



**HEIDI-CORTEX Behavioral Economics Workshop  
GATE, Ecully (France), 29-30 October 2014**

**Abstracts**

**Wednesday 29 October 2014**

**Bernd Weber (University of Bonn)**

**Influence of nutrition label on valuation, perception and consumption of food products**

The obesity epidemic is a major cause of health costs in most industrialized nations. Constant availability of palatable foods leads to overconsumption and increased energy intake. Labels on food packages can guide consumer choices and influence their consumption patterns. To optimally design policy interventions based on nutritional labels a better understanding of their effect is important to prevent paradoxical effects. Within this talk I will present several studies investigating the effect of different nutritional labels on the valuation, perception and consumption of food items using behavioral and fMRI methods.

**Enrique Fatas (University of East Anglia)**

**Sacrifice: An Experiment on the Political Economy of Extreme Intergroup Punishment**  
With Catherine C. Eckel and Malcolm Kass

We analyze the behavioral determinants of extreme punishment in intergroup conflict. Individuals contribute to team production by a tedious real effort task. Teams compete for a prize in asymmetric tournaments. Asymmetries are generated by nature or by the decisions of one group, arbitrarily chosen. As the magnitude of the asymmetry is identical across conditions, we can measure the marginal effect of political inequality when only the advantaged group votes on the asymmetry size. We allow for a particular form of intergroup punishment. Individuals in the disadvantaged group may punish all individuals in the other group at an extreme price: if they decide to punish the other individuals, they lose all their individual earnings. Our results strongly support the link between political asymmetries and extreme intergroup punishment. Relative to a control treatment with no asymmetries, economic inequality has no significant effect on the likelihood of intergroup punishment. Interestingly, we find that skilled individuals are more likely to sacrifice themselves to harm the other group.

**Urs Fischbacher (University of Konstanz, Thurgau Institute of Economics)**

**To Punish or to Reward? An Experimental Study of Behavioral Sanctioning Norms**  
With Konstantin Hessler

How do people choose between reward and punishment in order to enforce a fairness norm? We investigate this question in a four-person mini dictator game with a sanctioning option. In this game a mechanism designer decides whether reward or punishment is available as a sanctioning device. Another person, the mechanism implementer, is informed about the decision of the dictator and can then decide whether the available mechanism is implemented or not. We find that designers select

the punishment mechanism when the unkind action was the rare choice and the reward mechanism when the kind action was the rare choice. In addition, implementers punish more frequently when the unkind action is rare and reward more frequently when the kind action is rare. This is in line with implementers applying a Levine (1998) style intention attribution and designers providing the mechanism that is more likely to be desired. Decision time analysis corroborates this view for the punishment and for the design decisions.

**Jordi Brandts (Institut d'Anàlisi Econòmica, CSIC, Barcelona)**  
**Counter-punishment, norm-communication and accountability**

We study whether communication can limit the negative consequences of the use of counter-punishment in a public goods environment. The two dimensions of communication we study are norm communication and being held accountable by having to justify one's actions. We conduct four experimental treatments, all involving a contribution stage, a punishment stage and a counter-punishment stage. In the first stage there are no communication possibilities. The second treatment allows for communication at the punishment stage and the third asks for a justification message at the counter-punishment stage. The fourth combines the two communication channels of the second and third treatments. We find that the three treatments involving communication at any of the two relevant stages lead to significantly higher contributions than the baseline treatment. The detrimental effect of allowing for counter-punishment is neutralized in the presence of communication possibilities. We find no difference between the three treatments with communication. Separately norm communication and being held accountable work equally well and we find no interaction effect from using them jointly. We also relate our results to those of other treatments without counter-punishment opportunities. The overall pattern of results shows that the key factor is the presence of communication. Whenever it is possible contributions are higher than when it is not, regardless of counter-punishment opportunities.

