

SULAGNA DASGUPTA

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Education

University of Chicago, Ph.D. Economics 2018 – 2024 (Expected)

Indian Statistical Institute, Delhi Centre, Delhi, M.Sc. Quantitative Economics 2016 – 2018

References

Professor Phil Reny (Co-chair)
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Professor Ben Brooks (Co-chair)
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Research and Teaching Fields

Primary: Microeconomic Theory: Mechanism & Information Design, Matching
Secondary: Experimental & Behavioral Economics

Job Market Paper

Screening Knowledge, *ACM EC '23 Extended Abstract*

Abstract: *A principal seeks to maximize the chances of passing a good quality agent by testing his knowledge of a subject matter, modeled as a binary state. Higher quality agents possess more precise information. I show that the optimal test takes a “pick the correct answer” form, with at most three options. While the efficient test only rewards correctness, without regard to the degree of ex-ante obviousness of the answer, screening leads to under-rewarding of “obvious” answers and over-rewarding of “counterintuitive” ones, when there is such an ex-ante obvious answer. When the principal can pick the question however, she picks one with no ex-ante obvious answer, so that the optimal test, once again, rewards only correctness. In particular, in this case the optimal test is the simple True-False test ubiquitous in the real world, regardless of all other details.*

Publications

Communication via Hard and Soft Information, *ACM EC '23 Extended Abstract*

Abstract: *A privately informed sender with state-independent preferences communicates with an uninformed receiver about a single-dimensional state. The sender can verifiably reveal the state precisely. She can also communicate via cheap messages when not disclosing the state. I show that unravelling occurs, with or without cheap talk, if and only if sender's preferences satisfy a condition slightly weaker than strict quasiconvexity. Moreover, the ability to use cheap talk can prevent unravelling for some prior distribution of the state, if and only if the sender's payoff is "M-shaped". When unravelling does not occur, the model features multiple equilibria. I show that as long as the sender's payoff function does not pool "too many types" together, cheap talk typically expands the set of equilibria, regardless of other parameters. Varying across equilibria, I also show that equilibria that feature more disclosure are worse for the sender, with the disclosure minimizing equilibrium being sender-best.*

Ordinal Bayesian incentive compatibility in random assignment model (with Debasis Mishra), *Review of Economic Design (Special issue in honor of Semih Koray), 2022*

Abstract: *We explore the consequences of weakening the notion of incentive compatibility from strategy-proofness to ordinal Bayesian incentive compatibility (OBIC) in the random assignment model. If the common prior of the agents is the uniform prior, then a large class of random mechanisms are OBIC with respect to this prior—this includes the probabilistic serial mechanism. We then introduce a robust version of OBIC: a mechanism is locally robust OBIC if it is OBIC with respect all independent and identical priors in some neighborhood of a given independent and identical prior. We show that every locally robust OBIC mechanism satisfying a mild property called elementary monotonicity is strategy-proof. This leads to a strengthening of the impossibility result in Bogomolnaia and Moulin (*J Econ Theory* 100:295–328, 2001): if there are at least four agents, there is no locally robust OBIC and ordinally efficient mechanism satisfying equal treatment of equals.*

Working Papers

Information Design in One-sided Matching Markets, R&R at *Journal of Mathematical Economics*

Abstract: *In the one-sided matching problem, objects are allocated to agents based on agent preferences. However, agents may not always know, a priori, their cardinal or even ordinal preferences over the objects, because they do not have enough information. In this context, I try to answer the question: How should a benevolent planner optimally reveal information to the agents to maximize welfare, in an environment where agents have no private information to start with? As a benchmark, I first show that when using any of the standard strategyproof ordinal mechanisms, such as Deferred Acceptance, Serial Dictatorship, Random Priority or Top Trading Cycle, letting each agent know his true ordinal ranking over the objects is almost never a social welfare-maximizing information policy. By way of a partial solution, I then propose a simple signal I call the Object Recommendation (OR) Signal. Under i.i.d. agent priors satisfying a mild regularity condition, I show that, when agents' a priori relative preferences over the objects are "not too strong", the OR Signal, used together with any of the aforementioned standard mechanisms, not only maximizes welfare, but achieves first-best, i.e. the unconstrained maximum total ex-ante welfare.*

Hard Information Design (with Rohit Lamba and Ilia Krasikov)

Abstract: *Many transactions in the marketplace rely on hard (or verifiable) information about the underlying value of the intended exchange, typically through certification—housing, diamonds, bonds being cases in point. What is the class of Pareto efficient certifications for such scenarios? This paper studies the canonical monopolistic screening problem, and models certification as hard information*

produced through a test to be flexibly chosen pre-trade. It argues that Pareto efficient tests take a simple form—they produce certification with a partitional structure, often with one or two thresholds. This claim is shown to be true for both the linear trading model and the non-linear pricing model.

