

### **1. Social Networks and Health Insurance Utilization.**

Manvendra Singh (Indian School of Business)

*Abstract* -This paper examines the role of social networks in increasing use of public welfare programs. In the context of health insurance programs, utilization by socially proximate peers helps individuals learn about program and treatment procedures while also signalling social appropriateness of using formal healthcare, all of which could increase program utilization. Using complete administrative data on claims from a publicly financed health insurance program in India, we estimate the impact of utilization by members of “naturally” occurring caste peers within the village on subsequent first-time utilization of the program. We find that a unit increase in peer utilization increases subsequent utilization by 20%, with negligible effects of out of network individuals. Peers have the strongest effect on the treatment of informationally intensive procedures such as oncology and cardiology. Combining the administrative data with village/ward level census data, reveals that networks are most effective in dense urban areas and where communication is easiest, suggesting that information through social networks complements more formal sources.

### **2. Analysing Adoption of Soil Conservation Practices in Darjeeling District, India.**

Chandan Singha (Hindu College, University of Delhi)

*Abstract* - The present study analyses the determinants of farm soil conservation practices in a watershed belonging to Eastern Himalayas of India. To allow for substitution or complementarity of sub-watershed treatment, this study incorporates sub-watershed treatment dummy into analysis. Another important phenomena affecting soil conservation practice, is the decision of adoption of soil conservation by a ‘similar’ household. This study measures the ‘similarity’ in terms of “Euclidean Distance”. If the influence of this spatial neighbourhood is significant, it is important to consider it in the context of discrete soil conservation adoption decision, otherwise the policy parameter will be biased. The data source for the study comes from a primary survey conducted during the period between June-August 2013 in Darjeeling district of Eastern Himalayan Region in India. This study uses Bayesian formulation of a standard probit model in conjunction with Markov Chain Monte Carlo (Spatial Autocorrelation Probit Model/Spatial Lag Probit Model) to estimate the parameters. The findings suggest that farmers located in close proximity exhibit similar adoption behaviour or spatial interdependence. The sub-watershed treatment dummy neither substitutes nor complements on farm soil conservation practice. The comparison of estimators between spatial and non-spatial probit suggests that Spatial Autocorrelation Probit reduces the bias. Overall, the study justifies the importance of neighbourhood effect in the formulation of natural resource conservation policy.

### **3. Less Food for More Status.**

Eve Sihra (Sciences Po)

*Abstract* - Even under the direst necessity, people do not seem to spend their budget in a rational of survival: the concern for social status has strong effects on the way they allocate their resources. We argue that this status concern is stronger on groups which

are low in the status hierarchy, which contributes to group inequality in the long run. We document the existence of a persistent gap between lower caste and upper caste households in expenditures allocated to visible consumption rather than food in India. To explain this fact, we build an overlapping-generation model where the inherited status affects the way individuals allocate their budget. Disadvantaged groups compensate in each period their lack of status by spending more on visible consumption, at the expense of calorie intake. Good nutrition being essential to their productivity, the distortion in their preferences dampens their future wealth and reinforces inequality in the long run. In the empirical analysis, we show that disadvantaged castes substitute visible consumption to food in regions where upper castes are relatively richer. The results have important implications for nutrition policies, and argue for group-targeted development policies rather than wealth redistribution.

#### **4. Revisiting the Determinants of Child Anthropometric Indicators in India.**

G. Naline (Madras School of Economics)

*Abstract* - India still remains a hub for the burden in infant and child malnutrition. The nutritional status of children in the age group of 0-5 years affects the child's development and growth. Several studies in the past decade have assessed the causes and consequences of the huge burden in this context. However, gaps remain in terms of understanding the role of intergenerational transmission, relevance of complimentary feeding practices within the household, and public provisioning of supplementary feeding programmes. Further, all these studies use only one indicator of undernutrition at a time to assess the impact. This study uses the NFHS-3 data to estimate SUR model of the z-scores in the commonly used measures of child nutritional status: HAZ, WAZ and WHZ to understand the impacts jointly. The basic determinants such as mother height and weight are turning out to be a significant variable for all the indicators. The diet practices and treatment practices variables reflects the time and care shown by the parents towards the children. Other predictors such as wealth, safe water access, clean fuel, mother education are found to be strongly correlated with the indicators. The outcome of ICDS adoption varies across wealth groups where from the poorest to richest category, median is increasing as a step function. Strong governance and nutrition sensitive policies with stakeholder's involvement will help to combat the undernourishment in children.

