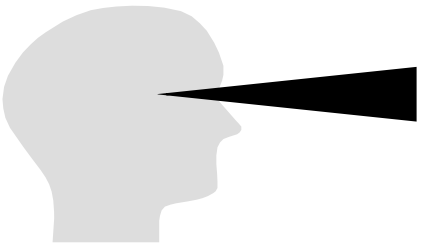
A neuroeconomic perspective on strategic decision-making



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Imprint

Editors

Association for NeuroPsychoEconomics
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2009 NeuroPsychoEconomics Conference Program

LIFE&BRAIN Center Bonn and UNIVERSITY OF BONN (LIFE& BRAIN Center and Lehrgebäude der Medizinischen Fakultät Bonn, Sigmund-Freud-Strasse 25, Bonn, Germany 53127)

Presentations will be held in English.

October 5, 2009

10:00AM-12:00 PM:	Pre-conference workshop *Functional magnetic resonance imaging (FMRI)* Klaus Fliessbach, University of Bonn Location: LIFE&BRAIN Center, Seminar Room, Sigmund-Freud-Strasse 25, Bonn
01:00-03:00 PM:	Pre-conference workshop *Personality genetics* Martin Reuter, University of Bonn Location: LIFE&BRAIN Center, Seminar Room, Sigmund-Freud-Strasse 25, Bonn
04:00-05:30 PM:	Annual meeting of the editorial boards of *NeuroPsychoEconomics* and the *Journal of Neuroscience, Psychology, and Economics* **(Limited to editorial board members only)** Location: LIFE&BRAIN Center, Seminar Room, Sigmund-Freud-Strasse 25, Bonn
06:00-07:00 PM:	Registration Location: Foyer of the LIFE&BRAIN Center, Sigmund-Freud-Strasse 25, Bonn
06:00-07:00 PM:	Reception Location: Foyer of the LIFE&BRAIN Center
07:00-10:00 PM:	Bonn nightlife Meeting point: Foyer of the LIFE&BRAIN Center Location: Bonn City (exact location to be announced during the reception) (paid on your own)

October 6, 2009

08:00 AM:	Registration and poster session Location: Foyer of Hörsaal of the Lehrgebäude der Medizinischen Fakultät Bonn, Sigmund-Freud-Strasse 25, Bonn
09:00 AM:	Welcome note by the conference chair Bernd Weber, University of Bonn Location: Hörsaal
09:30 AM:	Key note speech: *Functional imaging study of reciprocity in personal and anonymous exchange: The role of faces* Daniel Houser, George Mason University Location: Hörsaal

10:30 AM: Poster session and coffee break
Location: Foyer of Hörsaal

11:00 AM: Competitive paper session I

Track: Consumer & Organizational Behavior
Track chairs:
Peter Kenning, Zeppelin University
Angela Poech, Munich University of Applied Sciences
Location: Hörsaal

11:00 AM: *A neuroeconomic perspective on uncertainty and reward of strategic decision-making*
Michl, Taing, Schützeichel, Welpe

11:30 AM: *Homo reciprocans – A neoclassical rationale for stakeholder theory*
Herold

12:00 AM: *The importance of being emotional: How do positive and negative emotions affect the entrepreneurial process?*
Grichnik, Smeja, Welpe

12:30 AM: *Customer clusters in neuromarketing and their potential for health care*
Sohn, Kaltenegger, Schätzlein, Schöffski

01:00 PM: Buffet Lunch
(included in conference fee)
Location: Foyer of Hörsaal

02:00 PM: Award speech and best paper award ceremony:
The neural correlates of social influence
Ale Smidts, Erasmus University Rotterdam
Location: Hörsaal

03:00 PM: Poster session and coffee break
Location: Foyer of Hörsaal

03:30 PM: Competitive paper session II

Track: Behavioral Economics & Neuroeconomics
Track chairs:
Bernd Weber, University of Bonn
Thomas Ramsøy, Copenhagen Business School
Location: Hörsaal

03:30 PM: *Comparing the neural basis of decision making in social dilemmas of people with different social value orientations – An fMRI study*
Emonds, Declerck, Boone, Vandervliet, Parizel

04:00 PM: *Association of hormones with risk taking of men and women in different sessions of a day*
Akyatan, Oran

04:30 PM:	*Genetically determined differences in human trust behavior: The role of the oxytocin receptor gene* Reuter, Montag, Altmann, Bendlow, Elger, Kirsch, Becker, Schoch, Simon, Weber, Falk
05:00 PM	*Neural responses to violations of the equity principle* Fliessbach, Phillipps, Trautner, Schnabel, Elger, Falk, Weber
05:30 PM:	Good bye note by the conference chair Bernd Weber, University of Bonn Location: Hörsaal
05:45 PM:	End

2009 NeuroPsychoEconomics Poster Session

Poster sessions will take place between 08:00 and 09:00 AM, 10:30 and 11:00 AM, and 03:00 and 03:30 PM in the "Foyer of Hörsaal" of the Lehrgebäude der Medizinischen Fakultät Bonn, Sigmund-Freud-Strasse 25, Bonn.

