BEHAVIORAL ECONOMICS - THESIS INFORMATION

Below you find possible supervisors, their general research area or research interests and some example topics the supervisor proposes.

Own topic: Generally, own ideas are very welcome! Please write a short description / proposal and send this to the thesis coordinator Julia Müller: jmuller@ese.eur.nl

LIST OF SUPERVISORS AND EXAMPLE TOPICS

Aydogan Msc, PhD Student Behavioral Economics

Research interests: Prospect Theory for risk and ambiguity, Probability weighting and likelihood insensitivity, Cognitive illusions, heuristics and biases in probabilistic reasoning

Example topics:

The Causes of Description-Experience Gap and Models for Decisions from Experience. Studies on decisions from experience have shown that people seem to make decisions as if they are underweighting small probabilities, rather than overweighting as prospect theory (Tversky & Kahneman 1992) posits, when they rely on their personal experiences. There is a variety of psychological and statistical reasons suggested in the literature. A study can discuss these reasons put forward in the literature, and accordingly explore possible models to explain and predict the choice patterns in decisions from experience. An overview of a range of heuristic and learning models as well as formal ambiguity models can be done. Possible models can be tested by using the choice prediction competition data set of Erev et al. (2010). The student can try to propose a model that provides a better fit to the data than the winner model in the choice prediction competition of Erev et al. (2010).

For a review of DFE literature:

Hertwig, Ralph, and Ido Erev. "The description–experience gap in risky choice." *Trends in cognitive sciences* 13.12 (2009): 517-523.

Choice Prediction Competition of Erev et al. (2010): Erev, I., Ert, E., Roth, A. E., Haruvy, E., Herzog, S. M., Hau, R., ... & Lebiere, C. (2010). A choice prediction competition: Choices from experience and from description. *Journal of Behavioral Decision Making*, *23*(1), 15-47.

Partial ambiguity: The effect of sequential sampling on uncertainty attitudes. The studies on decision from experience (DFE) have revealed that people exhibit different choice patterns in DFE compared to decision from description (DFD) (which is also known as decision under risk). The main reason pointed out in the literature is the distortions in experienced relative frequencies compared to objective probabilities described. However, some studies still demonstrated that accurately experienced probabilities could not close the gap completely. One possible reason for this residual gap is the partial ambiguity remaining after the sampling stage. Nevertheless, there are not many rigorous studies that

analyze DFE by using recent formal theories of ambiguity. A review of formal ambiguity models which are applicable to DFE situations can be made. An experimental study can be conducted to investigate the uncertainty attitudes in DFE with an Ellsberg setting in which subjects draw samples from the ambiguous urn. The uncertainty attitudes can be analyzed with the source method of Abdellaoui et al. (2011).

Decision from Experience (DFE) Paradigm and Mental Representation of Probabilistic Information. Some researchers argue that DFE paradigm is a more realistic way of studying decision under uncertainty than DFD paradigm because people often sequentially acquire probabilistic information in terms of relative frequencies -as in DFE- rather than in terms of single event probabilities –as in DFD. In line with this view, Gigerenzer (1991) and Gigerenzer & Hoffrage (1995) had argued that human mind is evolved to be an intuitive statistician acquiring and processing all kinds of probabilistic information in terms of relative frequencies. However, Kahneman & Tversky (1996) points out the fact that this account cannot capture the role of similarity, analogy, association and causality in probability judgments. A study can discuss whether the DFE paradigm is a good representation of decision situations that we face every day, and compare different aspects of human judgment about uncertainty in relation to DFE paradigm. An experiment of DFE that captures these different aspects of probabilistic reasoning can be designed.

Dr. A. Baillon, Associate Professor Behavioral Economics

Research interests: decisions under uncertainty, beliefs and confidence, priming, impact of emotions on decisions and economic activity.