#### **5. Impact of Health Micro insurance on Financial Protection: An Application of Propensity Score Matching.**

Sheikh Aftab-ul Maroof (University of Kashmir)

*Abstract* - Health micro insurance aims to provide financial protection to the poor by reducing their need to use the costlier risk management strategies. Present study is an impact assessment of a Government of India sponsored health coverage scheme (Rashtriya Swasthya Bima Yojana). The study has been conducted by including three north-Indian states. The scheme has been assessed in terms of financial protection. Overall the health coverage scheme has been successful in reducing the hospital expenditure of the poor households together with improving their fund mobilization and smoothing the household consumption at the time of health shock.

**6. 2006 Massachusetts Health Care Reform and its Impact on Sources of Insurance Coverage.**

Abdul Munasib (University of Georgia)

*Abstract* - Using Synthetic Control Method for comparative case studies, we estimate the causal impacts of the 2006 Massachusetts Health Care Reform (MHR) on the sources of insurance coverage. We find that MHR caused two main sources of expansions, viz., employer sponsored insurance (ESI) and Medicaid, with no evidence of crowding out. The overall expansion in coverage of over half-a-million is distributed approximately 60:40 between ESI and Medicaid. Other sources of coverage such as direct purchase and Medicare, in a causal sense, were unaffected by MHR.

**7. Does Environmental Regulation Indirectly Induce Upstream Innovation? New Evidence from India.**

Pavel Chakraborty (Norwegian Institute of International Affairs)

*Abstract* - Exploiting a quasi-natural experiment, which primarily involves the imposition of an international ban on a particular input, used by the Indian leather and textile industries, we estimate the indirect impact of the environmental regulation on innovation expenditure and survival probabilities of upstream (chemical) firms in India and how does it vary by size. We find evidence of a significant increase in the innovation expenditure, particularly investments in R&D. This varies by the size distribution of firms, with the effect being highest for small and medium-sized firms. We also find that higher investments in R&D entail lower exit probabilities. Finally, we find some suggestive evidence in support of higher innovation productivity- the regulation is associated with an increase in number of product claims of patent filings at the Indian patent office by the upstream chemical firms.

**8. Firm-specific human capital and managerial productivity: Evidence from Insurance-sector firm in India.**

Samarth Gupta (Boston University)

*Abstract* - I use a panel dataset from a firm in India to observe productivity gap of around 30% and around 8 % across manager-led teams and their labor respectively. I identify difference in firm-specific human capital to be the cause of this gap. I also identify discerning a good labor unit as the causal mechanism by which productivity across managers gets diffused. The results contribute to the literature on causes of variation in managerial productivity and its effect on firm outcomes.

**9. Sunk Costs, Firm Heterogeneity and Export Market Entry and Exit: Evidence from India.**

M. Padmaja (Indian Institute of Technology, Madras)

*Abstract* - This paper analyses the role of sunk costs and firm heterogeneity in firm decision to enter and exit the export market. Employing rich firm- level data on Indian manufacturing firms, the study points out that sunk costs in terms of previous export experience significantly explain the entry and exit decisions of firms in the export market. The first set of analysis involves the estimation of dynamic discrete choice model using random effects probit model correcting for initial conditions problem using Wooldridge (2005) approach. Further, analysis across sub-sample of firms based on firm heterogeneity factors like size and product level information supports the hysteresis hypothesis across size and product groups. The second set of analysis using discrete –time hazard models on the firm survival shows evidence of negative duration dependence. It is evident that if a firm manages to export continuously for few years, the risk of exiting from the export market declines sharply.