Poster session participants must display their poster by 05:00 PM on Monday, October 5, 2009 at designated spaces in the Foyer of Hörsaal.

P1 *Brands and the mirror neurons system*
Santos, Seixas, Brandão, Moutinho

P2 *The affect heuristic in finance*
Merkle

P3 *Why do people cooperate? A review on the neuroeconomics of prosocial decision-making*
DeClerck, Emonds, Boone

P4 *Audio branding – A review*
Koller, Roumié, Brenner

P5 *Mental health of Thai industrial executives*
Wattanasup, Krusong, Kalayasiri

P6 *Decision and behavior in ultimatum game with multi targets*
Chen, Lin, Yang

P7 *On the beauty-contest experiments: Is intelligence relevant?*
Chen, Yang, Du

P8 *The framing of foods – Neural correlates of buying organic*
Linder, Uhl, Fliessbach, Trautner, Elger, Weber

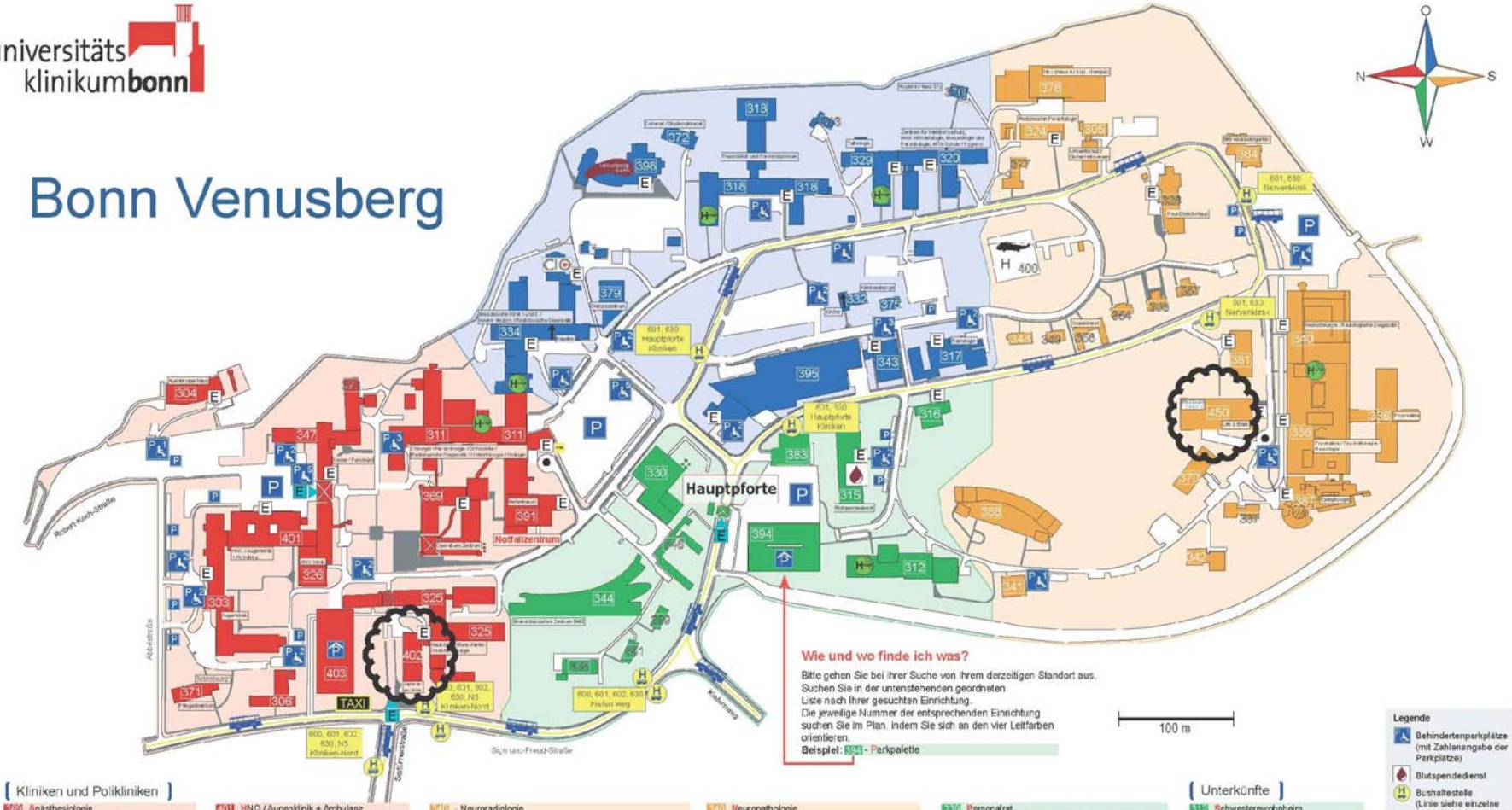
P9 *Is risk aversion caused by a hyperresponsive risk prediction signal?*
Rudorf, Reuter, Preuschoff, Elger, Weber

