroscience. Michael's work has been featured in the New York Times, Washington Post, Wall Street Journal, Newsweek, and National Geographic, as well as on ABC TV, NPR, CBC, BBC, and MTV.

Abstract:

How the default mode network drives the decision to explore

Exploratory thought and behavior, including imagination, creativity, and narration, requires deviation from routines. Exploration is observed in the movements of animals when they deviate from well-worn foraging paths to seek new information about the environment. Here we show that neurons in posterior cingulate cortex (PCC) track environmental information and predict exploration during visual foraging behavior. A canonical node in the default mode network (DMN), PCC is implicated in a wide range of cognitive functions, including creativity, mental time travel, and theory of mind. Monkeys solving a traveling salesman problem, designed to partially decorrelate information and reward, rapidly adopted routine recursive foraging patterns through the target array. Monkeys deviated from these efficient routines as the environment became more predictable, reducing short-term reinforcement rates and thus consistent with exploration. The activity of PCC neurons tracked environmental information and predicted deviations from well-rehearsed foraging routines. The discovery that PCC neurons carry signals that drive entropic behavior endorses the hypothesis that PCC, and by extension the DMN, plays a central role in exploratory behavior and cognition.

Christiane Schwieren

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Prof. Dr. Christiane Schwieren is full professor of Organizational Behavior at Ruprecht Karls University of Heidelberg. Before coming to Heidelberg in 2009, she held positions as assistant professor of economics at Universitat Pompeu Fabra, Barcelona (Spain) and as Post-Doctoral Fellow at the University of Mannheim (SFB 504). In 2006 she was a 3-months visitor at Kyoto Sangyo University in Japan. Christiane Schwieren studied psychology (Diploma in 1999), Political Science and History (MA in 1997) at the University of Heidelberg. She did her PhD in economics at Maastricht University in 2003. For her research she received several scholarships and grants (e.g., Marie-Curie pre-doctoral scholarship, grants from the initiative of excellence, the German research foundation and the BMBF).

Her current research focus is on the effects of heterogeneity of actors on behavior, with relation to age, gender and personality. Furthermore, she is interested in how stress affects economic decision making. Methodologically, she uses experimental methods and collaborates with neuroscientists and cognitive psychologists in neuroeconomic research. She publishes in psychological and economic journals, e.g. Journal of Economic Psychology, Public Choice, Small Group Research, or Journal of Economic Behavior and Decision Making

Abstract:

Stress and economic decisions

Stress is a current research topic studied by many different disciplines: sociology and social psychology, medicine and health sciences, cognitive psychology and neurosciences, clinical psychology and biological psychology, as well as management science and economics. This scientific curiosity is motivated by the fact that stress has become a prevalent condition in today´s societies and that it has serious physiological and psychological health consequences. Stress-related illnesses are more and more prevalent, as surveys show (see, e.g., Sedlatschek, 2012). The effects of (chronic) stress have gained even more attention in the context of the current financial crisis, as in those countries affected most, self-reported stress, stress-related (mental) illnesses and suicide seem to be on the rise (see e.g., Sedlatschek, 2012). Besides the negative health outcomes, cognitive psychology and related disciplines have begun to uncover the fact that stress affects the way that individuals perceive the world and, by consequence, their behavior (e.g., Starcke et al., 2008). Effects have been reported on risk taking, strategic thinking (e.g. Buckert et al., mimeo) and learning from feedback. There is, however, a large amount of disagreement in the literature. The main conclusion that can be drawn so far is that under acute stress, behavioral deviations from homo oeconomicus may be even more pronounced than usual. Chronic stress has received less attention in decision research, partially due to methodological difficulties for experimental research (but, see Kandasamy et al., 2013

We study the effects of acute and chronic stress on economic decision making. In the talk I will focus on situations of uncertainty, using financially incentivized lotteries. In a sample of acutely stressed participants (using a stress induction protocol, described in detail below in section 2), increased risk aversion has been observed (in the domain of gain outcomes). This effect was driven by those participants who showed a pronounced cortisol reaction to stress induction. In contrast, decision making under ambiguity, i.e. where objective probabilities are unknown or uncertain, was not influenced by the stress induction (Buckert et al. 2014). To expand these results to chronic stress, we focused on naturally occurring stress during a period of exams at the university. We measured chronic stress through self-reports. Using similar financially incentivized lotteries, we find a significant, positive correlation between reported chronic stress and risk taking, but no relation between risk taking and hair cortisol as a biomarker of chronic stress.

Georg Weizsäcker

Professor of School of Business and Economics, Humboldt-Universität zu Berlin, Germany

Georg Weizsäcker is Professor for Microeconomics at Humboldt University Berlin. He studied in Berlin and Berkeley and obtained his PhD at Harvard in 2004. He then served as lecturer, reader and professor at London School of Economics (2004-2009) and at University College London (2009-2012). From 2011 to 2013 he was Vice President of Deutsches Institut für Wirschaftsforschung, where he is still affiliated as Research Director.

Georg Weizsäcker's research interests lie in the area of behavioral economics. He studies the behavior of private households in their decision problems regarding financial savings, data protection and education. He uses a range of research methods including laboratory experiments, game theory, decision theory and survey data analysis.

Abstract:

The standard portfolio problem in Germany

We study behavior in an investment experiment conducted with a representative sample of German households (SOEP-IS). Respondents allocate a fixed budget between a safe asset and a risky asset whose returns are tied to the German stock market and earn monetary returns based on their decisions. Experimental investment choices correlate with beliefs about stock market returns and exhibit desirable external validity: They are a strong predictor for real-life stock market participation. The experimental set-up allows exogenous modification of the risky asset's return but investments are inelastic except for financially savvy subsamples. A laboratory experiment accompanies the data collection and yields similar results.

Conference Information

How to use the WiFi (Wireless LAN) of the WZB

Introduction

In order to use the Wireless LAN (WLAN) of the WZB, you need to obtain the following pieces of information:

- WLAN SSID to find the network: WZB
- Pre-Shared Key (PSK) to encrypt the connection: AleaIactaEst (case sensitive)
- The conference account name: perspectives
- The conference account password: decision

Technical Requirements

Your notebook computer

- needs a WLAN adapter according to the IEEE 802.11b/g standard.
- must support WPA or WPA2 wireless encryption. You cannot use the older WEP encryption.
- must be configured to obtain an IP address automatically via DHCP.
- needs a web browser.

Most modern notebooks with a WLAN adapter fulfill these requirements. Some older machines may not support WPA/WPA2 encryption. In such a case, you cannot use the WLAN of the WZB.

How to connect

1 Start your wireless software and find the network with the WZB SSID. (If you cannot find it, try to enter it manually). Configure the connection for WPA or WPA2 encryption using the pre-shared key that was given to you. After this step, you should be able to connect to the WLAN. If possible, save the connection information in a profile.

We apologize that we cannot give step-by-step instructions. There are several WLAN software packages out there that all differ in some details.

2 As soon as you are connected, start your web browser with a web page of your choice. You will be redirected to a login page. Accept the browser certificate that is offered to you. On the login page, enter the conference account name and password and log into the system. After a successful login, the web page you originally selected should appear. There is no explicit logoff procedure. Inactive connections are automatically dropped after some period of time.

If you saved your connection information in step 1, you can basically start at step 2 the next time you want to access the WZB WLAN.

Notes

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Hosted by the WZB Berlin Social Science Center
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