FUR 2026 – Conference information

Conference Program

Wednesday June 10

09:30-10:00	Opening
10:00-11:00	Keynote Sevgi Yuksel: People as Intuitive Modelers: How Model Complexity Adapts to Data. Chair: Enrico Diecidue.
11:00-11:30	Coffee break
11:30-13:30	Parallel sessions 1
13:30-15:00	Lunch
15:00-16:00	Keynote Ani Guerdjikova: Do You Know What I Mean? A Joint Representation of Uncertainty for Agents with Differential Awareness. Chair: Jürgen Eichberger.
16:00-16:30	Coffee break
16:30-18:30	Parallel sessions 2
19:15	Cocktail (here, next to the "Torre the Control" at the University of Alicante)

Thursday June 11

09:00-10:30	Parallel sessions 3
10:30-11:00	Coffee break
11:00-12:30	Parallel sessions 4
12:30-13:30	Keynote Wändi Bruine de Bruin: Insights from psychology for effective science communication: Examples from the climate crisis. Chair: Kirsten Rohde.
13:30-15:00	Lunch
15:00-17:00	Parallel sessions 5
17:00-17:30	Coffee break
17:30-18:30	German Bernacer lecture Jose Apesteguia: Preference Heterogeneity in Risk: Theory and Evidence. Chair: Carmen Beviá.
20:00	Cocktail and conference dinner at Meliá hotel

Friday June 12

09:30-10:30	Keynote Pietro Ortoleva: Reference Points as Information. Chair: Adam Sanjurjo.
10:30-11:00	Coffee break
11:00-13:00	Parallel sessions 6
13:00-14:00	Keynote Mohammed Abdellaoui: From Risk to Ambiguity: The Many Lives of Probability Weighting. Chair: Horst Zank.
14:00	Lunch

Locations (links)

Conference venue:

- University of Alicante, Faculty of Education

Rooms:

- ED/0-01
- ED/0-02
- ED/0-03
- ED/0-05
- ED/0-06
- ED/0-07
- ED/0-08
- ED/0-10
- ED/0-13
- ED/Taller 1

Social events:

- Wednesday's cocktail
- Thursday's conference dinner

Parallel Talks Program

Wednesday 11:30-13:30

Attention | ED/0-01

Patrick Sewell: *Attention Allocation under Scarcity: Theory & Experiment*

Jamie Hentall MacCuish: *Costly Attention and Retirement*

David Walker-Jones: *Price Setting Equilibria and Rational Inattention*

Ambiguity: Models | ED/0-02

Stefan Trautmann: *Tests of Recursive Models of Ambiguity Aversion*

Sara le Roux: *"Better the Devil You Know?": Testing Maxmin Expected Utility and Ambiguity Aversion in Vaccine Decisions*

Tomasz Kopczewski: *From Didactics to Discovery: "Entropy Lab" as a Proof-of-Concept for Modeling Uncertainty*

Pegah Rahmani: *Incomplete correlation-sensitive preferences: An axiomatic framework for decision making under uncertainty*

Group Decisions | ED/0-03

Azra Tafro: *Beyond Direct Responses: Social Circles and Meta-Predictions for Population Inference*

Moshe Levy: *Evolution and the Wisdom of Crowds*

Natalia Karelaia: *Harnessing Humility for Better Team Decisions: The Critical Mass Effect*

Elena Molis: *Group threshold when making a decision*

Finance | ED/0-05

Shuzhen Li: *Sustainable Investment May Backfire: Persistence of Sustainability Preferences*

Doron Sonsino: *Polarization in preferences over Green financial investment*

Chen Sun: *Measuring Long-Run Expectations that Correlate with Investment Decisions*

Nikolai Sheung-Chi Chow: *Support Theory for Gains and Losses*

Learning and Updating | ED/0-06

Kieren Pascal: *Information Partitioning, Learning, and Beliefs*

Jiayue Tao: *Intuition vs. Deliberation: How Free Information Impacts Learning*

Yan Xu: *Dynamic Belief Updating and Information Acquisition*

Francesco Fabbri: *Updating Against Nature*

Losses | ED/0-07

G Charles Cadogan: *Behavioural Marginal Propensity to Consume with Applications to Tax Cuts and Interest Rates*

Anouk Festjens: *Risk preferences for losses*

Olivier L'Haridon: *Do Preference-Based and Behavioral Measures of Loss Aversion Capture the Same Trait?*

Michal Lewandowski: *Loss aversion or preference imprecision? What drives the WTA-WTP disparity?*

Risk | ED/0-08

Lasse Mononen: *The Empirical Content of Expected Utility*

Jilong Wu: *A Simple Test for Decisions under Risk*

Camila Farres Rodriguez: *What do we really know about risk preferences for binary lotteries?*

Zhihua Li: *Common Ratio Effect in Different Elicitation Methods*

Complexity | ED/0-10

Duarte Gonçalves: *Speed, Accuracy, and Complexity*

Anna Conte: *GALA: Grasp All, Lose All? Information Overload under Ambiguity*

Adam Sanjurjo: *Space Complexity in Choice*

Hamza Amal: *Space complexity in lottery choice*

Games | ED/0-13

Matteo Nozza: *The Dynamics of Honor: Cultural Transmission of Reciprocity and Private Punishment*

Alex Ballyk: *Strategic Communication Under Perceived Misalignment of Interests*

Anna Bayona: *Group Identity and Strategic Games in the Laboratory*

Donato Pierno: *From Words to Coalitions: Public vs Private Communication in Bargaining Game with LLM Text Analysis.*

Time | ED/Taller 1

Johannes Adrianus de Jong: *Socioeconomic status and executing a task in the future*

Juan Arroyave: *Uncertainty amplifies the impact of scarcity on temporal discounting: Evidence from a serious game experiment.*

Yu Gao: *The Formation of Patience: Experimental Evidence from Real-Effort Tasks*

Kirsten Rohde: *Skipping your workout, again? Measuring and understanding time inconsistency in physical activity*

Wednesday 16:30-18:30

Beliefs | ED/0-01

Claire Rimbaud: *Beliefs Influence Ingroup Favoritism in Children*

Danièle Fares: *Beliefs, Guilt, and Selective Narratives*

Helen Grapow: *Eliciting Belief Distributions: A Comparative Study*

Pavlo Blavatsky: *Selfbeliefs*

Environment | ED/0-02

Iñigo Hernandez Arenaz: *Incentives and Intrinsic Motivation for Pro-environmental Behavior: Field Evidence From Waste Sorting*

Alice Solda: *Playing Dumb to Look Green?*

Ilke Aydogan: *Ambiguity Attitudes and Willingness to Pay for Climate Mitigation*

Bodenberger Robin: *Irrational Boundaries in Perceived Environmental Risk: Evidence from Germany Following the Fukushima Disaster*

Evolution | ED/0-03

Gergely Horvath: *Constrained interactions and the evolution of conventions: An experimental analysis*

Juan Francisco Blázquiz-Pulido: *Evolution of Conventions in Uncertain Environments*

Ariel Gu: *The Evolution of Risk and Ambiguity Preferences during Adolescence: Evidence from a Longitudinal Experiment*

Alexandros Rigos: *Preferences as Heuristics*

Field Studies | ED/0-05

Md Firoz Ahmed: *Religion, Social Norms, and Risk Preferences: Evidence from a Lab-in-the-Field Experiment in Bangladesh*

Samuel Kwesi Ndzebah Dadzie: *Uncovering heterogeneity in risk attitudes of smallholder-farmers under cumulative prospect theory (CPT): A study of food crop farmers in Ghana*

Nnenna Ogbonnaya-Orji: *When Do Farmers Respond to Weather Information? Understanding the Role of Climate Communications and Hazard Exposure in Nigeria*

Sili Zhang: *State Dependence and Commitment: Experimental Evidence from Crop Insurance in Uganda*

Labor | ED/0-06

Meir Barneron: *Predictive Validity of Selection Tools: The Critical Role of Applicant-pool Composition*

Ashley McCrea: *Hiring and Ambiguity: A novel discrimination problem*

Evangelia Spantidaki - Kyriazi: *Why Narcissists Rise: Selection Mechanisms and Performance*

Puja Bhattacharya: *Merit and Job Allocation*

Background Shocks | ED/0-07

Ming Yin: *Out of sight but not out of mind: the effect of episodic background concerns on search behavior*

Ismael Rodriguez-Lara: *Generosity after negative random shocks*

Nicolas Kurtenbach: *Recessions and Preferences*

Overconfidence | ED/0-08

Yingzhi Liang: *Motivated Self-Control*

Luis Santos-Pinto: *Learning and Overconfidence in Elimination Contests*

Tabitha Kisakye Nafula: *Challenging Overconfidence: How Information Influences Entrepreneurial Beliefs*

Muhammed Bulutay: *Overprecision and (Ir)rational Inattention*

Reference Points | ED/0-10

Xiaoyi Guo: *The Evolution of Reference Points over Time*

Charlotte Hervy: *Endogenous reference points and Risk attitudes*

Ao Wang: *Using Equivalent Offsets to Test Reference Points: Evidence from Three Experimental Paradigms*

Arthur Attema: *Measuring Reference Points in Health*

Risk and Time | ED/0-13

Hong Il Yoo: *Risk and Time Preferences of Couples in a General Population*

Yassine Kaouane Yassine: *Temporal Resolution of Uncertainty: Risk vs. Ambiguity*

Lanzhi He: *Resolution Order of Risk under Intertemporal Choice with Timing and Outcome Risk*

Enrico Diecidue: *Why Do People Discount? The Role of Impatience and Future Uncertainty*

Risk | ED/Taller 1

Andre Hofmeyr: *Estimating Higher Order Risk Preferences with a Flexible Utility Function: The Bézier Curve*

Paul van Bruggen: *A Calibration Theorem for Prudence and Expected Utility Theory*

Teixeira Vincent: *Eliciting Risk Preferences: Overcoming Probability Distortions*

Eduardo Zambrano: *Loss limits and the geometry of risk preferences*

Thursday 09:00-10:30

Incentives | ED/0-01

Tong Wang: *Utilizing uncertainty in habitual engagement incentives*

Gijs van de Kuilen: *Is the BSR incentive compatible?*

Jeeva Somasundaram: *Incentive Design Shapes Durable and Structurally Distinct Behavior*

Context | ED/0-02

Mengxi Sun: *Credibility vs Context*

Geoffrey Castillo: *Context effects under ambiguity*

Ruchi Avtar: *Attribution Errors: Context-Dependence and Choice Distortions*

Beliefs: Updating | ED/0-03

Kyle Chauvin: *Structural Properties of Bayesian Updating*

Hao Bai: *A Separation of Uncertainty Attitudes and Belief Updating*

Kenneth Chan: *An Axiomatic Model and Test of Belief Updating: Bayes, Grether (1980), and Preservation of MLRP*

Bounded Rationality | ED/0-05

Georgios Gerasimou: *Distilling Models of Bounded-Rational Choice: A Constraint Programming Approach*

Daniele Caliari: *The Luce Model, Regularity, and Choice Overload*

Philippos Louis: *Failures of Contingent Thinking and the Winner's Curse*

Emotions | ED/0-06

Fantine Xiao: *Aggressive Toward Everyone but Powerful Men? Strategic Display of Anger Expression*

Chen Li: *Opening the black box of emotion expression: How anger expression shapes altruism, beliefs and attitudes in negotiation*

Federico Innocenti: *Misinformation and Emotions*

Axiomatization | ED/0-07

Shujun Tan: *A Preliminary Attempt at the Axiomatisation of Decision-by-Sampling Models for Risky Choice*

Fan Wang: *Association Rules: An Axiomatic Approach*

Lorenz Hartmann: *Dependence uncertainty: a decision-theoretic approach*

Correlation | ED/0-08

Pranjal Bhushan: *Measuring Subjective Correlations*

Alexander Brown: *Multiple Sources of Ambiguity with Known and Unknown Correlation*

Jing Zhou: *Correlation Neglect in Financial Decision-Making: The Role of Complexity*

Ambiguity | ED/0-10

Aurelien Baillon: *Arbitraging ambiguity*

Fernando Payro Chew: *A Cognitive Theory of Ambiguity Attitudes*

Jürgen Eichberger: *Value of Partial Information*

Field Studies | ED/0-13

Levon Barseghyan: *Insuring Risks Large and Small: The Role of Preferences and Limited Consideration*

Scott Dickinson: *How do Individuals React to Information in Naturalistic Settings? Rational Decision Making in Elite Sports*

Epper Thomas: *Beliefs and Pessimism in the Field: Predicting Smallholder Diversification and Agricultural Investment*

Social Choice | ED/Taller 1

Arthur Attema: *On the stability of social preferences*

Brice Magdalou: *Opportunity-Sensitive Social Welfare*

Pawel Kalczynski: *Preference matrix serialization for the Borda Scoring Rule*

Thursday 11:00-12:30

Social Influence | ED/0-01

Siming Ye: *Aspiration-Weighted Influence*

Giacomo Weber: *Coarse Agents and Intergroup Phenomena*

Giuseppe Puleio: *Getting to Know the Experts*

Trust | ED/0-02

Megan Crawford: *De-motivating foresight through anchoring and trust: An extended mind experiment*

Jonas Backhus: *Beyond Performance: How Interaction Environments Shape Social Dynamics*

Aba Szollosi: *Retaining trust when communicating uncertainty about rare events*

Voting | ED/0-03

Maria Luigia Signore: *Voting strategies under uncertainty: how electoral size-dependent affects majority threshold*

José Luis García-Lapresta: *Deriving voting scoring systems from individual preference intensities*

Regret | ED/0-05

Moritz Loewenfeld: *Blame It on the Coin Flip: Preferences for Randomization and Regret*

Yoichiro Fujii: *Standard Sequences for Utility and Regret in Health and Wealth Losses*

Diag Davenport: *Margin Inconsistency: A Simple Behavioral Foundation for Regret, Under-Entry, and Market Design*

Axiomatization | ED/0-06

Alim Faraji: *Possibility Correspondences as Epistemic Conditions*

Stefania Merone: *Continuity, Convexity, Centrality: Axiomatizing and Comparing Location Indices*

Horst Zank: *A Model of State-dependent Utility*

Aiding Decisions | ED/0-07

Luis Camas: *Space Complexity and Decision Aids*

Yifan Li: *Improving decision under risk: The Role of Information Processing Guidance*

Rakesh Sarin: *Universal Happiness: A Decision Analytic Perspective*

Risk: Complexity | ED/0-08

Giulio Principi: *Ordering and measuring the complexity of lotteries*

Maohua Nie: *Asymmetric Complexity Aversion: A Domain Comparison of Risky Choices*

David Wendle: *Complexity and Choice under Risk*

Games: Ambiguity | ED/0-10

David Kelsey Kelsey: *Location Invariance and Games with Ambiguity*

Francesco Conti: *Ambiguity in Games: Information & Communication*

Peter Bayer: *Uncertain coalitional games*

Bounded Rationality | ED/0-13

Agnieszka Tymula: *Optimal Utility: Endogenizing the Cardinal Representation of Riskless Subjective Value in Cognitively Constrained Choosers*

Javier Vázquez Gómez: *Search with Multiple Attributes: Optimal vs. Human Behavior*

Lucas de Lara: *Rational Choice Overload*

Thursday 15:00-17:00

Beliefs | ED/0-01

Ethan O'Leary: *(Mis)anticipated Discrimination: How Misperceived Beliefs Perpetuate Labour Market Inequality*

Li King King: *Belief Bias, Source Preference, and Preference for Robo-Advisor*

Pedro Gonzalez-Fernandez: *Belief Bias Identification*

Edona Selimaj: *How does new information influence the uncertainty of individuals' beliefs?*

Effort | ED/0-02

Yufei Liu: *Ambiguity Attitude and Effort Provision*

Apoorv Kanoongo: *A Reference-Dependent Model of Effort: Evidence from a Real-Effort Experiment*

Huyen Phuong (kat) Nguyen: *The Effects of Task Difficulty and Choice of Incentive on Performance: A Real-Effort Experiment*

Lony Bessagnet: *Anticipating Being Ranked: A Will to Win vs. a Will to Shape Beliefs*

Equity | ED/0-03

Luca Panaccione: *Equity or Efficiency: An Experimental Investigation*

Edwin Ip: *Distributional Preferences under Risk: Equality of Opportunities, Equality of Outcomes, or something else?*

Juan D. Moreno-Ternero: *Integrating Equity and Productivity in Health Evaluation*

Health | ED/0-05

Ning Liu: *Actively Calculating the Financial Consequences of Health Outcomes Improves Preventive Judgments*

Maximilian Zinn: *Measuring risk preferences in clinical populations: Evidence from a comparison of patients and university students*

Thomas Benard: *Higher-order Risk Preferences And Health-related Prevention*

Benedicta Hermanns: *Risk and Prosociality: Can Experimental Decisions Predict Health Behavior?*

Risk | ED/0-06

Henrik Guhling: *An Analysis of Event-Splitting Effects in Choice under Risk*

Antonio Filippin: *The Blurred Side of Risk: An Experimental Test of Cognitive Imprecision*

Luca Congiu: *Framing Allais: Is the Paradox Robust to the Pictorial Framing of Probabilities?*

Morten Lau: *A General Approach to Estimating Random Preference Models of Risk Attitudes*

Morality | ED/0-07

Julia Rose: *Moral Algorithms*

Martijn van den Assem: *Impact or Responsibility? Giving Behavior in a Televised Natural Experiment*

Irena Pavlovic: *When not whether: A situational model of intuition and deliberation in moral judgment*

Horia Guias: *Eliciting Responsibility Functions for Negative Externalities: Theory and Experiment*

Preferences | ED/0-08

Federico Quartieri: *Secure and perfect maximality*

Joshua Lanier: *Consumer Theory for the Badly Behaved*

Marco Mantovani: *The good, the bad and the well-behaved: choice over bads and preferences for diversification*

Methodology | ED/0-10

Andreas Ortmann: *Credibility in Economics Publications: How Actual Replications and Z-curve Analysis Align*

Wei-Cheng Chen: *Dr. Cutoff: How I Learned to Love Preregistration*

Julen Zarate-Pina: *Time Costs and Behaviour Across Participant Pools*

Carlos Cueva: *Theory as Data Compression*

Planning | ED/0-13

Hasini Senadheera: *Succession Planning*

Maxim Senkov: *Motivational Progress Disclosure in Multistage Projects*

Gabi Gayer: *Imagination and Planning*

Anton Polous: *Punctuality and optimal departure time under uncertainty*

Ambiguity | ED/Taller 1

Maria J. Montoya-Villalobos: *Measuring Ambiguity Attitudes Without Incentives: Evidence from an Introspection-Based Method*

Nicolò Bertani: *Ambiguity and Justification in Environmental Choices*

Tianyu Ma: *First-price Sealed-bid Auctions with Smoothly Ambiguity-Averse Bidders*

Loïc Berger: *Ambiguous Climate Beliefs and Policy Support: Evidence from the Dutch General Population*

Friday 11:00-13:00

Comparability | ED/0-01

Mikel Hualde: *Indifference, incomparability, and choice aversion*

Alexandra Gheondea-Eladi: *A multidimensional model of strategic choice: decision-making with noncomparable monetary and social payoffs*

Alexander Jakobsen: *Comparison of Decision Problems*

Vishal Ashvinkumar: *Comparing Comparisons*

Games | ED/0-02

Tibor Neugebauer: *Does Outcome-based Learning Explain the Decline of Contributions in Public Good Games?*

Giuseppe Attanasi: *Bargaining with confirmed proposals: an experimental analysis of tacit cooperation on duopoly games*

Tanushree Jhunjhunwala: *Probability and Magnitude in Public Goods with Gains and Losses*

Luis Rodrigo Izquierdo Millán: *Successful strategies in the voluntarily repeated Prisoner's Dilemma*

Large Language Models | ED/0-03

Veronica Roberta Cappelli: *LLMs as Strategic Agents: Beliefs, Best Response Behavior, and Emergent Heuristics*

Victor Gonzalez-Jimenez: *Who needs Savage? Humans do and LLMs too!*

Emir Efendic: *Conversing with a disagreeing LLM improves people's predictions*

Learning | ED/0-05

Andrea Salvanti: *Causal Discovery and the Structure of the Learning Environment*

Siting Estee Lu: *Learning to Coordinate: Adaptive Learning and Equilibrium Selection in Labour Market*

Dotan Persitz: *Behavioral and Structural Barriers to Information Aggregation in Networks*

David Gonzalez-Jimenez: *Learning gaps? Descriptions vs Experienced Signals*

Ambiguity and Risk | ED/0-06

Tigran Melkonyan: *Compound versus Reduced-form Ambiguous and Risky Prospects*

Hai He: *Complexity Sensitive Expected Utility*

Xueting Yang: *Does increasing complexity change behaviour under ambiguity? Less is More*

Olivier L'Haridon: *Complexity and Higher Order Preferences*

Time | ED/0-07

Jean-Michel Benkert: *Time is Knowledge: What Response Times Reveal*

María Romero González: *Time preferences, daily behaviors, and measurement error*

Tomas Jagelka: *Distortions in time perception: a novel measure of non-pecuniary utility*

Clément Staner: *A Revealed Preference Analysis of Choice Under Time Risk*

Stochastic Choice | ED/0-08

John Smith: *Stochastic choice and noisy beliefs about imperfect perception*

Xueqi Dong: *Stochastic Choice: Rational or Erroneous*

Tanay Bhatt: *Testing Single Crossing Property with Stochastic Choice Data*

Changkuk Im: *The Measurement Error Random Utility Model*

Uncertainty | ED/0-10

John Quiggin: *Unawarness without the postulate of the excluded middle*

Jeeva Somasundaram: *When Is More Information Optimal? Signal Fidelity, Prior Uncertainty, and Go/No-Go Decisions*

Huzeyfe Elden: *Anxious and Uncertain? Attachment Styles and Uncertainty Preferences*

Jozef Bavolar: *Into the unknown - individual differences in attitudes to unknown*

(In)consistencies | ED/0-13

Joachim Vosgerau: *The Impact of Prediction Mode on Forecasting Accuracy*

Han Bleichrodt: *The Value of Life Under Prospect Theory*

Martina Vacondio: *The Robustness of Mental Accounting: A Global Perspective*

Peter Wakker: *The Necessity to Reconcile Choice Inconsistencies but the Dangers to Do It Mechanistically*

Plenary Talks Abstracts

Wednesday 10:00-11:00 | Keynote

People as Intuitive Modelers: How Model Complexity Adapts to Data

Presenter: **Sevgi Yuksel**

Chair: Enrico Diecidue

Abstract: We study whether and how people respond to a fundamental tension in model selection: simple models generate high bias and low variance, whereas complex models generate low bias and high variance. We report results from an experiment in which participants rely on a limited sample of observations to construct mental models describing the relationship between two variables and are rewarded based on the out-of-sample predictive accuracy of these models. In aggregate, behavior is broadly consistent with people acting as intuitive modelers who respond to the simplicity-complexity tradeoff. Model complexity varies systematically with the size and nonlinearity of the sample, but willingness to improve in-sample fit declines when doing so requires more complex models. The main deviation from optimal benchmarks is in the direction of underinference, driven by both a preference for overly simple models and mistakes in model construction conditional on the chosen complexity level.

Wednesday 15:00-16:00 | Keynote

Do You Know What I Mean? A Joint Representation of Uncertainty for Agents with Differential Awareness

Presenter: **Ani Guerdjikova**

Chair: Jürgen Eichberger

Abstract: Without the assumption of complete, shared awareness, it is necessary to consider communication between agents who may entertain different representations of the world. A language-based approach provides powerful tools to address this problem. In this paper, we define translation operators between two languages which provide a "best approximation" for the meaning of propositions in the target language subject to its expressive power. In general, translation is ambiguous: it provides a range of possible meanings in the target language. We derive necessary and sufficient conditions for the existence of a joint state space and a joint language, in which the subjective state spaces of each agent, and their individual languages, may be embedded. This approach allows us to compare languages with respect to their awareness of the joint state space. It identifies a maximal unambiguous common language, as well as a maximal common state space, on the events of which agents may entertain common knowledge. Finally, our approach provides the methodological underpinning for obtaining ambiguous beliefs as a result of differential awareness.

Thursday 12:30-13:30 | Keynote

Insights from psychology for effective science communication: Examples from the climate crisis

Presenter: **Wändi Bruine de Bruin**

Chair: Kirsten Rohde

Abstract: As scientists, we are used to sharing our findings with one another — including at the FUR conference. Yet our work often has relevance beyond academia, including for policy makers, practitioners, and members of the public. Communicating science effectively to these audiences is especially vital on urgent issues such as climate change. In this keynote, I will share insights for effective communication, taken from my research on creating climate change communications with environmental organizations. These insights should help FUR attendees who want to share their research more widely and obtain real-world impact.

Thursday 17:30-18:30 | German Bernacer lecture

Preference Heterogeneity in Risk: Theory and Evidence

Presenter: **Jose Apesteguia**

Chair: Carmen Beviá

Abstract: Preference heterogeneity is pervasive in economic decision making, both across individuals and within the same individual across contexts. This talk presents a research agenda on the modeling and empirical analysis of such heterogeneity, with a focus on risk preferences. I first argue that the way heterogeneity is modeled is fundamental: standard stochastic choice approaches can have counterintuitive implications in risk settings, including violations of natural monotonicity with respect to risk aversion. I then introduce ordered random utility models as a coherent framework in which utilities are ordered by a preference parameter and observed choices are generated by a distribution over types. The talk discusses their theoretical foundations, identification properties, and empirical implementation. I conclude with ongoing work using this framework to study behavioral deviations from expected utility. Rather than imposing a particular behavioral model, the approach asks how lottery characteristics systematically shape the distribution of risk attitudes, providing a unified way to study behavioral regularities.

Friday 09:30-10:30 | Keynote

Reference Points as Information

Presenter: **Pietro Ortoleva**

Chair: Adam Sanjurjo

Abstract: We develop a model of reference dependence based on the idea that reference points provide comparative information to people who are uncertain how to value objects or actions. When people are uncertain how much they value an option, they may still be able to tell whether it is better or worse than a reference point on each dimension, thus providing information. In a Bayesian framework, value uncertainty and comparative information generate regularities such as thinking in gain-loss categories; income targeting and bunching; a preference for advantages over tradeoffs; avoiding losses; coherent arbitrariness; behavioral attenuation; contrast, assimilation, decoy, and range effects; joint-vs.-separate evaluation differences; simultaneous overreaction to small and underreaction to large changes; and - when allowing for caution regarding value uncertainty - the endowment effect. The model predicts that reference effects are most pronounced when value uncertainty is high and the reference point well-known. We then develop a theory of endogenous reference points based on which option is most informative for choice by reducing value uncertainty. This yields several novel predictions, including when the reference point is determined by the status quo, expected outcomes, similarity-based memory, or other options.

Friday 13:00-14:00 | Keynote

From Risk to Ambiguity: The Many Lives of Probability Weighting

Presenter: **Mohammed Abdellaoui**

Chair: Horst Zank

Abstract: Probability weighting is a central mechanism in decision making under uncertainty. This talk investigates its role through recent experimental findings in three distinct contexts: standard simple risk, compound risk, and ambiguity. First, I revisit the elicitation of probability weighting under risk. I confront traditional results based on certainty-equivalent methods with recent experimental evidence using a Holt-and-Laury-like elicitation procedure (Abdellaoui, Bleichrodt, Kaouane, and Richard, 2026). The findings confirm the robustness of the familiar S-shaped probability weighting function, suggesting that this pattern is not merely an artefact of a specific elicitation method. Second, I examine probability weighting in compound-risk environments. I report results from an experimental elicitation based on a recursive rank-dependent utility model, allowing for both stage-dependent probability weighting functions and utility (Abdellaoui, El guide, Kemel, and Zouiten, 2026). The findings show that attitudes toward chance

are fundamentally stage-dependent, with important implications for how individuals evaluate compound lotteries and multi-stage risky prospects. Third, I turn to ambiguity. Using the smooth ambiguity framework, I discuss recent experimental findings showing that measurements of ambiguity attitudes are likely to be affected by probability weighting when its role is not explicitly accounted for (Abdellaoui, Hill, and Chandra Akella, 2026). This highlights the importance of disentangling ambiguity attitudes from probability transformations in experimental elicitation. Overall, the talk argues that probability weighting is a robust feature of decision making across simple risk, compound risk, and ambiguity. Carefully accounting for - and, where necessary, factoring out - probability weighting is therefore essential for interpreting experimental evidence on attitudes toward risk and ambiguity.

Abstracts by Parallel Session

Wednesday 11:30-13:30

Attention | Room ED/0-01

Attention Allocation under Scarcity: Theory & Experiment

Author(s): Patrick Sewell

Abstract: This paper studies the economic consequences of perceived scarcity. I develop a model in which agents optimally allocate limited attention across concurrent tasks as a function of task payoffs and complexity. In the model, perceived scarcity, captured by a kinked utility around a subjective need threshold, distorts attention allocation, generating canonical scarcity effects such as bandwidth tax, trade-off thinking, and tunneling as equilibrium outcomes of rational behavior. The framework yields new testable predictions: perceived scarcity improves performance in the scarce domain, reduces productivity in other tasks, and amplifies cross-task spillovers when task complexity increases. To test these mechanisms, I introduce a novel experimental design that induces perceived scarcity while holding objective resources and incentives fixed. Preliminary evidence shows that the manipulation successfully generates perceived scarcity and produces behavioral patterns consistent with the model's predictions.

Costly Attention and Retirement

Author(s): Jamie Hentall MacCuish

Abstract: In UK data, I document the prevalence of misbeliefs regarding the State Pension eligibility age (SPA) and their predictivity of retirement. Exploiting policy variation, I estimate a lifecycle model of retirement in which rationally inattentive households learning about uncertain pension policy endogenously generates misbeliefs. This modelling of belief formation is motivated by and replicates patterns in subjective belief data. Endogenous misbeliefs explain 51% of the excessive (given financial incentives) drop in employment at SPA when constrained to replicate these patterns and completely explain it when not so constrained. To achieve this, I develop a solution method for dynamic rational inattention models with persistent beliefs. Costly attention makes the SPA up to 15% less effective at increasing old-age employment. Information letters improve welfare and increase employment.