**10. Income Inequality, Income Segregation and Urban Sprawl.**

Debarshi Indra (Nielsen India Pvt. Ltd.)

*Abstract* - The U.S. has experienced growing household income inequality, rapid suburbanization of population and jobs, and rising income segregation over the last several decades. Using the mixed logit model from random utility theory we build a theoretical framework to examine how these three phenomena are related. We find that under certain conditions a rise in income inequality causes sprawl. Sprawl is accompanied by lower suburban population density, but higher population density in the central city. As predicted by empirical studies, income segregation between the central city and suburb rises with higher income inequality. Our results on sprawl, however, are not uniform and are sensitive to the values of choice elasticities with respect to rent and commuting time: higher income inequality weakens sprawl in the cities with higher values of elasticities, in contrast to the cities with lower elasticities' values.

**11. Asymmetric Impact of External, Domestic and Policy Factors across Cycle Phases.**

Vineeta Sharma (Delhi School of Economics)

*Abstract* - Large literature points to the fact that expansions are different from recessions. Such differences are manifest in the existence of various kinds of asymmetries in cyclical characteristics across phases –durations, depth and volatility. Distinct cyclical phases with different dynamics may mean that shocks themselves could have asymmetric effects across these phases. In particular, the impact of and response to policies may be significantly different during recessions compared to expansions. We examine such asymmetries in growth rate cycles for a set of five countries, the United States, United Kingdom, Germany, Japan and India over the

period 1994-2010. To characterize growth rate cycles, we use growth rate of the coincident index of economic activity sourced from the Economic Cycle Research Institute (ECRI). Using a univariate Markov regime switching model, we obtain three distinct regimes in growth rate cycles of countries. We analyze in this paper if the factors determining these regime probabilities have differential impacts across regimes. The factors we look at are categorized into global and domestic factors, and those attributable to the policy space. Having examined the impact on regime probabilities, we then analyze how the latent variable underlying these regimes itself has been impacted. The latent variable is constructed using a Gibbs sampler for the Markov regimes. An analysis of determining factors of regime probabilities shows that during recession periods, growth rates seem to be driven by foreign factors and policy variables in general, but during expansions domestic factors dominate.

## **12. Market Capitalisation, Growth and Inflation in a New-Keynesian framework.**

Agnirup Sarkar (Durham University)

*Abstract* - Yearly data from 1988 to 2012 for four emerging economies suggest a positive and significant correlation coefficient between market capitalisation and growth. It is shown that a New-Keynesian theoretical framework with endogenous growth and imperfect inflation indexation, can replicate the empirical findings for a low value of the price stickiness parameter. Further, along the balanced growth path inflation is shown to have an effect on the long run welfare through the channels of balanced growth and price dispersion. Also if inflation is below a threshold level, a rise in long run inflation increases both growth and market capitalisation ratio.

## **13. Terms of Trade Shocks and Monetary Policy in India.**

Sargam Gupta (Indian Statistical Institute, Delhi)

*Abstract* - Central banks in emerging markets often grapple with understanding the monetary policy response to an inter-sectoral terms of trade shock. To address this, we develop a three sector closed economy NK-DSGE model calibrated to India. Our framework can be generalized to other emerging markets and developing countries. The model is characterized by a manufacturing sector and an agricultural sector. The agricultural sector is dis-aggregated into a food grain and vegetable sector. The government procures grain from the grain market and stores it. We show that the procurement of grain leads to inflation, sectoral resource allocation, and changes in the sectoral and the economy wide output gap. We compare the transmission of a single period procurement shock with a single period negative productivity shock and discuss what implications such shocks have for monetary policy setting. Our paper contributes to a growing literature on monetary policy in India and other emerging market economies.