P10 *The influence of extrinsic rewards on intrinsic motivation*
Albrecht, Abeler, Falk, Weber

P11 *Genetic polymorphisms modulate reward-sensitivity and delay discounting*
Neuhaus, Montag, Trautner, Newport, Reuter, Elger, Fink, Weber

universitätsklinikum bonn

Bonn Venusberg



Kliniken und Poliklinken

- K01 Anästhesiologie
  - Spezielle Intensivmedizin
- K11 Auenbrugger Haus
  - Medizinische Kliniken I u. II
  - Psychosomatische Klinik
- K03 Augenheilkunde
- K31 Bettenhaus I + Notfallzentrum Bonn
- K34 Blutspendedienst in Inst. für Exp. Hämatologie und Transfusionsmedizin
- K11 Chirurgisches Zentrum
  - Allgemeine Chirurgie
  - Herzchirurgie
  - Orthopädie und Unfallchirurge
  - Radiologische Diagnostik
- K34 CIO Centrum für Integrierte Onkologie
- K04 Dermatologie
- K31 Dialysezentrum der Medizinischen Klinik I
- K11 Domagk-Haus (Psychiatie)
- K17 Epileptologie
- K18 Frauenheilkunde und Geburtshilfe, Brustzentrum
- K03 Hals-, Nasen- und Ohrenheilkunde
- K11 HNO / Augenklinik + Ambulanz
- K31 Medizinische Klinik I u. II
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  - Psychotherapie
  - Radiologische Diagnostik
  - Klinische Biochemie und Pharmakologie
- K05 Mund-, Kiefer- und plastische Gesichtschirurgie, Klinik und Poliklinik
- K10 Neurochirurgie
  - Radiologische Diagnostik
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- K11 - Laborhaus
- K31 Notfallzentrum
- K11 Nuklearmedizin
- K11 - Therapiestation
- K03 Operatives Zentrum (Funktionsbau)
- K11 Paul-Ehrlich-Haus Med. Klinik I und II
- K11 Psychiatrie / Psychotherapie
- K11 - AG-Psychiatrie
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- K31 - Innere Medizin
- K31 - MRT (Magnet-Resonanz-Tomografie)
- K11 - Neuroradiologie
- K11 - Operative Fächer
- K11 Tagesklinik Psychiatrie (Haus 44/46)
- K40 Urologie

Institute

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- K10 Experimentelle Radiologie
- K34 Exp. Hämatologie und Transfusionsmedizin
  - Hämophilie - Ambulanz
- K11 HET (Haus für Exp. Therapie)
- K70 Hygiene-Institut
- K70 Hygiene I (Haus 37)
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- K11 Klinische Chimie und Pharmakologie
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- K05 Medizinische Biometrie, Informatik und Epidemiologie, IMBIE
- K04 Medizinische Mikrobiologie, Immunologie u. Parasitologie
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- K70 Virologie
- K70 Zentrum für Infektiologie und Infektionsschutz (IMMP), MTA-Schule

Zentrale Einrichtungen

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- K83 Fahrbereitschaft
- K83 Heizkraftwerk
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- K72 Tierstall / Wohnhaus 39
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- K71 Umweltschutz, Sicherheit
- K80 Versorgungszentrum (VZ)
  - G84 Materialwirtschaft und Medizintechnik
  - G85 Facilitymanagment
  - Servicegesellschaften, H&W GmbH, V&V GmbH und WSG GmbH
- K26 Zentralbereich für Information und Steuerung (ZIS)
- K04 Zentrale Warenannahme
- K26 Zivildienst

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- K27 Dekanat / Studiendekanat / Fachschaft
- K71 Pflegedirektion
- K26 Kaufmännische Direktion GB 4 (VZ)
- K27 Turmgebäude Kaufmännische Direktion