Price Setting Equilibria and Rational Inattention

Author(s): David Walker-Jones; Carlo Cusumano; Ferdinand Pieroth

Abstract: We study a foundational environment with a seller choosing a take it or leave it offer for a buyer that has a commonly known value for a good. In many real-world environments, such as settings where the price is described by a lengthy contract, it is natural to think that it is costly for the buyer to understand the implied price of this offer. If the cost of learning the price is a simple strictly positive constant, then the unique subgame-perfect Nash Equilibrium involves no learning and no trade. If the cost of learning the price is more flexible and can depend on the realized price, and or the beliefs of the buyer, then equilibria with trade can exist. However, a large equilibrium multiplicity

makes it difficult to obtain predictions about economically relevant factors, such as the probability of trade and expected shares of surplus. We propose a novel refinement strategy, which assumes that the buyer produces minimal differentiation between prices, in the sense that their response to a counterfactual price they did not expect cannot be more extreme than their response to prices they deemed possible. We show that this approach provides novel and contrasting comparative statics for some of the standard methods for modelling such an environment. We extend the analysis to multi-seller environments and study settings with uncertainty about the buyer's value.

Ambiguity: Models | Room ED/0-02

Tests of Recursive Models of Ambiguity Aversion

Author(s): Stefan Trautmann; Pascal Kieren; Gleb Gertsman

Abstract: We study agents' preferences for ambiguity resolution in dynamic environments. In an extension of the original Ellsberg experiment, we first show the existence of preferences for late and gradual resolution of ambiguity. Most importantly, we document an interdependence between agents' attitude towards ambiguity and the preference for the timing and graduality of the resolution of ambiguity. We compare our results to the predictions of popular recursive models of ambiguity aversion. Out of the considered ambiguity models, only the smooth ambiguity model (Klibanoff, Marinacci, and Mukerji, 2005) is flexible enough to accomodate the observed preferences.

"Better the Devil You Know?": Testing Maxmin Expected Utility and Ambiguity Aversion in Vaccine Decisions

Author(s): Sara le Roux; Chandra Krishnamurthy

Abstract: Decisions about vaccination often involve uncertainty, not only in the form of known risks but also ambiguity, where the probabilities of outcomes are unclear. Individuals frequently exhibit ambiguity aversion, preferring vaccines with well-characterised efficacy over those with uncertain or ambiguous performance, even when the latter may have higher expected efficacy. Building on the Maxmin Expected Utility (MMEU) framework (Gilboa and Schmeidler, 1989), this study investigates how ambiguity influences vaccine choices. Using an experimental design that elicits ambiguity-adjusted probability weights via the matching probability mechanism (Baillon et al., 2018), we quantify and experimentally test the threshold at which individuals switch from a vaccine with known efficacy to one with ambiguous efficacy. We also examine how these behavioural measures relate to choices in a setting featuring soft-default nudges delivered by different institutional authorities. Our experimental findings suggest, consistent with recent evidence, that ambiguity preferences elicited using Ellsberg-style tasks has low predictive power for real-world non-financial decision making contexts, strengthening the case for context-dependent-ambiguity. In contrast, the level of trust placed in the authority delivering a recommendation emerges as a robust determinant of behavioural response, implying that the effectiveness of default-based interventions depends critically on the perceived credibility of the messenger. These findings underscore the importance of aligning behavioural interventions with trusted institutional messengers, yielding implications for decision-making across a broad range of ambiguous and uncertain policy environments.

From Didactics to Discovery: "Entropy Lab" as a Proof-of-Concept for Modeling Uncertainty

Author(s): Tomasz Kopczewski; Tomasz Potocki; Jan Lisicki

Abstract: We introduce a proof-of-concept experimental design that began as a teaching device for Shannon entropy but developed into a research instrument for decision-making under uncertainty. The "Entropy Lab" operationalises uncertainty as predictive structure rather than dispersion of outcomes. Participants repeatedly choose among stochastic environments that share the same unconditional distribution (and thus similar one-step expected value) but differ in temporal dependence. Environments are represented as Markov chains with identical stationary distributions, yet different conditional entropy H(St+1|St) and mutual information I(St;St+1), so "memory" becomes a measurable informational resource. A key manipulation is an explicit cost of prediction: participants may pay to observe the relevant transition probabilities before choosing an environment. This induces a decision-theoretic trade-off between expected payoff and uncertainty reduction, allowing identification of (i) willingness to pay for information as a function of conditional entropy, (ii) failures of instrumental use of information (paying but not acting), and (iii) post-shock persistence when the transition structure changes unexpectedly (a stylized Keynesian uncertainty shock). The

same task can be implemented under additive and multiplicative payoff aggregation. The multiplicative regime generates volatility drag and survival effects, creating a divergence between ensemble-average performance and typical time-path outcomes (an ergodicity break). The design yields behavioural measures of "entropy avoidance" and outcome measures linking predictability, information demand, and long-run performance. This provides a compact bridge between information-theoretic uncertainty, costly information acquisition, and dynamic choice.

Incomplete correlation-sensitive preferences: An axiomatic framework for decision making under uncertainty

Author(s): Pegah Rahmani

Abstract: This paper develops a unified axiomatic framework for decision making under uncertainty, from which both correlation-sensitive and expected multi-utility models emerge as special cases. Unlike standard correlation-sensitive models that assume completeness, it allows incomparability by replacing completeness with two natural axioms: reflexivity, requiring consistency under symmetric comparisons, and monotonicity, ensuring that mixtures with incomparable options cannot reverse existing preferences. When transitivity is additionally imposed, the framework collapses to the expected multi-utility model. The framework offers a foundation for understanding how incompleteness, correlation sensitivity, and transitivity jointly shape choice under uncertainty.

Group Decisions | Room ED/0-03

Beyond Direct Responses: Social Circles and Meta-Predictions for Population Inference

Author(s): Azra Tafro; Sonja Radas; Han Bleichrodt

Abstract: Organizations often need to estimate what a population thinks, intends, or does, but surveying a large representative sample is frequently too slow or costly. This is especially acute when decisions must be made iteratively and under uncertainty, such as in product development, public-health monitoring, political strategy, and organizational decision making. When representative samples are unavailable, practitioners turn to smaller or nonrepresentative samples, but direct responses can produce highly biased estimates. This work studies how richer respondent-level information can improve estimation for binary population questions. Instead of asking only for each respondent's own answer, we also ask for the proportion of people in their social circle who would answer a particular way, and their prediction of the overall population proportion. Two estimators are constructed: a social-circle estimator and a meta-prediction estimator. We develop a formal model comparing these under both representative and convenience sampling, yielding closed-form results for bias, variance, and mean squared error. In representative samples, both estimators remain unbiased while achieving lower variance than direct responses. In convenience samples, both attenuate the bias inherited from the sample. Meta-predictions are particularly effective because they combine local social information with broader population beliefs, reducing distortions from homophily. Better estimates can sometimes be obtained not by asking more people, but by asking each person more informative questions, with implications for low-cost forecasting, market research, public-health surveillance, and collective judgment.

Evolution and the Wisdom of Crowds

Author(s): Moshe Levy

Abstract: The collective wisdom of crowds has been employed in many applications, and has been evoked as a rationale for democracy and the efficiency of financial markets. However, occasionally democratic nations make catastrophic decisions, and financial markets fail miserably. When and why are crowds wise? We employ data from a TV game show with thousands of participants and very large monetary prizes to explore this question. We find that crowds perform extraordinarily well in weight estimation, rather well in estimating the number of objects, but not so well in situations where information aggregation is expected to be most effective (such as in estimating the average knowledge or behavior of the population). These findings motivate us to examine evolution as a possible explanation for the wisdom of crowds. We find that individuals tend to be persistent in their under/over-estimation. Under/over-estimation of weight and number are almost uncorrelated. We examine the hypothesis that the striking ability of the crowd to estimate weights is driven by evolutionary stabilizing selection.

Harnessing Humility for Better Team Decisions: The Critical Mass Effect

Author(s): Natalia Karelaia; Miguel Lobo

Abstract: People are often put together in teams to solve problems and make critical decisions. A growing body of research suggests that for teams to perform at their best, they need collective intelligence, which goes beyond individual intelligence. This paper explores the role of collective humility in improving the quality of group decisions. We specifically focus on the critical mass of humility among team members and its effect on the team's ability to leverage individual knowledge and benefit from diverse views. Using data from 8,231 individuals organized into 1,909 non-hierarchical problem-solving teams, we operationalize the critical mass of humility as the inverse of median team members' confidence in their individual knowledge. The teams included executive education participants tasked with solving a strategic decision-making problem. The participants varied in relevant knowledge and were highly motivated to make a good decision. Team performance was measured based on the collective solution achieved through deliberation and contrasted to (1) the average pre-deliberation knowledge of team members, and (2) the best individual knowledge within the team. We found that teams with a critical mass of humility are most likely to outperform their best team member. Such teams leverage better knowledge diversity within the team. The results are robust to the way collective humility is measured and suggest that while collective humility does not require all group members to uniformly recognize their own intellectual limitations, a minimal mass of individual humility is needed for intellectually humbling deliberations to occur and ensure collectively intelligent outcomes.

Group threshold when making a decision

Author(s): Elena Molis; María Gómez-Rúa; Bernardo Moreno

Abstract: We study collective choice in binary decisions under uncertainty when individuals disagree about the relative severity of false positives and false negatives. Individuals have strict preferences over the four state-decision outcomes, which induces an individual "bias" (a posterior threshold) for choosing one action over the other. We analyze two aggregation routes. First, we introduce bias aggregation rules that map individual thresholds into a social threshold and characterize the unique rule satisfying anonymity, unanimity, monotonicity, and an error-asymmetry requirement: the average of individual biases. Second, we aggregate preferences over outcomes via social welfare functions and, under standard axioms (weak Pareto, anonymity, neutrality, independence, and monotonicity), characterize a family of qualified-majoritarian rules. We then connect the two approaches through a consistency requirement demanding that the social threshold implied by the welfare function coincide with the directly aggregated threshold. We show that, on the unrestricted domain of strict preferences, no supermajoritarian qualified-majority welfare function can be consistent with an anonymous and monotone bias aggregation rule once heterogeneity in error rankings is allowed. Finally, we identify transparent preference restrictions under which consistency is restored. The results provide axiomatic foundations for societal stringency (e.g., standards of proof) and clarify tensions between supermajoritarian institutions and monotone aggregation of evidentiary thresholds.

Finance | Room ED/0-05

Sustainable Investment May Backfire: Persistence of Sustainability Preferences

Author(s): Shuzhen Li; Peiran Jiao; Kees Koedijk; Yilong Xu

Abstract: Socially responsible investment has grown rapidly, yet it remains debated whether this demand is driven by genuine non-pecuniary preferences or expectations of financial outperformance. We investigate whether sustainability preferences persist when sustainable investments "backfire" financially, that is, when they consistently underperform the market. In an incentivized online experiment (N=504), participants make allocations between real historical US equity funds where the sustainable fund significantly underperforms the conventional one. We utilize a 2×2 between-subjects design to manipulate sustainability labeling and information presentation (standard descriptive information vs. simulated "demo" experience). We document three main findings. First, sustainability preferences are genuine and substantial: investors allocate significantly more capital (approximately 30-35%) to the underperforming fund when it is labeled as sustainable compared to an identical unlabeled fund. Second, these preferences are persistent; despite observing repeated negative returns and incurring financial losses, labeled investors maintain this higher allocation relative to the unlabeled group, indicating a stable willingness to forgo returns for impact. Third, the method of information presentation affects the efficiency of preference discovery. Standard descriptive information results in initial over-allocation and higher decision. In contrast, simulated investment experience allows investors to calibrate

their positions ex-ante, lowering decision variability without compromising the overall willingness to hold sustainable funds. These results suggest that while investors are resilient to underperformance of sustainable funds, incorporating simulated experiences into information provision could help investors more efficiently identify their optimal trade-off between risk, return, and sustainability.

Polarization in preferences over Green financial investment

Author(s): Doron Sonsino; Christodoulos Efstathiades; Snezana Eminidou; Yefim Roth

Abstract: We report the results of two incentivized Cloud Research experiments where more than 400 participants provided forecasts for the S&P500 annual return and divided a 50,000 USD investment budget between a safe bond and an ETF tracking the index. The bond was classified as GREEN in one condition and INDUSTRIAL in the other. The bonds were otherwise identical. The data is closely analysed to test three hypotheses: (H1) The participants reveal a preference for the GREEN bond over the INDUSTRIAL (H2) The response to the elicited return distributions is weaker in GREEN compared to INDUSTRIAL (H3) Polarization in Green preferences reflects in the form of given values of certain covariates (e.g., older age) linking with revealed preference for the INDUSTRIAL over the GREEN, while other values (younger age) oppositely link with relative preference for GREEN. Hypothesis 1 is rejected in both experiments. Hypothesis 2 is rejected in experiment 1. Some polarization effects consistently show in both experiments, while other are only significant in one of the two (slightly different) studies. The results are discussed in light of recent evidence for polarization in preferences over green investment.

Measuring Long-Run Expectations that Correlate with Investment Decisions

Author(s): Chen Sun Sun; Peter Haan; Felix Weinhardt; Georg Weizsäcker

Abstract: Different methods of eliciting long-run expectations yield data that predict economic choices differently well. We ask members of a wide population sample to make a 10-year investment decision and to forecast stock market returns in one of two formats: they either predict the average of annual growth rates over the next 10 years, or they predict the total, cumulative growth that occurs over the 10-year period. Results show that total 10-year forecasts are more pessimistic than average annual forecasts, but they better predict experimental portfolio choices and real-world stock market participation.

Support Theory for Gains and Losses

Author(s): Nikolai Sheung-Chi Chow; Han Bleichrodt; Simon Grant; Jingni Yang

Abstract: This paper explores how the framing of outcomes as potential gains (favorable events) or potential losses (unfavorable events) influences subjective probability assessments. Disentangling these framing effects is essential for a comprehensive understanding of judgment under uncertainty, as varied outcome descriptions may trigger distinct cognitive responses. We present an experimental investigation based on Support Theory to systematically analyze the unpacking effect across scenarios characterized by gains and losses. Our experiment demonstrates that the unpacking effect is more pronounced when outcomes are framed as gains rather than losses, offering new insights into the asymmetric nature of probability formation in uncertain environments. These results highlight the subtle yet influential role of event categorization in shaping probability judgments, thereby underscoring the need to consider framing when addressing biases in judgment.

Learning and Updating | Room ED/0-06

Information Partitioning, Learning, and Beliefs

Author(s): Kieren Pascal; Lukas Mertes; Martin Weber

Abstract: We study whether information partitioning - the grouping of individual information signals into sets - causally affects learning and belief formation. While partitioning effects are well documented in choice, their implications for expectations remain largely unexplored. We report a series of pre-registered experiments that exogenously vary how identical information is partitioned. We show that information partitioning into narrower or broader brackets has a significant influence on how people incorporate such information into their expectations. First, receiving information in smaller, higher-frequency increments (narrow partitioning) yields less precise beliefs, increasing estimation error relative to receiving the same information in larger, lower-frequency bundles (broad

partitioning). Second, narrow partitioning induces recency bias, leading individuals to overweight more recent signals and underweight more distant ones. Broad partitioning instead promotes joint evaluation and more uniform weighting of available information. Evidence on mechanisms suggests that narrow partitioning shifts attention from aggregate ("macro") patterns to granular ("micro") fluctuations. This attention shift makes beliefs overly sensitive to recent signals, generating recency in belief updating and lower precision. Finally, we examine several applied contexts and show that the effects generalize across qualitative and quantitative information, alternative visual presentations (e.g., charts vs. lists), domains (financial markets and online marketplaces), and data-generating processes.

Intuition vs. Deliberation: How Free Information Impacts Learning

Author(s): Jiayue Tao

Abstract: Decision-makers with cognitive costs often benefit from having intuition, but it may also disincentivize their deliberative thinking and undermine decision quality. To capture the intuition-deliberation trade-off in information acquisition, we extend the classic sequential sampling and continuous-time optimal stopping framework and model intuition as receiving limited free information from a drift-diffusion evidence process. We identify an early stopping belief region where free information crowds out further learning and demonstrate that when the intuitive signal is noisy, the crowd-out effect dominates the marginal value of free information, leading to a lower decision quality. We derive several novel testable comparative statics: 1) decision accuracy is U-shaped in intuition strength; 2) deliberation time is decreasing in intuition strength and increasing in the fixed cost to initiate deliberation. We experimentally verify these effects of intuition on accuracy and response times with a two-stage design that varies the DM's exposure to their own intuitive signals. More broadly, our reduced-form model of intuition and experimental finding also apply to costly learning for DMs partially informed by external sources (e.g. AI suggestions): marginally more informative free signals may not improve decision outcomes, but they do reduce decision time when deliberation is worthwhile.

Dynamic Belief Updating and Information Acquisition

Author(s): Yan Xu

Abstract: This paper examines the relationship between dynamic belief formation-entailing sequential information processing-and information acquisition, which involves aggregate information processing in a static context. Our theoretical framework predicts that the ability to extract information dynamically is negatively correlated with the demand for additional signals. We tested this prediction using a novel interactive graphical experiment adapted from the classical bookbag-and-urn paradigm. This design allowed us to measure departures from Bayesian updating and link them to a separate information acquisition task within the same context. While we identified systematic heuristics in long-run updating-including partial Bayesian updating, anchoring, and inertia-these patterns were weakly correlated with acquisition choices. These findings indicate that the cognitive processes governing dynamic updating and ex-ante information demand are fundamentally distinct.

Updating Against Nature

Author(s): Francesco Fabbri; Pietro Ortoleva

Abstract: We study how ambiguity averse decision makers should update beliefs after observing information when ambiguity reflects strategic interaction with an adversarial Nature. We embed the static max-min problem into dynamic zero-sum games and show how different assumptions on timing and observability generate distinct updating rules. When the decision maker can revise her choice after information while Nature is committed to an initial prior, equilibrium reasoning yields foresight updating, which is consequentialist and satisfies one-shot dynamic consistency, a form of consistency relative to an ex-ante optimal act. When revision is not possible, the induced hindsight updating fails these properties; both are restored by anchoring evaluation to an optimal plan. Allowing Nature to revise after information connects the framework to full Bayesian and maximum likelihood updating.

Losses | Room ED/0-07

Behavioural Marginal Propensity to Consume with Applications to Tax Cuts and Interest Rates

Author(s): G Charles Cadogan

Abstract: We find that the Duesenberry-Friedman marginal propensity to consume (MPC) gap is driven by myopic loss aversion (MLA) with Friedman's MPC as reference point, and that that drives a consumption ratchet for intolerance for decline in consumption. We provide several applications of the theory. For example, we prove that the limiting values for behavioural MPC (BMPC) and consumption based MLA (CMLA) index are 0.372 and 2.72, respectively, and show how those values help explain the difference between expected and observed spending of payroll tax cuts in consumer demand surveys. Other applications include addressing a Mirrlees type redistribution problem which predicts that if tax cuts are used to stimulate consumption, then a balanced budget supports transfers to the lower classes, reduction of tax burden on the lower middle class, and progressive taxes on the upper middle class and wealthy. Somewhat surprising, we also find a (behavioural) consumption based loss aversion channel for interest rates, and a government multiplier paradox in which the multiplier is only effective in Friedman-like negative tax regimes. Thus, policy measures aimed at low-income and financially fragile families might drive demand better than untargeted stimulus payments. We also find that the behavioural interest rate is weakly correlated with inflation, and it responds faster than the short rate when inflation exceeds the 2% target. For every 1% increase in the CMLA (fear) index, the short rate decreases by 1-basis point to stimulate the economy.

Risk preferences for losses

Author(s): Anouk Festjens

Abstract: I examine risk preferences in the loss domain. Specifically, I compare individuals' risk curvature (gamma) for baseline lotteries, in which individuals may attain a zero outcome (e.g., a coin flip resulting in a loss of EUR2,000 or EUR0), with their risk curvature for shifted lotteries, in which individuals face a guaranteed loss (e.g., a loss of EUR3,000 or EUR1,000). Risk curvature parameters are estimated by eliciting certainty equivalents for both types of lotteries. Contrary to the well-known break-even effect and predictions from Prospect Theory, I find that individuals take fewer risks in baseline lotteries than in shifted lotteries. This pattern is consistent with attention-based accounts of decision making. In particular, losses appear to be more attention grabbing than zero outcomes, leading individuals to overweight the inferior (loss) outcome of baseline lotteries at the expense of the superior (zero) outcome. As a result, baseline lotteries are perceived as less attractive than shifted lotteries, which do not trigger a reallocation of attention between inferior and superior outcomes. The effect is especially pronounced among low-income participants, for whom losses have greater survival relevance and asymmetries between losses and non-losses are more salient. These findings have important implications for both theory and practice. For researchers, they suggest that estimates of risk curvature parameters may depend on the relative use of baseline versus shifted lotteries. For policymakers, the results indicate that imposing penalties to discourage risky behavior may backfire by increasing, rather than reducing, risk taking.

Do Preference-Based and Behavioral Measures of Loss Aversion Capture the Same Trait?

Author(s): Olivier L'Haridon; Han Bleichrodt

Abstract: This paper compares preference-based and behavioral measures of loss aversion and examines whether they fundamentally capture the same individual trait. We conduct a within-subject incentivized experiment with an earned initial endowment that elicits both the K"obberling and Wakker (2005) index of loss aversion and the widely used behavioral index. Using repeated measures under both risk and ambiguity, and explicitly accounting for measurement error, we document systematic discrepancies between preference-based and behavioral measures. These differences arise not only in the magnitude of elicited loss aversion coefficients, but also in the structure of measurement error, the consistency of estimates across risk versus ambiguity, and their correlations with socio-demographic and attitudinal characteristics.

Loss aversion or preference imprecision? What drives the WTA-WTP disparity?

Author(s): Michal Lewandowski; Lukasz Wozny; Michal Jakubczyk

Abstract: We propose a framework that, while eliminating the endowment effect, accounts for the two leading explanations of the disparity between willingness to accept (WTA) and willingness to pay (WTP): loss aversion and preference imprecision. We introduce axioms that allow us to disentangle how much of the WTA-WTP disparity is attributable to each channel. We illustrate the usefulness of this decomposition by reporting results from a simple experiment. Our setting is general and encompasses several prominent models as special cases. Finally, we argue that the WTA-WTP gap is a monetary measure (i.e., a premium) of uncertainty aversion.

Risk | Room ED/0-08

The Empirical Content of Expected Utility

Author(s): Lasse Mononen

Abstract: We characterize the empirical content of expected utility theory. We show that its observable implications are fully captured by transitivity and the strong independence axiom. However, under commonly used weaker forms of the independence axiom, the continuity axiom adds observable implications for expected utility theory. Our results offer experimental and pedagogical insights. In the literature, there is more evidence for violations of the strong independence axiom than for weaker forms of the independence axiom. Based on our results, this offers indirect evidence for continuity violations. We show that if we only observe strict preferences, then this indirect test for continuity does not work. Hence, experimental designs that elicit1 indifferences offer stronger tests of theories and it is important to distinguish between revealed weak and strict preferences. Additionally, we show that if we only observe preferences on full-support lotteries, then the weaker forms of the independence axiom and the strong independence axiom have the same empirical content. This shows that one explanation for the previous literature's finding that expected utility holds on full-support lotteries is that this is a weak test of the theory. Finally, our results offer a pedagogical insight. We show that if we use the strong independence axiom for expected utility, then we can ignore the continuity and completeness axioms without loss of generality.

A Simple Test for Decisions under Risk

Author(s): Jilong Wu; Jianying Qiu; Songfa Zhong

Abstract: We present a simple test for evaluating decisions under risk, where participants assess the value of (almost) degenerate lotteries. This test is model-agnostic, as most preference-based and cognition-based models, which primarily focus on lottery-specific characteristics, predict that valuations should converge to their degenerate values. In an experiment with a Prolific sample, we find that a majority of participants fail the test, and those who fail exhibit a more pronounced fourfold pattern of risk attitudes compared to those who pass. Two additional experiments confirm the robustness of these findings, even after controlling for cognition-related measures, namely, deterministic mirrors and cognitive uncertainty. In a separate experiment with a student sample, while participants are less likely to fail the test, the link between test performance and the fourfold pattern persists. Going beyond lottery-specific valuation and cognition, these results highlight the need for more nuanced assessments of cognitive engagement in decisions under risk.

What do we really know about risk preferences for binary lotteries?

Author(s): Camila Farres; Ted O'Donoghue; Charles D. Sprenger

Abstract: We conduct a comprehensive experiment on decision-making for binary lotteries---specifically, lotteries that yield a positive amount or zero. Such lotteries form the basis of many empirical results revealing violations of expected utility (EU) and motivating behavioral alternatives. For instance, the assumption of inverse-S shaped probability weighting functions are motivated by evidence on the common ratio effect and on certainty equivalents for binary gambles. However, the space of binary lotteries has not been comprehensively explored, and thus the predictions of various behavioral alternatives to EU have not been fully assessed even within this limited domain. We provide this exploration, and discover empirical patterns that stand in stark contrast to the predictions of existing behavioral models. In particular, the data indicate that risk attitudes are driven largely by relative probability comparisons

between two options, with absolute magnitudes of probabilities playing a minor role. We show that this pattern is largely consistent with the model of "upside potential" proposed by McGranaghan, et al (2025).

Common Ratio Effect in Different Elicitation Methods

Author(s): Zhihua Li; Soo Hong Chew

Abstract: This paper re-examines the classical common ratio effect in the Allais paradox by systematically studying how elicitation methods and choice modes shape observed choice patterns. Recent work has argued that violations of the independence axiom may reflect decision errors induced by specific elicitation procedures or, alternatively, deeper departures from fundamental principles such as stochastic dominance. Building on this literature, we argue that a critical yet underappreciated driver of paradoxical behaviour lies in the structure of the choice tasks themselves, particularly the degree of comparability they impose across alternatives. We conduct a single, comprehensive experiment that integrates multiple elicitation methods within subjects. Participants face the typical lotteries in common ratio effect across binary choice, multiple-choice menus, portfolio choice within budget sets, and valuation tasks. Valuations are elicited using both certainty-equivalent (CE) and probability-equivalent (PE) tasks, implemented via choice lists and the Becker-DeGroot-Marschak mechanism. This unified design allows us to test whether the common ratio effect is confined to binary choice or generalizes across richer choice environments. We find that the common ratio effect is robust in binary choice, multiple choice, and portfolio choice tasks, but is substantially attenuated in valuation tasks. Moreover, CE and PE valuation tasks exhibit systematically different patterns, which are difficult to reconcile with pure error-based explanations. We propose an attention-based interpretation (Chew, Wang, and Zhong, 2025, WP) grounded in task comparability: where highly comparable contexts (i.e., two simple lotteries are being compared) shift attention differently from the less comparable valuation contexts (i.e., one lottery is compared with a sure outcome). This framework provides a unified account for the heterogeneity of observed behaviour across elicitation methods and offers a fresh understanding of decision-making under risk.

Complexity | Room ED/0-10

Speed, Accuracy, and Complexity

Author(s): Duarte Gonçalves

Abstract: This paper re-examines the use of response time to infer problem complexity. It revisits a canonical Wald model of optimal stopping, taking signal-to-noise ratio as a measure of problem complexity. While choice quality is monotone in problem complexity, expected stopping time is inverse U-shaped. Indeed, decisions are fast in both very simple and very complex problems: in simple problems, it is quick to understand which alternative is best, while in complex problems it would be too costly - an insight which extends to general costly information acquisition models. This non-monotonicity also underlies an ambiguous relationship between response time and ability, whereby higher ability entails slower decisions in very complex problems, but faster decisions in simple problems. Finally, this paper proposes a new method to correctly infer problem complexity based on the finding that distorting incentives in favour of an alternative has a greater effect on choices in more complex problems.

GALA: Grasp All, Lose All? Information Overload under Ambiguity

Author(s): Anna Conte; Fabrizio Botti; Gianmarco de Santis; Elena Fabrizi; Paola Paiardini

Abstract: Consumers in digital markets often face abundant but noisy information when evaluating products. Star ratings provide transparent but limited signals, while customer comments can be more informative yet ambiguous, mixing relevant evaluations with irrelevant or misleading content. We study decision-making under such conditions by designing lotteries that mirror online feedback structures: some with transparent probabilities (ratings), others opaque and requiring sampling (reading reviews), possibly contaminated by uninformative signals. Our findings highlight the non-monotonic effect of information: sampling can initially improve decisions, but excessive or noisy sampling produces cognitive overload and reduces choice quality. This contributes to understanding ambiguity attitudes and information acquisition in environments characterised by digital feedback.

Space Complexity in Choice

Author(s): Adam Sanjurjo

Abstract: Space complexity in computer science quantifies the working memory resources required by a machine to solve a problem. I implement space complexity in a canonical multiattribute choice setting, show how it varies with problem size, processing order, and information structure, and characterize the algorithms that minimize it. I then introduce a choice model that takes space complexity as input and test it on human subjects. In a between-subjects experiment, some participants follow assigned processing orders that differ sharply in predicted space complexity, while others construct their own. The model closely tracks the resulting non-trivial pattern of choice errors and consistently outperforms alternative models. Free subjects almost always construct minimal-complexity orders. Elicited beliefs are broadly well calibrated, responding in the correct direction and magnitude to complexity. Finally, I develop a taxonomy of well-known heuristics by their space complexity and provide a novel structural explanation for their appeal.

Space complexity in lottery choice

Author(s): Hamza Amal; Adam Sanjurjo

Abstract: Space complexity measures the working memory required to solve a problem. We introduce this concept into risky choice over lotteries, where decision makers must process probabilities in addition to outcomes. We study space complexity in a laboratory experiment that varies how information about outcomes and probabilities is processed: in some treatments subjects are required to follow specific processing orders, while in others they freely choose how to acquire and organize information. The experiment also includes a belief-elicitation phase to measure subjects' perceptions of their own performance, allowing us to study how computational constraints shape lottery choice in probabilistic environments.

