Sharanya Bhattacharjee

Application to Attend the Tutorial Meeting

CONTACT INFORMATION

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COURSE OF GRADUATE STUDY

I am a fifth-year Ph.D. candidate in Economics at the University of Illinois Urbana-Champaign, enrolled since Fall 2022, with an expected completion in 2028. My advisor is Adam Osman. My primary fields are development economics and the economics of AI; my secondary fields are labor and education economics and gender.

I completed the first-year core sequence in microeconomic theory, macroeconomic theory, and econometrics (2022–23). My field coursework focused on applied microeconomics: Micro Issues in Development, Applied Microeconometrics, Applied Public Economics, and Causal Inference, along with graduate courses in Agricultural Economics department on Food, Trade and Development; and Data Science for Applied Economics. I completed the third-year paper sequence in 2024–25 and have participated in the Applied Micro Research Workshop and Applied Micro Seminar each year. Since Fall 2025 I have been in the thesis research stage. My graduate GPA is 3.78.

Before the Ph.D., I earned an M.Sc. in Financial Economics from the Gokhale Institute of Politics and Economics (2020–22) and a B.Sc. in Economics from the University of Calcutta (2017–20). At Illinois, I have served as a teaching assistant for ECON 202 (Economics and Statistics I, 2023–26) and as a research assistant to Lena Song (2026).

RESEARCH INTERESTS

I study how new technologies shape human capital, social networks, and economic opportunity in low- and middle-income countries, with a particular focus on women and young people. One strand of my work asks how generative AI changes the way students learn, collaborate, and build social capital. A second examines how students respond to being evaluated by AI: whether being told that an AI will grade their exam changes how much effort they invest and how much they learn. A third strand studies how information and social norms constrain women's economic choices, from labor force participation to marriage timing and intra-household investment in children. My work relies primarily on field experiments, which I design and implement end to end with local partners in India, Egypt, and Pakistan, complemented by quasi-experimental and structural methods.

RESEARCH PROJECTS IN PROGRESS

The Solitary Learner? The Impact of Generative AI on Peer Effects and Social Capital Formation
Generative artificial intelligence (AI) can deliver instant, personalized learning support. This may raise learning productivity while reducing reliance on peers, potentially weakening collaboration and the formation of new social ties. This paper studies how access to AI changes the role of peer collaboration in producing learning gains and shaping network formation. I run a randomized controlled trial with approximately 1,600 undergraduates enrolled in an intensive two-day Python for Data Science workshop in Kolkata, India, in partnership with DAI Advisory. Students are organized into single-gender clusters of four, and each cluster is randomly assigned to one of four arms: (i) solo without AI, (ii) solo with AI, (iii) collaboration without AI, and (iv) collaboration with AI. This 2×2 design identifies whether AI acts as a substitute for or a complement to peer collaboration in producing learning gains. I also examine how access to AI affects social tie formation and mental well-being. Students in the AI arms use a custom-built AI tutor that logs every interaction, which lets me observe how help-seeking shifts between the AI and peers. Fieldwork is in progress: nine colleges have agreed to host the workshop, and I have completed it

at two of them, with 272 students in 68 clusters. Preliminary results suggest that AI substitutes for peers. Without AI, students working in groups score 4.7 points (7.4 percent) higher on the endline exam than students working alone; with AI, this gap shrinks to a statistically insignificant 2.1 points. AI access also lowers endline scores, by 6.4 points for students in groups and 3.8 points for solo students, even as it raises students' own expected scores by 5–6 points, which points to overconfidence. In AI-enabled groups, students relied on peers alone in under 4 percent of workshop activities, against 55 percent in groups without AI, and they formed 16 percentage points fewer new ties (28 versus 44 percent of pairs).

Social Norms and Social Media: Can WhatsApp Groups Increase Female Labor Force Participation in Rural Egypt? *(with Marieke Kleemans and Abdelrahman Nagy)*

Female labor force participation in Egypt has stayed between 20 and 25 percent for two decades, even as women's literacy has risen sharply. We study whether social media can be a scalable, low-cost channel for relaxing two constraints on women's work: limited information about local jobs and misperceived social norms. A preliminary survey of 761 women in Sohag Governorate points to pluralistic ignorance. While 88 percent of women agree that women should be allowed to work, they expect only 72 percent of other women in their village to agree, and across four statements about women working they overestimate others' conservatism by about 25 percentage points. We will run a randomized controlled trial with about 3,000 women aged 18–55 in rural Sohag, in partnership with Promising Egypt and with female community facilitators affiliated with the Ministry of Social Solidarity. Each facilitator forms WhatsApp groups of about five women she knows, and the 600 groups are randomly assigned to one of three arms: (i) group formation only; (ii) weekly posts of real local job vacancies; or (iii) weekly vacancies plus belief-correction messages conveying the true level of community support for women's work. Because every arm includes a group, the design isolates the effect of the information itself, delivered in a setting where women can discuss it with peers who know each other. Comparing the vacancy arm with the control identifies the effect of job information, and comparing the two treatment arms identifies the added effect of correcting norms. We measure job applications and take-up with administrative records during the three-month intervention and for one month after it. We measure beliefs, intra-household decision-making, and psychosocial well-being in an endline survey six months later. We will also use large language models, validated against human coding, to analyze the WhatsApp conversations and study how peer discussion shapes the effects.