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- K51 Wohnhaus Nr. 18/20
- K74 Wohnhaus Nr. 31
- K51 Wohnhaus Nr. 32
- K51 Wohnhaus Nr. 34
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- K72 Wohnhaus Nr. 39
- K51 Wohnhaus Nr. 40/42
- K51 Wohnheim I, IBF
- K34 Wohnheim II
- K72 Wohnheim III
- K51 Wohnheim IV

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- K74 Ausbildungszentrum für Pflegeberufe
- K72 Fachschaft Medizin
- K34 Hebammenschule
- K30 MTA-Schule
- K04 MTRA-Schule

Legende

- Behindertenparkplätze (mit Zahlenangabe der Parkplätze)
- Blutspendedienst
- Bushaltestelle (Linie siehe einzelne Haltestellen)
- Fußweg
- Gebäude Eingang
- Gelände Eingang
- Hörsäle
- Hubschrauberlandeplatz
- Information
- Parkplätze (Besucher ausgeschildert)
- Straße
- Taxi
- Venusbergbistro

Contents

A neuroeconomic perspective on uncertainty and reward of strategic decision-making

Theresa Michl*, Stefan Taing, Josef Schützeichel, Isabell M. Welpe

Abstract

Scholars and practitioners alike are interested in understanding strategic decision-making and the processes involved in managing individuals who make these decisions. So far, few models of strategic decision-making in economics can efficiently show and advise the proper estimation of uncertainty, risk, ambiguity and (monetary and social) rewards in strategic decision-making processes of individuals. Although concepts of both uncertainty and rewards are seen as parts of strategic decision-making processes the neuroscientific sub-processes of these concepts are not fully understood yet. In this paper, we propose a theoretical comparison of neuroscientific and economic results regarding the cognitive and affective aspects of uncertainty and reward in strategic decision-making processes of individuals. Overall, our results show that the conclusions in both research fields are only partly congruent regarding individual decision-making under uncertainty as well as for decisions with rewards. We apply these similarities and differences by extending strategic decision-making models in economics and give propositions for a better implementation of uncertainty and reward aspects in strategic decisions of individuals. Furthermore, we outline how policies and incentives for strategic decisions of individuals could be more effectively established in organizations. As an overall result, we argue that neuroeconomics should be seen with caution when integrating into the field of business and complementing traditional strategic decision-making models of individuals.

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Homo reciprocans:
A neoclassical rationale for stakeholder theory

Philipp J. Herold*

Abstract

Stakeholder theory is a well established and widely used concept in management science. Especially within the corporate responsibility debate stakeholder theory is the predominant framework for scholars to describe companies' activities. However, there is no single model underlying stakeholder theory. Therefore a large number of heterogeneous adoptions can be found. Especially neoclassical scholars criticize this lack of foundation. This article sets forth a reciprocal utility function; employing psychological findings about empathy, norm conformity and justice as drivers for stakeholder-interaction. The logic underlying contract theory is applied to provide a rationale for stakeholder theory. Criticism towards stakeholder theory is revised on this basis. It is shown that neuroeconomics allow for a neoclassical foundation of stakeholder theory.

* *Philipp J. Herold, University of Mannheim, Tel.: +49 151-19104490, E-Mail: philipp.herold@t-online.de.*

The importance of being emotional:

How do positive and negative emotions affect the entrepreneurial process?

Dietmar Grichnik, Alexander Smeja*, Isabell Welpe

Abstract

We examine the impact of positive (joy) and negative (fear) emotions on the different phases of the entrepreneurial process. To analyze the interaction of emotions and entrepreneurship we use an experimental design completed by 146 participants from 40 young entrepreneurial firms. As predicted by the emotion-as-information theory and by concept-priming theory, induced emotions change perception and decision making of unrelated economic situations, namely entrepreneurial opportunity recognition, evaluation and exploitation. The results demonstrate, that on the one hand positive emotions affect recognition positively and on the other hand exploitation and evaluation negatively. Surprisingly, it is shown that negative emotions also influence exploitation negatively.

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Customer clusters in neuromarketing and their potential for health care

Stefan Sohn*, Oliver Kaltenegger, Valentin Schätzlein, Oliver Schöffski

Abstract

The study examines the application of a neuromarketing customer segmentation approach in the context of health care delivery. Data were used from a representative consumer panel in Germany. The findings point out a relationship between the different neurobiological customer segments and different health conditions and health behaviors. The implications of the findings for an application in health care delivery were discussed and further need for research defined. The potential benefit of a more precise etiology, diagnosis and therapy for the individual patient seems to be worth the effort of further research. Also an extensive discourse about the implied ethical aspects will be needed.