Games | Room ED/0-13

The Dynamics of Honor: Cultural Transmission of Reciprocity and Private Punishment

Author(s): Matteo Nozza

Abstract: Standard evolutionary arguments suggest that, barring reputational incentives, costly punishment strategies should be extinguished by material selection. This paper instead analyzes the intergenerational transmission of reciprocity, modeled as a belief-dependent preference in the spirit of Dufwenberg and Kirchsteiger (2004). The analysis employs an overlapping generations model with incomplete information, in which agents differ in the weight assigned to psychological motivation vis-à-vis material incentives and play a game form such that their preferences for reciprocity provide incentives for retaliation. These preferences are culturally transmitted following the Bisin and Verdier (2001) mechanism, where "imperfect empathy" implies that parents evaluate their offspring's future utility through their own preference map, accounting for the psychological value of actions alongside material payoffs. The model identifies two distinct parameter regimes that map to specific historical and social phenomena. First, under "aggressive reciprocity," where high-reciprocity players derive enough utility from conflict to initiate it, the population settles into a "full deterrence" equilibrium, where the practice of violence disappears yet the high-reciprocity trait persists latently. Second, under "defensive reciprocity"-where agents are motivated to punish unkindness but refrain from initiating hostility-the high-reciprocity trait survives as a stable minority, sustained by socialization incentives that offset material disadvantages. These regimes rationalize, respectively, the historical demise of Honor Duels and the persistence of the Culture of Honor in the U.S. South.

Strategic Communication Under Perceived Misalignment of Interests

Author(s): Alex Ballyk

Abstract: I experimentally study why Senders fail to communicate strategically when they know their incentives align with a Receiver's, but the Receiver is uncertain about this alignment. I develop a cheap talk model that characterizes the Sender's optimal communication strategy in this environment. I find that most Senders communicate suboptimally, often using a strategy that would only be optimal if Receivers were not wary of Senders' incentives. Unlike in communication games with misaligned incentives, incorrect beliefs about the Receiver's strategy provide at best a

weak explanation for Senders' mistake. Instead, the mistake stems primarily from a failure of contingent thinking, which can be mitigated by prompting Senders to consider how Receivers respond. These findings point to an underappreciated source of strategic reasoning errors, which may arise even when incentives are aligned and beliefs about others' strategies are correct.

Group Identity and Strategic Games in the Laboratory

Author(s): Anna Bayona; Adria Bronchal; Tanushree Jhunjhunwala

Abstract: We study the effects of group identity on cooperation in experimental strategic games. Our results show that in games of strategic complements (i.e., when subjects have the incentive to match the strategies of other subjects), group identity only matters initially when a participant interacts with another participant of the same group identity by conveying more cooperative choices, but this effect disappears after a few interactions. However, in treatments with strategic substitutes (i.e., when subjects have the incentive to do the opposite of what the other subjects are doing), we find that participants are persistently less cooperative when playing with another participant of a different group. We show that these effects arise through differences in social preferences and learning dynamics. In games with strategic substitutes, out-group participants display spiteful preferences and tend to imitate the most successful opponent, whereas in games with strategic complements, behavior aligns with standard preferences and is consistent with fictitious play learning.

From Words to Coalitions: Public vs Private Communication in Bargaining Game with LLM Text Analysis.

Author(s): Donato Pierno; Luca Delle Foglie; Nicola Milella; Stefano Papa; James Tremewan

Abstract: We investigate how communication protocols dictate coalition formation in a multilateral bargaining game. Through a laboratory experiment with triads, we analyze whether restricting discussion to public channels fosters all-inclusive Grand Coalitions (GC), or if private communication is a necessary condition for Minimum Winning Coalitions (MWC) to displace prosocial outcomes under majority rule. We manipulate communication transparency (Public vs. Private) and disagreement payoffs to identify the causal drivers of exclusion. Methodologically, we advance the analysis of bargaining processes by employing Large Language Models (GPT) to classify free-form messages, moving beyond traditional manual coding. This approach allows us to map specific persuasive strategies and ambiguity-neutral beliefs to cooperative or exclusionary equilibrium selection.

Time | Room ED/Taller 1

Socioeconomic status and executing a task in the future

Author(s): Johan de Jong; Jan Stoop

Abstract: Some tasks can only be completed at a specific time in the future, for example canceling subscriptions on services one no longer needs, applying for social benefits, and voting in (national) elections. We study how this delayed nature of a task affects low- and high SES households' ability to successfully complete it. In a real-effort field experiment we promise households a reward of 20 euros in cash if they return a postcard. They either get a short time-window of 4 days in the next month (future task treatment) or can return it any time (control treatment). We also vary the timing, either in the week before or after salaries and social benefits are typically received. The results show that the penalty of having to the delay the task (as observed from the return rates) is significantly larger for the low SES households than for the high SES households. Moreover, this effect is stronger in the week áfter salaries and social benefits are typically paid out. We explore potential mechanisms that can explain our findings.

Uncertainty amplifies the impact of scarcity on temporal discounting: Evidence from a serious game experiment.

Author(s): Juan Arroyave; Alonso Molina; Miguel Rotter; Gino Carmona-Diaz

Abstract: Individuals facing economic scarcity often struggle with delaying gratification, a pattern typically attributed to cognitive load, self-control, or risk preferences. However, the role of uncertainty remains underexplored. This study tests the preregistered hypothesis that uncertainty intensifies the negative effects of scarcity on temporal discounting. In a betweensubjects experiment with Colombian participants (N = 230; M age = 24.4; 58% female), we used a web-

based serious game simulating economic decision-making under resource scarcity or abundance. After condition exposure, participants received one of three interventions: (1) direct resource provision, (2) insurance to reduce uncertainty, or (3) no intervention. Delay of gratification was assessed using real monetary incentives aligned with participants' economic choices. Results showed that participants in abundance were significantly more likely to delay gratification than those in scarcity. Among scarcity-exposed participants, uncertainty reduction significantly improved delay of gratification, matching the effect of resource provision. In contrast, participants in abundance were unaffected by uncertainty-reducing interventions. These findings suggest that uncertainty amplifies the effects of scarcity rather than influencing temporal preferences universally. Reducing uncertainty may thus serve as a scalable behavioural intervention to support future-oriented decision-making in economically vulnerable populations

The Formation of Patience: Experimental Evidence from Real-Effort Tasks

Author(s): Yu Gao; Zheng Huang

Abstract: Are time preferences stable, or can they be shaped by experience? We study this question in an eight-week longitudinal experiment (N = 358) using a convex time-budget design with real-effort tasks. In our setting, postponing effort is costly: one unit of effort allocated to a later date requires more than one unit to implement, creating an intertemporal delay penalty. Participants first allocate effort between an earlier and a later date under varying exchange rates, and are later given an opportunity to revise their allocation. We then randomly assign participants to implement either their initial allocation or their revised allocation. We find that participants who are randomly assigned to implement their initial (more patient) allocation subsequently exhibit greater patience in later elicitations, allocating more effort to the earlier date in order to avoid delay penalties. This effect varies continuously with the severity of the intertemporal penalty and exhibits the predicted sign reversal when delay is subsidized. Importantly, the effect generalizes to an unrelated real-effort task, indicating spillovers beyond the original decision context. Our results suggest that experiencing the implementation of patient choices can endogenously shape time preferences.

Skipping your workout, again? Measuring and understanding time inconsistency in physical activity

Author(s): Kirsten Rohde; Diarmaid Ó Ceallaigh; Hans van Kippersluis

Abstract: Anecdotally, physical activity seems a textbook example of time inconsistency, which is the failure to follow through on ex-ante preferences and plans. Think of skipped gym workouts and abandoned New Year's resolutions. This has important public health implications, particularly given the worsening obesity crisis. We perform a theory-based investigation of time inconsistency's empirical drivers using a longitudinal survey with 3,055 participants from Lifelines, a cohort study based in the Netherlands. We find little evidence for an association between time inconsistency and present bias, its most popular explanation in behavioral economics. Instead, we find an association between time inconsistency and time-varying factors that influence affective psychological processes, namely willpower and temptation. These findings have important implications for theoretical models explaining time inconsistency as well as for the design of interventions to tackle it.

Wednesday 16:30-18:30

Beliefs | Room ED/0-01

Beliefs Influence Ingroup Favoritism in Children

Author(s): Claire Rimbaud; Agnès Blaye

Abstract: Ingroup favoritism has been extensively documented in adults and its underlying mechanisms are debated. In children however, while the existence of the bias is documented, its driving forces remain largely unexplored. This study fills this gap by investigating ingroup favoritism in 7- to 11-year-old children, focusing on intrinsic preferences and guilt aversion. Employing a series of dictator games in which children allocated resources to ingroup or outgroup peers under varying conditions of recipient awareness, we assessed both their allocation behaviors and second-order

beliefs about recipients' expectations. Our results reveal a clear ingroup favoritism in allocations. Both correlational and causal analyses suggest that - although intrinsic preferences play a role - ingroup favoritism is significantly influenced by children's beliefs about recipients' expectations and more so as children get older.

Beliefs, Guilt, and Selective Narratives

Author(s): Danièle Fares; Elena Manzoni

Abstract: We develop a psychological game-theoretic model of conditional cooperation in public good games driven by guilt and second-order beliefs about others' expectations. When beliefs are correct, guilt implies equilibrium cooperation that is conditional on perceived expectations. We then introduce motivated beliefs formation: agents can reduce the expectations they feel accountable to by endogenously selecting (i) which social identity defines the relevant reference group and (ii) which social information within that group is attended to. These choices allow defection with minimal guilt and provide a microfoundation for persistent norm misperceptions. The model yields testable predictions on when cooperation breaks down; e.g., when identity switching is easy, information is selectively sampled, and accountability is weak, and clarifies how similarity governs whose expectations predict behavior.

Eliciting Belief Distributions: A Comparative Study

Author(s): Helen Grapow

Abstract: Subjective beliefs and the confidence that individuals hold around them play a central role in decision-making under uncertainty. Nevertheless, belief elicitation remains far from a settled methodological issue. Popular incentivized methods (e.g., scoring rules and matching probabilities) are often difficult for experimental subjects to understand, or require strong preference assumptions. Introspective measures raise concerns about reliability. Moreover, most methods recover point estimates rather than belief distributions and therefore do not capture belief confidence, which may affect choices. This study contributes to the literature on belief elicitation by conducting the first systematic comparison of three mechanisms that elicit belief distributions and are easy for participants to understand in a beauty contest and an ultimatum game. Two methods are incentive-compatible under most models of decision-making and rely on non-chained binary choices. One mechanism (Abdellaoui, Gumus, Kaouane, Kemel, 2025) elicits only beliefs while remaining robust to preferences, while the other provides an integrated measurement of beliefs and uncertainty attitudes, albeit under additional assumptions. The third method (Manski, 2004; Wiswall and Zafar, 2015) relies on introspective questions. Although relatively quick to implement, it requires additional assumptions, including participants' understanding of probability and truthful reporting. Parametric and non-parametric results show that all three approaches recover subjective probabilities that are well calibrated with game actions, with distinct strengths across performance metrics. The study highlights the role of belief confidence, together with mean belief, in understanding and predicting choices under uncertainty. Moreover, it underscores the importance of accounting for ambiguity attitudes alongside beliefs in models of decision-making.

Selfbeliefs

Author(s): Pavlo Blavatskyy; Elias Bouacida; Jianying Qiu; Liu Shi

Abstract: This paper studies individuals' perceived stochasticity in their own future choices. We elicit subjects' beliefs about how they will decide in 26 risky lottery choice problems and subsequently observe their realized choices. To further characterize individual-level choice stochasticity, we repeat 15 of these problems six times for each subject. We find that 89% of subjects report non-degenerate beliefs about their future choices, which arise in 69% of all decision problems. These beliefs are predictive of realized behavior and match the stochastic choice distributions revealed through repeated decisions, suggesting that individuals have meaningful insight into the probabilistic nature of their own future choices. Beliefs elicited as intended choices display systematic behavioral biases: they exhibit a pronounced common ratio effect and, to a lesser extent, a reverse common consequence effect. We provide evidence that these patterns largely reflect underlying preferences for such effects, although stochasticity remains a contributing factor. Finally, we show that the prevalence of non-degenerate beliefs cannot be accounted for by choice noise, indifference, or random preferences. While quasi-concavity in probabilities explains behavior for a subset of subjects, it does not account for the majority, highlighting the role of other mechanisms - most notably preference uncertainty - in shaping stochastic choice and beliefs about one's own decisions.

Environment | Room ED/0-02

Incentives and Intrinsic Motivation for Pro-environmental Behavior: Field Evidence From Waste Sorting

Author(s): Iñigo Hernandez-Arenaz; Eduard Alonso-Paulí; Pau Balart

Abstract: We conducted a field study (N = 1,579) to evaluate the impact of incentives on proenvironmental behavior, specifically with respect to waste sorting. To implement these incentives, we used a card-scanning technology that tracks biowaste sorting in real time. To interpret our findings, we introduced a theoretical model that formalizes prosocial decision-making in contexts where cheating can occur. The model reveals how the removal of incentives creates an opportunity to isolate the roles played by the extrinsic motivation to recycle or cheat in this context, thus making it possible to identify the effect of incentives on intrinsic motivation.On the basis of an evaluation of the effects of incentives over a long-time horizon, we observe that they initially increased recycling; however, this effect declined over time even when the incentives remained in place. Ultimately, the effect vanished after approximately 50 weeks. Crucially, we observe no discontinuity following the removal of incentives. In light of the theoretical model used in this research and several robustness checks, we interpret this pattern as evidence indicating that incentives did not influence extrinsic motivation (either to recycle or to cheat) but rather crowded in intrinsic motivation.

Playing Dumb to Look Green?

Author(s): Alice Solda; Claire Rimbaud; Greg Kubitz

Abstract: This paper investigates whether individuals exploit information complexity to behave more selfishly. We study this question in a context where individuals face a conflict between their monetary payoff and their pro-environmental preferences. Formally, we use a drift-diffusion model to illustrate how information complexity and motivational conflict jointly shape learning and choice. Agents choose between a certain - sometime selfish - outcome and an (ex-ante) uncertain pro-environmental outcome. Motivational conflicts lead to pessimistic and flattened posterior beliefs about the uncertain pro-environmental outcome, increasing the likelihood of selfish choices. Greater information complexity raises the likelihood that agents stop with interior beliefs, further amplifying these self-serving distortions. We test these predictions using an online experiment in which we varied (i) information complexity and (ii) whether there is a conflict between participants' monetary and pro-environmental interests. In line with our hypotheses, we find that complexity increases the likelihood of mis-interpreting the information, and even more so when there is a conflict of interests. Selfish choices are also more frequent when both the temptation (conflict) and complexity are combined for participants with low environmental preferences. Overall, our findings suggest that individuals do "play dumb" when doing so provides an excuse to behave more selfishly.

Ambiguity Attitudes and Willingness to Pay for Climate Mitigation

Author(s): Ilke Aydogan

Abstract: Ambiguity attitudes, which refer to differences between decisions under risk (known probabilities) and uncertainty (unknown probabilities), are well-established in behavioral economics. Their implications have been increasingly recognized in environmental and climate change economics. However, most discussions about ambiguity in this domain have so far been confined to theoretical applications in normative climate policy analysis. Notably, there has been a lack of descriptive investigations into climate-related ambiguity attitudes, despite their potential relevance for understanding voluntary climate action and climate policy acceptance. The current study addresses this open empirical question by analyzing ambiguity attitudes in the climate context and exploring their link with willingness to pay (WTP) for climate change mitigation. We show that notwithstanding the normative arguments for higher mitigation effort under ambiguity aversion, the effect of ambiguity on people's preferred levels of mitigation may be in the opposite direction, suggesting a potential discrepancy between the prescribed and the publicly acceptable levels of mitigation effort.

Irrational Boundaries in Perceived Environmental Risk: Evidence from Germany Following the Fukushima Disaster

Author(s): Robin Bodenberger; Shanmukha Srinivas Byrukuri Gangadhar; Christin Hoffmann; Kirsten Thommes; Felix Müsgens

Abstract: In March 2011, a tsunami triggered a nuclear accident at the Fukushima power plant in Japan, causing severe contamination around the facility. This incident had far reaching consequences for the future of nuclear power in Germany, prompting the immediate shutdown of several facilities and the long-term phaseout of nuclear energy. Although this incident did not alter the actual risk posed by nuclear power in Germany, it fundamentally shifted public awareness and, in particular, increased the perceived risk of domestic nuclear power plants (NPPs). Using rich geolocated German real estate data at the 1x1 km2 grid level, we employ a dynamic difference-in-differences design to study the effects of the incident on housing markets. We find a sharp decline in real estate prices near German NPPs following the incident, consistent with the increased risk perception of German citizens. Puzzlingly, however, comparable properties located near foreign NPPs just across the German border remained unaffected indicating that the national border distorts risk perception. This finding contributes to previous research by providing real-world evidence of a border effect in environmental risk assessment. In a second study we complement the observational evidence with an economic experiment (N=450) to confirm and better understand the source of this bias. Using a controlled environment, we isolate and evaluate the contribution of three mechanisms: information asymmetry, discrepancies between subjective and objective distance caused by the border, and home bias.

Evolution | Room ED/0-03

Constrained interactions and the evolution of conventions: An experimental analysis

Author(s): Gergely Horváth; Ennio Bilancini; Leonardo Boncinelli; Lian Xue

Abstract: In this paper, we study how constraints on social interactions can promote the emergence of efficient conventions via decentralized interactions of individuals who can choose their partners of interaction in a social network. We use the stag-hunt game to represent the tension between payoff-dominant and risk-dominant conventions. Theoretical models suggest that stricter linking constraints favor the coordination on the payoff-dominant equilibrium, while less stringent constraints promote coordination on the risk-dominant one. We test and confirm these predictions in a laboratory experiment finding that under tight linking constraints individuals predominantly coordinated on the payoff-dominant action, while looser constraints increased the frequency of the risk-dominant equilibrium being played. Behavioral analysis shows most participants' decisions follow the myopic best-response model, however, deviations are observed and influenced by recent payoffs and past deviations, challenging the assumption of random mistakes applied in theoretical models. These nuances explain why some groups coordinate effectively on the payoff-dominant action even under loose linking constraints.

Evolution of Conventions in Uncertain Environments

Author(s): Juan Francisco Blazquiz Pulido; Ennio Bilancini; Leonardo Boncinelli

Abstract: We study the role of uncertainty in the evolution of conventions in coordination games when agents are myopic best responders. We introduce uncertainty of the choice environment by means of an ergodic Markov process ruling the switching across a collection of 2-player symmetric coordination games with the same strategy sets but different payoffs, referred to as scenarios. We apply stochastic stability analysis to study the selection of equilibria in the long run when there are multiple scenarios with diverse characteristics. We show that the stochastically stable states may be entirely determined by one or more scenarios that are played very rarely, so changing dramatically any prediction based exclusively on the most likely scenarios. Moreover, we show that the error model determines which scenarios play such crucial role, indicating that any abstraction from low probability scenarios should be evaluated in the light of the considered error model. Finally, we show how to compute the radius and the coradius of a convention in this setup.

The Evolution of Risk and Ambiguity Preferences during Adolescence: Evidence from a Longitudinal Experiment

Author(s): Ariel Gu; Shuaizhang Feng; Matthew J. Walker; Hong Il Yoo

Abstract: Decisions made early in life, such as educational choices, often have long-run consequences for individuals' career and financial outcomes, and many of these decisions are shaped by risk and ambiguity preferences. Existing studies on adolescents' risk preferences typically provide either a snapshot of a single age group or cross-sectional comparisons across ages, with limited longitudinal evidence tracking the same individuals over time. Likewise, while women are often found to be more risk-averse than men-a result frequently used to contextualise gender differences in economic decision-making-there is little evidence on whether this gender gap is innate or emerges during adolescence. More broadly, evidence on the stability of ambiguity preferences over time remains scarce, despite the fact that much uncertainty in economic decision-making cannot be described by known probabilities and may therefore be better characterised as ambiguity rather than risk. A clearer understanding of these issues may help inform policy debates, including how financial literacy programmes can be tailored by age and gender to better prepare young people for long-term investment decisions. We address these gaps by analysing data from a unique longitudinal study that elicited adolescents' risk and ambiguity preferences from Grade 6 through Grade 12 in the Chinese education system. Each participant completed multiple preference elicitation experiments over the study period, allowing us to trace within-individual changes in preferences. Preliminary findings suggest that girls are more risk-averse than boys on average, and that this difference becomes more pronounced in later school years. In contrast, ambiguity preferences exhibit more heterogeneous developmental patterns across cohorts, with girls showing either greater or comparable levels of ambiguity aversion relative to boys.

Preferences as Heuristics

Author(s): Alexandros Rigos; Erik Mohlin

Abstract: We present a model of how an individual's preference for a specific behaviour can evolve as an adaptation to her social environment. Our key assumptions are that the decision maker (DM) (i) is boundedly rational in her ability to process information and evaluate which of two actions yields the highest payoff and (ii) can develop a subjective preference for one of the actions. A stronger preference for an action reduces the probability of not taking it when it is optimal (omission error), but it also increases the probability of taking the action when it is suboptimal (commission error). The optimally adapted preference strikes a balance between these errors and depends on the DM's environment. DMs are typically better off (in objective terms) if they are endowed with subjective preferences that deviate from maximisation of expected objective payoff. Importantly, if DMs can evaluate actions perfectly, they do not develop such biases. The results extend in an intuitive manner to n-player, two-strategy supermodular games. Our framework can be used to interpret preferences for specific actions or strategies (e.g., conditional cooperation, truth-telling, or norm-following) as psychological and cultural consequences of material incentives and social organisation.

Field Studies | Room ED/0-05

Religion, Social Norms, and Risk Preferences: Evidence from a Lab-in-the-Field Experiment in Bangladesh

Author(s): Firoz Ahmed; Andreas Pondorfer

Abstract: Religious and traditional supernatural beliefs coexist in many societies, but we know little about how these distinct belief systems influence risk-taking and social norms, particularly in socially interdependent settings. Using a lab-in-the-field experiment with 720 participants in rural Bangladesh, we study how exposure to an Islamic spiritual agent (Pir) and a traditional witchcraft agent (Gunin) shapes risk preferences in both individual and socially interdependent settings with shared or opposing outcomes. We find that exposure to the Pir reduces individual risk-taking but significantly increases risk-taking when outcomes are shared, while exposure to the Gunin generates weaker and less consistent behavioral responses. These effects are closely associated with changes in social norms, particularly individuals' beliefs about socially appropriate risk, which explain a large share of the differences in behavior across contexts. These findings demonstrate that the influence of moralizing religious beliefs on risk-taking is highly context dependent and operates largely through social norms in socially interdependent contexts.

Uncovering heterogeneity in risk attitudes of smallholder-farmers under cumulative prospect theory (CPT): A study of food crop farmers in Ghana

Author(s): Samuel Kwesi Ndzebah Dadzie Dadzie; Augustina Araba Giovanelli

Abstract: Given the wide range of risk sources that confront farmers in Ghana, one would wonder about the motivation behind their continuous decision to farm, especially as most of them have been hypothesized to have tendencies to avoid risk. This study aims to provide an empirically verifiable answer by estimating farmers' decision behavior under risk by decomposing risk behavior beyond the expected utility functional risk parameterization to include probability weighting parameters in the framework of Cumulative Prospect Theory (CPT). CPT is a decision theory touted/known to provide a better explanation consistent with how decision makers actually behave under risk and can accommodate empirically observed deviations from the Expected Utility Theory (EUT) by handling non-linear probabilities. In the CPT framework, the study employed Hierarchical Bayes mixed logit (random parameter model), which allows for heterogeneity in estimating seven decision parameters characterizing risk preferences. Discrete choice experiment data collected from Ghanaian food crop farmers was used for empirical estimation. The results reveal that Consistent with CPT, most of the farmers exhibit risk aversion in the gain domain and risk seeking in the loss domain. However, with the mixed prospects, significant proportion of the farmers exhibit less sensitivity to losses while most of them consider putting higher weighting on probable large gains or lower weighting on probable large losses amidst decisions under risk. Analysis of the determinants of the uncovered risk preference behaviour exhibited by the food crop farmers revealed that the degree of risk aversion in the gain domain and risk seeking in the loss domain when making decisions under risk decreases among farmers who have higher family sizes or increased incomes. Further, extension contact was found to have a strong and consistent effect on all the value function power and probability weighting function parameters

When Do Farmers Respond to Weather Information? Understanding the Role of Climate Communications and Hazard Exposure in Nigeria

Author(s): Nnenna Ogbonnaya-Orji; Didier Alia; Joaquin Mayorga; Amaka Nnaji; Leigh Anderson

Abstract: While weather information has become easier to gather, uptake and use among small-scale producers (SSPs) remains elusive (Sharafi et al., 2021; Andersson et al., 2020), with substantial heterogeneity across hazard types, features of the communication, and individual characteristics (Sullivan-Wiley & Short Gianotti, 2017). Drawing on novel data in Nigeria and mixed methods, this paper examines the role of economic factors, risk perceptions, and risk communication features in explaining SSPs decision to act on weather risk information. The quantitative data come from a national phone survey that captures risk perceptions, access to and use of weather risk information, merged with a national survey data (LSMS-ISA/GHS) which provides information on socio-demographics. We leverage insights from economics, risk communication and risk perceptions literatures to select the key variables to test. These include hazard exposure, self-efficacy, fatalism, trust in the source, framing of the message, medium of delivery, and accessibility to adaptation options. Descriptive results indicate that over half of respondents did not act on received information, because of perceived irrelevance (27%), lack of viable or affordable response options (27%), untimeliness (20%), and difficulty of understanding (18%). Preliminary regression results indicate that acting on information is associated with awareness of adaptive practices, positively for hybrid crops and negatively for alternative land management practices. The message medium also matters, with in-person delivery linked to a lower likelihood of acting. Further analysis will allow us to assess the differential role of each factors and triangulate the findings with qualitative data collected during focus group discussions.

State Dependence and Commitment: Experimental Evidence from Crop Insurance in Uganda

Author(s): Sili Zhang; Lorenzo Casaburi; Jack Willis

Abstract: According to standard economic arguments, state dependence gives rise to the value of flexibility. This paper posits that it can instead generate demand for commitment when individuals expect future states to distort their own decisions. A conceptual framework models two broad channels---state-dependent valuations (e.g., projection bias) and state-dependent decision mistakes (e.g., scarcity effects)---and shows that increasing sophistication about future state dependence can generate demand for commitment against specific states. We test this prediction in a high-stakes field experiment in Uganda, where we exclude present bias as a source of commitment demand by design. Farmers are offered pay-at-harvest crop insurance for two seasons and can choose upfront to insurance for the second season or to maintain flexibility. 40 percent of farmers choose commitment. An intervention that increases farmer sophistication raises commitment by 11 percentage points. Additional evidence suggests that farmers are concerned about both state-

dependent valuations and state-dependent decision quality. Our results highlight the importance of individuals' sophistication about future states for welfare analysis and policy design, particularly in environments with high state variability.

Labor | Room ED/0-06

Predictive Validity of Selection Tools: The Critical Role of Applicant-pool Composition

Author(s): Meir Barneron; Tamar Kennet-Cohen; Dvir Kleper; Tzur M.karelitz

Abstract: Worldwide, trends of globalization, demographic changes, and rising social mobility are modifying the composition of the pools of applicants competing for jobs, educational places, and other opportunities for which selection tools are used. This study investigates the impact of changes in applicant-pool composition (operationalized as the proportion of a focal group within the applicant pool, p) on the predictive validity of a selection tool (r). We demonstrate that there is a direct relationship between p and r that is shaped by several parameters identified by a proposed equation. To investigate this relationship in the field, we conducted an empirical study based on more than 130,000 observations gathered from a real-life, high-stakes selection context. The results indicate that, under certain conditions, a given change in p can have a beneficial effect on r, whereas, under different conditions, it has a detrimental effect. Furthermore, the results suggest that the proposed equation can be used to explain the performance of a selection tool, under real conditions in the field, where the simplifying assumption underlying the proposed equation does not always hold. The present findings will enable decision-makers to explore the possible impact of anticipated changes in applicant-pool composition on the predictive validity of their selection tools, helping them make better-informed decisions regarding the best one to use. Additional practical implications involve explaining differences between the predictive validity of different selection tools, or variations in the predictive validity of one particular tool depending on country, year, academic discipline, or occupation, for instance.

Hiring and Ambiguity: A novel discrimination problem

Author(s): Ashley McCrea; Surajeet Chakravarty; Miguel A. Fonseca

Abstract: We propose a novel explanation for the under-representation of certain social groups in labor markets. Employers often have limited direct experience with under-represented groups, meaning their ability distributions is partially or entirely unknown. Therefore, hiring decisions are made under ambiguity, and depend on employers' ambiguity in beliefs and their ambiguity attitudes. We test this claim experimentally, with a focus on gender, across two studies. In a stylized hiring experiment, the probability of hiring from a group rises as ambiguity about its ability distribution falls. Female recruiters display greater ambiguity aversion toward male than female applicants, while male recruiters show no such asymmetry. In a second experiment, we elicit beliefs about men's and women's abilities across occupations and find pervasive ambiguity in beliefs for both genders. Importantly, ambiguity about women's ability is negatively correlated with their representation in an occupation, but no such relationship exists for men.

Why Narcissists Rise: Selection Mechanisms and Performance

Author(s): Evangelia Spantidaki Kyriazi

Abstract: In this paper, I investigate why individuals high in narcissism are overrepresented in positions of influence despite being associated with negative organizational outcomes, including poorer team performance and lower financial profitability. I provide the first unified framework to explain this prevalence by studying and testing two selection channels. In the exogenous channel, I experimentally examine partner choice in strategic settings involving collaboration, competition, and fairness. I find that, regardless of their own narcissism, individuals prefer less narcissistic partners across all games. Moreover, narcissism systematically predicts behavior across games. In the endogenous channel, I study selection into competitive environments. While I find no ex-ante performance differences across narcissism levels, individuals high in ability and narcissism are significantly more likely to enter publicly observable competitions, reflecting strategic self-selection into ego-enhancing environments. As a result, among entrants, highly narcissistic individuals are more likely to succeed.

Merit and Job Allocation

Author(s): Puja Bhattacharya; Jeevant Rampal

Abstract: We use theory and experiments to investigate whether social planners incorporate merit-based principles when assigning jobs among workers. The merit-based principles we consider reflect the view that more productive workers should be assigned their preferred job or granted opportunities to earn higher income than less productive workers. However, adherence to merit-based principles may conflict with other distributional objectives, such as minimizing income inequality or maximizing efficiency. Our analysis investigates how social planners balance merit, inequality, and efficiency concerns in job assignment problems. We structurally estimate social preferences and merit-based preferences at the aggregate level. We find social planners display merit-based preferences that they combine with standard distributional concerns. While social planners are willing to tolerate greater income inequality to implement merit considerations, they are less willing to sacrifice efficiency to do so.