Example topics:

Tell me the (unverifiable) truth! In 2004, Drazen Prelec published a paper showing how we can make people reveal the truth even when this truth cannot be verified. John et al. (2012) used it to measure the prevalence of bad scientific behavior among researchers. Run your own experiment to measure what people truly think or do!

http://pss.sagepub.com/content/23/5/524.short

http://journals.ama.org/doi/abs/10.1509/jmr.09.0039

http://www.sciencedirect.com/science/article/pii/S0165176509003681

Exploring the behavioral characteristics of the Dutch population. The LISS panel has been used by several researchers to measure behavioral characteristics of a representative sample of the Dutch population (ambiguity attitude, risk attitude…). Study how these behavioral measures relate to other patterns (opinions, saving behavior…). First find which variables are available on http://www.lissdata.nl and then work on your hypotheses (before running the statistical analysis).

The impact of the FIFA world cup on stock markets. Edmans, Garcia, and Norli (2007) found that a loss in the World Cup elimination stage created an abnormal negative stock return. Will this again happen in 2014? Be ready to follow both the World Cup and the stock markets!

Advantageous selection. The presence, in several markets, of a negative correlation between coverage and risk occurrence (called advantageous selection) constitutes a theoretical puzzle. Why do low-risk agents have more insurance than high-risk agents?

Measuring beliefs in developing countries. To better design health policies in developing countries, we need to know how people perceive the risks they face. Can you propose a survey or an experimental protocol to measure risk perception adapted to these populations?

Topics related to the seminar Applied Behavioral Economics. – *Master students only!* - Let me know which task you liked and what you would like to study, possibly in relation with the guest lecturer.

Prof. Dr. H. Bleichrodt, Professor of Behavioral Economics

Research interests:

Example topics:

Does loss aversion really exist? Ert & Erev (2008) present experimental evidence that loss aversion does not exist. This project tests the robustness of their finding

Curiosity and regret in decision making. Curiosity and regret are countervailing powers in decision making. This projects tests the relative force of these powers and whether they are related with intelligence and ambiguity aversion.

Bayes rule and representativeness with feedback. In a famous experiment, Grether (1980) showed that Tversky and Kahneman's representativeness heuristic is more important in explaining probability judgments than Bayes' theorem. This project tests whether this effect persists if we give subjects feedback.

Y.Gao Msc, PhD Student Behavioral Economics

Research interests:

Example topics:

Normative legitimacy of discounting future utility. There are many possible reasons to care less (or "discount") about future outcomes. While many philosophers contend that there's no rational basis for discounting and also many economists argue for zero discounting. There's could be a literature review

on different thoughts about this issue. Shane Frederick (1999, 2003) proposed an experiment to test whether identity (defined as similarity of future and past selves) is related to discount rates. His experiment could be improved in several prospects. Empirical work could be done.

Cognitive ability, cognitive load and time preference. People with high cognitive ability differ from those with lower cognitive ability in a variety of important and unimportant ways (Frederick 2005). There are mixed evidence on whether cognitive ability and impatience are related, and whether there is a causal mechanism. Similar to cognitive ability, "cognitive load" manipulation could also have effects on short-run time preference.

Collective (group) behavior on time preference. Many time-related behaviors are done at collective basis. There have already been a lot of studies researching on collective behavior on risky choice. Similar studies on time preference is rare. An experiment can be done to test how people's time preference can be affected under different decision rules.

Language and decision making. Languages can be categorized in different ways. For instance, by whether or not they require speakers to grammatically mark future events, or by how precise can they describe probabilities. Could these affect speakers' future-oriented and risky related actions? This is a 12 min TED talk which might give you some inspiration:
http://www.ted.com/talks/keith_chen_could_your_language_affect_your_ability_to_save_money.html

C. Li Msc, PhD Student Behavioral Economics

Research interests: Decision Under Uncertainty; Behavioral Finance, Cultural Difference in Decision Making

Example topics:

How proverbs influence our risk taking behavior? Different cultures have different proverbs, which give suggestions on people's decision when facing risk. One quote which encourages people to take risk is: Only those who dare to fail greatly can ever achieve greatly, by Robert F. Kennedy. More sayings or quotes can be found at http://www.quotegarden.com/risk.html. The research question is whether priming people with such proverbs will influence their risk taking behavior.