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Comparing the neural basis of decision making in social dilemmas of people with different social value orientations:

An fMRI study

Griet Emonds*, Carolyn H. Declerck, Christophe Boone, Everhard J.M. Vandervliet, Paul M. Parizel

Abstract

Using functional magnetic resonance imaging, we investigate the neural correlates of intrinsic versus extrinsic motivation to cooperate by comparing people who differ in the personality trait Social Value Orientation. Participants (n=28) played several one-shot prisoner's dilemma games (offering weak cooperative incentives) and coordination games (offering strong cooperative incentives) with anonymous partners while they were under the scanner. Behavioral results indicate that proself individuals adjust their behavior towards more cooperation when extrinsic incentives were present, while prosocials' decisions are not affected by game context. The neurological data is consistent with a priori developed hypotheses regarding different behavioral strategies, and suggest that extrinsically motivated proself strategies are driven by calculation and a situation-by-situation approach.

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Association of hormones with risk taking of men and women in different sessions of a day

Ayca Akyatan*, Jale S. Oran

Abstract

Risk taking is a part of life and people take risk in different contexts. It is mostly affiliated with aggression. Numerous studies explored risk-taking difference within the genders. In addition, relationship between risk taking and hormones known as cortisol and testosterone attracted attention recently. We attempted to explore the relationship between risk taking and hormones known as cortisol, testosterone and estradiol. Our study attempts to observe the risk taking among undergraduate students, 30 males and 30 females, in order to observe gender differences in the morning and afternoon sessions. We found out that there are differences in risk taking regarding the hormones, genders and sessions when individual questions in the survey are considered. Although estradiol is known as a reproductive hormone for women, it was associated with male risk taking in a certain category. Risk taking of participants was significantly correlated with their hormones in the afternoon rather than in the morning. Regardless of hormones, risk taking of participants differed significantly over the sessions mostly being higher in the mornings. This study is the first paper to introduce effect of estradiol in risk taking, to explore the effects of hormones on risk taking in different daytimes and to incorporate risk taking in both financial and daily life matters.

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Genetically determined differences in human trust behavior:

The role of the oxytocin receptor gene

Martin Reuter*, Christian Montag, Stephen Altmann, Fabian Bendlow, Christian Elger, Peter Kirsch, Albert Becker, Susanne Schoch, Matthias Simon, Bernd Weber, Armin Falk

Abstract

Trust is a prerequisite for social and economic interactions, both in dyadic as well as in more complex social relationships. Recent studies have shown that nasally administered oxytocin increases trust, highlighting the importance of this neuropeptide for cooperative behavior. We therefore hypothesized that the oxytocin receptor (OXTR) gene plays a role in explaining individual differences in trust. To test this hypothesis we conducted a laboratory trust experiment with 100 participants whose OXTR gene was screened. A haplotype block spanning the promoter region of OXTR was significantly related to trusting behavior, yet showed no influence on risk attitudes or on prosocial inclination. By means of genetic expression analyses in human hippocampal tissue, we demonstrated the functionality of the gene variants in the OXTR promoter leading to a twofold difference in mRNA transcription. Our results indicate that individual differences in the proclivity to trust are influenced by variations in the OXTR gene.

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Neural responses to violations of the equity principle

Klaus Fliessbach, Courtney Phillipps, Peter Trautner, Marieke Schnabel, Christian Elger, Bernd Weber*

Abstract

A widely accepted social norm holds that equal work performance should lead to equal pay-off (equity principle). When the equity principle is violated, the subjective experience typically differs greatly, depending on whether the violation is to one's advantage or to one's disadvantage. Using functional magnetic resonance imaging in 64 subjects we measured brain responses to monetary rewards in subjects who simultaneously observed rewards of another subject in an adjacent scanner. When subjects observed the other subject receiving a higher reward than themselves despite the same performance (disadvantageous inequity (DI)), we found deactivation of the ventral striatum and strong activation of dorsolateral and medial prefrontal regions. Self-reported aversion to DI was correlated with amygdala activity. Advantageous inequity (AI), on the other hand, was not associated with a decrease in reward-related brain activity and elicited only weak activation in prefrontal areas. Self-reported aversion to AI was correlated with right ventrolateral prefrontal activity. Our results suggest a dissociation of neuronal processing of AI and DI.