Background Shocks | Room ED/0-07

Out of sight but not out of mind: the effect of episodic background concerns on search behavior

Author(s): Ming Yin; Chen Li; Julia Rose

Abstract: Many professionals must solve complex decision problems while simultaneously monitoring unrelated but consequential background events, such as alerts or emergencies. This study examines how such episodic background concerns-and uncertainty about them-affect individuals' ability to search and explore complex decision spaces. Participants perform repeated optimization tasks in which they explore hidden payoff landscapes to locate the highest-value position. Tasks vary in complexity, including both single-peaked and multi-peaked environments. To simulate background concerns, participants are assigned to one of three conditions: a control condition without the balloon task, a condition where balloon timing is certain, and a condition where explosion timing is uncertain. In the balloon conditions, participants perform the optimization task, while simultaneously monitor an inflating balloon in a separate tab and must intervene shortly before it explodes, otherwise they lose part of their earnings. Search quality is measured through outcome accuracy, exploration patterns, mistake rates, decision times, and switching behavior. We hypothesize that background concerns reduce search quality and increase stress, with stronger effects under uncertainty. The study provides insight into decision-making in multitasking environments and informs the design of work settings where interruptions are unavoidable.

Generosity after negative random shocks

Author(s): Ismael Rodriguez-Lara; Hernan Bejarano & Joris Gillet

Abstract: We report the results of three pre-registered experiments that examine the effects of negative random endowment shocks on generosity. Using a dictator game, we show that generosity is greater towards those who experience a negative random shock, and this effect is larger than the effect inequality has on giving. Our data provide evidence that people do not expect this additional level of generosity after a shock and that injunctive norms cannot explain it either. Taken together, our findings suggest that the (high) level of generosity observed after negative random shocks is unexpected and exceeds what people consider to be socially appropriate.

Recessions and Preferences

Author(s): Nicolas Kurtenbach; Arno Riedl; Jona Linde

Abstract: Recessions occur frequently and arguably have large effects on our every-day lives. Past research has found that during recessions individuals become more selfish and more efficiency oriented but lab research about the mechanisms remains limited. In this project we aim to investigate two possible mechanisms: the experience of losses and uncertainty about future earnings. In a 2 x 2 full factorial design we manipulated these two mechanisms. Participants completed allocation tasks as well as risk attitude assessments. Contrary to previous findings, we find that experiencing a loss leads to a decrease in selfishness. On the other hand, experiencing a loss increases the concern for efficiency in allocation decisions, which is in line with previous findings. Similar to the experience of a loss, uncertain future earnings also lead to a decrease in selfishness but has no effect on efficiency concerns. These effects persist after controlling for risk aversion, loss aversion, prudence, and aversion to inequality of outcomes, meaning that the effects

are not driven by risk preferences but rather that the context changes social preferences themselves. These findings extend our understanding of context-dependent preferences and on the effects of background uncertainty on social preferences.

Overconfidence | Room ED/0-08

Motivated Self-Control

Author(s): Yingzhi Liang; Wei Huang

Abstract: We study how individuals sustain optimism about their self-control ability through two channels, perseverance and memory bias. In a field experiment with university students, we conduct two rounds of self-control tasks. We manipulate memory accuracy across treatments by selectively sending first-round performance reminders before the second round. We find that pre-announced reminders significantly increase first-round effort relative to sudden ex-post reminders and no reminders, thereby boosting confidence and willingness to participate in the second-round task. In the absence of reminders, students exhibit optimistic memory biases that also increase confidence and second-round participation, but to a lesser extent. We develop an intra-person model in which a present-biased agent perseveres to signal self-control ability to future selves, consistent with our experimental findings.

Learning and Overconfidence in Elimination Contests

Author(s): Luis Santos-Pinto; Petros Sekeris

Abstract: The paper develops a theoretical model of a two-stage elimination contest in which an overconfident newcomer, uncertain about his ability, sees his overconfidence bias evolving endogenously following an early success. We show that a first stage win amplifies the newcomer's overconfidence bias when his ex-ante probability of being high ability is low, and dampens it otherwise. Overconfidence can raise the newcomer's equilibrium effort in both stages and thus increase his chance of winning the contest. The model clarifies when success feeds further overconfidence biases and helps explain why overconfident individuals often rise to the top in organizational or competitive environments.

Challenging Overconfidence: How Information Influences Entrepreneurial Beliefs

Author(s): Tabitha Kisakye Nafula; Thomas Epper

Abstract: We elicit probabilistic beliefs about entrepreneurial outcomes from entrepreneurs and the general population, examining how information influences belief updating. Using a randomized information treatment with gain-loss framing, we causally identify how individuals update beliefs about startup survival rates, profitability timelines, and entrepreneurial earnings. Both groups exhibit systematic overplacement in prior beliefs. The information treatment significantly affects belief updating: entrepreneurs increase expected earnings by 14.6 percentage points. Loss-framed information generates stronger belief updates than gain-framed information, particularly among entrepreneurs. Time preferences predict updating patterns-patient individuals update beliefs more substantially. The treatment reduces uncertainty in belief allocations, measured by normalized entropy indices.

Overprecision and (Ir)rational Inattention

Author(s): Muhammed Bulutay; Ciril Bosch-Rosa

Abstract: This paper integrates overprecision into a canonical rational inattention model. Overprecision distorts updating directly by deflating the perceived value of new information and indirectly by magnifying attention costs. We test these mechanisms in a pre-registered 2x2 belief-updating experiment. The results show that overprecision reduces updating, and higher costs dampen responsiveness to signals. Our pre-registered analysis finds no support for the predicted interaction between overprecision and attention costs, yet a more granular specification reveals that information costs matter more for overprecise participants. These findings suggest that what appears to be rational inattention partly reflects irrational inattention arising from misperceived prior accuracy.

The Evolution of Reference Points over Time

Author(s): Xiaoyi Guo; Matthias Weber; Enrico de Giorgi; Andrija Lukovic

Abstract: Reference-dependent preferences play a central role in behavioral models of decision-making, yet little is known about how reference points are formed and evolve in dynamic risky environments. This paper studies the joint determination of reference points when individuals face intertemporal risky choices. We develop a structural framework in which reference points arise from four mechanisms: status quo, adaptation to past outcomes, lagged expectations, and forward-looking expectations. Using a three-wave longitudinal experiment with real time intervals on a representative UK sample, we elicit multi-period certainty equivalents to a set of specifically designed intertemporal lotteries and structurally estimate utility, probability weighting, time discounting, and reference point formation parameters. We apply a finite mixture model to capture heterogeneity in reference point formation and to characterize its evolution over time.

Endogenous reference points and Risk attitudes

Author(s): Charlotte Hervy

Abstract: I develop a theory of endogenous reference points under risk in which agents jointly choose a lottery and an ex ante reference point that defines success and failure. The model introduces a natural trade-off: meeting the reference point yields intrinsic success utility that increases with its level, while falling short generates a psychological loss that grows with the failure gap and is scaled by an individual loss-sensitivity parameter. In the framework, the reference point, risk attitudes, and loss aversion are tightly connected: effective loss sensitivity shapes risk attitudes below the reference point, and loss aversion emerges as a function of the individual's risk parameter, his sensitivity to loss and the chosen reference point. I find that endogenous reference point choice yields a sharp regime structure: when payoff dispersion is small, all agents optimally select conservative goals that are surely met, so loss sensitivity is endogenously shut down. When payoff dispersion and success probability are sufficiently high, agents with lower loss sensitivity set aspirational goals, generating heterogeneity in reference points and certainty equivalents. The framework also implies novel menu and context effects. Since the feasible set of reference points is pinned down by the menu's payoff range, adding an otherwise irrelevant outside option can change valuations by expanding the set of admissible goals. Finally, the regime structure implies a sharp identification message: loss sensitivity is revealed only in environments that induce aspirational goals.

Using Equivalent Offsets to Test Reference Points: Evidence from Three Experimental Paradigms

Author(s): Ao Wang

Abstract: This paper tests reference dependence by examining whether increases in hypothesized reference points are offset by equivalent increases in payoffs, without relying on parametric assumptions about gain-loss value functions. In effort tasks, we find systematic expectation-sensitive behavior but reject expectations-based and other payoff-based forms of gain-loss reference dependence. In investment games and a re-analysis of cab driver data, we uncover intuitive evidence of path-dependent, prospect-theory-style reference dependence, despite added degrees of freedom and complex decision environments. In lottery choices, canonical two-stage manipulations isolating common consequences induce large reference-dependent effects, underscoring the need for further theoretical development.

Measuring Reference Points in Health

Author(s): Arthur Attema; Han Bleichrodt; Werner Brouwer; Olivier L'Haridon

Abstract: Reference dependence is a core component of behavioral theories of decision under risk, yet little is known about how reference points are formed in health-related choices. We present evidence from a preregistered online experiment that extends the choice-based methodology of Baillon, Bleichrodt, and Spinu (Management Science 66(1):93-112, 2020. https://doi.org/10.1287/mnsc.2018.3224) to a health context. Instead of monetary outcomes, we study risky choices involving health outcomes, with two between-subject treatments: one with life duration as an outcome and one with quality of life. The experiment is conducted on Prolific with a UK general population sample (150 respondents per treatment). Data are collected in January 2026, and results will be available in the spring. Participants make a series of hypothetical binary choices involving health risks. The choice design allows us to identify

reference point rules jointly with prospect theory parameters using a Bayesian hierarchical model. We test a rich set of reference point rules, including immediate outcomes, own subjective life expectancy, maxmin, minmax, and all rules proposed by Baillon et al. (2020), while simultaneously estimating prospect theory components. We are the first to measure probability weighting in a health context using the functional form proposed by Bleichrodt, Grant, and Yang (Econometrica 91(4):1393-1416, 2023. https://doi.org/10.3982/ECTA19221), which cleanly separates curvature from elevation. An extensive post-experimental survey elicits preventive health behaviors and stated beliefs about reference points, enabling validation of the choice-based elicitation.

Risk and Time | Room ED/0-13

Risk and Time Preferences of Couples in a General Population

Author(s): Hong Il Yoo; Ariel Gu; Matthew J Walker

Abstract: Using data from a large representative sample, we analyze correlations in risk and time preferences within couples. Their preferences are elicited by incentivized experiments and survey instruments. By parameterizing intra-couple correlations, we extend existing empirical models to the couple level. We apply structural estimation to the experimental data, and find a positive correlation in risk preferences. We also find a positive correlation in time preferences, once we control for socio-demographic characteristics. Our parallel analysis using the survey measures of preferences yield similar results. A key assumption in models of decision-making in family economics is the mutual awareness of preferences between partners. We provide the first empirical test of this assumption, finding supportive evidence.

Temporal Resolution of Uncertainty: Risk vs. Ambiguity

Author(s): Yassine Kaouane; Soukaina Abouri

Abstract: Several studies examine attitudes towards temporal resolution of risk, but much less is known about how people value the timing of resolution of ambiguity. We introduce a unified framework to measure preferences towards delayed risk, immediate ambiguity, and delayed ambiguity, using a common scale: matching probabilities. An incentivized laboratory experiment illustrates the approach and shows that preference for early resolution is stronger under ambiguity than under risk.

Resolution Order of Risk under Intertemporal Choice with Timing and Outcome Risk

Author(s): Lanzhi He

Abstract: Recently there is increased interest in settings where risk and time interact. In such environments, we study intertemporal choice under dual-risk, when both outcomes and their timing may be random, and ask whether behavior depends on the resolution order-timing risk resolved before outcome risk or vice versa-even when two prospects induce the same terminal distribution over dated outcomes. Standard intertemporal frameworks are not rich enough to show such dynamic resolution order effects while holding terminal distributions fixed. We propose that choice behavior is analyzed in a dual-risk domain of compound lotteries that distinguishes outcome lotteries from time lotteries, but is sufficiently rich to allow for comparisons between timing risk first, outcome risk first, and one-shot (single-stage) resolution while holding terminal distributions fixed. Within this framework, we formalize dimension specific resolution order preferences. A decision maker exhibits timing (outcome) risk first preference if, for any fixed terminal distribution, she prefers two-stage prospects that resolve timing (outcome) risk in the first stage to comparable prospects in which both dimensions are resolved simultaneously. Our main result provides an equivalence between these dynamic resolution order preferences and a static persistence property in one- stage choice. A preference for certainty over risk in one dimension persists when an identical risk component is added to both options in the other dimension if and only if the decision maker displays the corresponding timing (outcome) risk first preference over compound lotteries. This yields a testable identification of resolution order preferences from one-stage choices.

Why Do People Discount? The Role of Impatience and Future Uncertainty

Author(s): Enrico Diecidue; Hjordis Hardardottir; Marco Islam

Abstract: Despite the intuition that risk preferences affect intertemporal choice because the future is uncertain, time discounting is commonly regarded as a reflection of impatience. Our experimental data show that approximately 43% of the observed time discounting can be explained by an aversion against future uncertainty rather than impatience, even when controlling for utility curvature. Future uncertainty receives disproportional weight because subjects engage in subproportional probability weighting, a behavioral regularity that does not feature in the standard risk framework of most intertemporal choice models. We find that many people do not demand compensation for waiting but rather for an uncertain future.

Risk | Room ED/Taller 1

Estimating Higher Order Risk Preferences with a Flexible Utility Function: The Bézier Curve

Author(s): Andre Hofmeyr; Brian Albert Monroe

Abstract: Higher order risk preferences have been used to explain a variety of economic phenomena using comparative static analyses. In cases where closed form solutions do not exist, there is a need for flexible utility functions to make specific predictions and draw inferences about economic behavior. We derive a cubic Bézier function, which is continuous, highly differentiable, and monotonically increasing. We demonstrate the function's flexibility by showing that it can accommodate all combinations of second order, third order, and fourth order risk preferences for a single agent. Using a novel risk preference experiment, we elicit subjects' higher order risk preferences and estimate them using a Bayesian econometric framework. Our results highlight the value of using a flexible utility function to characterize higher order risk preferences.

A Calibration Theorem for Prudence and Expected Utility Theory

Author(s): Paul van Bruggen

Abstract: Higher-order risk preferences have received increasing attention in the recent literature, but their theoretical properties are not yet fully understood. I derive a calibration theorem in the spirit of Rabin (2000, Econometrica 68(5)) for the third-order risk preference prudence. I show that the typical willingness-to-pay to allocate risk to a high wealth state over an equally likely low wealth state elicited in experiments with modest stakes has implausible implications for risk preferences over large stakes. Implications are derived for both second-order risk preferences (risk aversion) of a similar nature to Rabin's (2000) result, as well as for third-order risk preferences (prudence).

Eliciting Risk Preferences: Overcoming Probability Distortions

Author(s): Teixeira Vincent; Mohammed Abdellaoui; Sébastien Massoni; Lionel Page

Abstract: Risk preferences are a ubiquitous feature of individual decision making. As a result, experimental economists often need to elicit and control for risk preferences. A key trade-off is therefore between precision and cognitive burden. The most widely used approach is the multiple price list (MPL) method of Holt and Laury (2002), due to its simplicity of implementation. Yet the literature highlights important limitations: observed switching points may reflect not only utility curvature but also probability weighting, and measured risk attitudes can be sensitive to design features of the MPL. We propose an experimental framework to test the sensitivity of the Holt-Laury elicitation to manipulations of the MPL. More importantly, building on Rank-Dependent Utility and a neo-additive probability-weighting function, we introduce a new elicitation method (AMPT) that identifies the risk-preference parameter while neutralizing probability weighting by comparing lotteries with identical support. This preserves the practicality of a one-parameter measure while reducing confounds due to probability distortions. A within-subject experiment with 161 participants confirms that Holt-Laury measures vary substantially across list manipulations, whereas AMPT delivers a markedly more stable measure of risk preferences across comparable treatments.

Loss limits and the geometry of risk preferences

Author(s): Eduardo Zambrano

Abstract: Standard measures of risk aversion are mathematically elegant but hard to interpret and elicit. What does CARA ($a=10^{-4}$) "mean"? Is CRRA ($\gamma=2$) high or low? This paper replaces such parameters with a transparent object: the **loss limit** $L(x)$, the maximum stake an individual will risk with probability $1/2$ at wealth x, regardless of upside. Asking "how much would you risk on a fair coin flip?" yields immediate, behaviorally grounded information-easy to elicit without complex lottery menus. We establish a master identity linking the loss limit to absolute risk aversion: $$A(x) = -\frac{L'(x)}{L'(x)\,[1-L'(x)]}$$ This identity allows us to recover utility parameters within a class and, crucially, to identify the class itself from simple observable behavior. The approach also serves as a springboard for uncovering new preference classes. Specifically, whenever $L(x)$ (or $Y(x)=x-L(x)$) lies in the monomial span $\mathrm{span}\{x, x^{\kappa}\}$, risk tolerance $T(x)=1/A(x)$ lies in the same span, and conversely. The resulting class nests HARA and two novel non-HARA families (with $C > 0$ and $\beta > 1$): Constant Loss-Limit Elasticity (CLLE, $L(x) = C^{1-\beta}x^{\beta}$), and Constant Protected-Wealth Elasticity (CPWE, $Y(x) = C^{1-\beta}x^{\beta}$). These models make it straightforward to state, parametrize, and test whether the *fraction of wealth at risk* is constant, increasing, or decreasing with wealth. An interactive visualization is available at https://preferences.shinyapps.io/geometry-of-risk/. By centering analysis on $L(x)$, we bridge normative design and observable behavior, offering a unifying geometry of risk preferences that complements-and extends beyond-the familiar CARA/CRRA/HARA families.

Thursday 09:00-10:30

Incentives | Room ED/0-01

Utilizing uncertainty in habitual engagement incentives

Author(s): Tong V. Wang; Andy Tao Li; Ting Li

Abstract: We study whether platforms that offer uncertain rewards can enhance user engagement compared to certain rewards with the same expected value. We distinguish two types of uncertainties-risk, where people know the potential outcomes and corresponding probabilities of occurring, and ambiguity, where people only know the outcomes but not the probabilities. In collaboration with a leading telecom operator, we designed and conducted a large-scale randomized controlled trial with more than 65,000 mobile app users to assess the effects of uncertain rewards on user engagement. We found that, compared with certain rewards, uncertain rewards can significantly increase engagement in terms of user retention, spending, and social referrals. More specifically, rewards with ambiguity achieved better user retention, whereas rewards with risk achieved more social referrals, and both led to more spending. Further mechanism explorations unpack the box of uncertainty by investigating how risk and ambiguity work differently and indicate that curiosity and optimism bias invoked by the uncertainties played an essential role. Our study distinguishes the two types of uncertain rewards and highlights their potential to increase customer lifetime value. The findings of this study deepen our understanding of why uncertain rewards could be effective and how risk and ambiguity work differently, offering insightful implications for platform practitioners.

Is the BSR incentive compatible?

Author(s): Gijs van de Kuilen; Huzeyfe Elden; Apoorv Kanoongo

Abstract: Without data on subjective beliefs, we are often unable to accurately test model predictions, explore the limits of rationality, or assess equilibrium concepts. The Binarized Scoring Rule (BSR) has become the most popular method to elicit subjective beliefs. Unlike other widely used truth serums, the BSR remains incentive compatible when agents maximize subjective expected utility (SEU). Yet systematic deviations from SEU maximization have been documented empirically (Tversky and Kahneman 1979; Ellsberg 1961). In this paper, we analyze the extent to which subjective beliefs elicited via the BSR are distorted by deviations from rationality, i.e., due to sensitivity to objective probabilities and sensitivity to ambiguity. In doing so, we make three main contributions to the literature on belief elicitation and decision theory. First, we show theoretically how, and in which direction, reported beliefs are distorted due to sensitivity to objective probabilities and ambiguity. Second, we experimentally measure the degree of distortion in reported beliefs by comparing beliefs elicited with the BSR with ambiguity-neutral beliefs elicited using the method proposed by Baillon et al. (2018) and others. Finally, we examine whether these distortions can be reduced by applying a comonotonic transformation of the BSR. The results of the experiment with N = 151 student participants show that reported BSR beliefs are biased in the direction predicted by theory. Moreover, distortions in reported beliefs are reduced, but do not disappear, under a comonotonic binarized scoring rule.

Incentive Design Shapes Durable and Structurally Distinct Behavior

Author(s): Jeeva Somasundaram; Ashish Sachdeva; Lawrence Jin

Abstract: Long-run behavior change is typically evaluated using average outcomes, yet equally durable behaviors may differ markedly in how actions unfold over time. Whether interventions can durably shape this temporal structure remains an open question. We address this question in a 51-week randomized field experiment with 523 adults (180,433 daily observations) using wearable activity trackers. Participants were assigned to a control condition or to one of four incentive designs-fixed gain, fixed loss, gain-based streaks, or loss-based streaks-each tied to personalized daily walking goals over a 36-week intervention, followed by a 12-week post-intervention period with no incentives. All incentive designs produced large and persistent increases in daily walking during the intervention, with little decay after incentives were withdrawn, retaining over 75% of intervention-period gains. Beyond these durable mean effects, incentive structure systematically shaped behavioral dynamics. Gain-based streak incentives increased day-to-day momentum, making success more likely following prior success, whereas loss-based streak incentives reduced prolonged disengagement by accelerating recovery after lapses. These distinct temporal patterns persisted into the post-intervention period, even as average activity levels were similar across incentive designs. Our findings challenge the prevailing view that financial incentives primarily induce transient compliance. Instead, when paired with personalized

goals, continuous feedback, and sustained repetition, incentives can generate durable behavior change while leaving lasting imprints on how behavior is sustained over time. More broadly, the results highlight behavioral structure-momentum and recovery-as a critical and underappreciated dimension of long-run behavior change, with implications for the design of scalable interventions in health and other domains.

Context | Room ED/0-02

Credibility vs Context

Author(s): Mengxi Sun

Abstract: This paper develops a unified framework of a sender-receiver communication game that integrates cheap talk messages and narratives that propose data-generating processes explaining observed outcomes, as in Schwartzstein and Sunderam (2021). The central object is the receiver's inferential rule, which maps language (either a message or a narrative) into mental models of the information environment. We show that the distinct predictions of cheap talk and narrative persuasion arise from different assumptions about these inferential rules. We axiomatize such rules and establish a representation theorem that characterizes how two modes of reasoning, the rationality paradigm and the narrative paradigm, coexist in varying degrees and jointly shape equilibrium outcomes. The framework accommodates a rich set of equilibria, explaining susceptibility to misleading narratives without assuming any preference for them. A key implication is that even a rational receiver in the cheap-talk setting may be vulnerable to persuasion through narratives, and that equilibrium use of messages versus narratives need not vary monotonically with the sender's motives.

Context effects under ambiguity

Author(s): Geoffrey Castillo; Ola Andersson; Erik Wengström

Abstract: Context effects-such as the attraction, the compromise, the range (salience), and the similarity effect-violate the basic consistency requirements of choice such as the regularity condition. They are well documented in deterministic settings, yet evidence under ambiguity is scarce. We study whether these classic context effects extend to ambiguity and whether they strengthen as ambiguity increases. In a preregistered online experiment (n = 615), participants repeatedly chose among lotteries defined by the number of winning balls in a virtual bingo blower and by the prize amount. The underlying colour proportions were fixed, but we varied the total number of balls between subjects (9 vs. 63), making probabilities easy to infer in the low condition and difficult to assess in the high condition. Across eight decoy tasks (plus two baseline binary choices), we find that menu composition significantly shifts choices. We find robust positive attraction effects and robust negative similarity effects at both ambiguity levels. The compromise effect becomes statistically significant only under higher ambiguity, and the range effect is negative and significant only under higher ambiguity. The overall pattern indicates that increasing ambiguity can amplify some context effects. These results extend context dependence to ambiguity and suggest that models of choice under ambiguity should accommodate context-dependent preferences.

Attribution Errors: Context-Dependence and Choice Distortions

Author(s): Ruchi Avtar; Alexandra Ballyk

Abstract: In this paper, we aim to provide a unified theoretical and experimental framework for understanding the context dependence of attribution errors and their consequences for decision-making. We study attribution errors in belief updating when individuals are uncertain about the data-generating process behind performance signals. Rather than distorting signal likelihoods, we propose a framework in which agents misweigh the probability that a signal originates from an informative versus a noisy or biased source. We develop a model of motivated inference under model uncertainty in which ego relevance generates systematic distortions in model weights. To test the model's predictions, we design a controlled experiment that elicits beliefs over competing information sources and subsequent choices over whether to continue sampling from the same source. The design varies ego relevance by comparing judgments about one's own performance to otherwise identical judgments about another person's performance, and contrasts multiple alternative data-generating processes, including symmetrically noisy sources as well as sources biased toward good or bad outcomes. The experiment is structured to identify the contexts when attribution errors arise, how they depend on prior beliefs and signal realizations, and how they differ across types of informational source biases. Finally, the design allows us to study the implications of attribution errors for downstream choices of

whether individuals prefer to persist with or abandon a given information source, and quantify the resulting decision mistakes.

Beliefs: Updating | Room ED/0-03

Structural Properties of Bayesian Updating

Author(s): Kyle Chauvin

Abstract: Using a simple, automaton-like model, this paper identifies novel features of Bayesian updating and non-Bayesian heuristics. The model, called a learning rule, combines a set of belief states with a collection of transition functions over the beliefs. It highlights the features of updating that are preserved under belief relabeling. The paper's main result characterizes the structure of Bayesian learning rules, in which beliefs are distributions over a latent state and transitions follow Bayes' rule. A survey of behavioral biases and heuristics identifies many familiar examples as isomorphic to Bayesians and clarifies how and why other cases fail to be so.

A Separation of Uncertainty Attitudes and Belief Updating

Author(s): Hao Bai

Abstract: This paper proposes a natural and tractable updating rule for Choquet expected utility with probabilistic sophistication, grounded in Bayesian updating. A probabilistically sophisticated decision maker expresses beliefs by a subjective probability measure, which serves as a Bayesian prior and is updated to a posterior according to Bayes' rule when new information becomes available. Under certain conditions, a non-additive capacity can be represented as a transformation of an additive probability measure. Leveraging this representation, beliefs are updated by applying Bayes' rule to the underlying probability measure, with the updated capacity derived by applying the same transformation to posterior probabilities. We provide an axiomatisation of this updating procedure and develop a simple and intuitive updating rule that neatly separates beliefs from attitudes towards uncertainty, with beliefs evolving in a Bayesian manner and uncertainty attitudes remaining unchanged.

An Axiomatic Model and Test of Belief Updating: Bayes, Grether (1980), and Preservation of MLRP

Author(s): Kenneth Chan

Abstract: This paper presents an axiomatic characterization of Bayes' rule and the Grether (1980) updating rule that is centered around the preservation of the Monotone Likelihood Ratio Property (MLRP). I show that Bayesian updating can be characterized by the preservation of MLRP from signals and the martingale property, while the Grether (1980) model is characterized by the preservation of MLRP from both signals and priors. This framework allows us to identify a class of non-Bayesian updating rules where we can obtain useful comparative statics across different signal realizations and prior beliefs in canonical belief updating problems. I also conducted an experiment to test the axioms that can be used to characterize Bayes' rule to identify why people are non-Bayesian. I find that subjects broadly comply with axioms about the preservation of MLRP, providing validation for the widely used Grether (1980) model.

Bounded Rationality | Room ED/0-05

Distilling Models of Bounded-Rational Choice: A Constraint Programming Approach

Author(s): Georgios Gerasimou; Ozgur Akgun

Abstract: We introduce constraint-programming tools to distil the full explanatory, predictive and welfare-relevant content of two prominent bounded-rational choice models: "shortlisting" and "limited attention". We apply them on human data where rational choice provides an imperfect fit. The alternative models jointly account for nearly all data, with limited-attention ones explaining better but also being more permissive. However, while the approximate fits of the rational model typically point to a unique welfare-relevant preference ordering per subject, the perfect fits of the

bounded-rational models map to many distinct behavioral primitives. These trade-offs raise challenging interpretation and inference questions.

The Luce Model, Regularity, and Choice Overload

Author(s): Daniele Caliari; Henrik Petri

Abstract: Recent empirical work has studied choice overload within a two-stage decision process. Specifically, Abaluck & Gruber (2023) study Oregon school districts that preselect which health insurance plans employees may choose from. When a reform allowed districts to offer more plans, welfare decreased. The authors find that this was not due to choice overload on the employee's side, but rather to suboptimal preselection by the school districts. Motivated by this evidence, we consider a stochastic model with two stages: in the first stage, the DM preselects a subset of available alternatives while the final choice is made probabilistically using a Luce rule. This model is known as the General Luce Model (Echenique & Saito, 2019). A common fingerprint of choice overload is the violation of regularity, which states that the probability of choosing an alternative (weakly) decreases when another alternative is added to the menu. In this paper, we first characterize regularity within General Luce Models, focusing on boundedly rational behavior in the pre-selection stage, in line with our motivating example. We then identify choice overload only as the subset of regularity violations that can generate welfare losses and, equipped with this definition, provide necessary and sufficient conditions for choice overload. Finally, we investigate the potential mechanisms underlying choice overload and provide a test to disentangle two well-known causes: low discriminatory power (Frick, 2016) and limited attention (Lleras et al., 2017).

Failures of Contingent Thinking and the Winner's Curse

Author(s): Philippos Louis

Abstract: I design a within-subject experiment to investigate why individuals fall victim to the winner's curse. A known explanation is a failure of contingent thinking (FCT). My design disentangles the effects of pure FCT from cursedness-the failure to recognize the correlation between others' information and actions. Results show that many participants exhibit FCT without being cursed, while a similar fraction display cursed reasoning. Only a minority avoid both errors. By estimating structural models of cognitive reasoning, including one of pure FCT, I provide further support for these findings, clarifying distinct cognitive mechanisms underlying suboptimal behavior.

