

1. Limited Foresight and Learning Equilibrium

Jeevant Rampal (Ohio State University)

Abstract – Subgame Perfect Nash Equilibrium (SPNE) assumes that all players possess the ability to perform backward induction and also that it is common knowledge. Both these assumptions are crucial in generating unintuitive and empirically unjustified equilibrium predictions in some sequential games like the Centipede game (22) and Sequential Bargaining (23 and 24). This paper defines the Limited Foresight and Learning Equilibrium (LFLE), a limited foresight bounded rationality equilibrium concept that seeks to make more intuitive and experimentally justifiable outcome predictions in the class of finite perfect information games. The LFLE model has general applicability in this class of games and one does not need to generate game specific behavioural types. It allows for each of the two players to have one of various possible levels of foresight as determined by a common knowledge probability distribution on the levels of foresight. We prove that this equilibrium exists. We show that the equilibrium entails learning about the game and belief updating about opponent's foresight type within the play of the game. LFLE behaviour explains high types avoiding or using reputations and low and intermediate types trying (often successfully) to spot the high foresight types and optimising the best they can, given their foresight bounds. Due to these features, applying LFLE to a four or more staged Centipede game, we get passing till the last few stages as the LFLE outcome for arbitrary probability on bounded rationality. LFLE is also shown to have the ability to explain delays, near equal splits, disadvantageous counter proposals and subgame inconsistency observed in the experimental data on sequential bargaining.

2. When Dictator Games Get Real: The Role of Intrinsic Characteristics

Subrato Banerjee (Indian Statistical Institute, Delhi)

Abstract - We address the recently growing concern over what we can conclusively learn from dictator games, given the multitude of (laboratory and field) outcomes associated with them. We argue that dictator games are useful, for they are remarkably good predictors of actual market behavior. Even more interestingly, we find that the offers that dictators choose to make to the recipients can be predicted by their real-life transaction behavior. Any participant in a dictator game frequently sees it as just a game, and not as a naturally occurring strategic interaction. We suitably modify a dictator game to draw parallels (from observations inside the lab) in the extra-lab world. Our subjects (three-wheeler taxi cab drivers in New Delhi) are put in a position of a proposer of a dictator game (by actors), without the knowledge that they are a part of an experiment. Additionally, we show that while a substantial proportion of drivers show a preference for the dictatorial outcome, social norms also play a strong role.

3. Society as Collection of Heterogeneous Individuals: Where have the Moderates Gone?

Bappaditya Mukhopadhyay (Great Lakes Institute of Management)

Abstract - Increasingly societies are getting polarized. They are dominated by individuals having opposing views. The moderates get marginalized in the debate. Societies with consumption norms, participation in democracy, religious beliefs or social networking groups are some of these which display this behaviour. In this paper we present a simple model that tries to understand what makes individuals choose a society, choose a group and most importantly what sort of belief systems. Our model is based on Akerloff (1997) where individuals consumption decisions are partly based on how they perceive themselves vis a vis the others. Individuals in our model are atomistic. They take the norms as given, respond to it as a utility maximizing individual while thinking that their actions do not affect the norms of the group or the society. This paper answers under what conditions, individuals of a certain type will dominate a society.

4. Intergenerational Mobility, Human Capital Composition and Distance to Technological Frontier.

Sujata Basu (Jawaharlal Nehru University)

Abstract - An endogenous skilled biased growth model has been considered to show that along the growth path wage gap widened and both upward and downward mobility fall. This implies that education becomes more correlated with initial conditions and less related with the cognitive ability. Growth occurs through the twin channels of technology – imitating from the world technology frontier and innovating on its own technology level – innovation being more skilled-intensive than imitation. An imperfect capital market has been considered where individual's education decision depends on the cognitive ability as well as on the parental income. Moreover, it is shown that growth enhancing education policy leads to absolute convergence of all the economies to the world technology frontier. In the imitation-innovation regime, life time utility gap within skilled as well as unskilled human capital rise due to parental income differences. Furthermore, life time utility gap within skilled human capital rises due to cognitive ability differences.