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Brands and the mirror neurons system

José P Santos*, Daniel Seixas, Sofia Brandão, Luiz Moutinho

Abstract

In the social environment, mirroring is an important way to spread information among group elements. Brands, as social and cultural phenomena they are, are under the influence of such movements and should not ignore them. Consumers use brands in self-construal and brands have important roles in social groups' cohesiveness. Actually, the mirror neurons system is proposed as a biological basis that supports imitative processes, reflecting witnessed actions, sensations, and emotions, and allowing the observer to understand by experiencing as s/he was in the scene. In this study we investigate the participation of brain structures that compose the mirror neurons system in brands' appraisal. We found two cores within the mirror neurons system with different roles: one participates in the assessment of any logo and encompasses the insular cortex, frontal operculum cortex, pars opercularis, pars triangularis, and the anterior supramarginal gyrus; the second one discriminates between known (already experienced) and fictitious logos and that includes the angular gyrus, and posterior supramarginal gyrus.

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The affect heuristic in finance

Christoph Merkle*

Abstract

The notion that investors become emotionally involved when dealing with their financial matters has gained popularity in recent times. One way to look at this issue is by assuming investors to use an affect heuristic when forming expectations about financial assets. The concept of an affect heuristic maintains that people evaluate certain aspects of an object based on a global affective attitude towards this object. As a consequence expectations are highly correlated with the valence of emotional impressions. This article reviews applications of the affect heuristic in finance and provides a direct test of the affect heuristic based on experimental data. Findings support the view that indeed investors are subject to an affect heuristic and derive biased expectations from it.

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Why do people cooperate?

A review on the neuroeconomics of prosocial decision-making

Carolyn H. DeClerck, Griet Emonds*, Christophe Boone

Abstract

Contrary to predictions from rational choice and evolutionary theory, people readily cooperate with unrelated others, even at a cost to themselves. This study addresses the proximate reasons for human prosocial behavior by reviewing the neuroeconomic literature on decision-making. A conceptual model is proposed that distinguishes between the processes involved in establishing and maintaining mutual cooperation. The model is supported by existing evidence on the neural correlates of cooperative decision-making using mostly game-theoretic paradigms. Several regularities among the neural systems involved in cooperation emerged, and the following conclusions can be drawn. First, *establishing cooperation* relies on the neural mechanisms dedicated to reward and social cognition. The dopaminergic reward system (ventromedial prefrontal cortex and ventral striatum) responds to incentives by which a cooperative goal is formed. Self control (dorsolateral prefrontal cortex) is additionally needed to overcome the selfish impulse. The social cognition system (medial frontal cortex, superior temporal sulcus, and amygdala) is triggered by social cues that help to form expectations of others. Second, *maintaining reciprocal cooperation* involves appraising the value of cooperation and responding to feedback from others, again involving the reward system (orbitofrontal cortex, ventral and dorsal striatum) and thereby strengthening the intrinsic cooperative goal. Third, a breach of trust can break the cycle of reciprocal cooperation. Punishing norm violators is associated with activity in the insula, dorsolateral prefrontal cortex, and dorsal striatum, and leads to feelings of satisfaction. The threat of punishment may serve as an incentive to cooperate. Finally, individual differences modulate the neural processes associated with cooperation and punishment. A major conclusion that can be drawn is that people cooperate because it feels good, and that *Homo economicus* is an exception rather than the rule.

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Audio branding:

A review

Monika Koller*, Amir Abou Roumié, Gerhard Brenner

Abstract

The aim of the present working paper is twofold: first, we want to introduce a framework for a theoretical foundation of audio branding initiatives based on a psychological and neuroscientific knowledge base. We suggest an integration of empirical findings regarding the brand personality concept, research on human music perception and processing, emotions and human personality traits. Second, we discuss the initial findings of an exploratory qualitative study on how decisions on audio branding are currently made in marketing and advertising and on which conceptual foundations they are based. Preliminary findings from our eight expert interviews indicate that audio branding is regarded as an important topic but unfortunately its potential is still underutilized. More interviews are already scheduled in order to recheck the initial findings.

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Mental health of Thai industrial executives

Jittraporn Wattanasup, Kuakarun Krusong, Rasmon Kalayasiri*

Abstract

As stated by the World Health Organization (WHO), mental health is "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community". Based on this definition, we studied the mental health of Thai individuals who are responsible for industrial management.

Mental health status of 431 executives from industrial plants in Bangkok were obtained by the Thai Mental Health Indicators (TMHI-66), a 66-items instrument (score 0 – 3 from poor to good) developed by the Department of Mental Health, Thai Ministry of Public Health. TMHI, contained four domains of mental health, including mental state, mental capacity, mental quality, and supporting factors, was designed to measure mental health or mental well-being in the context of Thai culture. Mean score below 1.5 was interpreted as low or poor outcome. Demographics of the executives were also collected.