Emotions | Room ED/0-06

Aggressive Toward Everyone but Powerful Men? Strategic Display of Anger Expression

Author(s): Fantine Xiao

Abstract: This study examines when negotiators strategically choose to express anger. I focus on how the other party's gender (male vs. female) and power position shape that choice. Anger expression can trigger negative affect toward the expresser, lowering the other party's willingness to make a high offer. At the same time, anger can signal toughness and high expectations, which may induce concessions. I argue that negotiators' beliefs about these channels vary with whom they face, consistent with empirical evidence that female negotiators receive more aggressive responses than male negotiators, and that power protects male negotiators more than female negotiators. I study these questions in an online bargaining experiment in which participants are randomly matched with a partner whose gender and power are experimentally manipulated, and decide whether to send an angry message. I elicit beliefs about the expected monetary return to expressing anger, and test whether these beliefs predict anger expression above and beyond self-reported emotions. This identifies whether anger expression reflects strategic communication.

Opening the black box of emotion expression: How anger expression shapes altruism, beliefs and attitudes in negotiation

Author(s): Chen Li; David Gonzalez Jimenez; Fantine Xiao

Abstract: Emotional expression shapes decision-making, yet the mechanisms through which it influences beliefs, attitudes, and behavior remain underexplored. This study examines how anger expression affects negotiation decisions through two channels: by reducing altruism via negative affective responses to perceived aggressiveness, and by

providing social information that shapes beliefs about counterparts' reservation prices. We also investigate its impact on perceived ambiguity and whether these effects depend on the counterpart's gender. Participants acted as proposers in ultimatum and dictator games, deciding how to split a $20 endowment with counterparts whose gender (male vs. female) and emotional expression (anger vs. neutral) were manipulated via avatars and messages. Beliefs and ambiguity attitudes were elicited using the belief hedge method, and altruism was measured through dictator game allocations, allowing us to disentangle affective from cognitive channels in strategic decision-making. We found no overall effect of anger on ultimatum offers. On the one hand, participants exhibited reduced altruism toward male counterparts expressing anger, lowering dictator game offers, while this effect was not significant for female counterparts. On the other hand, anger increased expected reservation prices in the ultimatum game for both genders. Perceived ambiguity decreased only for male counterparts. These countervailing effects-lower altruism versus higher expected reservation prices-offset each other, explaining the absence of a net effect on final offers. Participants' beliefs and perceived ambiguity strongly predicted the difference between ultimatum and dictator offers, showing that proposers adjusted strategically in response to emotional cues. The results highlight that anger simultaneously triggers affective reactions and belief-based adjustments, with gender moderating specific effects on altruism and perceived ambiguity, while providing social information that influences strategic decision-making.

Misinformation and Emotions

Author(s): Federico Innocenti; Alessandro Barbazeni; Alessandro Bucciol; Simone Quercia

Abstract: We investigate the relationship between the sharing of misinformation, its emotional intensity, and the attention it receives. First, we demonstrate the empirical link between emotions and misinformation. We apply a novel classification method based on OpenAI's pretrained language models to generate emotion scores for a dataset of fact-checked news headlines from PolitiFact.com. We find that emotionality is positively associated with misinformation, highlighting the importance of all emotions (except sadness). Furthermore, we observe heterogeneous patterns across political affiliations: our model predicts that Republicans generally experience more intense emotional responses to misinformation than Democrats. We conjecture that the rapid diffusion of misinformation (especially in online settings) follows its higher emotional intensity. We develop a theoretical model in which the endogenous allocation of attention across news with heterogeneous emotionality, bias, and accuracy serves as the mechanism that mediates the effect of emotionality on the sharing of misinformation. We hypothesize and aim to verify experimentally that a) higher emotionality implies more attention; b) higher ideological alignment implies more attention; c) higher emotionality fosters the effect of ideological alignment; d) more attention increases the willingness to share. We design an experiment consisting of a single experimental condition (within-subject design), within which we exogenously vary the characteristics of information (accuracy, emotional intensity, and political bias). We collect from participants 1) Attention, calculated as the amount of time a participant spends viewing a news; 2) Intention to share, measured on a 4-point Likert scale; and 3) Incentivized beliefs about accuracy. We expect to run the experiment soon.

Axiomatization | Room ED/0-07

A Preliminary Attempt at the Axiomatisation of Decision-by-Sampling Models for Risky Choice

Author(s): Shujun Tan

Abstract: This paper focuses on the axiomatisation of Decision-by-Sampling (DbS) models for risky choice. Although Prospect Theory (PT) successfully describes reference dependence, loss aversion, and nonlinear probability weighting, the specific functional forms of its utility and weighting functions are mainly chosen for their empirical fit and lack an explanation of the underlying cognitive mechanisms. By contrast, DbS provides a process-based account of decision making through binary comparisons, sampling, and frequency accumulation, and under realistic distributional assumptions it can naturally generate the canonical functional forms of PT as well as many behavioural regularities. However, DbS currently lacks a rigorous axiomatic foundation in the domain of risky choice, which limits its testability and falsifiability. Therefore, this paper develops three progressively extended DbS models of risky decision making and provides axiomatic characterizations for each of them. The first version is structurally closest to expected utility and serves as a transparent benchmark. The second version combines utility and probability weighting additively rather than multiplicatively. The third version introduces a more general sampling space and an alternative evaluation mechanism, yielding qualitatively new testable predictions. Together, these axiomatisations lay the groundwork for a formal theory of DbS-based choice and provide new methods for empirical evaluation.

Association Rules: An Axiomatic Approach

Author(s): Fan Wang; Gabrielle Gayer; Itzhak Gilboa; Stefania Minardi

Abstract: Association rules are conditional statements, suggesting a value for a predicted variable y if certain values of the predictor x= x1,...,xm occur. They are widely used in machine learning, where each rule's weight depends on past predictive performance. We consider a simple evaluation-and-aggregation model, where the degree of credence of each rule is additive in its past successes. Given past observations and a new prediction problem, a reasoner can generate either (i) a binary relation over possible values of y- "at least as likely as" or (ii) a quantitative probability vector over them.We axiomatize both models, providing conditions on these presumably-observable data, that are equivalent to the corresponding association rule model. Generalizations and applications are discussed.

Dependence uncertainty: a decision-theoretic approach

Author(s): Lorenz Hartmann; Gerrit Bauch

Abstract: We consider decision-making in light of uncertainty regarding the dependency of different payoff-relevant factors. A full characterization of the set of possible dependencies as a convex polytope is provided. The extreme points of this set are identified as the local maxima of mutual information and as maximally zero probability measures. We subsequently derive an axiomatic characterization of our dependence uncertainty model. We clarify the behavior associated with independence among all (or groups of) factors, making phenomena such as correlation neglect testable. We apply our theory to the smooth ambiguity as well as the maxmin expected utility model, yielding comparative statics results. The model and its results are applied to simple examples concerning climate change, insurance, and portfolio choice.

Correlation | Room ED/0-08

Measuring Subjective Correlations

Author(s): Pranjal Bhushan; Emmanuel Kemel

Abstract: Many economic uncertainties are driven by multiple, potentially correlated sources, yet most empirical work on beliefs and uncertainty focuses on unidimensional sources. This paper reports an investigation of beliefs and attitudes towards correlation for pairs of sources. Building on and adapting the matching-probability approach of Baillon et al. (2018) to conditional events, we propose a tractable choice-based and incentive-compatible method to separate beliefs about correlation from ambiguity attitudes. Looking at scenarios in which ambiguity arises from unknown correlations, we aim to explore the measurability and behavioral relevance of subjective correlations and ambiguity attitudes across multivariate sources.

Multiple Sources of Ambiguity with Known and Unknown Correlation

Author(s): Alexander L. Brown; Sijia Zhang

Abstract: Nearly all theoretical and empirical research on ambiguity concerns situations where ambiguity arises from a single source. Among the few studies that consider multiple sources of ambiguity, a key finding is that agents may prefer gambles involving a single source to multiple sources with unknown correlations, because these correlations generate an additional layer of ambiguity. We investigate this relationship further using an experiment that separately elicits subjects' ambiguity attitudes toward gambles involving a single source and multiple sources of ambiguity. As expected, when correlations are unknown, subjects who are ambiguity averse to a single source show a greater degree of aversion when ambiguity comes from multiple sources. Similarly, subjects who are ambiguity seeking to a single source show a greater degree of ambiguity seeking when ambiguity comes from multiple sources. We develop a novel theoretical framework to predict what happens when the uncertainty in the correlation between two sources is resolved. Strikingly, our model predicts that, depending on the gamble and the sign of the correlation, resolving this uncertainty could either eliminate, preserve, or intensify ambiguity attitudes. In our specific environment, disclosing the sign of the correlation is expected to more strongly temper ambiguity attitudes when the correlation is negative rather than positive. Our experimental results confirm this comparative static. We discuss the implications of these results for ambiguity-based explanations of the market participation puzzle, focusing on how the disclosure of correlational information may affect participation.

Correlation Neglect in Financial Decision-Making: The Role of Complexity

Author(s): Jing Zhou

Abstract: Optimal portfolio choice requires investors to recognize and act on correlations between asset returns, yet many fail to do so-sometimes they neglect correlation changes, and sometimes they respond in the wrong direction. I reconcile mixed findings in the literature by proposing two mechanisms of complexity aversion that attenuate responsiveness to correlation: Cancellation Complexity (the cognitive burden of identifying and ignoring states in which assets yield the same return) and Tradeoff Complexity (the difficulty of aggregating outcomes across states when marginal distributions differ). I test these hypotheses by independently switching each mechanism on and off in a controlled experiment. I find that both types of complexity significantly reduce sensitivity to correlation and increase mis-responses. Notably, under Tradeoff Complexity, participants systematically over-invest in the risky asset under negative correlation relative to positive correlation - the opposite of the rational benchmark - and this bias intensifies as complexity increases. This pattern is inconsistent with many existing behavioral theories such as prospect theory, salience theory, relative thinking, which predict symmetric attenuation across correlation conditions. Experience modestly improves responsiveness in the benchmark condition but does not offset either form of complexity. The results provide a unified account of heterogeneous evidence on correlation neglect and highlight how specific forms of complexity systematically distort portfolio decisions.

Ambiguity | Room ED/0-10

Arbitraging ambiguity

Author(s): Aurélien Baillon; Saeed Badri; Bertrand Tavin

Abstract: Classical finance assumes that investors assess all uncertainties equivalently across markets, so that identical risk exposures receive identical valuations. In practice, however, market segmentation and ambiguity attitudes imply otherwise. This paper develops a behavioral model of investors who combine narrow bracketing with Source Theory, thereby responding differently to ambiguity depending on its source. The model predicts systematic valuation gaps across markets, which can be exploited through what we call ambiguity arbitrage: trading strategies that buy and sell equivalent options across markets to exploit differences in ambiguity attitudes. We estimate the model for the US stock market, crude oil, and the EURUSD exchange rate. Our results reveal substantial heterogeneity across asset classes and we show that ambiguity arbitrage would have generated substantial cumulative profits over 2008-2025.

A Cognitive Theory of Ambiguity Attitudes

Author(s): Fernando Payro Chew; Norio Takeoka; Jianming Xia

Abstract: This paper provides axiomatic foundations for a model in which the attitude towards ambiguity is optimally chosen at a cognitive cost. The model generalizes the Choquet expected utility model and is flexible enough to capture the preference patterns presented in Machina (2009), which are known to pose a difficult challenge for ambiguity models. Our model is characterized by a novel axiom that disciplines the preference for hedging: it requires the agent to avoid hedging whenever it offers no benefit.

Value of Partial Information

Author(s): Jürgen Eichberger; Illia Pasichnichenko

Abstract: Blackwell's theorem relates the value of information to the ?informative- ness? of the information structure. His analysis applies to decision makers who are expected utility maximizers and know the information structure of the decision problem. When decision makers do not know the information structure precisely, the signal generating process and the posterior distributions are often only partially known. This paper studies preferences of decision makers with partial knowledge about signals and posterior probability distributions. The partial information approach allows us to relate the value of information to the decision maker's attitude towards ambiguity. We introduce a new concept of informativeness based on the centroid and prove a theorem in the spirit of Blackwell. Furthermore, we characterize the value of information in terms of the preference relation over information structures. Depending on ambiguity attitude the value of information may be negative.

Insuring Risks Large and Small: The Role of Preferences and Limited Consideration

Author(s): Levon Barseghyan; Issac Cohen; Yujie Feng

Abstract: We develop and estimate a model of choice under risk with heterogeneous preferences and limited consideration, and apply it to U.S. auto-insurance choices across liability coverage and collision/comprehensive deductibles. The framework combines a reference-dependent expected-utility specification, augmented with probability distortions, with a stochastic model of limited consideration in which alternatives enter the consideration set with alternative-specific probabilities. Two main findings emerge. First, a single preference framework can generate empirically plausible rankings across contexts with sharply different stakes and probabilities. Liability choices partially identify combinations of risk aversion and wealth exposure that imply extreme rankings over coverage limits and little sensitivity to in-sample price variation, while deductible choices are informative about probability distortions. Second, limited consideration, together with latent types, is central for matching observed choice variation and for avoiding biased preference inference. Latent types account for key features of the joint distribution across liability, collision, and comprehensive choices. Consideration depends on preferences: households are more likely to consider deductible pairs they prefer.Liability choices partially identify combinations of risk aversion and wealth exposure that imply extreme rankings over coverage limits and little sensitivity to in-sample price variation, while deductible choices are informative about probability distortions. Second, limited consideration, together with latent types, is central for matching observed choice variation and for avoiding biased preference inference. Latent types account for key features of the joint distribution across liability, collision, and comprehensive choices. Consideration depends on preferences: households are more likely to consider deductible pairs they prefer.

How do Individuals React to Information in Naturalistic Settings? Rational Decision Making in Elite Sports

Author(s): Scott Dickinson

Abstract: In many experimental settings, individuals appear to either underreact or overreact to information when making decisions about the future. Less is known about how individuals react to information when making decisions in naturalistic settings. In this paper, I study the ability of individual decision makers to incorporate information about past outcomes when making judgements about future outcomes in naturalistic settings using data on elite sports. In the setting under observation, fans make hundreds of decisions relating to the future performance of elite athletes. Using variation in outcomes between athletes who took comparable actions, I show that fans correctly incorporate persistence in the data generating process into their predictions. Not only do fans react to information in the correct direction, but they also appear to react with the correct magnitude. This is consistent with fans rationally reacting to information.

Beliefs and Pessimism in the Field: Predicting Smallholder Diversification and Agricultural Investment

Author(s): Epper Thomas; Borja Perez-Viana; Tabitha Kisakye Nafula

Abstract: We elicit subjective probabilities and uncertainty attitudes from small-scale maize farmers. Combining simple allocation tasks with detailed household survey data, we document heterogeneity in subjective beliefs and uncertainty attitudes across both retrospective and prospective agricultural seasons. Farmers report substantial imprecision about the number of rainy days and, on average, underestimate rainy-day frequency in both past and future seasons. Uncertainty is markedly higher for future outcomes, and stated distributions often track historical rainfall patterns rather than sharp personal forecasts. Source preferences display pronounced pessimism and strong likelihood insensitivity, and these features are stable across seasons. Subjective beliefs correlate with farmers' own rainfall histories, whereas pessimism is a stronger and robust predictor of key agricultural choices--especially crop diversification and investment.

On the stability of social preferences

Author(s): Daniel Wiesen; Arthur E. Attema

Abstract: Altruism is central to medical professionalism, yet its formation and stability during medical education remain imperfectly understood. We study patient-regarding altruism among German medical students using a longitudinal experimental design. The data comprise 1,413 observations from 515 students at the University of Cologne collected across 14 waves (2017-2023), with individuals observed two to four times at different stages of the medical curriculum. In an incentivized physician-patient trade-off task, students chose between treatment options affecting both their own earnings and charitable donations funding real cataract surgeries. Altruistic behavior displays substantial and persistent heterogeneity across students but comparatively limited within-student variation over time once study progress is accounted for. Observable characteristics-including demographics, stated preferences, and personality traits-explain only a small share of between-student differences. Structural estimates from CES and Fehr--Schmidt models corroborate the stability patterns found in reduced-form measures, although the elasticity of substitution exhibits greater variability. Gender differences appear in pooled comparisons but do not explain average altruism once individual heterogeneity is controlled for. Overall, the results highlight the empirical importance of persistent individual differences in patient-regarding preferences and caution against representative-agent interpretations in health economics.

Opportunity-Sensitive Social Welfare

Author(s): Magdalou Brice; Paul Hufe; Richard Nock; Tim Wienand

Abstract: We develop a conceptual framework to assess social welfare by explicitly integrating inequality of opportunity (IOp) across social groups (e.g., women vs. men). Adopting an axiomatic approach rooted in decision theory under uncertainty, we build upon the variational and multiplier preference structures established by Maccheroni, Marinacci and Rustichini (Econometrica 74, 1447-1498, 2006) and Strzalecki (Econometrica 79, 47-73, 2011). We characterize a class of social welfare functions that aggregates group-specific expected utilities, governed by a single parameter capturing the social planner's aversion to IOp. We also introduce corresponding stochastic dominance conditions to rank societies, covering all possible levels of IOp aversion. Empirically, we apply this framework to the United States using PSID and Opportunity Insights data. We document a secular decline in social welfare across birth cohorts from the 1940s to the 1980s. Spatially, we reveal that while commuting zones like San Francisco exhibit unambiguously higher welfare, the ranking of most regions depends on the planner's specific aversion to IOp.

Preference matrix serialization for the Borda Scoring Rule

Author(s): Pawel Kalczynski; Michal Lewandowski

Abstract: We analyze Borda voting as a strategic game among voters, where reported preference rankings determine outcomes via the Borda rule. The size of the strategy space for the Borda Scoring Rule (Borda Count) grows super-exponentially, and the enumeration of this space for even small instances, such as 5 voters and 5 alternatives, requires analyzing nearly 25 billion matrices induced by ordinal preference profiles (i.e., preference matrices). We present a mathematical framework for serializing preference matrices, which allows for efficient enumeration of large strategy spaces. It can be used in profile analysis studies for various strategies and theory testing. The proposed serialization can be easily reversed, which makes it useful not only for computational studies but also for manual analyses (e.g., using a spreadsheet). Furthermore, our serialization can be extended with equivalence classes (when voters are anonymous), which results in a significant reduction in the number of preference matrices to analyze. For the 5-voter, 5-alternative case, the number of matrices requiring analysis is reduced by over 99%, from nearly 24 billion to just over 225 million. We present the mathematical formulation of our exhaustive analysis model for the general case of n voters and m alternatives. Next, we show a case study in which this approach is used to analyze pure-strategy Nash equilibria of the induced voting game for an exhaustive set of initial (true) preference matrices (up to 5 voters and 4 alternatives). This case study demonstrates the transparency, auditability, and pedagogical value of the proposed preference matrix serialization method.

Thursday 11:00-12:30

Social Influence | Room ED/0-01

Aspiration-Weighted Influence

Author(s): Siming Ye

Abstract: How does social influence operate when the influencer consumes from a richer menu than the follower? Celebrities, experts, and wealthier peers routinely display behavior over alternatives infeasible for aspiring observers. This paper develops the Aspiration-Weighted Luce Model (AWLM) to study this directed influence within a stochastic choice framework. A decision maker (DM) selects from a feasible set S while observing an influencer whose behavior spans a superset $I \supset S$. Under AWLM, the DM forms a convex combination of her idiosyncratic Luce preferences and the influencer's distribution, then renormalizes this "attempt target" onto S. This mechanism generates a distinctive comparative static: aspirational dampening. Holding the influencer's within-feasible composition fixed, shifting exposure toward infeasible alternatives attenuates influence on feasible choices-aspirational content is effectively "wasted" from the perspective of reshaping feasible consumption. We provide an axiomatic characterization based on two restrictions: (i) controlled collinearity, requiring proportional choice responses to within-level exposure shifts, and (ii) an affine aspiration penalty linking the leverage multiplier across feasible-share regimes via a unit-slope relation. Cross-menu Luce consistency completes the global characterization. For identification, we show that influence strength and idiosyncratic preferences are point-identified from as few as two influence exposure conditions, exploiting a geometric parallelism property. Additional exposures yield testable overidentifying restrictions for empirical application.

Coarse Agents and Intergroup Phenomena

Author(s): Giacomo Weber

Abstract: This paper proposes a framework for analyzing intergroup phenomena based on group-dependent expectations. A set of heterogeneous players is divided into two groups and exogenously matched to play a simultaneous-move game under complete information. When players are matched within the same group ("ingroup"), they hold correct equilibrium expectations about their opponent's behavior. Conversely, when matched with a member of the "outgroup," players form coarse expectations. In equilibrium, such coarse expectations must coincide with the aggregate behavior of the outgroup. This requirement provides a sharp formalization of the Outgroup Homogeneity effect, a well-established psychological bias. The concept is illustrated in coordination games and applied to an organizational setting in which groups represent subdivisions and each game corresponds to a team task. Tasks are identical and exhibit strategic complementarities. An omniscient designer matches players into teams so as to maximize the overall probability of task success. The analysis of the optimal matching highlights the role of coarse expectations: by pairing efficient players within groups and less efficient players across groups, the designer induces the latter to exert higher effort in equilibrium.

Getting to Know the Experts

Author(s): Giuseppe Puleio; Joanna Krysta

Abstract: We study the problem of optimal information aggregation when sources are of different expertise level, which is not publicly observed and easily verifiable. We show that, under different utilities, the optimal mechanism will be abstention when precision heterogeneity is high, while all sources should be listened when heterogeneity is low. We also show that raising the number of sources make the abstention mechanism weaker. In a context with conflicting preferences, we show that a static mechanism will outperform a dynamic one.

De-motivating foresight through anchoring and trust: An extended mind experiment

Author(s): Megan Crawford; Nicholas Rowland; Luciana Blaha; Elena D Fitkov-Norris; Taner Dogan; Miguel A Moreno

Abstract: Foresight is a quality of thinking where we gain insight by visualising future options: both probable and improbable. Traditionally, foresight has relied on human cognition, judgment, and reasoning (Faiella & Corazza, 2025), with secondary technological support. The popularity of AI across industries is bolstering an interest in using AI-generated insights to support or even replace human foresight (Saura & Buzinskiene, 2025). The Extended Mind Thesis (EMT) proposes that we offload cognition as a way of scaffolding human thinking externally to create a hybrid thinking system (Clark & Chalmers, 1998). With tools such as generative AI, the risk is not from cognitive extension but substitution (Clark, 2023, 2025). This project is investigating whether offloading future-oriented decision-making to generative AI models diminishes motivations to perform. Motivation to perform is measured by i) a modified self-efficacy scale (Chen, et al, 2001) and ii) output matched along an AI-influence scale. According to EMT, successful offloading of cogntive functions requires trust in the external resource (e.g. chatbot). Trust is measured by a i) modified trust game and ii) Meta AI literacy scale (Carolus, et al, 2023). We propose that anchoring to AI-generated output moderates the strength of the trust effect. This relationship, in turn, intensifies the de-motivating effects on employing human-centric foresight. Lab-based experiments are currently underway, with early indicators revealing stronger relationships between trust in AI and foresight offloading, and self-efficacy and AI literacy which may reveal surprise moderating effects with achoring and trust.

Beyond Performance: How Interaction Environments Shape Social Dynamics

Author(s): Jonas Backhus; Thomas Langer; Hannes Mohrschladt; Edona Selimaj

Abstract: Technological progress has fundamentally reshaped social interaction, shifting collaboration and decision-making from face-to-face meetings toward digital environments such as vide-oconferencing and virtual reality. We propose that interaction environments affect not only performance but also longer-term social dynamics, including trust and reciprocity. We study these effects in two economically relevant settings: collaboration under symmetric infor-mation and financial advice under informational asymmetry. In the first experiment, 336 students were randomly paired and assigned to face-to-face, vid-eoconferencing, virtual reality, or text-based chat environments, with VR and chat imple-mented in anonymous and non-anonymous variants. Pairs completed an incentivized collab-orative quiz followed by a six-round investment game. Trust is largely unaffected by the in-teraction environment, whereas reciprocity is significantly lower in anonymous settings and in VR, as reflected in final-round behavior and monetary outcomes. While the anonymity effect aligns with existing research, the reduction in reciprocity in VR is more surprising. In the second experiment, 276 students participated in a financial advice setting with infor-mational asymmetry, comparing face-to-face, videoconferencing, and VR interactions. Sub-jects were assigned advisor and advisee roles and then played a one-shot investment game. We find a strong interaction between advice quality and the interaction environment: when advice quality is high, trust does not differ across environments; when advice quality is low, trust declines in VR and VC but remains stable in face-to-face interactions. These results suggest that digital interaction environments are particularly prone to trust erosion under informational asymmetry.

Retaining trust when communicating uncertainty about rare events

Author(s): Aba Szollosi; Jimmy Huang; Ben Newell

Abstract: We investigated how explanation and experience influence people's choices and their trust (in the communicator of the explanation) under uncertainty. Using a novel decisions-from-experience experimental design, we manipulated two factors between subjects: communicational approaches about and experiences with negative rare events. Communicational approaches included brief explanations either offering no prediction ("we don't know if the rare event is going to happen"), a certain prediction ("the rare event is definitely going to happen"), or a hedged prediction ("we should anticipate the rare event, even though it might not happen"). Half the participants then experienced a rare outcome, while the other half did not. Participants' choices were largely unaffected by communicational approach, however, experience with the negative rare event consistently reduced risk seeking. Their trust was more substantially affected. Perhaps unsurprisingly, trust was reduced irrespective of communicational approach when rare events negatively affected participants. Yet, when predicted rare events failed to eventuate, trust

was retained more when predictions were hedged compared to when they were certain. These results suggest that, while explanations may need to be more comprehensive to influence people's choices, they can play a role in retaining people's trust.

Voting | Room ED/0-03

Voting strategies under uncertainty: how electoral size-dependent affects majority threshold

Author(s): Maria Luigia Signore; Giuseppe Attanasi; Anna Maffioletti; Giulia Papini; Partrizia Sbriglia

Abstract: Individual preferences for a specific majority threshold can be influenced by voters' attitudes toward uncertainty. It has been theoretically demonstrated and experimentally verified that a higher majority threshold is associated with risk aversion, serving as a means to protect against the tyranny of the majority (Attanasi, Corazzini & Passarelli 2017). In this paper, we posit that the absence of ex-ante information regarding the likelihood of the voting outcome introduces an additional layer of uncertainty - namely, ambiguity - which motivates decision-makers to seek increased protection. We model the impact of both the level of ambiguity and ambiguity aversion on the desired majority threshold of a voting lottery in a KMM environment (Klibanoff, Marinacci and Mukerji, 2005). We assume that as the number of voters increases, so does the level of complexity - and consequently, the ambiguity - of the voting lottery, which in turn activates ambiguity attitudes. We test our predictions through a series of 32 classroom experiments conducted between 2020 and 2024, involving approximately 1,200 undergraduate and graduate students in Italy and France, with voter group sizes ranging from 7 to 281. Our findings confirm a positive correlation between risk aversion and the desired majority threshold. Additionally, we provide support for our two novel predictions: first, that the desirable threshold is positively correlated with ambiguity aversion, and second, that it increases with the number of voters through this channel. These results highlight the significance of ambiguity in strategic voting.

Deriving voting scoring systems from individual preference intensities

Author(s): José Luis García-Lapresta

Abstract: In this contribution, we consider that voters not only rank alternatives, but also visually show the intensity of their preferences among them without using numbers, in a more user-friendly way (individuals may have difficulty assigning exact numerical values to preference intensities). Taking this visual information into account, a reciprocal preference relation, which satisfies strong transitivity conditions, is generated for each voter. Next, a score is assigned to each alternative for each voter by adding up the numerical intensities of preference between that alternative and the other alternatives. The proposed voting system ranks alternatives based on the sum of individual scores, plus a tie-breaking procedure. Within the social choice theory, some properties of the devised voting system are provided.

Regret | Room ED/0-05

Blame It on the Coin Flip: Preferences for Randomization and Regret

Author(s): Moritz Loewenfeld; Johannes Hoelzemann

Abstract: A growing literature documents that many individuals deliberately delegate decisions to random devices such as coin flips, even when one option clearly dominates. We propose a novel explanation: randomization allows for hedging against risk of regret. In our model, a decision-maker engages in outcome-biased ex-post evaluations of their choices, projecting realized outcomes onto past decisions. Randomization ameliorates ex-post regret - if a bad outcome occurs, one can blame it on the coin flip. We conduct online experiments where participants choose mixtures over two lotteries, one of which first-order stochastically dominates the other. Holding marginal distributions fixed, we systematically vary the correlation of payoffs. As predicted by the model, participants randomize most under perfect negative correlation, less under independence, and least when one lottery dominates state-wise. In a clustering exercise, regret-hedgers emerge as the most prominent behavioral type. We further find that withholding outcome feedback on the non-chosen lottery decreases rates of randomization. Our model can rationalize puzzling findings in the literature, and we document the first direct evidence that randomization is a manifestation of deliberate regret-hedging.

Standard Sequences for Utility and Regret in Health and Wealth Losses

Author(s): Yoichiro Fujii; Arthur E. Attema; Hajime Murakami; Tom van Ourti

Abstract: This study investigates risk preferences over health and wealth within a generalized multi-attribute regret theory framework. The analysis builds on two strands of the literature. First, extending Bleichrodt et al. (2010), we elicit utility and regret functions for losses in longevity and wealth using standard sequences. For each attribute, this elicitation is conducted twice while fixing the other attribute at two different levels, enabling a test of utility independence. Second, we use risk-apportionment tasks Eeckhoudt et al. (2007), to identify the signs of higher-order cross-derivatives of the regret function, capturing interaction between health and wealth. To enhance realism, elicitation tasks are embedded in decision contexts resembling real-world choices. Health is operationalized as lifetime and wealth as expenditures. Participants make binary choices between options involving medical treatment plans and private health insurance contracts, and observed indifferences allow us to recover standard sequences underlying utility and regret. The experiment involved 96 participants from Erasmus University Rotterdam. Based on mean estimates, the utility function is close to linear in both health and wealth. Regret functions are convex in both attributes, indicating regret aversion, with stronger convexity for health than wealth. Substantial heterogeneity is observed in interaction effects: 27% (21%) of participants exhibit correlation aversion (seeking) in the regret function, 39% (23%) display cross-prudence (cross-imprudence) in health, and 35% (22%) display cross-prudence (cross-imprudence) in wealth. Overall, our results provide new empirical evidence on multi-attribute regret preferences and underscore the importance of accounting for regret and interaction effects in risky health and insurance decisions.