General risk measure and risk measure via choices in lotteries. There are different ways of measuring people's attitude towards risk and trust in the literature. One way is through asking general questions, such as: Are you generally a person who is fully prepared to take risks or do you try to avoid taking risks? Another way of measuring people's attitude towards risk and trust is by asking them real-incentive questions, such as a choice between two lotteries. It's easy to see that the first approach is much simpler and also cost free. If it gives the same results as the second approach, it's beneficial for researchers to use the former rather than the latter approach. In some validation studies, it was found that the risk attitude measured through the above mentioned two approaches are similar. However, the

problem is that, it's a within subject design, and subjects may have the tendency to try to be consistent with their own answers in the general questions while answering the real-incentivized questions. The challenge of research topic is to run a validation study which avoids the influence of subjects' intrinsic desire of being consistent.

N. Liu Msc, PhD Student Behavioral Economics

Research interests:

Example topics:

Incentive systems in economic experiments: what to use? There are various ways to incentivize subjects in an economic experiment. One can think of monetary incentives through relative performance, individual performance, group performance or non-monetary incentives (e.g. honor). Each has benefits and advantages. You will create a review of the existing literature on the topic and execute an experiment in which you compare the effectiveness of different incentive systems.

Wisdom of the crowd. At an English farm auction, people were asked to estimate the weight of a bull. Almost everyone guessed something that was far off of the actual weight, but the average was remarkably close to it. Since this first study, many others have found that this 'wisdom of the crowd' can be utilized in an effective manner to make an educated guess about unknown quantities. Your challenge is to find a novel way of applying the wisdom of the crowd: can we determine for what problems the wisdom of the crowd is an effective method, and are there ways to improve?

Meta-boost in Temple Run. Temple Run is one of the most popular games for the smartphone. You will analyze how performance in this game can be enhanced by various 'nudges'. You will create a review of literature on the relation between incentive systems and work performance and execute an experiment in which you compare the effectiveness of different systems.

Dr. J. Müller, Assistant Professor Behavioral Economics

Research interests: behavioural game theory, bargaining, norms, social preferences, anti-social behaviour and dishonesty

Example topics:

Framing the guessing game. Many experiments find that people show quite low levels of reasoning in the guessing game (or beauty contest game) (Nagel 1995). The Wason selection task is a logical puzzle (Wason, 1966); in experiments a majority of subjects give the wrong answer – but if the Wason card selection task is framed not neutral but using an every day life environment, a majority solves it. Design your own every day life frame for the guessing game and test it in an experiment.

Analyze Level-0-behaviour in the guessing game. Behaviour in the guessing game inspired a new non-equilibrium model, called level-k thinking or cognitive hierarchy model (Camerer, Ho, and Chong, 2004). There exist various variants of this model basically differing in how level-0-behaviour is defined. Review the different definitions and design your own experiment to explain level-0-behaviour and to disentangle the different approaches.

Framing effects and context in experiments. Framing can have huge effects. One famous example is the label *Wall Street game* versus the label *community game* (Liberman, Samuels and Ross, 2004) which highly affects levels of cooperation in the prisoner's dilemma game. Design you own experiment using framing.

Group decision making in social dilemma situations. Review the literature linking group decision making and decision making in social dilemma situations. Design your own experiment.

The limits of the nudge approach. Nudging is a very popular new technique and applies insights of behavioural economics to various areas. Using for example good defaults is very effective. But what about the long run? People experience being nudged and realize that they do not have to think about their possibilities and receive a good outcome as the default is carefully picked by the policy maker. But what if people then also apply this "heuristic" to situations without a nudge?

Norms. Especially in other regarding behaviour norms are crucial. If someone wants to be fair, he or she needs to have a fairness norm in mind. What norms do people follow? How do norms emerge? What about confliction norms? And how can norms be enforced?

Dishonesty. Dishonest or unethical behaviour can be observed in many situations. This type of behaviour causes huge damages to companies and the whole economy. On the other side, the people engaging in dishonest behaviour play it down or justify it. This can also be related to norms. How can one prevent dishonest behaviour? Review the literature or design your own experiment.

