Second Annual Economics Conference

December 14 - 16, 2018
AC02 LT110

Conference Program

Day 1: Friday, December 14

9:30 – 10:00   Tea/Coffee (outside LT109)

10:00 – 10:15   Opening Remarks
Bhaskar Dutta, Ashoka University

Session 1 : Public Policy

10:15 – 11:15   Keynote Address: External validity in a stochastic world
Christopher Udry, Northwestern University

11:15 – 11:30   Tea/Coffee Break

11:30 – 12:15   Meritocracy in the face of group inequality
Rohini Somanathan, Delhi School of Economics

12:15 – 1:00   Does beef availability early in life affect anemia decades later? Evidence from cattle slaughter bans in India
Aparajita Dasgupta, Ashoka University

1:00 – 2:30   Lunch (First Floor, Cafeteria)

Session 2: Economic Theory

2:30 – 3:15   Delegation and learning
Bikramaditya Datta, IIT Kanpur

3:15 – 4:00   Demand and utilization of information
Anujit Chakraborty, UC Davis

4:00 – 4:15   Tea/Coffee Break

4:15 – 5:15   Keynote Address: Targeting interventions in networks
               Sanjeev Goyal, University of Cambridge

Day 2: Saturday, December 15

10:00 – 10:30 Tea/Coffee (outside LT109)

Session 3 : Topics in Applied Microeconomics

10:30 – 11:15 More heat than light: Census-scale evidence for the relationship between ethnic diversity and economic development as a statistical artifact
               Andaleeb Rahman, Cornell University

11:15 – 12:00 Pricing private education in urban India: Demand, use, and impact
               Priya Mukherjee, College of William and Mary

12:00 – 12:15 Tea/Coffee Break

12:15 – 1:00   Banning contract labor: Implications for input choices and firm performance
               Vidhya Soundararajan, IIM Bangalore

1:00 – 2:30   Lunch (First Floor, Cafeteria)

Session 4: Political Economy

2:30 – 3:15   Public provision & private supplements: Some unpleasant interaction effects
               Arijit Sen, IIM Calcutta

3:15 – 4:00   Cash for votes: Evidence from India
               Anirban Mitra, University of Kent

4:00 – 4:15   Tea/Coffee Break

4:15 – 5:00   Contribution to a public good under subjective uncertainty
Nicolas Gravel, CSH and Aix-Marseille University

6:30 – 8:30   Conference Dinner (Ground Floor, Faculty Tower; *by invitation*)

Day 3: Sunday, December 16

10:00 – 10:30   Tea/Coffee (outside LT109)

Session 5 : Macroeconomics

10:30 – 11:15   The unsettling behavior of exchange rates under inflation targeting
Amartya Lahiri, CAFRAL and University of British Columbia

11:15 – 12:00   Debt decomposition for India
Piyali Das, IIM Indore

12:00 – 12:15   Tea/Coffee Break

12:15 – 1:00   Analysing monetary policy statements of the Reserve Bank of India
Rajeswari Sengupta, IGIDR

1:00 – 2:30   Lunch (First Floor, Cafeteria)

Conference Talks

External validity in a stochastic world
Christopher Udry and *Mark Rosenzweig*

We examine empirically the generalizability of internally valid micro estimates of causal effects in a fixed population over time when that population is subject to aggregate shocks. Using panel data we show that the returns to investments in agriculture in India and Ghana, small and medium non-farm enterprises in Sri Lanka, and schooling in Indonesia fluctuate significantly across time periods. We show how the returns to these investments interact with specific, measurable and economically-relevant aggregate shocks, focusing on rainfall and price fluctuations. We also obtain lower-bound estimates of confidence intervals of the returns based on estimates of the parameters of the distributions of rainfall shocks in our two agricultural samples. We find that even these lower-bound confidence intervals are substantially wider than those based solely on sampling error that are commonly provided in studies, most of which are based on single-year samples. We also find that cross-sectional variation in rainfall cannot be confidently used to replicate within-population rainfall variability. Based on our findings, we discuss methods for incorporating information on external shocks into evaluations of the returns to policy.