Margin Inconsistency: A Simple Behavioral Foundation for Regret, Under-Entry, and Market Design

Author(s): Diag Davenport; Gretchen Sileo

Abstract: Consumers often choose products for reasons that matter at the moment of selection but not during actual use. A user selects a streaming service for its prestige content but ends up watching light fare, or picks an AI tool for its benchmark accuracy but relies on its conversational ease. These patterns reflect a general phenomenon: the attributes that drive the decision to enter a product or contract can differ systematically from the attributes that determine experienced utility once the user is engaged. We formalize this mechanism as margin inconsistency. The idea is simple: people place one set of weights on attributes when deciding whether to enter, and a different set of weights when evaluating the product in use. The gap between these two sets of weights is what generates over-entry and later regret, as well as under-entry and missed opportunities. Crucially, this mechanism does not require time-inconsistent preferences. It is a stable-preference framework in which the decision process, not the utility function, changes across stages. We embed margin inconsistency within a standard discrete-continuous choice model, showing that it fits naturally into existing demand systems and can be identified empirically from market shares and usage data. When firms respond to this behavioral wedge, predictable distortions arise: excess investment in entry-salient design, under-investment in in-use quality, and pricing structures that shift costs away from usage and toward access. The framework generates welfare losses even under competition and clarifies when disclosure, trial design, or default rules can realign entry decisions with experienced utility. We present experimental evidence isolating this mechanism in a simple real-effort task.

Axiomatization | Room ED/0-06

Possibility Correspondences as Epistemic Conditions

Author(s): Alim Faraji

Abstract: This paper studies the epistemic foundations of non-partitional information structures. In the standard state-space model, information is represented by partitions. When possibility correspondences are not partitional, they are often interpreted informally as modeling "errors" in reasoning or bounded rationality. I argue that this interpretation is too vague. Instead, possibility correspondences could be understood as encoding precise epistemic conditions, just as truth and introspection axioms characterize the partitional benchmark. The economic property I focus on is information monotonicity (Geanakoplos). A possibility correspondence satisfies information monotonicity if, for every decision problem, no partitional coarsening of the agent's information leads to a strictly better outcome. Geanakoplos shows that this property is equivalent to three structural conditions on the correspondence: non-delusion (the true state is never excluded), know-that-you-know (transitivity), and nestedness (whenever two information sets overlap, one must be

contained in the other). The main question of the paper is whether this economically meaningful class of information structures admits a standard epistemic axiomatization. I show that it does not. Although non-delusion and transitivity correspond to familiar modal axioms, nestedness cannot be expressed by any finite set of axiom schemes in the standard one-operator modal language. As a result, the class of frames satisfying information monotonicity is not axiomatizable in the usual sense. A further conclusion highlights a gap between semantic and syntactic approaches in the literature: there are economically relevant informational properties that can be characterized semantically but cannot be captured by the familiar modal axioms used to describe knowledge.

Continuity, Convexity, Centrality: Axiomatizing and Comparing Location Indices

Author(s): Stefania Merone; None

Abstract: I provide an axiomatic characterization of the class of location parameters derived from well-defined convex minimization problems. The resulting class includes a broad set of estimators, such as the mean and - in the limit - the median, but excludes the mode. I also address the problem of comparing location parameters within this set by reframing the optimization problem as the one of a decision maker selecting a point forecast to minimize an expected loss. I formalize the decision maker's preferences over two key attributes of the resulting estimator: robustness (sensitivity to outliers) and directionality (asymmetry in weighting positive vs. negative deviations), and I discuss how they depend on the shape of the loss function. While a direct comparison of estimators can be difficult because of the underlying trade-off between robustness and directionality, I show that, under mild conditions, differences between estimators can be fully reinterpreted as differences in directionality only. I then show how interpreting certainty equivalents are location indices derived from well-defined minimization problems can rationalize the fourfold pattern of risk attitudes and other related, unexplained empirical puzzles.

A Model of State-dependent Utility

Author(s): Horst Zank; Peter Klibanoff; Craig S. Webb

Abstract: A preference foundation for state-dependent utility is proposed in the two-stage setting of Anscombe and Aumann, where acts are mappings from states to lotteries over monetary outcomes. Conditional on a state s, the standard expected utility axioms hold and they identify a state-dependent cardinal utility index, u_{s}. In addition to the sure-thing principle, we invoke a mid-point consistency property which requires that equally distant conditional certainty equivalents are independent of states. Together with some standard properties, the latter two preference conditions identify unique subjective probabilities for states and a state independent transformation function over state-dependent certainty equivalents. The resulting theory captures state-dependent risk attitudes through u_{s} while models attitudes towards uncertainty caused by state-dependent risk.

Aiding Decisions | Room ED/0-07

Space Complexity and Decision Aids

Author(s): Luis Camas de los Rios; Sanjurjo

Abstract: Space complexity measures the working memory required to solve a problem. We apply this measure in canonical multi-attribute choice setting and examine how external decision aids alter the memory demands of information processing. Using a laboratory experiment, we compare a baseline environment without decision aids to environments with established and novel aids that reduce space complexity. In one treatment subjects are required to follow specific processing orders, while in another they freely choose how to acquire and organize information. The experiment also includes a belief-elicitation phase to measure subjects' perceptions of their own performance, allowing us to study how reducing space complexity affects choice behavior and accompanying beliefs under cognitive constraints.

Improving decision under risk: The Role of Information Processing Guidance

Author(s): Yifan LI; Abigail Barr; Martin Sefton

Abstract: Decision-making under risk often deviates from normative benchmarks due to cognitive limitations and difficulties in processing probabilistic information. This study investigates the effectiveness of Information Processing Guidance (IPG) in enhancing decision-making performance and examines how task difficulty shapes both decision

quality and the impact of guidance. Using a controlled laboratory experiment, we test whether IPG reduces deviations from Bayesian-optimal choices in repeated investment tasks. Participants were randomly assigned to one of three between-subjects treatments-a Baseline condition without guidance, a continuous IPG condition, and a withdrawn guidance condition (IPG-W)-and completed 32 decision rounds involving tasks of varying difficulty. The results show that IPG significantly improves decision quality, with guided participants committing fewer errors relative to those in the Baseline. Meanwhile, decision performance in the withdrawn guidance condition lies between the Baseline and continuous IPG conditions and is not statistically distinguishable from either. Although higher task difficulty leads to more decision errors overall, the performance-enhancing effect of IPG remains stable across difficulty levels. This study contributes to the literature on decision support and learning under risk by demonstrating that information processing guidance can durably improve decision-making quality, even in cognitively demanding tasks.

Universal Happiness: A Decision Analytic Perspective

Author(s): Rakesh Sarin

Abstract: This work advances a single, unifying claim: if humanity were to design its economic and political institutions rationally, as if any person could be born into any position, the resulting system would converge on peace, opportunity, mobility, and shared stewardship of the Earth. Two insights emerge immediately. First, extreme inequality is inefficient when utility is concave: losses imposed on the least advantaged carry far greater human cost than equivalent gains enjoyed by the most advantaged. Second, redistribution is constrained by leakage arising from administrative costs and incentive effects; justice must therefore be efficient to be sustainable. An optimal redistribution behind veil of ignorance is derived.

Risk: Complexity | Room ED/0-08

Ordering and measuring the complexity of lotteries

Author(s): Giulio Principi

Abstract: We model complexity by introducing a complexity order that ranks lotteries by their Wasserstein distances from degenerate lotteries, which carry no risk. The resulting relation is a continuous incomplete preorder whose properties reflect the geometry of the outcome space. We relate it to the convex order, showing that they coincide for univariate monetary lotteries, while this equivalence fails in higher dimensions. To address incompleteness, we introduce a complexity measure defined by how well a lottery can be approximated by a degenerate one. This measure provides a natural completion of the complexity order and inherits many of its properties. It enables comparative statics for mixtures of lotteries and yields explicit maximally complex lotteries in several cases. Finally, we apply these notions to choice under risk. Combining the complexity order with first-order stochastic dominance yields a choice criterion that, for monetary lotteries, is equivalent to second-order stochastic dominance. Using our complexity measure, we define Complexity-Sensitive Expected Utility (CSEU) preferences. For this class of preferences, we analyze how complexity aversion interacts with risk aversion and, in particular, prove that complexity aversion is a component of risk aversion.

Asymmetric Complexity Aversion: A Domain Comparison of Risky Choices

Author(s): Maohua Nie; Jörg Rieskamp; Sebastian Olschewski

Abstract: In decision-making under risk, options differ not only in expected value and variance but also often in complexity. While complexity aversion is well-documented in the gain domain, evidence regarding its effect in the loss domain remains scarce. We contrast two theoretical accounts addressing this gap: a domain-general cognitive effort account, where complexity imposes a computational cost avoided equally in gains and losses; and a domain-specific cognitive uncertainty account, where complexity-induced uncertainty interacts with risk preference reversals (reflection effect), predicting aversion in gains but neutrality or seeking in losses. Across two pre-registered experiments (N=273), participants evaluated lotteries with outcomes represented by arithmetic expressions. Study 1 involved choices between two risky options, while Study 2 contrasted risky versus safe options. We observed a robust gain-loss asymmetry: participants exhibited strong complexity aversion in the gain domain, but complexity neutrality in the loss domain. These findings highlight the critical role of complexity in measuring risk preferences and challenge computational approaches that treat complexity solely as a utility penalty, questioning the generalizability of models that overlook the domain-dependent nature of complexity.

Complexity and Choice under Risk

Author(s): David Wendle

Abstract: Uncertainty is part of most economic situations, and decision-making under uncertainty is one of the most well-studied topics in behavioral economics. A recent strand of research explores the role of complexity in decision-making under uncertainty, as complexity could be a driving force behind behavior in uncertain situations through mistakes and noisy decisions, but also through preferences for simplicity. This paper provides causal evidence on the effect of complexity on choice under risk through an incentivized online experiment in which complexity is exogenously manipulated within the experiment. Study participants face a set of standard lottery choices with a risky option and a safe option. Participants are randomly assigned to a simple or complex decision environment, with the key difference that outcomes are represented in a more or less complex way. In the experiment, dollars are converted to tokens, and the conversion rate between tokens and dollars vary across treatments. In the simple treatment, the conversion rate is one to one, which preserves a simple structure. The complex treatment consists of different versions, with conversion rates that result in numbers that are more complex to deal with in the lottery choices. A preliminary pilot study (N=50) shows that participants in the complex treatment exhibit a higher share of safe choices, a statistically significant treatment effect of 13.9 percentage points, indicating that complexity induces risk-averse behavior. Building on these results, the main study with 600 participants will be pre-registered and run on Prolific in the following weeks.

Games: Ambiguity | Room ED/0-10

Location Invariance and Games with Ambiguity

Author(s): David Kelsey Kelsey; Lorenz Hartmann

Abstract: This paper proposes a new measure of ambiguity. Ambiguity is location invariant, i.e. the ambiguity reflected by a set of priors remains unchanged when it is translated within the probability simplex. This unifies and generalizes numerous established definitions of ambiguity. We provide an intuitive justification as well as a behavioural foundation for location invariance. We then apply location invariance to normal form games where players perceive strategic ambiguity. The set of translations of a given set of priors is shown to be isomorphic to the probability simplex. Thus translating sets of priors has a convexifying effect similar to considering mixed strategies in standard games. This leads to the proof of a general existence result using a fixed point theorem. We illustrate the modelling capabilities of our solution concept and demonstrate how our model can intuitively describe strategic interaction under ambiguity.

Ambiguity in Games: Information & Communication

Author(s): Francesco Conti

Abstract: I provide a framework to study ambiguous communication in strategic interactions. This framework treats belief sets as distributions over sets, allowing for smooth integration with standard game-theoretic tools while allowing general attitudes toward ambiguity. First, I define two updating specifications-"naive" and "sophisticated"-and formulate results about ambiguity in learning. Then, I apply ambiguous communication in cheap talk, mediated communication, and Bayesian persuasion scenarios. I conclude by applying the framework for ambiguity to asset-pricing.

Uncertain coalitional games

Author(s): Péter Bayer; Mánuel László Mágó

Abstract: We extend cooperative games to include the possibility of uncertain coalitional participation. Members may fail to contribute to an indended coalition, in which case only a sub-coalition ends up participating. We capture this by the use of 'participation kernel' which encodes, for each coalition, the distribution of sub-coalitions that can form instead. In the game of uncertain coalitional participation, the value of the game is the expected value of each coalition. A rich and economically intuitive class of kernels with elegant algebraic properties, which we call mixed Bernoulli-kernels, preserves many properties of cooperative games, making solution concepts easily calculable. We show the economic implications in assignment games, highlighting the case of overbooking.

Bounded Rationality | Room ED/0-13

Optimal Utility: Endogenizing the Cardinal Representation of Riskless Subjective Value in Cognitively Constrained Choosers

Author(s): Agnieszka Tymula; Paul Glimcher

Abstract: We investigate the optimal representation of cardinal utility in a cognitively-constrained chooser whose objective is to maximize expected earnings in a riskless setting. We show that optimal utility depends on the a priori prize distribution and the level of noise in the nervous system's value encoding process. We quantify the monetary gains and biological costs of relaxing the cognitive constraint to calculate its optimal level, endogenizing both the utility function and the noise in value representation. Our framework links choice environment, neural efficiency, and utility. We discuss implications for theory and policy.

Search with Multiple Attributes: Optimal vs. Human Behavior

Author(s): Javier Vázquez Gómez; Adam Sanjurjo

Abstract: We numerically compute the exact optimal sequential search policy in choice problems with up to five alternatives and four attributes in each. Each attribute of each alternative is separately searchable, with full recall, and no order restrictions. All attributes are iid with five element integer supports. We conduct a between subjects experiment in which one group of subjects faces the baseline problem and a separate group additionally sees the running value of each alternative computed and displayed as each attribute is searched. Subjects in both treatments face nine different problem sizes, each with independent variation on two different spreads on attribute values, and three different constant search costs.

Rational Choice Overload

Author(s): Lucas de Lara; Mark Dean

Abstract: We present and experimentally test a collection of search theoretic explanations for 'choice overload', the phenomena by which a default alternative is selected more often in larger choice sets. A standard search model, with constant search costs and a known distribution of item quality, cannot give rise to choice overload. If one instead assumes that either (i) the Decision Maker (DM) must learn the quality distribution (ii) search costs are increasing or (iii) the DM decides the search strategy in advance, then choice overload can occur. Unlike existing models, our approach does not require ad hoc psychological costs (decision avoidance), or for the DM to assume the choice set was selected by a profit maximizing firm (contextual inference). Data from a laboratory experiment are consistent with choice overload caused by search with learning and increasing costs, and cannot be explained by decision avoidance or contextual inference.

Thursday 15:00-17:00

Beliefs | Room ED/0-01

(Mis)anticipated Discrimination: How Misperceived Beliefs Perpetuate Labour Market Inequality

Author(s): Ethan O'Leary

Abstract: Despite a decline in prejudice over the last 50 years, perceived and realised discrimination has remained stable. I propose that this is driven by an overestimation of the level of animus in society: the misanticipation of preference-based discrimination leads to labour supply distortions which incentivise statistical discrimination and outcomes that confirm biased beliefs. I derive a theoretical model of self-confirming discrimination which arises in the job-search setting to demonstrate this mechanism. I show that correctly attributing the cause of discrimination leads to multiple equilibria such that arriving at inequality represents a coordination error. However, misattributing discrimination to taste-based origins leads only to a discriminatory equilibrium and reduces the perceived return to deviating from discrimination-inducing application strategies. In a pre-registered laboratory experiment, I find that

subjects who experience discrimination from an ambiguous origin overestimate the probability that this inequality is caused by taste-based discriminators and this reduces the application rate of the disadvantaged group: a 1 percentage point increase in believed probability that discrimination is taste-based leads to a 0.22 percentage point decrease in the probability that a subject in the discriminated group applies to a job, perpetuating statistical discrimination. Moreover, misattribution leads to stronger perceptions of market unfairness and lower demand for affirmative action among the favoured group. This demonstrates that the stability of discrimination is determined both by labour demand and labour supply effects. Particularly, the source of the discrimination that one expects is detrimental to the longevity of inequality.

Belief Bias, Source Preference, and Preference for Robo-Advisor

Author(s): King King Li; Paul H. Y. Cheung; Haomin He

Abstract: This paper theoretically and experimentally investigates belief bias and source preference as explanations for individuals' preferences for investment advice from a robo-advisor versus a human advisor. Our experiment was designed within a theoretical framework of source preference. A key feature of the design is that we elicited subjects' valuations both before and after they were provided with information on the accuracy of the advice, which allows us to disentangle the effect of potential belief bias and source preference. We document two main findings. First, before the information was given, a significant proportion of subjects had higher valuations for robo-advised investments than for human-advised investments, even when the two investments were objectively identical. Second, after information was provided showing that both advisors had about the same accuracy in the Odd-Even condition, the proportion of subjects who preferred the human advisor became significantly higher than the proportion who preferred the robo-advisor, while some continued to prefer the robo-advisor. Parametric estimations of the theoretical model suggest that both belief bias and source preference contribute to the observed preferences for the advisors.

Belief Bias Identification

Author(s): Pedro Gonzalez-Fernandez

Abstract: This paper proposes a unified theoretical model to identify and test a comprehensive set of probabilistic updating biases within a single framework. The model achieves separate identification by focusing on the updating of belief distributions, rather than classic point-belief measurements. Testing the presence of these biases in a laboratory experiment reveals significant heterogeneity at the individual level: All tested biases are present, and each participant exhibits at least one identifiable bias. Notably, motivated-belief biases (optimism and pessimism) and sequence-related biases (gambler's fallacy and hot hand fallacy) are identified as key drivers of biased inference. Moreover, at the population level, base rate neglect emerges as a persistent influence. This study contributes to the belief-updating literature by providing a methodological toolkit for researchers examining links between different conflicting biases, or exploring connections between updating biases and other behavioral phenomena.

How does new information influence the uncertainty of individuals' beliefs?

Author(s): Edona Selimaj; Thomas Langer; Hannes Mohrschladt

Abstract: A large body of experimental literature has examined how individuals update their beliefs when receiving new information, typically using the standard balls-and-urns setup. In this paradigm, two urns represent different states of the world and differ in the proportion of black versus white balls. One urn is randomly selected, and balls are drawn as signals. Subjects then update their probabilistic beliefs about the realized state of the world. The signal set has two main effects. First, it affects the expected state of the world. Second, it can reduce the dispersion of the state probability distribution, i.e., individuals should be less uncertain about the realized state. We move beyond the two-state paradigm, where expectation (first moment) and uncertainty (second moment) cannot be examined independently, because one state probability determines the entire distribution. We examine the normative and behavioral implications of forming uncertainty beliefs. For that, we conducted two incentivized lab experiments that systematically varied the number of states, the prior state probability distribution, the number of signals, and signal set proportions. After observing a signal set drawn from a randomly selected urn, subjects provided posterior probabilities for each possible state of the world. Based on these stated probabilities, we infer dispersion, focusing on "state uncertainty" (SU). Our experimental findings are fourfold: individuals' SU beliefs reflect underinference on average; underinference increases with the number of observed signals; SU updating is subject to base-rate neglect; and we reconcile these biases with existing evidence on first-moment beliefs in multi-state settings.

Effort | Room ED/0-02

Ambiguity Attitude and Effort Provision

Author(s): Yufei Liu; Zhihua Li; Adolf K.

Abstract: Effort provision is a central determinant of productivity. Previous research shows that effort provision differs across payment schemes and is influenced by behavioral and psychological factors. Yet less is known about effort provision through the lens of individual preference heterogeneity such as ambiguity attitudes, namely how workers respond when the effort-reward/outcome link is ambiguous. An intuition is that students may work harder when unsure whether effort will earn an "A," and parents push children to take many tutoring classes when it is unclear which skills will matter most. We conduct a laboratory experiment linking effort provision to ambiguity attitudes under different payment schemes (flat wage, piece rate, or tournament). Subjects complete a counting-zero task in which they have 10 minutes to complete as many 10×10 tables as possible by reporting the number of zeros. We then elicit ambiguity attitudes tied to uncertainty about rank in that round and subsequently provide rank feedback. This sequence is repeated in Round 2. We find a stable pattern across both rounds: under piece rate, subjects complete fewer tables and produce fewer correct answers than under flat wage or tournament. Performance improves from Round 1 to Round 2 in all schemes, with the largest improvement under piece rates. Most subjects are ambiguity averse. Ambiguity attitudes vary across rounds: subjects become more averse under flat wage and more seeking under tournament, while piece rate show no significant change. Overall, we find evidence that the relationship between ambiguity attitudes and effort provision varies across payment schemes.

A Reference-Dependent Model of Effort: Evidence from a Real-Effort Experiment

Author(s): Apoorv Kanoongo

Abstract: This paper examines how effort expectations shape labor supply behavior. Motivated by long-run declines in working hours, recent disruptions to work routines such as COVID-19, and the growing role of AI in reshaping task demands, this paper hypothesizes that individuals may evaluate effort relative to an internal effort reference point. Exerting more effort than expected is experienced as a loss, while exerting less feels like a gain. As AI reduces baseline workload in many occupations, these shifting benchmarks may intensify the role of expectations in determining perceived effort costs and willingness to exert effort. A multi-attribute reference-dependent model is presented in which effort deviations generate gain-loss utility with loss aversion. Unlike models that attribute heterogeneity to inherently different cost functions, this framework shows that even workers with identical underlying costs may behave differently purely because their prior expectations differ. The mechanism is tested using a real-effort experiment in which participants perform a digit-counting task under a fixed wage. Effort expectations are manipulated through the difficulty of an initial trial task, while the main task and pay remain constant across treatments. By holding income incentives fixed, the design isolates variation in expected effort; any residual behavioral differences reflect the influence of effort expectations. The study assesses whether higher expected effort leads to greater actual exertion, offering implications for labor supply theory and for managing worker motivation in environments increasingly shaped by technological change.

The Effects of Task Difficulty and Choice of Incentive on Performance: A Real-Effort Experiment

Author(s): Huyen Phuong Nguyen; Stefan A. Lipman

Abstract: While incentives can promote health behaviours, optimal assignment of incentive schemes remains unclear. Offering choice among schemes presents a feasible tailoring approach, but prior work reports mixed effects of choice. We propose that these inconsistencies may stem from task demands (i.e. difficulty or predictability) and the frequency with which people can choose. To investigate this, we conducted a real-effort online experiment using a slider task (N = 352, Prolific) with a 2 (Assignment: Choice vs. Assigned) × 2 (Difficulty: Low vs. High) mixed factorial design across two sessions. In session 1, Choice participants selected their incentive scheme (Constant vs. Increasing), while Assigned participants were randomly allocated to a scheme; difficulty was manipulated between subjects. In session 2, Assigned participants were allowed to choose their scheme, whereas Choice participants were randomised into either a Change Allowed or Change Not Allowed condition. Across hypotheses, results provided no evidence supporting choice-related benefits. Dropout was higher in the Choice group, though this difference was not statistically significant after controlling for difficulty. Difficulty significantly affected performance, but neither initial assignment to choice nor being allowed to choose again influenced performance. In the easy condition, repeated choice opportunities

slightly increased performance, whereas in the difficult condition they slightly decreased it; however, all effects were non-significant. Likewise, within the Assigned group, having choice in session 2 produced no significant performance changes. These findings suggest that, under these conditions, neither choice provision nor choice frequency meaningfully influence performance, highlighting the importance of task difficulty over choice-based incentive tailoring.

Anticipating Being Ranked: A Will to Win vs. a Will to Shape Beliefs

Author(s): Lony Bessagnet

Abstract: Using a theory-guided experiment, this paper studies how anticipating being ranked affects effort choices. Anticipated social comparison activates two non-material motives that shape behavior even when feedback is private and does not directly affect payoffs: competitive and information motives. Competitive motives generate utility from outperforming peers and create a will to win, inducing higher effort to increase the probability of ranking ahead of others. Information motives generate utility from beliefs about one's own productivity rank and create a wish to shape those beliefs. Individuals therefore choose effort strategically to influence what their future performance rank will reveal about their productivity rank. Heterogeneity in these motives leads to distinct effort responses and implies that rankings partly reflect preference heterogeneity rather than productivity differences alone. Importantly, when feedback includes full performance scores in addition to the individual's rank, the belief-shaping motive disappears, as inference about productivity rank becomes independent of effort choices. This observation is central to separately quantifying the two motives and guides the design of a real-effort experiment in which participants commit ex ante to how much time to spend solving logic puzzles across three feedback scenarios: no ranking, rank and scores, and rank only. Within-individual variation across scenarios enables separate identification and quantification of the two motives and their heterogeneity. The experimental design further permits distinct measurement of performance and productivity, allowing analysis of how anticipated social comparison affects effort along both the extensive margin, through time spent, and the intensive margin, through cognitive focus inferred from productivity.

Equity | Room ED/0-03

Equity or Efficiency: An Experimental Investigation

Author(s): Luca Panaccione; Daniela di Cagno; Maria Luigia Signore

Abstract: Policymakers are challenged to define policies that ensure efficiency while promoting equitable resource redistribution. However, achieving this balance is difficult, as efforts to promote equity often result in economic inefficiencies. This paper contributes to the broader debate on the equity-efficiency tradeoff by examining how individuals perceive and respond to it through a laboratory experiment. Participants, engaged in a dyadic proposer-responder interaction, are tasked with redistributing an income between themselves and an anonymous counterpart while we manipulate levels of efficiency loss and the responder's veto power. Our findings reveal that: (i) efficiency-seeking behavior increases as the equity-efficiency tradeoff worsens, with the extent of this shift varying across game types; (ii) while equity-seeking behavior increases with the responder's veto power; (iii) despite efficiency loss and veto power, individuals' equity preferences remain stable.

Distributional Preferences under Risk: Equality of Opportunities, Equality of Outcomes, or something else?

Author(s): Edwin Ip; Stephen Nei; Joseph Vecci

Abstract: Most distribution decisions involve uncertain outcomes, and there is often a tension between concerns for equality of opportunities (ex-ante inequality) and equality of outcomes (ex-post inequality). We propose simple problems that can help us understand people's distributional preferences under risk, and show that, in addition to these two common concerns, concerns for societal risk and concerns for individual risk exposure play crucial roles in understanding these preferences. Using a novel elicitation approach, we capture the distributional preferences of a representative US sample. We find that inequality concerns, when uncertainty is involved, translate mostly into concerns for ex-ante inequality for the vast majority of participants. A sizeable number of participants also display concerns for ex-post inequality, societal risk and/or individual risk exposure. We show that the different factors are correlated with voting behaviours as well as a range of different policy preferences.

Integrating Equity and Productivity in Health Evaluation

Author(s): Juan D. Moreno-Ternero; Kristian S. Hansen; Lars P. Østerdal

Abstract: This paper develops a unified framework for evaluating health outcomes that jointly incorporates equity and productivity. Extending beyond traditional QALYs, PALYs, and the more recent PQALYs, we introduce a class of evaluation functions that integrate fairness- and productivity-sensitive principles. By imposing normative principles, including independence from measurement scales and Pigou-Dalton transfer properties, we obtain tractable power-form representations. In balancing distributive justice and efficiency, the framework provides a coherent foundation for assessing health interventions in contexts where both equity and productive capacity are at stake.

Health | Room ED/0-05

Actively Calculating the Financial Consequences of Health Outcomes Improves Preventive Judgments

Author(s): Ning Liu; Zhihan Cui; Yu Gao; Lu Liu

Abstract: There is a growing belief that individuals may exhibit bounded rationality in preventive health decisions. Drawing from the integration of behavioral science and economics, we propose that individuals might deviate from this assumption in two key aspects: non-salience of financial losses as an implicit outcome of illnesses; and evaluability issues, i.e. difficulty in relating numerical health data to their situation. To increase people's attention to financial losses and make health outcomes more evaluable, we designed an intervention entitled "Active Unpacking with Money" (AUM), which directs DMs to actively calculate the monetary losses from experiencing a negative health condition over a specified time period. Through a series of six consecutive online experiments, we demonstrate that: (1) AUM amplifies people's perceived severity of health risks and their willingness-to-pay (WTP) for a guaranteed preventive measure; (2) AUM heightens people's sensitivity to the length of a disease; and (3) AUM bolsters sensitivity to probabilistic information about prevention measure effectiveness. We clarify how AUM assists in mitigating both salience and evaluability challenges within these contexts, and why AUM is likely welfare-improving. Finally, we discuss its practical implications in health communication, especially how organizations can incorporate AUM-related information with websites and text messages.

Measuring risk preferences in clinical populations: Evidence from a comparison of patients and university students

Author(s): Maximilian Zinn; Nadja Kairies-Schwarz; Natalia Bulla-Holthaus; Irene Mussio

Abstract: Patient-centered care which acknowledges individual patient preferences has increasingly been emphasized for its potential to improve health outcomes. In this context, risk preferences are important because they shape health-related behaviors and reflect patients' subjective values in treatment decisions. Yet, the literature on how to best elicit these preferences in a clinical population is still scarce. To address this gap, we evaluate the performance of the Multiple Price List design by Holt & Laury (2002; HL-MPL), a widely used economic instrument that has been shown to perform well in university student samples. We merge data from several lab-in-the-field and lab experiments to compare decision-making between patients with cardiovascular diseases or severe obesity (N = 166) and university students (N = 318). Although patients and university students display almost identical constant relative risk aversion parameters (r = 0.33 vs. r = 0.34), patients' responses are significantly noisier, with inconsistent choices in 42.5% of cases compared to 8.18% among university students. This inconsistent behavior is driven by age and lower educational attainment. Overall, our findings suggest that while the HL-MPL yields comparable risk preferences across both populations, it poses challenges in clinical settings, particularly for older and less educated patients. Simpler measures that remain informative about risk attitudes and health outcomes may be better suited for elicitation among clinical populations in which these characteristics are predominant.