Payoff magnitude in behavioural game theory. Goeree and Holt (2002) presented ten examples of the predictive power of game theory and at the same time a contradiction treatment to that finding. They found that subjects take the magnitude of payoffs into account. Design an experiment to gain more concrete insights on the exact nature of the influence of payoff magnitude.

R.J.D. Potter van Loon Msc, PhD Student Behavioral Economics

Research interests:

Example topics:

Evaluating structured (financial) products through prospect theory. Structured products are pre-packaged investment strategies that give a payoff dependent on the price of an 'underlying' security, such as a stock or an index. Some examples are (ABN AMRO/RBS) Turbo's, Speeders and guarantee products. Banks construct these products through a combination of various derivatives and sell the

product to their customers (often at a guaranteed profit for the bank). The customer buys the product because the payoff structure is more appealing than that of a single stock or index – because there's a lower chance of a loss, for example. You will analyze the appeal of structured products in a prospect theory framework: can prospect theory explain the fact that consumers buy structured products and if so, what can we say about the parameters of consumers who buy these products?

Behavioral insights in sports betting. In sports betting, participants choose standard lotteries that we often see in behavioral economics: the events are clearly defined ('Ajax beats Feyenoord', 'Red card for Nigel de Jong', 'Skadi wins Varsity') as are the outcomes (win Y if right, lose X otherwise). The availability of data and the wide variety of events and (implied) probabilities thereof allow for the testing of many behavioral theories. One well-known phenomenon in sports betting is the 'favorite-longshot bias': it is found that people tend to overvalue 'long shots' and undervalue favorites – causing a bet on the favorite to have a better expected value. You will do a literature review and an empirical analysis of the favorite-longshot bias in sports betting.

Behavioral insights in poker. Poker is a popular strategic game in which players constantly make decisions under risk and uncertainty. Studying poker might give insight in various behavioral concepts. Data is relatively easily available through the internet. Knowledge of Excel or statistical programs is required.

Background: in research joint with Martijn van den Assem and Dennie van Dolder, I have imported over 70 million poker 'hands' to quantitatively analyze the role of skill in the performance of online poker players. For more information on the research thus far, see tinyurl.com/poker-eo (EconomieOpinie) or

http://ssrn.com/abstract=2129879 (working paper).

Prof. Dr. K.I.M. Rohde, Professor of Behavioral Economics

Research interests: Intertemporal choice, nudge, social preferences, decisions under risk

Example topics:

Do we always dislike inequality? People are not purely selfish: they care about the payoffs of others. In general we tend to dislike inequalities. A recent paper by Rohde and Rohde (2012) tries to analyze which inequalities people dislike. Possible research questions are to which extent their results hold in different domains and whether it matters that the decision maker is an impartial spectator. Other extensions are welcome as well.

Are decisions we make on behalf of others different from the ones we make for ourselves? Are decisions we make for others more or less biased than the ones we make for ourselves? Which decisions deviate more from the standard economic model?

In which direction to nudge: What do people consider to be good behavior? From the research on intertemporal choice we know that people tend to make plans that they eventually do not carry out. Thus, there is a gap between intended behavior and actual behavior. Is it possible to find out what type of behavior people find desirable? Is there, for instance, a difference between decisions people 'make' and decisions 'they think would be good for them to make'? An answer to this question would give us an idea in which direction people would like to be nudged and to what extent they would like to be nudged.

Dr. J. Stoop, Assistant Professor Behavioral Economics

Research interests:

1. Laboratory experiments on social preferences and social dilemma's: My research looks at ways to improve cooperation, or, quite differently, if reward media other than money (for example time) leads to similar behaviour as money. Examples of experiments that I use: dictator game, ultimatum game, trust game, prisoner's dilemma, public goods game
2. External validity of laboratory experiments on social dilemma's: How predictive is behavior in the lab for behavior in the real world? My research is about comparing lab behaviour to very similar settings in the real world (without subjects knowing to participate in an experiment). Examples of experiments for which I studied external validity: public goods game, dictator game, trust game
3. Lab/field experiments on tournament design: A tournament is a setting where agents compete, and the one with highest output takes a big prize while the rest gets nothing. A promotion on the workfloor is an example of a tournament. By means of lab and field experiments all kinds of theoretical predictions can be studied.