Meritocracy in the face of group inequality
Rohini Somanathan and *Rajiv Sethi*

Meritocratic systems are commonly understood as those that assign tasks to individuals who can best perform them. But future performance cannot be known prior to assignment, and must be inferred from other traits. We consider a model in which performance depends on two attributes -- ability and training -- where ability is endowed and unobserved and training is acquired and observed. The potential to acquire training depends on ability and resource access, so ability affects performance through two channels: indirectly through training and directly through the performance function. The population consists of two identity groups, each with the same ability distribution, but with differential access to resources. We characterize the sets of training levels that maximize expected performance. An allocation is *monotonic* if, for each group, there is a threshold value of training such that all those above this value (and none below) are selected. It is *group-blind* if assignment is independent of group identity, and *psuedomeritocratic* if it is both monotonic and group-blind. We show that performance-maximizing allocations are not generally monotonic or group-blind, and are pseudomeritocratic under only very special conditions. This is true even

when individuals can respond to non-monotonic policies by underinvesting in training, or when commitment to selection policies is possible.

Does beef availability early in life affect anemia decades later? Evidence from cattle slaughter bans in India

Aparajita Dasgupta, *Farhan Majid and Wafa Hakim Orman*

This paper uses the roll out of cattle slaughter bans in India as a natural experiment in beef availability around birth. We compile rich historical data on cattle slaughter ban legislation and harmonize it with household and individual level data on beef consumption and biomarkers from independent data sources for this purpose. Using a triple differences-in-difference strategy along with an event study design, we show that cattle slaughter bans reduce the availability of beef for the poor. In the long term we find that early life exposure to cow slaughter bans leads to lower levels of hemoglobin (Hb) for poor women in communities that traditionally eat beef, who are up to 10% more likely to be anemic in their prime reproductive ages.

Delegation and learning

Bikramaditya Datta

A principal contracts with an agent whose ability is uncertain. Ability is learnt from the agent's performance in projects that the principal finances over time. Success however also depends on the quality of the project at hand, and quality is privately observed by the agent who is biased towards implementation. We characterize the optimal sequence of rewards in a relationship that tolerates an endogenously determined finite number of failures and incentivizes the agent to implement only good projects by specifying rewards for success as a function of past failures. The fact that success becomes less likely over time suggests that rewards for success should increase with past failures. However, this also means that the agent can earn a rent from belief manipulation by deviating and implementing a bad project which is sure to fail. We show that this belief-manipulation rent decreases with past failures and implies that optimal rewards are front-loaded. The optimal contract resembles the arrangements used in venture capital, where entrepreneurs must give up equity share in exchange for further funding following failure.

Demand and utilisation of information
Anujit Chakraborty

We study the demand for information, and the use of acquired information in subjects, experimentally, and compare observed behavior to the Bayesian Paradigm. We find that subject behavior is sophisticated in both those dimensions, and subjects efficiently switch their behavior in response to changing incentives.

Targeting interventions in networks
Andrea Galeotti, Benjamin Golub and **Sanjeev Goyal**

Individuals interact strategically with their network neighbors. A planner can shape incentives in pursuit of an aggregate goal, such as maximizing welfare or minimizing volatility. We analyze a variety of targeting problems by identifying how a given profile of incentive changes is amplified or attenuated by the strategic spillovers in the network. The optimal policies are simplest when the budget for intervention is large. If actions are strategic complements, the optimal intervention changes all agents' incentives in the same direction and does so in proportion to their eigenvector centralities. In games of strategic substitutes, the optimal intervention is very different: it moves neighbors' incentives in opposite directions, dividing local communities into positively and negatively targeted agents, with few links across these two categories. To derive these results and characterize optimal interventions more generally, we introduce a method of decomposing any potential intervention into principal components determined by the network. A particular ordering of principal components describes the planner's priorities across a range of network intervention problems.