Out of 431 executives, 290 (67.3%) were male. The mean ± SD of age and monthly income were 45.4 ± 12.0 years and 52,200 ± 26,990 THB (1 EUR = 50 THB). Thai executives reported the highest score of mental health in the domain of mental state (mean = 2.3), followed by mental capacity (mean = 2.0), supporting factors (mean = 1.8), and mental quality (mean = 1.6), respectively. Sub-domains of mental state that rated high were general well-being negative affect (mean = 2.9) and perceived ill-health and mental illness (mean = 3.0). Meanwhile, body image and appearance score (mean = 2.0) was moderate and general well-being positive effect score was poor (mean = 1.4). Mental capacity of the executives was in moderate to high levels in all sub-domains, including activities of daily living (mean = 2.3), inadequate mental mastery (mean = 2.2), confidence in coping (mean = 1.8), expectation achievement congruence (mean = 1.8), and personal relationships (mean = 1.7). Regarding to supporting factors, executives perceived themselves to have good physical environment (mean = 2.2), good physical safety and security (mean = 2.0), good family group support (mean = 2.0), and moderate recreation (mean = 1.6), but poor social support (mean = 1.3) and poor health and social care (mean = 1.4). The poorest domain of mental health of the executives was mental quality. (i.e., means of creation and enthusiasm, transcendence, self esteem, kindness, and altruism were 1.3, 1.6, 1.6, 1.6, and 1.7, respectively).

Thai industrial executives' mental state and mental capacity were fine; however supporting factors, especially social support or social care were poor. In addition, mental quality, a crucial element in management was poor in this cohort. The understanding of executives' mental health would help the company to maximize management profile and productivity.

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Decision and behavior in ultimatum game with multi targets

Shu-Heng Chen*, Chia-Yang Lin, Lee-Xieng Yang

Abstract

Usually, decision making problems could be viewed as choices among alternatives, and the traditional economic theories have told us that the rational subject should be free from the paradox of choice (Schwartz, 2003). Our main hypothesis assumes that the subjects could rationally evaluate physical outcome, but might not be able to rationally integrate their preferences' structures. There are three ultimatum game treatments in our experiments. One of these ultimatum games plays with a combined set of cash and chocolate. It's rare to find a research observing the subjects' proposals when they face to divide more than one item. Subjects' offers are obviously different from separate- to combined sets, and we conclude that bargainers' preferences are not always monotonic.

* *Corresponding author: Shu-Heng Chen, National Chengchi University, Tel: +886 2-29387308, E-Mail: chen.shuheng @gmail.com.*

On the beauty-contest experiments:
Is intelligence relevant?

Shu-Heng Chen*, Lee-Xieng Yang, Ye-Rong Du

Abstract

The Keynes' famous beauty contest has been carried out in economics laboratory as a way to demonstrate the inapplicability of the homogeneous rational expectations hypothesis and to manifest the relevance of bounded rationality. The resultant beauty contest experiments have motivated some recent progresses in cognitive economics, such as Crawford's level-k reasoning, Camerer's cognitive hierarchies to economics. In this experiment, subjects' intelligence may be characterized by their depth of reasoning, for example, the parameter "k" in the level-k reasoning, and presumably the advantage goes to the one with the highest "k". Nonetheless, a puzzle immediately arises when the beauty contest is formed as an infinite-regress problem, which is in general not solvable. Hence, in light of this infinite-regress undecidability, whether more intelligent subjects can take advantage of less intelligent ones in this contest become an empirical issue, which can only be solved by conducting experiments. This defines the purpose of this paper. This paper will present beauty contest experiments with subjects of different intelligence. By understanding the difficulties arising from measuring intelligence, this paper considers the measures based on the Raven's Progressive Matrices, working memory capacity, Fredrick's cognitive reflection and Machiavellian intelligence. We find that subjects reasoning in line with dominance are higher on cognitive ability, as measured by working memory task, Raven's SPM+ and Fredrick's cognitive reflection test. We also demonstrate that cognitive ability leads to better performance measured by guessing differences. Profit, another measure of performance, depends on whom you compete in the games.

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The framing of foods:

Neural correlates of buying organic

Nicolas Linder, Gabriele Uhl, Klaus Fliessbach, Peter Trautner, Christian Elger, Bernd Weber*

Abstract

Everyday we have to choose between numerous options and make the decision which appears the best. But these decisions are highly dependent on the context in which the alternatives are presented – even though they appear rationally identical (Framing-effect). It has been shown in a variety of studies, that the ventral striatum is involved in the evaluation of preferences in different domains ranging from product preferences to preferences in social contexts. Here we use a widely known German emblem for organically produced food as framing information ('Bio-Siegel'). We want to investigate the effect of product framing on i) the amount subjects are willing to pay (WTP) for the food and ii) neural activity during evaluation of products especially in the ventral striatum.