5. Land-constrained growth in a Developing Economy: A Kaldorian Perspective.

Isha Gupta (Jawaharlal Nehru University)

Abstract – In order to promote faster industrial development, the process of land diversion from agriculture to industry is facilitated by the government. Given that land is in limited supply and is the critical factor of production for all kinds of economic activities, any constraint on land transfers from the agricultural to the non-agricultural sector may impose a constraint on the overall growth of the economy. We

ask the following questions. How the intersectoral land transfers between agriculture and industry affect the long run growth process of a developing economy? How does land influence the rate of growth along a balanced growth path in a two-sector framework of agriculture and industry? We extend the work of Roberts and McCombie (2008) by allowing both the agricultural and industrial sectors to use land, labour and capital. To allow for land use in industry, we firstly consider the case where the pattern of land use is fixed exogenously by the centralized authority, so that land transfers between the sectors are not possible in the economy. Here, we assume Cobb Douglas production functions between land and capital for each sector so that land can be substituted with capital in order to raise the level of output. We then study how the rate of growth of the economy depends on the distribution of land between agriculture and industry along a balanced growth path. Secondly, we consider the diametrically opposite case, where land cannot be substituted at all by capital. This is in view of the fact that there is some fixed irreducible quantity of land which is required for producing a unit of output in any given sector, so that if there are no land transfers and no change in technology, then output in each sector would be fixed and growth would not be possible. We, therefore, allow for both land transfers and land saving innovations in the agricultural and industrial sectors. We then consider the rate of growth of the economy along a growth path in which industry and agriculture are growing at the same rate.

6. FDI Liberalization and Regional Convergence in Post-Reform India: A State Level Panel Analysis.

Subhadip Mukherjee (ICAFI Business School (IBS), Hyderabad)

Abstract - The present study examines the relation between FDI Liberalization and Regional Convergence in Post-Reform India. It determines the relative importance of various sources of state-level investment in improving the performance of Indian states over time. The paper use state-level unbalanced panel data for 27 major Indian states over 2002 to 2010 period. The state-level fixed-effect econometric model shows that the Indian private investment plays the most significant role in improving the state-level per capita net state domestic product (NSDP) among the other sources of investment. Moreover, the study also provides the evidence of comparatively higher importance of foreign private investment in improving the per capita NSDP during the study period. However, the study finds a very marginal and negligible impact of state government investments in affecting the growth process of different states of India. Interestingly, investments by the central government also play a very significant and positive role in improving state-level per capita income during the 2002 to 2010 period.

7. The Role of Small and Medium Enterprises in Structural Transformation and Economic Development.

Naveen Thomas (Delhi School of Economics)

Abstract - Developing countries are often faced with the difficult task of balancing rapid economic growth with equitable growth. The inequalities that arise during the course of rapid economic growth are a cause of serious concern as they are not temporary but are structural in nature. This study directs attention to the role of Small and Medium Enterprises (SMEs) in overcoming these structural rigidities. The model presented in this study shows that even though SMEs have the potential for being a bridge for economies facing structural poverty and inequalities, they may not always be effective in bringing about the desired increase in incomes and reduction of inequalities in income and opportunities. It is shown that a country's history plays an important role in determining the effectiveness of SMEs in bringing about structural changes and under certain conditions can render promoting these enterprises as a completely ineffective policy prescription.

8. Schooling Infrastructure and Literacy - Evidence from a National Education Mission in India.

Chitra Jogani (University of Illinois, Urbana Champaign)

Abstract - The Government of India has made constant effort and set targets to achieve higher literacy rate and bridge the gender gap in literacy. I investigate if investing in schooling infrastructure can help a nation boost its literacy rate using evidence from an education mission called Sarva Shiksha Abhiyan. Using the population census data and implementing regression discontinuity design, I find that there was no significant change in female literacy rates or the gender gap in literacy rates in the rural areas. The zero result obtained is precise and the maximum effect of 1 percentage points in the increase in the rural female literacy rates is possible. However, I find evidence for substantial amount of money being invested and growth of infrastructure over the past decade.

9. Social distance and educational achievement among the Scheduled Tribes in India.

Hemanshu Kumar (Delhi School of Economics)

Abstract - This paper examines the effects of mother tongue instruction on educational achievement among Scheduled Tribes (ST) in India. Our study uses data on the mother tongues spoken by individual tribes at the district level from the Census of 1961, educational attainment of individual tribes at the district level from the Census of 2001, and data on ST enrolment and medium of instruction from the District Information System for Education (DISE), 2013-14. In addition, we build several measures of linguistic distance between the mother tongue spoken by tribal groups and the media of instruction in elementary schools using the Ethnologue

language tree. Our results suggest a significant negative impact of linguistic distance on educational attainment for the Scheduled Tribes.