Grading Beliefs: Experimental Evidence on AI Evaluation, Student Effort, and Learning *(with Daniel Martin)*

AI systems are increasingly used to grade student work, yet little is known about how students respond when they know an algorithm is evaluating them. Theory points in both directions. Students may exert less effort if they view AI grading as easier to game, noisier, or less socially consequential than a human's judgment. They may exert more if they expect AI grading to be more consistent, objective, or less anxiety-inducing. We test these channels in a 2×2 field experiment with about 1,000 undergraduates in a Python for Data Science workshop at colleges in Kolkata. Students are randomized individually along two dimensions: whether their work is graded by an AI system or a human instructor, with grader identity disclosed honestly, and whether they have access to an AI assistant while learning. Crossing these dimensions lets us study how grader identity shapes effort and whether its effects differ when students can also rely on AI to complete their work. To keep incentives meaningful, students in the top 30 percent within each grader arm receive a in kind prize. Our primary outcomes are workshop scores and a proctored, closed-book endline exam. Workshop submissions are also regraded by a common benchmark grader, so we can separate genuine differences in performance from differences in grader leniency. We also measure effort with a pre-specified index built from platform logs, such as time on task and revisions, and we elicit students' beliefs about the grader's accuracy, fairness, and susceptibility to gaming to study mechanisms.

Gender Discrimination in Nutrition Investment: Experimental Evidence from Urban Pakistan *(with Abu Shonchoy)*

Programs that use community health workers to fight child stunting increasingly add growth monitoring and cash transfers to nutrition counseling. When parents prefer sons, however, these add-ons may reach boys and girls very differently. We study this using data from a three-arm randomized trial in urban Karachi (2019–2021) covering

children aged 3–21 months. All households received nutrition counseling from community health workers. One arm also received a growth chart for tracking the child's development, and a third received the chart plus a cash transfer labeled for child nutrition. Using counseling alone as the baseline, we ask whether the chart and the cash transfer narrow or widen gender gaps in child growth, measured by height-for-age z-scores and stunting. Our preliminary results suggest that the add-ons do not benefit children equally. In the cash arm, girls fare worse than girls receiving counseling alone, while boys do slightly better. This pattern is consistent with households reallocating resources toward sons. We examine heterogeneity by maternal literacy, birth order, and the sex composition of siblings. To interpret the results, we estimate a structural model of caregiver nutrition investment by the generalized method of moments. The model separates the attention effect of growth charts from the share of the cash transfer that households direct to boys rather than girls, and it lets us simulate alternatives such as girl-targeted transfers.

Can Financial Incentives Impact Girl Child Marriage and School Dropout Rates? Evidence from "Kanyashree Prakalpa" in India

Despite a legal minimum marriage age of 18, about 1.5 million girls in India still marry before that age each year, and in 2011 West Bengal had one of the highest child marriage rates in the country. This paper studies whether conditional cash transfers can delay marriage and keep girls in school, by evaluating Kanyashree Prakalpa, a program launched by the Government of West Bengal in 2013. The program targets girls from households earning less than Rs 120,000 a year. It pays Rs 750 annually to unmarried girls aged 13–18 who are enrolled in education, and a one-time grant of Rs 25,000 at age 18, conditional on the girl remaining unmarried and in school until then. Using repeated cross-sections of the National Family Health Survey, I estimate a difference-in-differences model. The treatment group is poor women aged 19–24 in West Bengal in 2019–20, who were 13–18 when the program began. The comparison group is women of the same age and economic status in neighboring Bihar and Jharkhand, which have similarly high rates of child marriage. The 2005–06 round serves as the baseline, and the 1998–99 round lets me test for parallel pre-trends, which I cannot reject. The program reduced the probability that a girl married before 18 by 12.4 percentage points and raised the probability that she completed secondary or higher education by 11.9 percentage points.

DISSERTATION

Title: Essays on Generative AI, Incentives, and Human Capital in India

Description: My dissertation studies how new technologies and financial incentives shape the investments that students and families make in human capital in India, combining field experiments with quasi-experimental methods. The first chapter, "The Solitary Learner?", uses a randomized trial with college students in Kolkata to ask whether generative AI substitutes for peers in learning and weakens the formation of social ties. The second chapter, "Grading Beliefs", uses a field experiment to study how being graded by AI rather than a human changes students' effort and learning. The third chapter, "Can Financial Incentives Impact Girl Child Marriage and School Dropout Rates?", uses a difference-in-differences design to evaluate Kanyashree Prakalpa, a conditional cash transfer program in West Bengal, and finds that it reduced child marriage and raised girls' secondary school completion. Together, the chapters examine how technology and policy shape the effort, collaboration, and schooling decisions that build human capital.

Dissertation committee (Department of Economics, University of Illinois Urbana-Champaign):

- Adam Osman (primary advisor)
- Richard Akresh
- Lena Song
- Marieke Kleemans