More heat than light: Census-scale evidence for the relationship between ethnic diversity and economic development as a statistical artifact
Naveen Bharathi, Deepak Malghan and **Andaleeb Rahman**

The association between diversity and development – both negative and positive – has been empirically tested for a limited set of diversity variables despite its centrality to the political economy discourse. Using a unique census-scale micro dataset from rural India containing detailed caste, religion, language, and landholding data (n ≈ 13.25 million households) in combination with administrative data on human development, satellite measurements of luminosity as proxy for sub-national economic development, we show that an association between social heterogeneity and economic development is tenuous at best, and is likely an artifact of geographic, political, and ethnic units of analysis. We formally define the "ethnic-geographic continuum" and develop a

cogent theoretical framework for testing validity of theories across varying levels of ethnic and geographic aggregations. We show how our ethnic-geographic continuum framework accounts for the intersections between the Modifiable Ethnic Unit Problem (MEUP) and the Modifiable Areal Unit Problem (MAUP). We use seventeen different diversity metrics across multiple combinations of ethnic and geographic aggregations to empirically validate this framework, including the first ever census-scale enumeration and coding of elementary Indian caste categories (*jatis*) since 1931.

Pricing private education in urban India: Demand, use, and impact
*James Berry and **Priya Mukherjee***

Despite a dramatic increase in the prevalence of private education services in the developing world, we have a limited understanding of pricing policies and the behavior of agents in this market. Little is known about the factors influencing demand, utilization conditional on take-up (attendance), and the effectiveness of these services. We explore these issues with the help of a field experiment in Delhi's slums. Using a two-part pricing design, we identify whether willingness-to-pay is associated with higher utilization of these classes, and whether prices have causal impacts on attendance and dropout. Using assigned prices as instruments for take-up of the classes, we estimate the impacts of enrollment in the classes on student test scores. We find strong evidence that higher willingness to pay is associated with higher utilization, but that lower prices reduce dropout. While tuition classes do not impact test scores for the average student, test scores for children belonging to poorer households increase significantly at endline.

Banning contract work: Implications for input choices and firm performance
***Vidhya Soundararajan** and Ritam Chaurey*

What are the effects of an outright ban on fixed-term contract workers in an establishment? By strengthening job security, it could affect total employment, and severely impact firms' investment choices and the resultant productivity and profitability. We test the impact of a unique natural experiment by the Indian state of Andhra Pradesh which prohibited contract workers from engaging in core activities in manufacturing industries. Using plant-level panel data from the Annual Survey of Industries, we find robust evidence of a large decline in contract labor usage in core activities, and a modest but statistically significant increase in regular labor engaging in core activities. Capital usage increased, with a decline revenue, profits, and labor productivity. Placebo tests results indicate no change in contract and regular labor engaged in the firm's non-core activities that were not a part of the law change, and no effect on the treatment firms prior to the law change. Spillovers to neighboring states were absent.

Public provision & private supplements: Some unpleasant interaction effects
Arijit Sen

The following phenomenon is at play in the urban landscape of many developing countries: Higher income households are getting increasingly dissatisfied with the quality and quantity of publicly provided goods and services – water, electricity, law and order – and are increasing their consumption of various "private supplements" to such public provision – filtered water, power generators, private security.

We model an economy where citizens can consume a private good, a publicly provided (rival or non-rival) good, and a private supplement to the publicly-provided good. We study a scenario where majority voting over taxes determines the level / quality of public provision. We examine how an exogenously declining efficiency in public provision impacts: (a) the citizens' collective choice of the public provision regime, (b) market penetration and pricing choices of private supplement sellers, and (c) citizens' welfare.

Our analysis characterizes public-private equilibria where citizens and supplement-sellers best-respond to each other. We delineate how equilibrium outcomes change with decline in public efficiency, and identify the following impacts: (i) There can be discontinuous changes in consumption and welfare due to incremental changes in costs; a small increase in public costs can lead to a large reduction in the well-being of many poor citizens. (ii) Such a decline raises utility dispersion / inequality as richer citizens engage in increased private supplementation. (iii) These adverse effects are more likely when the equilibrium supplement prices are lower rather than when they are higher. The last feature indicates the possibility of social gains from 'taxing' supplement sales. However, if majority voting determines the public choice between a zero supplement-tax and a high enough supplement-tax (that will essentially shut out supplement trade), a majority of citizens (all richer than a critical income level) can vote for the zero supplement-tax regime.