10. Learning Outcomes and Access to Electricity in Rural Households in India.

Chandan Jain (Shiv Nadar University)

Abstract - The recent ASER (2015) report illustrates that the learning outcomes in rural areas in India have been declining over time, even though school enrolment has been increasing over the same period of time. An important policy question that arises is - what factors lead to an increase in the learning outcomes. The present paper aims to complement this discussion by examining the role of electricity access amongst rural households in affecting learning outcomes. Those households without any electricity are more or less reliant on the use of kerosene for lighting purpose, which not only gives lower illumination but is also associated with exposure to indoor air pollution. Past work linking rural electrification and education have been limited to analysis of the effect of electricity access on the time spent on study, enrolment and completion rate. However, reliance on these measures as proxy for human capital formation can be misleading while use of learning outcomes instead has been well received. Given this the present study uses the IHDS 2005 round dataset to analyse the impact of access to electricity in rural households on learning outcomes of children between the age of 8 to 11 years. Instrumental Variable technique is used in the initial specification to ensure that the result is not driven by any unobservable variable. However, using the endogeneity tests I am able to reject the endogeneity of electricity with respect to learning outcome and as a result I rely on OLS in my subsequent analysis. My results confirm that electricity access in a household is associated with an increase (of around 0.18 standard deviations) in the learning score. I argue that the positive effect could be due to an improvement in the quality of learning environment arising out of a shift from the use of kerosene to electricity and a reduction in the incidence of kerosene poisoning and burn related injuries, which in effect reduces the probability of missing out on school. Further, I also discuss in brief the past empirical literature on the effect of TV on learning scores.

11. Information Provision and the Quality of Education in Rural India.

Bidisha Barooah (3ie)

Abstract - I study if information provision improves the academic performance and school participation of students and influences parental school choice when there are both public and private schools. This is important because such market settings where there are public and competing private providers are becoming increasingly common in developing countries. 32 contiguous village councils (or panchayats) of one district in the north Indian state of Rajasthan were randomly assigned to either a control or one of four treatment groups in which all schools and/or some parents were provided with different report cards on the performance of students in curriculum based tests. Students were first tested on three commonly taught subjects in schools- Hindi, Math

and English in the beginning of the school year in 2011. All primary schools in all villages were included in this study. Two post-intervention tests were conducted- one at the end of the same academic year and the second in the new academic year. In the post-interventions, I found higher attendance among private school students in treatment villages. The probability of baseline students being absent from schools decreases by 0.03 to 0.05 in treated villages. I find significant improvement in test scores of private schools students in the fourth treatment. On average, normalised test scores improved by 0.22 SD when parents and schools were provided information on relative school quality. Closer examination of the results suggest that this was due to the provision of report cards to parents and not so much schools. I find no impact on public school test scores and attendance. There is some evidence of parents exercising school choice as a result of information.

12. Examining directional spillover and dynamic hedging in the stock prices of clean energy, oil and technology firms.

Wasim Ahmad (Indian Institute of Technology, Kanpur)

Abstract - The main objective of this study is to examine the dynamic link between oil prices and stock prices of technology firms and clean energy companies. The study uses the daily data over the period from May 2005 to April 2015. The estimated results exhibit following empirical regularities. First, the information contents of technology stocks can help improve forecast accuracy of return and volatilities on renewable energy stocks and crude oil prices. Second, technology stocks (PSE) and alternative energy stocks (ECO) are the dominant asset transmitters of return and volatility spillovers to the crude oil (WTI) prices. Third, the analysis of dynamic spillovers show time and event-specific patterns. Fourth, the application of directional spillover method seems to be more advantageous than MGARCH models as it not only establishes the inter-variables return and volatility spillovers but also helps in identifying direction of spillover through calculation of pairwise net spillovers. Last, the dynamic hedging results suggest that clean energy index can provide a lucrative hedging opportunity in combination with crude oil futures than technology index. Many new findings further discussed and analysed.

13. Volatility Spillover across Rupee-Dollar, Rupee-Euro and Rupee-Yen Exchange Rates and the Spillover Effect of RBI Intervention.