Object Allocation under Zero, Partial and “Too Much” Information (with Lenka Fiala and Jantsje Mol)

Abstract: We investigate how people trade off individual and group interests in a setting of strategic interaction with imperfect information about private benefits of a specific action. In a large-scale on-line experiment with 2600 subjects, we compare three information provision settings and their impact on people’s choices and resulting social welfare. Contrary to theoretical predictions, we find that a partial-information policy designed to maximize group welfare does not improve upon a full information benchmark even when individual and group objectives are aligned, as the recommended course of action is not followed often enough. In a setting where individual and group interests clash, in accordance with theoretical predictions, the recommendation is followed less often. However, those who do follow, do not seem to do so deliberately with the intention to benefit their group; rather, their actions are attributable to them misunderstanding the policy. This provides suggestive evidence in favor of simplicity in information design in multi-agent strategic settings.

Work in Progress

Screening knowledge with verifiable evidence

Abstract: An agent learns about an unknown binary state through two kinds of verifiable signals – each moving his belief towards one of the states. The verifiable evidence thus collected is likely to be both greater in quantity and accuracy, for a higher ability agent. A principal prefers higher ability agents. She wants to screen the agent using a pass/fail test on the agent’s knowledge about the state as well as the evidence possessed by him, and the realized state. I show that the optimal test passes (respectively, fails) the agent regardless of his answer, if the amount of evidence provided is sufficiently high (respectively, sufficiently low), and passes if and only if his answer is correct, when the amount of evidence provided is intermediate. In particular, even though verifiable evidence is available, the optimal test may not make any use of it, screening the agent purely based on his soft knowledge instead.

Complex tests

Abstract: In this note I extend the framework of my job market paper, for screening knowledge, to the case when the subject matter the agent is tested on is more complex than in the main model of my job market paper, which is a binary fact. In particular, I model the subject matter as a state that can take any finite number of values. This captures both the case when there is a single question with many possible answer and the case when there are multiple questions on the test. Using a symmetric setting and some regularity conditions, I show that the optimal test allows the test-taker to pick a fixed number of “correct” answers, and passes him if the actual correct answer is one of them.

Invited Talks

Kansas Workshop in Economic Theory (KWET), Kansas University	May 2023
Virtual Seminars in Economic Theory (<i>scheduled</i>)	Nov 2023
Conference on Information and Privacy in Markets, Penn State University (<i>scheduled</i>)	Dec 2023
Workshop on Economic Theory, Humboldt-Universität zu Berlin (<i>scheduled</i>)	Dec 2023

Awards, Scholarships, and Grants

Neubauer Fellowship, The University of Chicago	2018-23
Camm Dissertation Scholarship, The University of Chicago (<i>scheduled</i>)	2024

Teaching Experience

Elements of Economic Analysis I (Consumer Theory) (UG)	Instructor	<i>Spring 2022</i>
Advanced Microeconomic Analysis (Graduate)	TA for Prof. Murphy	<i>Fall 2020</i>
Decision and Strategy (UG)	TA for Prof. Brooks	<i>Winter 2021</i>
Elements of Economic Analysis II (UG)	TA for Prof. Fang	<i>Winter 2021</i>
Price Theory III (Graduate)	TA for Prof. Stole	<i>Spring 2021</i>

Research Experience

Research Assistant for Prof. Doron Ravid; Paper: Persuasion via Weak Institutions	<i>Spring 2021</i>
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Conferences and Seminar Presentations

2020-21: Colorado State University; Simon Fraser University; Indian Statistical Institute, Delhi; NYU Student Micro Lunch; The University of Melbourne, Australia.

2021-22: Stony Brook International Conference on Game Theory (Poster session); Midwest Economic Theory conference*; Washington University in St. Louis Economics Graduate Students' Conference*; 2021 European Winter Meeting of the Econometric Society* ; Annual Conference on Economic Growth and Development - Indian Statistical Institute, Delhi*; International Conference on Economics (EconWorld 2021) by World Economic Research Institute; International Atlantic Economic Conference; Annual Meeting of the Illinois Economics Association; Colorado State University Brown Bag Seminar.

2022-23: Canadian Economic Theory Conference; Stony Brook International Conference on Game Theory 2022; Asian School in Economic Theory (Summer School of Econometric Society), Singapore; Washington University in St. Louis Economics Graduate Students' Conference; Young Economists Symposium 2022*; NYU Student Micro Lunch; Invited seminar at Indian Statistical Institute, Delhi.

2023-24: ACM EC '23; Stony Brook International Conference on Game Theory 2023; Connections Workshop: Mathematics and Computer Science of Market and Mechanism Design, Simon Laufer Mathematical Sciences Institute, UC Berkeley (Poster).

**Could not attend due to visa issues/COVID.*

Professional Experience

Founder and co-organizer of Women in Economic Theory Student Conference	<i>2022</i>
Co-organizer of Student Theory Lunch, University of Chicago	<i>2022-2023</i>
Member of Marketing and Communications Committee, Graduate Council, U of Chicago	<i>2020-2021</i>
Refereeing Activity	<i>Journal of Political Economy, Social Choice and Welfare</i>

Additional Information

Citizenship	India
Programming Skills	Matlab, STATA
Languages	English (Fluent), Bengali (Native), Italian (Basic)