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Is risk aversion caused by a hyperresponsive risk prediction signal?

Sarah Rudorf, Martin Reuter, Kerstin Preuschoff, Christian Elger, Bernd Weber*

Abstract

Risk preferences are important determinants of human behavior in many domains, ranging from health attitudes to financial decisions. People differ extensively with regard to their willingness to engage in risky behavior. Recent studies highlighted the role of specific brain regions in the processing of risk. In this study we want to investigate the neural correlates of individual differences in risk preferences.

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The influence of extrinsic rewards on intrinsic motivation

Konstanze Albrecht, Johannes Abeler, Armin Falk, Bernd Weber*

Abstract

Psychological and economic theories assume that extrinsic rewards can influence intrinsic motivation. It is mostly suggested that monetary rewards crowd out intrinsic motivation whereas verbal reinforcement should affect intrinsic motivation positively. A range of behavioral studies support the central tenets of these theories. In our study, we want to investigate what influence these two kinds of extrinsic rewards have on brain activation while subjects perform a cognitive task. We expect a higher decrease of activation in the reward circuitry after monetary rewards compared to when there was no extrinsic motivation. We hypothesize the opposite for verbal reinforcement: Here, activation should be higher than or the same as when no extrinsic reward was provided before.

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Genetic polymorphisms modulate reward-sensitivity and delay discounting

Carolin Neuhaus, Christian Montag, Peter Trautner, Beate Newport, Martin Reuter, Christian E. Elger, Gereon R. Fink, Bernd Weber*

Abstract

Individuals discount the future differently. Strong discounting may lead to irrational economic behavior like credit card misuse, lack of sufficient retirement plans and climate protection or even harmful behaviors like substance abuse, even knowing about the negative future consequences.

Dopaminergic neural circuits, especially the ventral striatum, contribute to the motivational salience of stimuli. Functional polymorphisms in dopamine-related genes affect striatal neurotransmission and may alter reward-related reactivity. Considering the DRD2 Taq IA polymorphism, carriers of the A1 allele show a reduced striatal receptor density in comparison to carriers of the A2 allele, resulting in a hypodopaminergic functioning (Reward Deficiency Syndrome). The COMT Val158Met polymorphism is associated with a processing inefficiency in frontal circuitry for the Val/Val genotype, resulting in higher impulsivity and increased immediate reward bias.

Using an imaging genetics approach, we investigated the effects of DRD2 Taq IA and COMT Val158Met polymorphisms on reward processing, impulse control and time-perception, which we suggest to be the main modulators of delay discounting.

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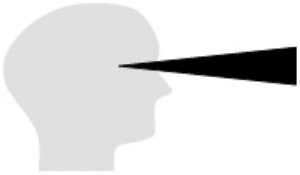

NeuroPsychoEconomics
Conference

2010 Call for papers

Please be invited to submit a paper to the 2010 NeuroPsychoEconomics/CONNECS Conference in **Copenhagen, Denmark**. The conference will he held from **May 31-June 1, 2010** at the Copenhagen Marriott Hotel (Kalvebod Brygge 5, DK-1560 Copenhagen, Denmark). The **deadline for submissions** is **January 15, 2010**.

The conference theme of 2010 is:

"What Economics, Management, Marketing, and Finance Can Learn from Cognitive Neuroscience and Psychophysiology"

Manuscripts should combine concepts from neuroscience and/or psychology with problems of business and economics. Topics may include (but are not restricted to):

- Application of concepts and methods from neuroscience and/or psychology in solving business and economics problems (e.g., marketing, behavioral finance, organization science, management, and decision science)
- Analysis of interpersonal behavior (e.g., relationships between customer-supplier, supervisor-subordinate, and/or investor-firm) with the means of neuroscience and/or psychology
- Discussion of ethical and legal issues at the interface of psychology, neuroscience, and business and economics research
- Evaluation of the state of the field of research in neuroeconomics
- Presentation of state-of-the-art techniques for solving neuroeconomic problems

Empirical as well as conceptual manuscripts are welcome. Manuscripts submitted for the conference must not be published elsewhere at the time of the conference. The conference language will be *English*.

Submission process

- Manuscripts for the 2010 NeuroPsychoEconomics/CONNECS Conference must be submitted **by January 15, 2010**.
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- *English manuscript submissions* must conform to the author guidelines of the American Psychological Association (APA). Please see http://www.jnpe.org for more submission information.
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