We also study the complications arising from the following interaction effects: increased use of certain kinds of private supplements (like power generators) cause direct negative externalities on citizens, while they also lead to indirect negative externalities by reducing the stakes of the affluent citizenry to "monitor public efficiency".

Cash for votes: Evidence from India
Anirban Mitra, Shabana Mitra and Arnab Mukherji

This paper investigates the prevalence of vote-buying in democratic elections where stringent restrictions on corporate donations to political parties exist. We

combine data from state assembly elections in India with household-level consumer expenditure surveys (conducted by NSSO) over the period 2004-11. Exploiting a difference-in-differences methodology, we estimate the effects elections have on the consumption of various household items: food, clothes, education-related, etc. Moreover, there is heterogeneity in such consumption adjustments across households. Our estimates suggest that legal sources of funds are not sufficient for generating such "spikes" in consumption and indicate the role of the hidden economy in politics.

Contribution to a public good under subjective uncertainty
Anwesha Banerjee and **Nicolas Gravel**

This paper examines how voluntary contributions to a public god are affected by the contributors' heterogeneity in beliefs about the uncertain impact of their contributions. It assumes that contributors have Savagian preferences that are represented by a two-state-dependent expected utility function and different beliefs about the benefit that will result from the sum of their contributions. Under some conditions imposed on preferences, we establish general comparative static results on the effect of specific changes in the distribution of beliefs on the (Nash) equilibrium provision of public good. We specifically show that the equilibrium public good provision is increasing with respect to first-order and second-order stochastic dominance changes in the distribution of beliefs.

The unsettling behavior of exchange rates under inflation targeting
Paul Beaudry and **Amartya Lahiri**

Over the last few decades, many central banks have adopted an inflation targeting framework and this has generally been associated with reduced inflation variability. In this paper we examine how inflation targeting has changed the behavior of exchange rates and we uncover a rather curious pattern. Using a large set of countries, we find that as countries switched to inflation targeting their currencies became tied to the price of oil, that is, under inflation targeting currencies tend to appreciate with rising oil prices while prior to inflation targeting regime they did not exhibit such a relationship. Importantly, this data pattern is observed independent of whether the country is a net oil exporter or importer. We argue that such a pattern may reflect that, under inflation targeting, the equilibrium dynamics for the nominal exchange rate becomes indeterminate when uncovered interest parity (UIP) does *not* hold. In such situations, oil prices may well act as a focal point for currency pricing decisions.

Debt decomposition for India
Piyali Das and *Chetan Ghate*

India currently faces a combined (state-centre) government debt-GDP ratio close to 60 percent. The ratio is high despite the fact that in the post 1990 period, India undertook economic reforms that subsequently led to high growth. India also passed the Fiscal Reform and Budget Management Act (FRBM) in 2003 to institutionalize fiscal discipline and in 2016, India became an inflation targetter. In this paper, we document the debt profile of the Centre and the States in India from 1972 to 2017. Also, we undertake a debt-decomposition following the approach in Hall-Sargent (2011) into four components, namely, the nominal interest rate, inflation, the growth rate, and the primary deficit/surplus across various subperiods. Our results show that public debt in India has been escalating since the 1980s and this is true for both the Centre and States. Ironically, public debt has ballooned in the post-FRBM period. Prior to the 1990s, we find that the contribution of the nominal interest rate towards the evolution of the debt-GDP ratio was lower than in the post-90s when interest rates ceased to be administered. Comparing across components, inflation and the primary deficit stand out as important drivers of the debt-GDP ratio.

Analysing monetary policy statements of the Reserve Bank of India
Rajeswari Sengupta

We explore how the communication strategy of the Reserve Bank of India has changed after the country officially adopted inflation targeting in 2016. Using natural language processing tools, we first provide extensive descriptive analysis of the conduct of monetary policy in India since 1998. We then construct measures of language and structural complexity that are intuitive, straightforward, and capture well the governor-specific trends in communication of the central bank. We find that the Reserve Bank of India's communication is complex on average but has simplified significantly in the past 5 years. We use these measures to study the transmission of monetary policy communication to financial markets, showing that more complex statements are linked to both higher trading volumes and higher stock market volatility. In the next phase, we aim to construct simple measures to extract sentiment embedded in the statements.