Ritu Suri (University of Delhi)

Abstract - This paper examines spillovers across four major currency markets, namely, Rupee-Dollar, Rupee-Euro, Rupee-Pound and Rupee-Yen, and also considers the spillover effects of RBI intervention. The VAR (2) MGARCH (1,1) BEKK model is applied to weekly data from 2004:05 to 2015:02 to analyze three kinds of spillovers, namely, returns, shock and volatility spillovers. The same model is used to analyze the impact of RBI intervention on the volatilities of these exchange rates, and also on the co-variances and correlations between them. The study finds bi-directional

returns spillover between Rupee-Dollar and Rupee-Pound, Rupee-Pound and Rupee-Yen, and Rupee-Pound and Rupee-Euro; and uni-directional returns spillover from Rupee-Euro to Rupee-Dollar and from Rupee-Yen to Rupee-Dollar and Rupee-Euro. There is evidence of bi-directional causality in variance/volatility transmission between all exchange rate pairs. Estimation results suggest that RBI intervention in the foreign exchange market shares a positive relationship with exchange rate returns and a negative relationship with the volatilities of Rupee-Dollar, Rupee-Euro, Rupee-Pound and Rupee-Yen. RBI intervention is also found to decrease the covariance and correlation between all exchange rate pairs. Results from the study are useful for investors and traders, for whom returns depend on exchange rate movements, and also for the intervention policy decision making of RBI.

14. On the Asymmetric Impact of Risk on International Financial Markets.

Divya Tuteja (Delhi School of Economics)

Abstract - This paper examines the regime switching behaviour of international financial markets viz. Euro Area, Japanese, U.K. and U.S. currency and equity markets, and investigates the asymmetric impact of global risk across regimes on each of the markets. First, we seek to characterize the regime shifts in international stock and currency markets. Second, we aim to study regime-dependent conditional correlations across these markets. We estimate state-dependent models for the financial markets in a univariate Markov-switching Autoregression (MS-AR) as well as multivariate Markov-switching Vector Autoregression (MS-VAR) framework. Subsequently, we test for the impact of risk on the aforementioned markets. In order to accomplish that we extend the univariate MS-AR framework to a Markov-switching regression model (MS-R) which allows us to capture the effect of rising global risk on the market returns. The paper utilizes weekly data from July, 1999 to June, 2015 to model the interactions among the markets. Our univariate results identify two-states viz. bull state (bear state) characterized by high returns (low returns) and low volatility (high volatility) for each of the stock market indices namely, FTSE 100, Nikkei, S&P 500 and Stoxx Euro and the Euro/USD and Pound/USD exchange rate returns. In the case of the Yen/USD currency market, however, the bull state corresponds to depreciation accompanied by low volatility. Further, we extend the univariate framework to a multivariate formulation to study the asset-class specific regimes which provide additional insights into the common states across stocks, currencies and both stock and currency markets jointly. Evidence suggests existence of common regimes across and within asset classes. Using the Multivariate MS-VAR model with MSIH specification encompassing stocks as well as currencies, we find two states-tranquil regime characterized by relatively lower volatility and higher returns and the turbulent regime depicted by higher volatility and lower returns. Contemporaneous correlations among asset market pairs are sharper during the crisis periods. Some of the turbulent periods highlighted in the analysis are the dot-com bubble burst, terrorist attacks of 9/11, Iraq war, the global financial crisis and the Eurozone debt crisis. Finally, we employ Markov-switching regressions to

investigate the impact of global risk measure VIX on each of the financial markets across the two regimes-bull and bear. We find that the stock market returns fall in response to a rise in global uncertainty in both the states. However, we did not find the response of Euro/USD exchange rate returns to higher global risk to be significant. At the same time, a rise in risk leads to depreciation of the Pound/USD returns across bullish and bearish regimes. Lastly, the Yen/USD returns respond significantly to risk only in bearish phases with an appreciation.

15. Estimating the Relationship between Economic Growth and Environmental Quality for the BRICS Economies – A Dynamic Panel Data Approach.