**Gary Charness (University of California at Santa Barbara)**  
**Creativity and Financial Incentives**  
With Daniela Grieco

Creativity is a complex and multi-dimensional phenomenon with tremendous economic importance. Yet, despite this importance, there is very little work on the topic in the economics literature. In this paper, we consider the effect of incentives on creativity. We present a first series of experiments on individual creativity where subjects face creativity tasks where, in one case, ex-ante goals and constraints are imposed on their answers, and in the other case no restrictions apply. The effects of financial incentives in stimulating creativity in both types of tasks is then tested, together with the impact of personal features like risk and ambiguity aversion. Our findings show that, in general, financial incentives affect "closed" (constrained) creativity, but do not facilitate "open" (unconstrained) creativity. However, in the latter case incentives do play a role for ambiguity-averse agents, who tend to be significantly less creative and seem to need extrinsic motivation to exert effort in a task whose odds of success they don't know. The second set of experiments aims at exploring group creativity in contexts where the "corporate culture" is either cooperative or individualistic. Our results show that, in the case of closed tasks, financial incentives and collectivist attitudes foster creativity, but only with cooperative corporate culture.

**Adam Zylbersztejn (GATE, University Lyon 2)**

**Commitment with and without money: an experiment**

With Nicolas Jacquemet, Stephane Luchini, Jason Shogren

Cheap talk is often prescribed as a remedy against selfishness in social dilemmas. We use a classic trust game to further explore (i) the source of the positive effect of cheap talk on cooperation, and (ii) the institutional design to amplify this effect. We incorporate the social psychological theory of commitment into the economic theory of lying aversion. The former puts forth that communication involves an intrinsic cost of lying. The latter offers ways to reinforce the bond between one's words and deeds, which can be viewed as increasing the intrinsic cost of lying. We find that the success of communication-based institutions depends on the degree of subjects' personal commitment to truth telling. Echoing previous results, we report that fixed-form, pre-play, cheap-talk messages cannot improve the efficiency of interactions due to the limited trust in (and the trustworthiness of) these signals. However, the same communication protocol preceded by an individual, costless and voluntary oath to "tell the truth and always provide honest answers" offered to all (and signed by most) subjects improves both the trust in and the trustworthiness of messages, thus fostering cooperation.

**Catherine Eckel (Texas A&M University)**

**Inconsistency Pays**

With Nathan Berg and Cathleen Johnson

Experimental choice data from 881 participants based on 40 time-tradeoff and 32 risky choice items indicate that most participants are time-inconsistent and violate the consistency requirements of expected utility theory. These inconsistencies cannot be explained by theories such as hyperbolic discounting and cumulative prospect theory. Time-inconsistent participants and those who violate expected utility theory both earn substantially higher expected payoffs, and these positive associations survive the presence of various controls in total payoff regressions. Consistent participants earn lower than average payoffs because most are consistently impatient and/or consistently risk averse. Positive payoff effects from inconsistency are not fully explained by greater risk taking, however. Controlling for the total risk, math ability and socio-economic differences, both time-inconsistent and expected-utility-violating participants earn significantly more money. The results raise questions regarding the normative status of rationality axioms based on internal consistency and common interpretations that draw on insights from behavioral economics to form a mistaken premise: that inconsistency is evidence of pathological decision making which motivates paternalistic intervention.

**Marie Claire Villeval (GATE, CNRS)**

**Self-Control and Intertemporal Financial Choice**

With Michael A. Kuhn and Peter Kuhn

Several recent economic models conceptualize intertemporal choice as a problem of self-control, i.e. of restraining the natural impulse to consume today. Recent psychological research also conceptualizes willpower as a limited resource, and provides evidence that prior impulse-controlling activity ("depletion") and body energy budgets (i.e. blood glucose) affect impulse control in a variety of non-financial tasks. Inspired by this work, we experimentally estimate the effects of depletion and sucrose consumption on intertemporal financial decisions using a framework that identifies three parameters of each subject's utility function. Our results are more consistent with models where the key source of decision heterogeneity across persons and situations

is in adherence to a heuristic in which income is treated as consumption, rather than differences in willpower. In part, this is because we identify a co-movement of present bias and intertemporal substitution elasticity, a finding with broader implications for the time preference literature.