Higher-order Risk Preferences And Health-related Prevention

Author(s): Thomas Benard; Arthur E. Attema; Werner Brouwer; Sebastian O. Schneider; Daniel Wiesen

Abstract: Understanding how individuals make decisions under risk and ambiguity is crucial to predict health behavior. Beyond risk aversion, higher-order risk preferences (prudence and temperance) have been linked to addiction and preventive activities. However, existing elicitation methods were developed primarily in financial

contexts with monetary outcomes, which may not adequately capture preferences in health domains. The extent to which framing effects (gains versus losses), outcome effects (financial versus health), and incentive types (real versus hypothetical) affect these measurements remains unclear, limiting their applicability to health decision-making contexts. In this methodological project, we aim to measure how framing, incentive types and outcome scaling affect elicited measures of higher order risk preferences and ambiguity attitudes. These measures will be correlated with general preventive behavior, cancer-related prevention activities, and self-reported well-being. This analysis will provide insights into how higher-order risk preferences relate to actual preventive decisions of women diagnosed with BRCA1/2 mutations. Finally, the project seeks to identify the most appropriate risk elicitation method for this population, which will be used in subsequent longitudinal studies, to inform heterogeneous responses to interventions. A large scale between-subject experiment will be conducted with N=2100 female participants drawn from representative online samples and student subject pools. For the linkages, a sample of women with a genetic risk of BRCA1/2 will be recruited. The participants will complete tasks eliciting utility curvature, probability weighting, and ambiguity preferences. In all tasks, participants will face binary lottery choices determined by a bisection algorithm. For utility curvature, we will derive certainty equivalents through iterated choices between a safe and a risky lottery. Probability weighting will be elicited via choices between a safe and a risky lottery with varying probabilities. A certainty equivalent will be elicited for each probability level to estimate individual probability weights. Finally, ambiguity preferences will be recovered from choices between known versus unknown probabilities. The study will feature eight treatment arms, varying by frame (gain vs. loss), outcome type (financial vs. health), scale, and outcome metric (life years vs. QALYs), with participants randomly assigned to each condition. Additionally, the incentive type (real vs. hypothetical) will vary within the financial frame only. We will run non-parametric tests in order to compare elicited parameters across treatments and test for framing and incentive effects. Results will be presented at the conference.

Risk and Prosociality: Can Experimental Decisions Predict Health Behavior?

Author(s): Benedicta Hermanns

Abstract: Preventive behavior is crucial for containing the spread of infectious diseases, as demonstrated by the COVID-19 pandemic. This study investigates whether experimentally elicited attitudes toward risk and prosociality can predict health-related behaviors during the pandemic in seven European countries. Two online experiments were conducted, comprising a total of four different conditions with varying incentives regarding risk and prosociality. The results, based on data from over 2,400 participants, showed that experimental decisions from both experiments significantly predict health-related behaviors. Experiments solely on risk-taking predicted behaviors focused on avoiding one's own infections. Experimental measures that incorporated prosocial aspects were strong predictors of behaviors aimed at preventing others from becoming infected. The findings emphasize the importance of considering prosocial motives when studying health behaviors and developing effective public health policies. Additionally, the experimental decisions were able to outperform general survey measures on risk and prosociality. This underlines the value of framed experimental tasks in order to elicit preferences.

Risk | Room ED/0-06

An Analysis of Event-Splitting Effects in Choice under Risk

Author(s): Henrik Guhling; Fabio Römeis

Abstract: We study event-splitting effects (ESEs) in choice under risk. Our theoretical model represents states of the world as intervals, allowing us to capture their spatial position within the matrix display. In line with previous research, we predict that a greater number of event-splittings increases the likelihood of ESEs. Beyond this, our model generates a novel prediction: states presented earlier in the matrix receive disproportionate weight. We test these predictions in an online experiment and find strong support. ESEs intensify as the number of event-splittings rises, though with diminishing marginal effects. Moreover, moving a sub-state to the right attenuates ESEs. Together, our results show that the frequency of event-splittings and the spatial position of states jointly shape choice under risk.

The Blurred Side of Risk: An Experimental Test of Cognitive Imprecision

Author(s): Antonio Filippin; Domenico Massaro

Abstract: A growing body of literaure promises to rationalize by means of cognitive imprecision the main regularities found in experimental measures of risk preferences, addressing two persistent issues: choice instability and the implausibly high levels of risk aversion implied by small-stake decisions when extrapolated to larger stakes. Our study presents an experimental test of the model by Khaw, Li and Woodford (2021) to answer two research questions: 1) whether the behavior typically observed in small-stake decisions can be explained entirely by cognitive imprecision; 2) whether cognitive imprecision is the primary factor underlying the reported relationship between cognitive load and risk aversion. A preliminary analysis of the data collected shows that genuine risk preferences clearly maintain a meaningful role. Second, the exogenous manipluation of the cognitive load does not induce significant effects.

Framing Allais: Is the Paradox Robust to the Pictorial Framing of Probabilities?

Author(s): Luca Congiu; Ivan Moscati

Abstract: The Allais paradox refers to a choice problem in which individuals face two pairs of lotteries, A-B and C-D, and typically prefer A to B and D to C, a choice pattern that violates Expected Utility theory. Prior theoretical and experimental work suggests that the AD pattern is sensitive to features of experimental design and that framing the probabilities of outcomes pictorially rather than numerically may reduce its incidence. We test this hypothesis in an online experiment (N=595) with three treatments. In Baseline, outcome probabilities are presented numerically as fractions. The two pictorial treatments are Pie, where probabilities are displayed using pie charts, and Grid, which represents probabilities through a grid of colored balls. Contrary to our expectations, we find that the frequency of the AD pattern is substantially the same across the three treatments, indicating that the Allais paradox is robust to the pictorial framing of lottery-outcome probabilities. We then discuss some implications of our findings.

A General Approach to Estimating Random Preference Models of Risk Attitudes

Author(s): Morten Lau; Hong Il Yoo

Abstract: The random preference (RP) model provides an integral framework for modeling within-individual heterogeneity in choice behavior. It attributes heterogeneity to preference parameters in the underlying theory of risk attitudes instead of an additive error term. Most empirical studies in structural estimation of risk attitudes turn to additive error specifications because the RP likelihood function is computationally unattractive. We propose a general approach to estimate the RP model. We apply a kernel smoothing procedure and construct a versatile likelihood evaluator of the RP model that can accommodate any decision theory, decision task, and parametric distribution of unobserved heterogeneity.

Morality | Room ED/0-07

Moral Algorithms

Author(s): Julia Rose

Abstract: People increasingly rely on algorithms for morally consequential choices, from socially responsible investing to ethical consumption, where private benefits trade off against social externalities. Algorithmic delegation can reshape moral decision-making: it may help individuals commit to moral actions they might otherwise forego, or enable them to outsource responsibility for selfish behavior. This paper studies when delegation serves as moral commitment versus moral outsourcing, and welfare implications of delegation. We introduce a novel experimental paradigm isolating delegation as a moral technology. Subjects make repeated binary choices between profit-maximizing and social impact-maximizing lotteries, where the latter is first-order stochastically dominated but generates UNICEF vaccination donations. Each subject completes a no-delegation baseline and one delegation condition, where they may delegate all decisions within a block to an algorithm that either maximizes own payoffs (PROFIT) or maximizes donations (SOCIAL). Delegation is binding, cleanly separating commitment from outsourcing motives. We vary expected donations, donation variance, and payoff differences across blocks. We find substantial delegation demand: approximately 60% of blocks delegated in both conditions. In the baseline, subjects choose the moral option 60% of the time. PROFIT delegation reduces this to 40%, revealing moral outsourcing. SOCIAL delegation increases it to 80%, revealing moral commitment. Delegation patterns vary systematically with design

features, consistent with distinct underlying motives. Our findings demonstrate that algorithm design critically shapes moral behavior: offering profit-maximizing algorithms enables moral disengagement, while social impact algorithms facilitate moral commitment.

Impact or Responsibility? Giving Behavior in a Televised Natural Experiment

Author(s): Martijn van den Assem; Inka Eberhardt Hiabu; Paul Smeets; Dennie van Dolder

Abstract: We directly compare the influences of impact and responsibility considerations on giving behavior. In moral philosophy, utilitarianism emphasizes the importance of the former, whereas theories of equity and desert argue for the importance of the latter. Our data are from a television show where an audience of one hundred people divides ten thousand euros among three financially distressed candidates, and from independent raters who evaluated various attributes of the candidates and their financial predicaments. We find that the well-being benefit of a donation ("impact") outweighs the degree to which the candidate had control over the cause of their situation ("responsibility"). Giving increases more with impact than it decreases with responsibility, and the contribution of impact to the explanatory power of our regression models is approximately twice that of responsibility. Additionally, our analysis shows no evidence of discrimination based on age, gender, or physical attractiveness.

When not whether: A situational model of intuition and deliberation in moral judgment

Author(s): Irena Pavlović; Emir Demić; Kaja Damnjanović

Abstract: Existing models of moral judgment often contrast intuitionist and rationalist perspectives. This study proposes a "situational model" to integrate these views, hypothesizing that the engagement of cognitive processes depends on the observer's individual value hierarchy. In an online study (N = 761), we employed a participant-specific design to categorize moral violations as either "congruent" (violating the participant's most valued (primary) moral foundation) or "conflicting" (violating a secondary foundation) as opposed to grouping participants based on political orientation. We examined how thinking styles, measured using the Cognitive Reflection Test and the Comprehensive Thinking Styles Questionnaire, interact with these situations to predict perceived moral wrongness and certainty on moral vignettes. Results show wrongness ratings for secondary values varied more and were more strongly related to cognitive style, whereas judgments of primary value violations were uniformly severe and more strongly related to intuition. However, AOT predicted higher certainty for primary value violations. Together, these findings suggest that deliberative processes are not engaged in the same way across moral domains. Rather than shaping moral judgments directly, analytical thinking appears to bolster and justify deep-seated moral convictions. This pattern points to the importance of asking when, not whether, deliberation plays a role in moral judgment.

Eliciting Responsibility Functions for Negative Externalities: Theory and Experiment

Author(s): Horia Guias

Abstract: Why do people collect their own plastic trash but not that of others? I define perceived responsibility as the perception of personally causing harm to a passive recipient and not making up for it. I then examine how it shapes whether and to what extent a decision maker internalizes negative externalities that arise from collective actions. Theoretically, I study a decision maker in a collective action setting who can pay a private cost to avoid (ex ante) harming a passive recipient and make up for harm (ex post). She trades off following a personal norm to not harm against maximizing her own payoff. However, she internalizes the norm only if she perceives herself as responsible. To absolve herself from moral responsibility, the decision maker is willing to incur a private cost to compensate for her own harm - or footprint - but not for the harm she did not cause. The theoretical framework informs the design of a laboratory experiment to elicit heterogeneity in the effect of perceived responsibility on socially responsible behaviour. I construct pairs of identical compensation choices that keep the harm to a charity constant but vary the subject's perceived responsibility. By exploiting exogenous variation in the personal cost to compensate across these harm-symmetric pairs of compensation decisions, I classify subjects (non-)parametrically as having consequentialist, responsibility-sensitive or both types of concerns for the charity's well-being. This paper advances our understanding of the scope of socially responsible behaviour and why individuals often ignore negative externalities they did not cause.

Preferences | Room ED/0-08

Secure and perfect maximality

Author(s): Federico Quartieri

Abstract: The paper introduces a refinement of maximality, called secure maximality, and a refinement of secure maximality, called perfect maximality. The effectivity of these refinements and the connection with other relevant optimality notions are investigated. Furthermore, necessary and sufficient conditions are provided for the secure maximality of all maximals and for the perfect maximality of all maximals as well as for the perfect maximality of all secure maximals. Several sufficient conditions for (as well as two characterizations of) the existence of secure and perfect maximals are established. The precise structure of the entire sets of secure and perfect maximals is examined for some specific classes of relations like interval orders that admit a certain type of representability by means of two real-valued functions, relations induced by cones and relations that admit linear multi-utility representations.

Consumer Theory for the Badly Behaved

Author(s): Joshua Lanier; Gavin Kader

Abstract: We introduce a new method suitable for analyzing consumers who do not satisfy traditional revealed preference axioms. We show that to every dataset of consumer behavior there exists a utility function which not only explains the data but is also better-behaved (in some appropriately defined sense) than every other utility function which also explains the data. We show how these 'best-behaved' utility functions can be used to make statements about consumer well-being and to make demand predictions. We also provide a method to quantify the degree to which the consumer fails to act as a well-behaved utility maximizer. The advantage of our approach is (i) it can be used even when the consumer does not act according to revealed preference axioms, (ii) it agrees with the traditional approach to consumer theory when the consumer does satisfy these axioms, and (iii) all of our methods are easy to implement in practice. We demonstrate this latter point with an empirical application to supermarket scanner data.

The good, the bad and the well-behaved: choice over bads and preferences for diversification

Author(s): Marco Mantovani; Antonio Filippin

Abstract: Life very often involves unpleasant activities, while economic research focuses almost exclusively on "goods". Borrowing from Prospect Theory we hypothesize that diminishing sensitivity in the loss domain may make subjects less prone to diversification when choosing between bads. We test this hypothesis in a controlled experiment implementing a 'goods' and a 'bads' framing of identical outcomes in two complementary studies -- a field study involving a policy relevant health-wealth tradeoff and a controlled laboratory experiment with incentivized choices. We employ structural estimation of a flexible utility specifications to retrieve agents' underlying preferences. Our results show that dealing with bads reduces the preference for diversification. The curvature of the indifference curve is less pronounced for the representative agent, and a larger fraction of subjects displays non-convex preferences. The bads framing induces optimal choices that are more extreme, thereby providing a rationale for polarization that can be exploited at the policy level.

Methodology | Room ED/0-10

Credibility in Economics Publications: How Actual Replications and Z-curve Analysis Align

Author(s): Ortmann Andreas; Zhuoran du; Ulrich Schimmack

Abstract: We assess the credibility of recent empirical and experimental economics by linking outcomes from large-scale replications to selection-adjusted meta-analytic diagnostics. We use the Institute for Replication (I4R) Meta 2025 database, which contains 4,933 loosely defined replications that re-estimate published analyses using partially or fully new data. We code replication success from replication-report summaries and apply the Z-curve analysis, a verified tool in psychology meta-analysis, to estimate observed and expected discovery rates, expected replication rates, and false-discovery rates. The average actual replication rate is 76 per cent among studies with complete inferential

information. In the aggregate, the Z-curve implies an expected replication rate of 79 per cent and a false-discovery rate of 2 per cent, but credibility is highly heterogeneous. Laboratory and online experiments, structural models, and non-causal analyses exhibit near-complete expected replicability and negligible false-discovery risk. Regression discontinuity designs show markedly lower expected replicability (39 per cent) and higher false-discovery risk (15 per cent). Across JEL subfields, finance displays pronounced selection (observed discovery 41 per cent versus expected 8 per cent) and high false-discovery risk (65 per cent), with finance-RDD papers as an extreme outlier. Restricting attention to strictly defined replications based entirely on new data raises replication success but strengthens publication bias signals and increases estimated false-discovery risk. Our results show that Z-curve diagnostics can complement costly replications.

Dr. Cutoff: How I Learned to Love Preregistration

Author(s): Wei-Cheng Chen; Wei James Chen; Greg Chih-Hsin Sheen

Abstract: We study how peer-review policies shape researchers' incentives to invest in research design versus post hoc persuasion. Scientific publication is modeled as a game between a scholar and a reviewer. Before seeing data, the scholar chooses design, which raises expected true quality and increases the marginal cost of later persuasion. After observing data, the scholar allocates effort between analysis, which improves informational content, and persuasion, which only changes how results are presented. The reviewer observes different subsets of these choices under three regimes: traditional review (results only), binding preregistration (design and results with verifiable deviations), and results-blind review (design only). We characterize Perfect Bayesian Equilibria under a constructive belief refinement derived from a full-support perturbation. Design acts as a commitment device: by making persuasion more costly, stronger design shifts effort from persuasion to analysis and alters the reviewer's optimal cutoff. Under log-concave priors ('incremental' environments), higher design FOSD-shifts posterior quality and strictly lowers the optimal cutoff, which underpins a Pareto improvement of preregistration over traditional review. In contrast, with bimodal priors ('disruptive' environments), higher design can move weight toward extreme unfavorable states and raise the optimal cutoff. In such cases, preregistration and results-blind review need not improve welfare and can tighten acceptance standards despite higher design effort.

Time Costs and Behaviour Across Participant Pools

Author(s): Julen Zarate-Pina; Duarte Gonçalves; Terri Kneeland

Abstract: We investigate how time costs interact with task complexity to shape effort allocation and accuracy in cognitive tasks. We implement identical perception and computation tasks across two environments (a physical laboratory and the online platform Prolific) and vary the structure of time costs. In the laboratory, participants face either fixed piece-rate incentives or a scheme in which rewards for correct answers decline with completion time, generating endogenous time pressure. Online, participants complete either the same baseline treatment or a delayed-submission treatment that imposes an exogenous 30-second waiting period before responses can be submitted. Each treatment features four identical levels of task complexity. Accuracy is similar across environments and incentive schemes for very easy and very complex tasks. In contrast, systematic differences emerge at intermediate levels of complexity: laboratory baseline participants perform best, followed by online delayed participants, online baseline participants, and laboratory participants under time-discounted incentives. These patterns are consistent with a non-monotonic relationship between time costs and performance, as predicted by models of optimal stopping. When tasks are trivial or extremely complex, the marginal return to additional deliberation is low, so time-cost manipulations have limited effects. For moderately complex tasks, however, incentive-induced time pressure distorts stopping decisions and reduces accuracy, whereas a short exogenous delay mitigates premature stopping. Overall, the results provide experimental evidence which inform theories of endogenous time allocation and highlight how incentives interacts with cognitive complexity across participant pools.

Theory as Data Compression

Author(s): Carlos Cueva

Abstract: Standard model selection criteria penalize complexity using parameter counts, ignoring differences due to functional form and experimental design. This paper examines an alternative model selection criterion that accounts for differences in model flexibility arising from functional form and experimental design. The criterion penalizes models with greater capacity to fit diverse data patterns. We show that it connects two existing approaches to measuring model flexibility in economics: it yields an information-theoretic analogue of Selten's measure of predictive success, and its complexity penalty is equivalent to a likelihood-based analogue of Fudenberg et al.'s restrictiveness

measure. We apply the criterion to social preferences, choice under risk, and intertemporal discounting using both simulations and empirical data. In simulations, AIC, BIC, and cross-validation can severely misidentify the data-generating model, whereas the proposed criterion substantially improves recovery. Empirically, accounting for these complexity differences changes model classifications, often favoring more parsimonious specifications than standard criteria.

Planning | Room ED/0-13

Succession Planning

Author(s): Hasini Senadheera

Abstract: We study dynamic task allocation and contracts for a firm in a setting where employees transition from junior to senior positions through on-the-job training. There is a trade-off between lowered surplus today by senior workers delegating their hard tasks to juniors for on-the-job training against the benefit more seniors in the future. Seniors must additionally exert effort to delegate their hard tasks to juniors for on-the-job training. We use a principal-agent framework to characterize the firms' optimal level of both on-the-job training and contract to incentivize the senior to delegate their tasks under observable and unobservable effort. We show that there is both weakly less effort and less delegation of tasks under the unobservable effort setting compared to the observable effort setting. Even in absence of cannibalization arguments, seniors inefficiently hanging onto tasks is driven by the agency problem, thereby providing an explanation for lack of training and bottlenecks in firms.

Motivational Progress Disclosure in Multistage Projects

Author(s): Maxim Senkov; Yiman Sun

Abstract: We analyze a principal-agent model in which a principal discloses a multistage project's progress to motivate the agent's effort. As the agent works on the project, it may reach both an intermediate milestone and final completion. Only the principal observes this progress and can commit to how to disclose it to the agent. The principal's goal is to maximize the agent's effort before an exogenous deadline, but working incurs costs for the agent, who only benefits upon final completion. We identify the optimal information policy, which depends on whether the project is promising - specifically, whether revealing solely the final completion can motivate the agent. If the project is promising, the optimal policy is to withhold information until an interim date, after which the final completion is disclosed immediately if achieved. If the project is not promising, the optimal policy is to disclose final completion immediately from the start, and then, after a later interim date, share all information.

Imagination and Planning

Author(s): Gabi Gayer; Itzhak Gilboa

Abstract: We consider a model of case-based planning, where a position is a vector of numbers, and a case is an edge in the directed graph of positions. The planner generates new plans by using cases that are similar to those she has observed in the past. In the benchmark model presented here, similarity is defined by equality of differences (between the target and the source position). We prove a complexity result that shows why planning requires imagination and is not easily done algorithmically. We put this result in the context of learning and expertise in case-based models, distinguishing among information, insight, and imagination.

Punctuality and optimal departure time under uncertainty

Author(s): Anton Polous

Abstract: A departure time problem with a risk-averse agent is formulated and studied. The results suggest that while becoming more risk averse, the agent would choose a greater safety margin (depart earlier), until the degree of risk aversion is high enough, after which the agent prefers to decrease a safety margin and eventually drop it to zero in order to overcome uncertainty. The impact of risk aversion on the optimal safety margin is determined by the relative magnitude of insurance and uncertainty effects.

Ambiguity | Room ED/Taller 1

Measuring Ambiguity Attitudes Without Incentives: Evidence from an Introspection-Based Method

Author(s): Maria J. Montoya-Villalobos; Ilke Aydogan; Loïc Berger

Abstract: Measuring ambiguity attitudes with monetary incentives is logistically complex, costly, and time-consuming. We propose and validate a simplified, introspection-based method that retains the core strengths of state-of-the-art approaches for measuring ambiguity preferences while being suitable for survey implementation. The method involves a hypothetical binary choice between a risky and an ambiguous option, followed by an introspective assessment of the strength of preference. We assess its validity by comparing it to incentivized matching probability measures in two experiments: a laboratory study with university students and an online study with a representative sample of the French population. Our findings show that the introspection-based method reliably captures ambiguity aversion but falls short in measuring ambiguity-generated likelihood insensitivity. These results offer new evidence on the strengths and limitations of non-incentivized approaches to eliciting ambiguity preferences and highlight their practical value in empirical research beyond the lab.

Ambiguity and Justification in Environmental Choices

Author(s): Nicolò Bertani; Enrico Diecidue; Anouk Festjens

Abstract: The environmental consequences of our actions are plagued by uncertainty: their severity, likelihood, and time horizon are deeply ambiguous. These characteristics can be seen as the attributes of environmental prospects. Previous findings consistently document the effect of likelihood ambiguity on behavior. Justification has been suggested as a plausible remedy to ambiguity attitude, especially in the environmental context. However, it is currently unclear what the attitude towards non-likelihood ambiguity could be in environmental choices. Similarly, the effect of justification in this context remains speculative. To shed light on these aspects, we devised a large laboratory experiment in which respondents were presented sizable individual real environmental incentives. Specifically, every respondent had the possibility to offset up to one year of CO2 emissions. Within-subject, we explored the role of attribute ambiguity by differentially introducing range ambiguity not only in the likelihood, but also in the severity and time of resolution. Further, between-subjects, we investigated how justification changes attribute ambiguity, by requiring written justifications to be read aloud. We find that, when likelihood is ambiguous, the attitude is consistent with previous findings of the two-fold pattern for monetary outcomes. However, this attitude vanishes to neutrality when a justification is imposed. Attitudes towards severity or time-of-resolution ambiguity are markedly different. Ambiguous outcomes induce consistent ambiguity aversion, irrespective of the value of the outcomes and of justification. Ambiguous resolution provokes ambiguity seeking, yet this attitude turns into aversion when a justification is imposed. These results advance our understanding of behavior under ambiguity and of environmental choices.

First-price Sealed-bid Auctions with Smoothly Ambiguity-Averse Bidders

Author(s): Tianyu Ma; Frank Riedel

Abstract: We study first-price sealed-bid auctions with two risk-neutral bidders who have independent private values but are smoothly ambiguity averse about the distribution of their opponents' valuations. Adopting the smooth ambiguity model of Klibanoff et al. (2005), we separate ambiguity attitudes from risk and establish existence and uniqueness of a symmetric, non-decreasing equilibrium. Although the primitives feature independent private values, we show that equilibrium bidding is observationally equivalent to that in a subjective expected utility auction with correlated private values: there exists a correlated-values environment whose interim beliefs reproduce the same bidding function, and under constant relative ambiguity aversion these effective beliefs become type independent. Greater ambiguity aversion induces more aggressive bidding, and as ambiguity aversion tends to infinity the equilibrium converges to the maxmin expected utility benchmark of Lo (1998). Finally, examples show that smooth ambiguity can overturn the usual welfare ranking between first- and second-price auctions.

Ambiguous Climate Beliefs and Policy Support: Evidence from the Dutch General Population

Author(s): Loic Berger; Mohamed el Guide; Emmanuel Kemel

Abstract: We study how ambiguity attitudes shape reported climate beliefs and whether accounting for these attitudes improves the ability of belief measures to explain support for mitigation policies. We use incentivized choice data from a large Dutch population panel, originally collected to measure attitudes toward uncertain climate events. Building on a recent methodological framework, we recover individual ambiguity preferences from these choices, and through a hierarchical Bayesian model, derive ambiguity-neutralized probabilistic beliefs that remove the influence of these preferences from raw reported probabilities. We then relate both ambiguity-adjusted and raw probabilities to stated support for a wide range of climate-mitigation policies. ambiguity-neutralized beliefs predict policy support more accurately and more consistently across policy domains than raw reported probabilities. These findings show that ambiguity attitudes systematically distorts belief reports and highlight the importance of incorporating perceptions of uncertainty when modeling climate beliefs and designing climate policy.

Friday 11:00-13:00

Comparability | Room ED/0-01

Indifference, incomparability, and choice aversion

Author(s): Mikel Hualde; Ritxar Arlegi; Sacha Bourgeois-Gironde

Abstract: Indifference and incomparability are different concepts that may lead to different behavioral consequences. Under the assumption that the agent is averse to making a choice between incomparable options, we propose an axiomatic model that allows for a discrimination between indifference and incomparability. The rationale for this discrimination lies in the different behavioral effects that the addition of either an indifferent or an incomparable option in a choice set may induce. The model also enables us to discuss in greater depth Amartya Sen's (1997) distinction between tentative incompleteness and assertive incompleteness of preferences, and to propose an alternative theory of choice aversion based on the aversion to assertive incompleteness.

A multidimensional model of strategic choice: decision-making with noncomparable monetary and social pay-offs

Author(s): Alexandra Gheondea-Eladi

Abstract: This paper contributes to the theoretical foundations of decision theory by investigating how individuals navigate strategic environments with noncomparable rewards. We model the ultimatum game using a bidimensional pay-off vector that accounts for monetary and social pay-offs. Using a computational approach, we test four distinct models of choice based on diverse aggregations mechanisms: vectorial space maximization, dimensional segmentation, transformation-based compensation and subjective spill-over functions. Through Netlogo simulations, we analyse how these different aggregation strategies alter the evolution of wealth within a population .The findings offer new insights into an extended rationality and provide a formal framework for a theory of social choice when agents must evaluate heterogeneous pay-off vectors.

Comparison of Decision Problems

Author(s): Alexander Jakobsen

Abstract: The Blackwell (1951,1953) order establishes equivalent criteria under which one experiment is more informative than another; some criteria involve decision problems---experiments paired with action sets---enabling the well-known characterization that more-informative experiments are "better" for Bayesian decision makers. This paper adapts Blackwell's approach to rank decision problems (not just experiments), leading to notions of "better" decision problems and, in particular, better action sets. The results are especially useful for studying boundedly-rational choice where agents may be subject to costly information acquisition or processing, belief-based utility, non-Bayesian information processing, dynamic inconsistency, or attitude toward information sources (eg, trust or confidence).

Comparing Comparisons

Author(s): Vishal Ashvinkumar

Abstract: What does it mean for the comparison "A is better than B" to be more convincing, or credible, than "C is better than D"? In this paper we focus on the decisions-under-risk setting, formalising the notion as a quaternary relation over the space of distribution functions: the comparison (F1, G1) is more credible than the comparison (F2, G2) with respect to a given class of decision makers, if everyone who prefers F2 over G2 also prefers F1 over G1. We use a unified theoretical framework to characterise such credibility orders defined by the Expected Utility class, Yaari's (1987) Dual Utility class, and various constructions thereof (e.g. Quiggin's (1982) Rank-dependent Utility). We discuss how our results expand the scope of design for paired-choice experiments (e.g. a new measure of experimental robustness against noisy cognition). Additionally, we examine applications to random utility models, preference intensities, and degree-of-dominance indices.

Games | Room ED/0-02

Does Outcome-based Learning Explain the Decline of Contributions in Public Good Games?

Author(s): Tibor Neugebauer; Ulrich Schmidt; Jan Krause

Abstract: The drivers of individual behavior in public good games are intensively in various disciplines. The economics literature mostly assumes that social preferences play a key role for the observed patterns of contributions but this view has been challenged in several studies. A viable alternative explanation is that confusion cause the relatively high contribution in earlier rounds of the game while the decline of contributions in later rounds is a consequence of outcome-based learning. In theory, outcome-based learning and also evolutionary models predict a decline of contributions even in the absence of any social influences. We test the impact of confusion and outcome-based learning on contributions by an experimental analysis of several variants of the public good game, and by comparing them to individual decision-making under risk in the repeated Gneezy-Potters-Charness investment game. Our results show that outcome-based learning alone does not cause a decline of contributions in the typical design studied in the economics literature (i.e. four players in a partner design, MPCR = 0.5). In fact, the contribution trajectories in the public goods game and the decisions in the repeated investment game are identical. Only when subjects become aware that others take advantage of them through free riding do contributions decline, in an uncoordinated attempt at retaliation. We also discuss several alternative explanations.

Bargaining with confirmed proposals: an experimental analysis of tacit cooperation on duopoly games

Author(s): Giuseppe Attanasi; Michela Chessa; Sara Gil-Gallen; Elena Manzoni

Abstract: We investigate the performance of a bargaining over strategies protocol with confirmed proposals applied to duopoly markets modeled after Bertrand vs. Cournot competition, while neutralizing the price- vs. quantity-setting framing. The bargaining protocol was implemented with either symmetric (i.e., alternating between the two players) or asymmetric (i.e., assigned solely to one player) confirmation power for agreeing on the strategies to be played in the duopoly market. We characterize the set of subgame perfect equilibrium outcomes of the bargaining game with confirmed proposals for each of the four combinations of market game and confirmation power. We formulate experimental hypotheses, disentangling the four features of cooperative agreements: equity, welfare-maximization, Pareto-efficiency, equilibrium outcomes. Our experimental results broadly validate bargaining over strategies with confirmed proposals as an effective form of indirect communication. This form of communication is of practical importance when direct arrangements are difficult to achieve due to legal or strategic considerations. It is representative of many real-world situations in which strategic announcements have proved effective for achieving cooperative outcomes.