Devleena Chakravarty (Indian Institute of Technology, Madras)

Abstract - The present study makes an attempt to estimate Environmental Kuznets Curve hypothesis- an inverted U shape relationship between income and emission per capita, in the context of BRICS countries for the period 1997 to 2011. The study first adopts fixed effect model to control time constant country specific effects, and then it uses Generalized Method of Moments for dynamic panel data to address endogeneity of income variable and dynamism in emission per capita. While the fixed effect model shows significant EKC type relation between income and emission, GMM estimates for the dynamic panel model show a U shape relationship between income and emission. We also observe that estimates are sensitive to specification used, when we compare the results of our FE model with results obtained using random effect model in the previous study. When we estimate the dynamic panel model we find that increase in energy consumption, net energy imports, domestic credit provided by financial sector, and share of industry in GDP have a negative impact on environmental quality. For the same model increase in capital account convertibility index and FDI inward stock are observed to improve environmental quality. However positive energy consumption and a negative capital account convertibility show significant coefficients irrespective of models used. Net energy imports and domestic credit provided by financial sector were found to have significant impact on emission per capita in dynamic panel data but were found insignificant in fixed effect model. These findings can have important policy implications as BRICS countries are mainly depending on these factors for their growth but at the same time they can cause serious threat to the environment. At the same time ignoring possible feedback from environment to economy and dynamic nature of emission per capita can give misleading results.

16. Role of Ethanol Plants in Dakotas Land Use Change: Incorporating Flexible Trends in the Difference-in-Difference Framework with Remotely-Sensed Data.

Gaurav Arora (Iowa State University)

Abstract- Rapid land-use changes in North and South Dakota over the past decade are mainly characterized by conversions of grasslands to crop production, especially corn and soybeans. Approximately 271,000 hectares of grasslands were lost to corn and

soy production in 2006-2011 period, almost seven times the losses in 1989-2003. The implications of these changing land-uses range from reduced biodiversity and loss of habitat for waterfowl species to low agricultural productivity on these drought-sensitive marginal lands. While progress has been made in characterizing regional land-use changes, formal analyses establishing causal relationships at the local level are lacking. We construct a spatially delineated dataset for the Dakotas and utilize a Difference-in-Difference (DID) model in conjunction with Propensity Score Matching to estimate the impact of a corn-based ethanol plant on nearby corn-acres. We hold the advent of an ethanol plant to be a treatment that influences land-use on surrounding agricultural plots. Based on the Parallel Paths assumption of the DID, we find that the effect of ethanol plants on corn production varies by plants and a single point estimate for all ethanol plants in a region, as usually provided in the literature, can be highly misleading. Surprisingly, we find both positive as well as negative effects of ethanol plants on corn-acres that may be statistically insignificant. Negative estimates are irreconcilable to the economic incentives due to these corn-based ethanol plants. We find intensified corn production and reduced soybeans due to the ethanol plants. Our analysis also reflects a difference in opportunity of converting from wheat to corn and from grass to corn. We use placebo tests and pre-treatment trends in corn acres to validate the Parallel Paths assumption that identifies these DID estimates. We find that this assumption fails to hold and incorporate differentiated trends into the DID framework through more flexible assumptions. Our earlier finding of differentiated conversion opportunity from wheat to corn and from grass to corn is consistent for this updated DID framework as well. To validate the flexible assumptions due to differentiated trends, we implement a spatial placebo and find that estimating identified localized treatment effects, in this study, is challenging. The estimated treatment effects are only identified for two out of the four ND ethanol plants. The identified treatment effects due to these two ethanol plants are still found to be positive as well as negative. The negative treatment effects instead of economic incentives due to ethanol plants are puzzling. An important contribution of this paper is that it presents a unique research design that uses quasi-experimental techniques to evaluate the impact of a change/policy upon availability of spatially delineated datasets. Through this design we showcase the implementation of a mechanism that evaluates a policy/change in the event when the identifying Parallel Paths assumption of the standard DID model does not hold.

17. Effects of information on energy related choices: Experimental evidence from rural Uttar Pradesh and Kerala.

P. P. Krishnapriya (Delhi School of Economics)

Abstract - The paper studies the effects of information on households' choice of fuels and appliances using data collected from a field experiment conducted in rural districts of Uttar Pradesh and Kerala. The experiment consists of a set of interventions in the form of information campaigns which provides households with information regarding benefits and costs of using of various cooking and lighting fuels and energy related appliances. Furthermore, the information given to households differed in the

mode of dissemination and recipient of information. I use propensity score matching with difference-in-differences to estimate the impact of information on choice of fuels and appliances used by household. Results suggest that households are more responsive to information about lighting than cooking fuel. One reason for this is that switching to clean lighting fuels is relatively inexpensive and these alternatives are easily available in rural India, while the availability of clean cooking fuel is more constrained. Another plausible reason can be the varying preferences of household members over different alternatives.