**Thursday 30 October 2014**

**Camille Cornand (GATE, CNRS)**

**The predominant role of signal precision in experimental beauty contest**

With Romain Baeriswyl

The weight assigned to public information in Keynesian beauty contest depends on the signal precision and on the degree of strategic complementarities. This experimental study shows that the response of subjects to changes in the signal precision and in the degree of strategic complementarities is qualitatively consistent with theoretical predictions, though quantitatively weaker. The weaker subjects' response to changes in the signal precision, however, mainly drives the weight observed in the experiment, making strategic complementarities and overreaction an issue of second order.

**Stéphane Robin (GATE, CNRS)**

**Information Disclosure in Common Value Repeated Auctions**

With Vianney Dequiedt and Nicolas Jacquemet

What information disclosure policy should be adopted by the seller in a repeated auction? When identical and common value items are auctioned sequentially, information about the outcome of the elapsed auctions, like the winner's bid, modifies how the bidders value next item and could impact their bidding strategy. We analyze this issue in a twice-repeated common value auction, both in theory and in the lab. We show that when the winning bid is disclosed at the end of the first auction, any symmetric equilibrium of the game necessarily involves some bunching at the top: the strategy profiles in the first auction are flat for bidders that receive the highest signals about the value of the object. However, the impact of that information disclosure on the seller's profit cannot be assessed analytically. Therefore, we turn to the lab and perform a "searching for facts" experiment. We observe that the seller's profit decreases with disclosure of the winning bid compared to the case where no information is disclosed at the end of the first auction. The main reason is that bidders decrease drastically their bids in the first auction when they know that the winning bid will be revealed: an anticipation effect. Moreover and as predicted by theory, bunching occurs for high value signals.

**Loukas Balafoutas (University of Innsbruck)**

**Direct and indirect punishment among strangers in the field**

With Nikos Nikiforakis and Bettina Rockenbach

Many interactions in modern human societies are among strangers. Explaining cooperation in such interactions is challenging. The two most prominent explanations critically depend on individuals' willingness to punish defectors: In models of direct punishment, individuals punish antisocial behavior at a personal cost, whereas in models of indirect reciprocity, they punish indirectly by withholding rewards. We investigate these competing explanations in a field experiment with real-

life interactions among strangers. We find clear evidence of both direct and indirect punishment. Direct punishment is not rewarded by strangers and, in line with models of indirect reciprocity, is crowded out by indirect punishment opportunities. The existence of direct and indirect punishment in daily life indicates the importance of both means for understanding the evolution of cooperation.

**Fabio Galeotti (GATE, CNRS, and University of East Anglia)**

**Competence versus Trustworthiness: What Do Voters Care About?**

With Daniel J. Zizzo

We set up an experiment to measure voter preferences trade-offs between competence and trustworthiness. We measure the competence of candidates in a real effort task and their trustworthiness in a trust game, and provide this information to voters when they make their voting decision. We find that most voters select the candidate rationally, based on who provides the highest expected profit irrespectively of trustworthiness and competence. Around 25% of voters display a bias towards caring about trustworthiness, mostly when the difference in expected profits between the two candidates is small enough.