Example topics:

The Public Goods: a field experiment on cleaning streets. In this field experiment, we look at ways to raise money to clean streets. The setup is like that of a public goods game: if enough money is pledged to clean a street, then the street will be cleaned. Also the non-contributing subjects will thus benefit from the public goods. A variety of setups will be tested to see how successful each one is.

Rewards and public goods provision: laboratory evidence. In this laboratory experiment, we consider the effects of rewards on cooperation in the public goods game. Rewards are a fragile instrument to promote cooperation, and this study looks at the boundaries of rewards.

The public goods game revisited: alternative experiments on the public goods game. In this study, we will look at cooperation when the standard public goods game is changed: rather than static periods, each period is dynamic. Subjects receive a constant flow of information on free-riding behavior of the other group members.

The dictator game in the field: income differences and altruism. In this study, we will look at altruism and income. Are richer people more or less altruistic than poor people?

The trust game: does a delay in payment make people less pro-social? In this study, we will look at the effect of a delay in payment in the trust game. Usually, trustees in trust game studies must give part of their endowment to another individual immediately. We are interested in what happens when the trustee has to wait a couple of days before he or she can give something back to the trustor.

U. Turmunkh Msc, PhD Student Behavioral Economics

Research interests: Judgment errors in judging others' preferences, Learning to Judge, Judgment by crowds versus judgment by experts, Individual judgments and collective action

Example topics:

Uncertainty about Others' Preferences. How accurate are our beliefs about others' preferences? How confident are we in our beliefs? How do we use (social) information to form beliefs about others' preferences? Students can explore these questions experimentally in a variety of contexts and relate their findings to the existing literature. For example, others' preferences can entail others' tastes, willingness to share, or trustworthiness. The (social) information to base beliefs about others' preferences can entail their gender, personality traits, or their words.

Uncertainty and Crowds. Crowds are presumably wise. There are papers that show that many non-experts can predict uncertain events better than few experts. Students can explore wisdom of crowds in predicting uncertain events. Specifically, students could investigate following questions: Are crowds always wiser than individuals? What are the circumstances under which crowds make better predictions than individuals?

Uncertainty about Future Auctions and Bidding in Current Auctions. In auctions literature, bidding behavior is usually analyzed in terms of bidders' beliefs about the parameters of the auction in which they are participating. Bidders' beliefs about potential future auctions are usually ignored. Specifically, the "outside option" – i.e., the value attached to losing the auction – is certain, and typically, fixed at zero. However, in large-stakes auctions, bidders that win an auction often cannot participate in the next auction. On the other hand, bidders that lose an auction, may be able to participate in the next auction. Students can explore the role of this "uncertain outside option" in determining bidding behavior from a theoretical or an experimental perspective.

T. Wang Msc, PhD Student Behavioral Economics

Research interests: Any topic that stems from reality and is interesting to think about, including but not limited to: market anomalies, behavioral finance, and risk and ambiguity attitudes.

Example topics:

The Decision to Make a Decision. In a dynamic decision making environment, where the arrival of new information makes the decision situation change constantly, an important question is when we should analyze the decision situation and make a decision. The stock market, where the questions of when, which, and how much to buy or sell hover around the investors every trading day and every minute, is a good example of such a dynamic decision environment. In reality, most people do not evaluate their portfolios every trading day and every minute. Do we take the effort to decide when to make a decision? If the answer is yes, then do different timings of decision making have profound impact on patterns of behaviors?

Whether to Put a Price Tag on Your Sharing Soul: You Just Love to Share, or You Share to Get Your Share? What is the motivation behind altruistic behaviors; is it a pure selfless act, or a ticket for others to return the favor? An interesting place to look at is online sharing. Since the things that are shared are often ideas, knowledge, information, and digital-form materials, online sharing has the distinctive characteristic of being non-rival, which means that the consumption of the good by one individual does not reduce availability of the good for consumption by others. Unlike other kinds of sharing which requires large sacrifice for the sharer, online sharing is highly efficient and effective, in the sense that a tiny act can produce immense welfare improvement for the community.