Probability and Magnitude in Public Goods with Gains and Losses

Author(s): Tanushree Jhunjhunwala; Anna Bayona; Adrià Bronchal

Abstract: We propose a novel public good game in which participants allocate an endowment across a private account and two public accounts: one targeting the probability of a common event and one targeting its magnitude (size). We

impose parameter restrictions that make the two public accounts equally attractive from a risk-neutral perspective, and yield the same equilibrium benchmarks across gains and losses frames. We then implement a laboratory experiment with a 2×3 design varying (i) the gains versus losses domains and (ii) whether subjects can contribute to both public accounts or only one. We find that overall contributions to the public accounts are greater in the loss than in the gains domain, and this is mainly driven by the differences in contributions to the probability account across domains: subjects contribute significantly more to the probability account in the loss domain than in the gains domain, while contributions to the magnitude account do not differ across domains. We find that this effect is persistent over rounds, and that free riding in the loss domain is the lowest. The evidence indicates that when outcomes are framed as losses, individuals disproportionately prioritize instruments that reduce the probability of collective harm. A natural interpretation is that loss aversion increases the relative psychological value of lowering the chance of a bad event.

Successful strategies in the voluntarily repeated Prisoner's Dilemma

Author(s): Luis Izquierdo; Segismundo S. Izquierdo; Robert Boyd

Abstract: Reciprocity is central to explanations of cooperation among unrelated individuals in societies of humans and other animals. Most mathematical analyses of the evolution of reciprocity are based on the repeated Prisoner's Dilemma (RPD) and typically assume that new strategies are rarely introduced by mutation or analogous cultural processes, that behavioral errors are absent or infrequent, and that agents are bound to interact with the same partner. Here we analyze a version of the RPD in which new strategies are frequently introduced, behavioral errors occur at a substantial rate, and actors may have the option to leave their current partner. In this environment, the usual indeterminacy disappears and the mix of strategies and cooperation levels are quite stable. With the option to leave, cooperation persists at a substantially higher level than without the option to leave. Classical strategies such as Grim, Tit-for-Tat, or Win-Stay-Lose-Shift disappear and are replaced by strategies that sanction cheaters by leaving rather than by retaliatory defection. Beyond a threshold, increasing the number of times partners interact decreases the level of cooperation without the option to leave, but increases it when leaving is possible.

Large Language Models | Room ED/0-03

LLMs as Strategic Agents: Beliefs, Best Response Behavior, and Emergent Heuristics

Author(s): Veronica Roberta Cappelli; Enric Junqué de Fortuny

Abstract: Large Language Models (LLMs) are increasingly applied to domains that require reasoning about other agents' behavior, such as negotiation, policy design, and market simulation. However, existing research mostly evaluates LLMs' adherence to equilibrium play or their exhibited depth of reasoning, ignoring whether they display genuine strategic thinking, defined as the ability to form coherent beliefs about other agents, to evaluate possible actions, and to choose an action based on those beliefs. We develop a framework to identify this ability by disentangling beliefs, evaluation, and choice in static complete-information games across a series of non-cooperative environments. By jointly analyzing models' revealed choices and reasoning traces, and introducing a new context-free game to rule out imitation from memorization, we show that current frontier models exhibit best-response behavior when constrained to targeted reasoning depths. When unconstrained, they self-limit their depth of reasoning and form differentiated conjectures about human and synthetic opponents, revealing an emergent form of meta-reasoning. Under increasing complexity, explicit recursion gives way to internally generated heuristic rules of choice that are stable, model-specific, and distinct from known human biases. These findings indicate that best-response, meta-reasoning, and novel heuristic formation can all emerge from language modeling objectives, and our methods provide a framework for future study of strategic cognition in artificial agents.

Who needs Savage? Humans do and LLMs too!

Author(s): Victor Gonzalez-Jimenez; Stephanie Koornneef

Abstract: We study whether access to advice from large language models (LLMs) influences decision making under ambiguity. Using a standard experimental paradigm, we measure ambiguity attitudes and examine whether access to advice from a standard LLM attenuates or amplifies these choice patterns. We further introduce a novel, theory-based intervention that derives the implications of Savage's (1954) sure-thing principle for the choices faced in the experiment and provides these implications either directly to participants or to LLMs advising them. We find that

access to the standard, untrained LLM has no effect on ambiguity attitudes. In contrast, theory-informed interventions-delivered either to humans or embedded in LLM advice-significantly attenuate ambiguity seeking and ambiguity aversion, the motivational component of ambiguity attitudes, while leaving a-insensitivity, the cognitive component of ambiguity attitudes, unchanged. These findings highlight the importance of integrating economic theory into AI-assisted decision support.

Conversing with a disagreeing LLM improves people's predictions

Author(s): Emir Efendic; Philippe

Abstract: Accurately predicting the outcome of future events improves decisions in domains ranging from health to finance, yet prediction errors are common. One reliable way to improve accuracy is to engage with disagreeing views through dialogue, which can reveal weak assumptions and facilitate belief revision. However, people often avoid disagreeing exchanges because they are socially and emotionally costly or inconvenient to seek out. Here, we examine whether a disagreeing large language model (LLM) can provide the benefits of disagreement while sidestepping these interpersonal barriers. Across two experiments (N = 762 adults making 3048 predictions; Experiment 2 was incentivised and preregistered), participants i) predicted the likelihood of various future events, ii) discussed each prediction with an LLM by articulating their reasoning, and iii) submitted final predictions. Crucially, we manipulated the LLM's stance during these discussions: it responded either supportively (agreeing) or critically (disagreeing) to participants' reasoning. The results showed that conversing with a disagreeing LLM produced more accurate final predictions than conversing with a supportive one. This advantage was driven by a greater engagement with the LLM (i.e., more dialogue) and a greater willingness to revise initially incorrect predictions, even though the disagreeing interaction was experienced as less enjoyable. These findings demonstrate the benefits of disagreement for prediction accuracy and the value of designing LLMs that challenge, rather than affirm, people's views and opinions.

Learning | Room ED/0-05

Causal Discovery and the Structure of the Learning Environment

Author(s): Andrea Salvanti; Patrick Sewell

Abstract: We develop a formal framework for analyzing how decision making is informed by the extraction of statistical relationships from data. In our framework, different datasets are linked by an invariant statistical causal relationship that maps a relevant subset of predictors to a distribution over outcomes. A decision maker observes a dataset and seeks to extract a decision rule that maps a relevant subset of variables into actions, trading-off the value against an attention-based cost arising from a bottom-up attentional channel. Exploiting the fact that all datasets are consistent with the same invariant rule, we derive novel, domain-general, and testable comparative statics that decouple the role of the relative value of rules from their rule-specific costs in predicting both the ex-ante probability of extracting the invariant rule and the emergence of disagreement. We test and find empirical support for these theoretical predictions using experimental data from Kendal and Oprea (2024).

Learning to Coordinate: Adaptive Learning and Equilibrium Selection in Labour Market

Author(s): Siting Estee Lu

Abstract: Workers' past application choices can act as heuristics for future decisions. By integrating learning theory into search model, this work explores the role of experiences on workers' application choices. It provides an evolutionary perspective to the labour market dynamics, and offers insights on equilibrium selection. I propose two market structures, where wages are unobservable and observable to workers, and I model workers' application strategies over time using reinforcement learning and best response dynamics respectively. I show that in presence of multiple equilibria, experience-based learning generally induces workers to coordinate on a more efficient, locally asymptotically stable equilibrium in which they apply with high probability to different firms, in both static and dynamic wage-setting environments. Learning models not only highlight potential mechanisms for equilibrium selection, they also suggest process-oriented policies to improve market efficiency.

Behavioral and Structural Barriers to Information Aggregation in Networks

Author(s): Dotan Persitz; Marina Agranov; Ben Gillen

Abstract: We study how network architecture shapes learning dynamics in medium-sized groups using laboratory experiments. Participants are incentivized to guess the true state of nature based on two sources of information: (i) a private signal received before the game begins, and (ii) the past guesses of their immediate neighbors. We focus on identifying behavioral and structural frictions that impede successful learning. We find that subjects systematically under-react to new information-even in the Complete network-leading to persistent learning failures. This behavioral friction is exacerbated when the distribution of private signals is less informative. Additionally, in network positions where imitation is optimal, participants often fail to imitate better-informed neighbors (influencers). This under-imitation is too frequent to be explained as a rational response to influencers' own under-reaction to new information. Instead, evidence-including results from a novel intervention-implies that a lack of trust is the primary driver of this behavioral friction. As a result, networks with a single central fully connected node often perform poorly, even when most private signals are accurate. Beyond behavioral frictions, we define structural frictions as combinations of network topology and signal distribution that hinder aggregation even under fully rational behavior. Networks with centralized hubs or weakly connected cliques are especially prone to both behavioral and structural frictions in the presence of noisy signals. We argue that a dual framework of behavioral and structural frictions provides a sharper account of learning dynamics than standard Bayesian or na\{i}ve (DeGroot-style) models."

Learning gaps? Descriptions vs Experienced Signals

Author(s): David Ricardo Gonzalez Jimenez

Abstract: We study the effect of learning the relationship between signals and payoff-relevant events by description or by experience. Employing a novel method for eliciting ambiguity attitudes, in which beliefs and attitudes are disentangled, two differences, referred as gaps, are identified. The first gap concerns attitudes: aversion is lower in experience and decreases with higher signal informativeness, whereas insensitivity is higher for experience but reduced by informativeness of the signal in both conditions. The second gap pertains to belief updating: subjects are more responsive to new information in experience than in description. The findings show that direct experience brings people closer to Bayesian rationality than description does.

Ambiguity and Risk | Room ED/0-06

Compound versus Reduced-form Ambiguous and Risky Prospects

Author(s): Tigran Melkonyan; Michael Price; Laura Razzolini

Abstract: A growing experimental literature studies how individuals evaluate compound risky prospects, documenting systematic deviations from the reduction of compound lotteries. In contrast, little is known about how decision-makers process compound ambiguous prospects, despite their prevalence in settings such as climate change, public health, and finance. We report results from a laboratory experiment that provides a unified comparison of behavior under compound and reduced representations of both risk and ambiguity. Participants complete incentivized valuation tasks involving two-stage prospects in which uncertainty at each stage may take the form of known probabilities or ambiguity, while the reduced-form set of distribution of final outcomes is held constant across representations. This design allows us to assess whether failures of reduction observed under risk extend to ambiguity, and whether compound ambiguity generates distinct behavioral patterns relative to compound risk. Our findings provide new evidence on how people form beliefs and make decisions under multi-layer uncertainty.

Complexity Sensitive Expected Utility

Author(s): Hai He

Abstract: Complexity has been identified as an important aspect of decision making. This applies especially to risky situations. Complexity arises in binary choices when many probability-outcome pairs must be accounted for in a lottery's value. We propose an extension of expected utility (EU) that accounts for this type of complexity. EU is maintained when lotteries with common support size are evaluated. A penalty is invoked when two lotteries have different support sizes, such that the EU-value of a more complex lottery is discounted more. Naturally, the preference properties of EU are kept within same-support subsets of lotteries. Implications of the classical independence axiom

are used restrictively. In this way, we connect the different EU-restrictions across subsets of lotteries with different support sizes to obtain a decision model. The complexity sensitive EU (CS-EU) theory captures risk attitudes as in EU, through the utility index, and separately it uses some parameters that reflect complexity attitudes. As a result, CS-EU gives a novel notion of complexity aversion and explains the certainty effect and many other EU paradoxes by disentangling risk and complexity. The CS-EU theory is falsifiable and tractable in laboratory testing.

Does increasing complexity change behaviour under ambiguity? Less is More

Author(s): Xueting Yang

Abstract: This paper challenges the conventional view that complex decisions under ambiguity require complex models. We hypothesize instead that increasing complexity causes cognitive overload, making choices noisier and simpler models more robust. Results confirm that 'less is more'. Under ambiguity and complexity, individuals simplify their decision process, defaulting to risk-like heuristics. An allocation method is used in the experiment, where complexity was controlled across ambiguous lotteries by varying the number of outcomes and stages. Then we competitively evaluate the Expected Utility (EU), MaxMin (AMM), and Choquet Expected Utility (CEU) models. As complexity rises, the EU model provides the best fit, while the more complex AMM and CEU models overfit the increased decision noise. The EU model's risk-attitude parameter remains stable, whereas the additional parameters in AMM and CEU become unreliable under cognitive strain. The CEU model performs well only after participants familiarise problems with less noise, allowing its ambiguity parameter to function. Our finding implies that in complex real-world settings accurate prediction may depend more on relatively simple models that reflect this cognitive reality than on theoretically sophisticated alternatives.

Complexity and Higher Order Preferences

Author(s): Olivier L'Haridon; Arthur E. Attema; Gijs van de Kuilen

Abstract: Experimental studies of higher-order risk preferences consistently document a sharp decline in the prevalence of prudent and temperate behavior as the order of risk apportionment increases. While this pattern is often interpreted as reflecting genuine preference heterogeneity, an alternative explanation is that higher-order tasks impose increasing cognitive complexity. This paper investigates how different notions of complexity-outcome complexity, representational complexity, and cognitive uncertainty-affect the elicitation of higher-order risk preferences. Building on the risk-apportionment framework of Eeckhoudt and Schlesinger (2006) and using binary choices, we propose an experiment that systematically varies the number of outcomes and the presentation format (compound versus reduced form). We combine incentivized choice-process data with confidence reports, allowing us to classify tasks by revealed complexity. Data will be collected in February, and results will be available in the spring.

Time | Room ED/0-07

Time is Knowledge: What Response Times Reveal

Author(s): Jean-Michel Benkert; Nick Netzer; Shuo Liu

Abstract: Response times contain information about economically relevant but unobserved variables like willingness to pay, preference intensity, quality, or happiness. We provide a general characterization of the properties of latent variables that can be detected using response time data. Our theoretical framework unifies and generalizes results in the literature and gives rise to many new applications. We illustrate the rich insights that the method can deliver through several empirical applications: revealed preference analysis, identifying an optimal nudge, testing decreasing marginal happiness of income, and predicting treatment heterogeneity.

Time preferences, daily behaviors, and measurement error

Author(s): María Romero González; Daniel Navarro-Martinez; Daniel Banki

Abstract: Previous literature shows that laboratory-elicited time preferences correlate weakly with real-world intertemporal outcomes such as savings, debt management, or dietary choices. We investigate whether this low external validity arises from unaddressed measurement error in both lab and field assessments. Using the Day Reconstruction Method (DRM), we collect daily data on participants' intertemporal behaviors over a period of seven days, along with two repeated measures of commonly used stated and revealed preference methods. We find that the

standard single-shot approach (correlating one day of field behaviors with one administration of a lab measure) results in weak and mostly insignificant correlations between revealed-preference tasks and field behaviors, while stated-preference measures show moderate, often significant associations. Importantly, aggregating lab measures across the two survey administrations and field behaviors across the seven DRM days to reduce measurement error substantially strengthens correlations for all methods. These correlations become even stronger when using the Obviously Related Instrumental Variables (ORIV) method, which corrects for measurement error more efficiently. Even after accounting for measurement error, revealed-preference methods (MPL, CTB) remain consistently outperformed by stated instruments (e.g., BSCS, IPICB), whose correlations with field behaviors exceed 0.35. Yet, when we restrict the analysis to financial field behaviors, revealed-preference tasks show markedly stronger predictive power, supporting a domain-matching explanation for their underperformance in broader samples. Our findings suggest that prior low correlations largely reflect measurement error rather than fundamental limits of lab-based assessments, and that aggregating measures of intertemporal preferences is therefore a highly effective strategy for enhancing their external validity.

Distortions in time perception: a novel measure of non-pecuniary utility

Author(s): Tomás Jagelka; Holger Gerhardt; Mona Schellenberg

Abstract: Compensating wage differentials that employees demand for doing a particular job depend on the job's characteristics. Via a series of experiments, we seek to demonstrate that compensating wage differentials can be predicted by individuals' subjective time perceptions: the shorter participants perceive time spent on a task to be relative to objective time -- the subjective/objective time ratio, or "SOT" -- the lower is the wage that they demand for that task and the more productive they are at performing the task. By varying task enjoyment exogenously within-subject while holding all other task characteristics constant, we aim to establish that task enjoyment causes the variation in SOT and compensating wage differentials. We interpret this as evidence that SOT constitutes an objective measure of non-pecuniary utility derived from a task. We anticipate that SOT correlates with self-reported task enjoyment and predicts compensating differentials better than self-reports. This would suggest that SOT captures components of wage demands that are not readily accessible by conscious introspection. Importantly, because the passage of time has a well-defined objective scale, unlike self-reported task enjoyment, it is not impacted by scale use differences between respondents. Our work establishes subjective time measurements as a novel indicator relevant to economists and psychologists, which provides an alternative way for measuring preferences and enriches our understanding of task utility.

A Revealed Preference Analysis of Choice Under Time Risk

Author(s): Clément Staner; Sebastian Ebert

Abstract: This paper provides a theoretical and experimental framework to study models of choice under time risk, where the arrival date of an otherwise fixed payoff is random. Our experimental framework is a novel convex time-budget experiment in which subjects can influence payment timing but never the payment amount. In each decision, participants allocate a token endowment across two states to purchase state-contingent delay reductions, thereby selecting an effective-delay vector on a budget frontier. Presenting choices directly in the delay space yields an intuitive interface, while variation in prices and baseline delays generate rich, and varying trade-offs. To analyze our data, we develop revealed-preference tests for discounted models under time risk that allows for an individual level analysis of time-risk attitudes. As such, we provide the first experimental and theoretical framework that can test for all major time risk models: (generalized) Expected Discounted Utility, Rank-Dependent extensions with probability weighting, and Monotone Stationary Time Preferences. It accommodates shape restrictions on discounting (convexity/concavity) and parametric forms, but does not require them: for each model we derive finite, necessary-and-sufficient rationalizability conditions for observed choices across budgets. To benchmark the performance of these models, we also test general rationality principles based on statewise monotonicity and first-order stochastic dominance.

Stochastic Choice | Room ED/0-08

Stochastic choice and noisy beliefs about imperfect perception

Author(s): John Smith; Sean Duffy

Abstract: We design an incentivized binary line length judgment experiment to better understand stochastic choice and how it is driven by noisy beliefs. We are able to observe whether the objectively optimal---but imperfectly perceived---choice was made. We can also present subjects with materially identical choice sets in different trials, without the repetition being apparent to subjects. In some trials, subjects make incentivized choices between lines and are paid a function of the length of the selected line. In a subset of these trials, subjects can select indifference which directs the computer to make the choice for them based on a known distribution and in other trials the computer's choice would be based on an unknown distribution. We find considerable randomness in the choices, including in trials where the lines are equally long. While we see more indifference choices when the distribution is known to the subjects, we observe considerable choices of indifference even when the distribution is not known. Then subjects are directed to two-stage trials: first they make a binary choice between the lines and then are directed to make pairwise choices between objective lotteries and payments based on whether they selected the longer line in the prior stage. These responses provide a measure of the subject's confidence in their line selection. We find that most subjects have different measures of confidence in materially identical choice sets. We find that subjects are sophisticated in that---controlling for the decision difficulty and the subject-specific decisions---subjects are more confident on trials in which they selected the longer line.

Stochastic Choice: Rational or Erroneous

Author(s): Xueqi Dong; Shuo Li Liu

Abstract: Likelihood-based methods are central to statistical inference in discrete choice analysis and are typically grounded in random utility (RU) models, where stochastic choice arises from unobserved preference shocks. This paper proposes an alternative foundation for likelihood construction based on Rational Expectation Stochastic Choice (RESC). Under RESC, a decision maker selects a stochastic choice rule by maximizing expected utility over lotteries induced by randomization itself, so that observed choice probabilities reflect optimal responses to objective risk rather than preference errors. Choice stochasticity is thus interpreted as purposeful and risk-sensitive behavior, consistent with hedging motives across correlated outcomes, and standard tools from decision theory under risk apply directly. We develop the theoretical structure of the RESC framework and derive its likelihood representation for risky choice environments. The model is evaluated experimentally and compared with conventional RU-based specifications and their common generalizations. The findings indicate that RESC provides a strong empirical account of stochastic choice behavior and offers a parsimonious and conceptually distinct alternative to error-based discrete choice models.

Testing Single Crossing Property with Stochastic Choice Data

Author(s): Tanay Bhatt

Abstract: We study a standard model of choice under uncertainty with private information in which a decision maker observes a signal, updates beliefs via Bayes' rule, and maximizes expected utility. When preferences satisfy the single crossing property and the information structure is ordered by the monotone likelihood ratio, higher signals induce higher actions. We characterize the restrictions this model imposes on state-conditional stochastic choice data. Under certain regularity conditions, any dataset generated by this model is monotone likelihood ratio-ordered. Conversely, any monotone likelihood ratio-ordered stochastic choice dataset can be rationalized by this model. We apply these results to derive conditions under which an analyst can infer relative "informedness" across decision makers using choice data alone.

The Measurement Error Random Utility Model

Author(s): Changkuk Im; Roy Allen; John Rehbeck; Woohun Son

Abstract: This paper introduces a new measure of stochastic choice consistency for the random utility model (RUM). We extend RUM rationalizability by allowing "measurement error" on choice probabilities and give a full theoretical characterization by relaxing the Axiom of Revealed Stochastic Preference. The relaxation gives a linear programming problem that allows us to compute the minimal measurement error needed to rationalize the dataset. The minimum measurement error is closely related to existing confidence intervals for multinomial distributions. As a byproduct of

this link, we obtain a straightforward statistical test of the random utility model that can be used to perform ex-ante power analysis. We compare this test to that of Kitamura and Stoye (2018) through simulations.

Uncertainty | Room ED/0-10

Unawarness without the postulate of the excluded middle

Author(s): John Quiggin; Ani Guerdjikova; Evan Piermont

Abstract: The question of how to represent unawareness of possibilities relevant to a decision remains problematic despite decades of work on the topic. The proposed response in this paper is to reject the "postulate of the excluded middle", which states that if a proposition is not true, its negation must be true The rejection of the excluded middle postulate means that the language may be represented by a Heyting algebra rather than the usual Boolean algebra. The Heyting algebra is not closed under negation, but gives rise to a pseudocomplement. Applying the relevant version of the Stone representation theorem, the language is isomorphic to a lattice of open subsets of the free Boolean algebra generated by the elementary propositions of the language. Agents are defined to be unaware of propositions expressible in the free Boolean extension but not in the original language.

When Is More Information Optimal? Signal Fidelity, Prior Uncertainty, and Go/No-Go Decisions

Author(s): Jeeva Somasundaram; Sanjiv Erat

Abstract: Decision makers frequently acquire costly information before making irreversible go/no-go choices. A common intuition is that greater ex-ante uncertainty should lead to more information acquisition. We show that this intuition is generally incorrect. We develop a tractable Bayesian model of optimal information acquisition in which a decision maker evaluates a single project of uncertain value and can solicit noisy signals (or advice) of varying fidelity at a cost. We characterize optimal information acquisition both when the number of signals is chosen ex ante and when signals are acquired sequentially. Our analysis yields three central results. First, the optimal amount of information is highest when prior expected value is close to the decision threshold, and decreases when the project appears clearly attractive or unattractive. Second, contrary to monotonic intuition, optimal information acquisition is maximized at intermediate levels of prior uncertainty: when uncertainty is very high, even a small number of signals suffices to resolve the decision, while when uncertainty is very low, additional information has little marginal value. Third, information acquisition is also non-monotonic in signal fidelity: very low-fidelity signals are uninformative, whereas very high-fidelity signals render additional information redundant. We test these predictions in two laboratory experiments involving costly advice seeking in both static and sequential settings. While participants broadly follow the model's predictions with respect to prior means, they systematically over-acquire information as uncertainty increases, deviating from the optimal inverted-U pattern. We provide evidence that this deviation arises from a motive to reduce subjective uncertainty rather than to maximize expected value. A simple intervention that prompts explicit belief updating substantially reduces this bias and brings behavior closer to the normative benchmark.

Anxious and Uncertain? Attachment Styles and Uncertainty Preferences

Author(s): Huzeyfe Elden

Abstract: Economic preferences are often considered exogenous, yet they may be influenced by early childhood experiences. Understanding these influences provides insight into how early experiences shape decision-making under uncertainty. This paper provides evidence that adult attachment anxiety, serving as a proxy for early childhood experiences, influences uncertainty preferences. A large-scale survey shows that higher attachment anxiety is associated with lower risk aversion and higher ambiguity aversion. Additionally, an incentivized lab experiment demonstrates that priming attachment anxiety causally increases ambiguity aversion.

Into the unknown - individual differences in attitudes to unknown

Author(s): Jozef Bavolar

Abstract: Into the unknown - individual differences in attitudes to unknown Psychological research has identified several stable characteristics describing attitudes and reactions toward the unknown, with intolerance of uncertainty, intolerance of ambiguity, and risk perception among the most prominent. Previous studies have differentiated these

constructs primarily based on temporal perspective, domain specificity, and the valence of the unknown, and have demonstrated their associations with a variety of cognitive, emotional, and behavioural outcomes. Despite this extensive tradition, some recent psychological studies use the terms uncertainty and ambiguity interchangeably, and the degree of overlap or distinction among these constructs remains insufficiently explored. To address this, we first conducted a meta-analysis examining the associations between the aforementioned constructs, providing a comprehensive overview of their interrelations. Additionally, because most past research has focused on bivariate relationships, we present findings from our own study (n = 912), which includes multiple indicators: intolerance of uncertainty, attitude to ambiguity, risk perception, and risk propensity. Drawing on results from the meta-analysis as well as correlational and factor analyses of our dataset, we show that although the constructs exhibit a high degree of overlap and a common latent factor can be identified, meaningful distinctions emerge, reflecting their conceptual differences. These distinctions were also evident at the level of subscales in the measurement instruments used. Implications for theory, measurement, and applied practice are discussed, along with directions for future research.

(In)consistencies | Room ED/0-13

The Impact of Prediction Mode on Forecasting Accuracy

Author(s): Joachim Vosgerau; Alex Imas; Minah Jung; Silvia Saccardo

Abstract: Forecasters predicting how people change their behavior in response to a treatment or participation in an intervention often consider a set of alternatives. In contrast, those who are treated are typically exposed to only one of the treatment alternatives. For example, managers selecting a wage schedule consider a set of alternative wages while employees are hired at a given rate. We show that forecasts made in joint prediction mode-which considers a set of alternatives-generate predictions that expect substantially larger behavioral responses than those made in separate prediction mode-which consider the response to only one treatment realization in isolation. In the first two experiments, forecasters in joint prediction mode predicted much larger worker responses to wage increases than those in separate prediction mode, and the latter were much closer to workers' actual responses. We show that this difference in forecasting accuracy can be costly, as people choosing wages in joint prediction mode overshot the profit-maximizing option. We also explore the implications of separate versus joint predictions for the forecasting of scientific results. Forecasters in joint prediction mode predicted larger treatment effects than those in the separate prediction mode, and were less accurate in their predictions of responses to both standard and psychological incentives.

The Value of Life Under Prospect Theory

Author(s): Han Bleichrodt

Abstract: The value of a statistical life (VSL) is the main economic parameter to evaluate government regulation. Unfortunately, it suffers from many biases. Carthy et al. (1998) proposed a method, the CV/SG method, that solved some biases but also disclosed new ones. Carthy et al. assumed expected utility to analyze the responses to the CV/SG method. In a re-analysis of a general population survey and a new experiment, we show how using prospect theory instead leads to more consistent VSL estimates and solves a key problem: the dependency of VSL of the injury used in the elicitation.

The Robustness of Mental Accounting: A Global Perspective

Author(s): Martina Vacondio; Giulia Priolo; Federica Stablum; Simone D'Ambrogio; Et Al; David Hardisty; Justin Pomerance; Beatriz Pereira; Leaf van Boven; Stephan Dickert; Lorella Lotto; Kai Ruggeri; Enrico Rubaltelli

Abstract: First introduced four decades ago, the influential concept of mental accounting-how people mentally organize, evaluate, and track financial activities-revealed that consumers often defy traditional economic rationality, treating money as non-fungible across discrete mental accounts. In this research, we present the first large-scale test of the replicability and generalizability of mental accounting effects, using a sample of 5,589 participants from 21 countries. This research makes three central contributions. First, our results demonstrate that mental accounting effects are replicable, robust, and generalizable: hierarchical Bayesian meta-analyses revealed a 100% replication rate for all scenarios, while unpooled analyses showed a 90.5% replication rate (133/147 effects). Second, we identify Gross Domestic Product (GDP) per capita as a key moderator, suggesting that findings from higher-income countries may be less descriptive of how people think of money in lower-income countries. Third, multidimensional scaling revealed that mental accounting effects cluster along three dimensions: social context (individual vs interactive decisions),

decision perspective (deciding for self vs other), and role in price determination (setting vs evaluating prices). These findings replicate and extend the original scenarios, confirming mental accounting as a foundational model to understand global consumer behaviors.

The Necessity to Reconcile Choice Inconsistencies but the Dangers to Do It Mechanistically

Author(s): Peter Wakker; Chen Li; Julia Rose; Fantine Xiao

Abstract: New AI tools give new possibilities to use rationality axioms prescriptively, which due to complexity was almost absent from the academic literature as yet. Nielsen & Rehbeck (2022 AER), in a timely, often-praised and prize-awarded study, revived interest. We start with a reconciliation paradox leading to a new low-bar (lb) criterion for choice procedures, meaning: worse than blind random choice. Theorems show that not accepting rationality axioms, as in nonEU, is less non-committal than has been thought as yet: it is not just suboptimal but it is even lb! A next result, we think shocking, is that popular reconciliation methods, including those of Nielsen-Rehbeck, are lb: they do more harm than good! We provide new improved reconciliaton methds, implemented in a preregistered experiment and confirming our claims.