**Jeroen van de Ven (University of Amsterdam)**

**Don't you push my angry button: Detecting rejecters in an ultimatum game using facial cues**

With Boris van Leeuwen, Charles Noussair, Theo Offerman, Sigrid Suetens, Matthijs van Veelen

People often get angry in bargaining situations, even though it is costly to do so. An evolutionary rationale is that anger helps people to commit to reject unfavorable deals. If others can recognize a tendency to get angry, this might result in a more favorable treatment. We use a laboratory experiment to study whether 'angry buttons' can be detected based on facial cues. Participants played an ultimatum game. Prior to explaining the game to them, we collected photos and videos of the responders. We showed an independent group of observers' pairs of photos or videos, always consisting of one responder who rejected a low offer and one responder who accepted a low offer. The observers were asked to identify the rejecter within each pair. We find that the observers did better than chance in identifying rejecters when they could see the photos, but not when they could see the videos. With the help of facereading technology, we can predict the responders' anger level after receiving a low offer, and we find that the observers are better at identifying rejecters who predictably get angry.

**Mateus Joffily (GATE, CNRS)**

**The emergence of emotions under active inference**

I will present a new perspective on emotion that rests on mathematical formalism and biological plausibility. The perspective conforms to the free energy principle that has been recently proposed in neurosciences as a unifying account of learning, perception and action in adaptive agents such as living organisms. The computational model of emotion to be presented offers a description of how emotional valence and some basic forms of emotion emerge from purely information-theoretic quantities and how emotion and learning interacts during decision-making under ambiguity.

**Jean-Claude Dreher (CNC, Lyon)**

**How Audience affects amoral and pro-social behavior**

With Luigi Butera, Elise Metereau and Marie Claire Villeval

Humans value not only extrinsic rewards, such as money, but also their own morality. Yet examples of amoral behavior are frequent, especially when people know that they are not viewed by others. Behavioral economics and social psychology indicate that people act in a more amoral fashion and are ready to give up their moral value (sell their souls) when they know that they are not viewed by others. This behavioral effect may parallel the fact that people act in a more altruistic fashion when knowing that they are observed by others. The standard cost-benefit model, which is central to legal theory surrounding crime and punishment, assumes that amoral behavior in discordance with intrinsic values are performed by purely selfish, calculating people, who only care about external rewards. More recent economics models, in contrast, assumes that people largely care about self-image because they want to be seen at doing good. Although there is a large body of behavioral evidence consistent with the predictions of these theories, there is no direct neural evidence for the existence of concerns for self-image when weighing either monetary costs against pro-social monetary transfers or monetary benefits against moral value. Here, we used functional MRI to test directly for the existence of self-image on social preferences in the human brain, while subjects evaluated two opposite types of cost-benefit decision transfers to positive and negative organizations, reflecting either costly pro-social decisions or amoral social decisions with monetary incentives. Consistent with models of prosocial behavior accounting for the desire of social approval, we find that activity in the ventral striatum and anterior cingulate cortices were more responsive when subjects acted more generously and prosocially in public than in private settings, regardless of organization type. Moreover, for the negatively valued organization, image motivation was crowded out by monetary incentives, that is, participants accepted more transfers in private than in public. This effect, showing how money can ‘buy’ social moral values, was accompanied by higher response in the lateral orbitofrontal cortex. These results provide direct evidence for the validity of this class of models, and also show that distinct components of the brain’s reward circuitry are sensitive to social image, depending upon whether being pro-social means to actively give away resources for a good cause, or renouncing to earnings that involve amoral consequences.

## **CORTEX Conference**

### **Daniel Houser (ICES, George Mason University) Behavioral and Neural Signatures of Betrayal Aversion**

Decisions are said to be ‘risky’ when they are made in environments with uncertainty caused by nature. In contrast, a decision is said to be ‘trusting’ when its outcome depends on the uncertain decisions of another person. A rapidly expanding literature reveals economically important differences between risky and trusting decisions, and further suggests these differences are due to ‘betrayal aversion’. We discuss behavioral experiments supporting the hypothesis that betrayal aversion stems from a desire to avoid negative emotions that arise from learning one's trust was betrayed. We proceed to discuss evidence from an fMRI study that supports this hypothesis. In particular, we present data indicating that the anterior insula modulates trusting decisions that involve the possibility of betrayal.