Some online communities share things freely, while others operate under a virtual currency system. Price tags in terms of virtual currency are very common, and people are sharing resources frequently, yielding a well-organized online marketplace with a huge supply base. Comparing the online discussion forum with virtual currency system to the human community, we can see the clear resemblance between the virtual currency and people's reputation for altruistic behaviors.

What We Talk about When We Talk about "Random": The Magic of Certain Numbers. When asked to produce a random real number from 0 to infinity, the answers from people do not look random at all: the number 7 appears to be the most "random" number, among other numbers (relatively small integers and prime numbers). The fact that people think very hard in lottery and Roulette games all says something about the charm of certain numbers over others. What drives our fixation on certain numbers, and what economic decision situations can be influenced by this phenomenon?

Prof. Dr. P. P. Wakker, Professor in decision under uncertainty

Research interests:

Example topics:

How are risk attitudes for gains related to those for losses? Classical models have assumed the same risk attitudes for gains as for losses. The Nobel awarded prospect theory assumes that at the aggregate

level there is risk aversion for gains but risk seeking for losses (reflection), and this assumption has uncritically been taken to hold at the individual level as well in the literature. However, it is well possible that the relation is different at the individual level: that the most risk averse individuals for gains are not most risk seeking, but most risk averse, for losses. This is an important question, settling if reflection is a genuine property of human preference or just a statistical effect.

Which risk attitude components are related to intelligence? There have been many debates about the extent to which particular risk attitudes are rational. Some studies have incorporated, usually simple, tests of intelligence into measurements of risk attitudes, but usually as an aside. We investigate these results more closely, to find out about more systematic patterns. They will serve as arguments in debates on rationality of particular risk attitudes.

How measure people's true values? Preference and utility are at the basis of all of economics. Hence proper ways to measure these concepts are central to many experiments. This turns out to be more difficult than first thought, and more and more biased are uncovered as our techniques proceed. Remarkably, these biases have been known before in the psychophysics literature, with contributions by Fechner (1860) and Nobel prize winner von Békésy (1947). We will investigate results from psychophysics that improve modern economic experiments.

Practical relevance of behavioral economics. The nudge techniques of behavioral economics are being used by governments in the UK and Australia. We investigate in closer detail what they did and if they really were useful, and then, to what extent. How much money did they save the British and Australian tax payers?

Possibility to cooperate with Ecorys (Maarten van der Wagt)

- *Only for Master students*

Alternative for food taxes. Ecorys (see www.ecorys.nl) is currently conducting a research assignment for the European commission on the impact of taxes on unhealthy ingredients in food products such as sugar, fats or salts. Ecorys has to find out how a tax on these ingredients impacts consumption, public health and the competitiveness of the industry. Besides the impact of taxes, the European Commission also has indicated a desire to investigate alternative to taxes to reduce the consumption of unhealthy products.

The student interested in this assignment will be working on the latter parts of this study. Specifically, the project consists of two phases. In the first phase a literature review needs to be conducted to find potential non-tax measures, their respective impact on consumption, consequential impact on public health and consequential impact on competitiveness of the relevant industries. This phase needs to be finalized by **21st of March**. In the second phase, the student is expected to design an experiment to verify the found effects of non-tax measures on consumption levels. Deadline for this phase will be set in cooperation with the student. The results of this research assignment, including the findings from the

student, will be presented to a high-level forum of lobbyists, sector experts and policy makers and will feed into new regulatory initiatives of the European Commission.

The student will be part of a project team of various experienced and less experienced consultants that can and will provide feedback. Nevertheless, the student is expected to be able to work on his own. The project team's main working location is the Ecorys office building in Rotterdam, where the student is expected to do his research and regularly report. However, after consultation, it is also possible to regularly work from other locations. For more information or indication of interest contact Maarten van der Wagt (maarten.vanderwagt@ecorys.com)