**14. Agriculture intensification, population growth and cropland expansion: Evidence from post-Green Revolution Andhra Pradesh.**

Amarendra Pratap Singh (Indian Institute of Technology, Bombay)

*Abstract* - Increasing food demand due to rising population and urban growth may distort earth's natural landscape unless technology driven intensification helps to spare land for alternative activities. Technological intervention in agriculture has not only increased agricultural yield which reflects land saving aspect of technology but it has also reduced fallow period substantially to increase effective supply of land which mirrors land augmenting aspect of technology. Here, we examine the impact of these two aspects of technology on cropland expansion for Andhra Pradesh using district level data over the period 1970-2009. Along with it, we also investigate the impact of growth in population, urban population and literate population on cropland expansion. We use a regression model based on the IPAT framework to measure the relative impact of affluence, population and technology on resource use. Results reject land sparing hypothesis in the state since the inception of new technology. However, population pressure on cropland seem to have declined. Other important result highlights the negative impact of urban growth on cropland expansion which implies that loss of prime cropland due to urban expansion cannot be refuted.

**15. Do publicly provided subsidized food grains “crowd-out” the open market demand?**

Andaleeb Rahman (Indian Institute for Human Settlements, Bangalore)

*Abstract* - There is a dual market for food grains in India. The government-run Public Distribution System (PDS) which provides subsidized cereal products to the consumers co-exists alongside the private market. The ambit of PDS is further expected to expand with the National Food Security Act (NFSA), 2013 in place now. This has led to concerns about the possible distortionary effect greater coverage of subsidized grains market could have on open market demand. Using consumption expenditure surveys for a province in India with universal subsidy entitlements, this article estimates the magnitude of open market demand of grains being “crowded-out” by consumption from PDS. We find that there is no one-to-one or complete crowding out of the open market demand for grains due to PDS. Consumption of one kg of rice from the PDS leads to a decline in the open market demand of rice by almost 500 grams. These crowding-out estimates are found to vary across the expenditure quartiles. It is highest for those in the bottom expenditure quartile.

**16. Effects of Agricultural Credit Reforms on Farming Outcomes: Evidence from the Kisan Credit Card Program in India**

Somdeep Chatterjee (University of Houston)

*Abstract* - This paper analyses a major agricultural credit reform in India known as the Kisan Credit Card(KCC) scheme, which intended to provide access to formal credit

institutions to the poor by removing several barriers to borrowing and simplifying the process of credit delivery. I use plausibly exogenous variation in the reach of the program to find the causal effects of the policy on agricultural output and technology adoption using a district panel data set. I also use a cross-sectional household dataset to analyze the effects of credit access through this policy on a wide range of household outcomes. I find evidence of large scale increases in agricultural output of the major crop, rice. I also find that on average the use of high yielding variety (HYV) seeds increases at the district level providing evidence of technology adoption. In addition, I observe increases in farm income for agrarian households suggesting that this program may have improved the condition of the poor people. The results indicate changes in composition of consumption and borrowing which are consistent with existing evidence for enhanced consumer well-being following the relaxation of credit constraints.

**17. Adjust or Not Adjust? Within-country Prices and the Measurement of Poverty.**

Anders Kjelsrud (Statistics Norway)

*Abstract* - Public provision influences household consumption decisions and levels. Consumption estimates based solely on private expenses are therefore necessarily biased. This paper argues that cost-of-living and levels of public provision are likely to be positively correlated. Given that we are unable to properly account for public provision, I argue that we often are better off ignoring regional price level differences in inter-household comparisons. I provide a theoretical framework and apply it to the measurement of poverty in India.

**18. Maternal Mortality and Female Life Expectancy: The Importance of Gender Inequality.**

Joseph Flavian Gomes (University of Navarra)

*Abstract* - Societies with higher levels of gender inequality are slower and less likely to address women-specific health outcomes. We demonstrate this by examining maternal mortality ratios (MMR) and the gap between women's and men's life expectancy. We show that areas that are more gender prejudiced (conditional on income) have higher levels of maternal mortality, slower rates of decline in maternal mortality, and life expectancy differentials less favourable for women. Based on recent world-wide measures, a 1 standard deviation increase in gender equality (in a middle income country) would reduce MMR by 5.34 deaths per 100,000 live births. This is equivalent to increasing log (GDP) by 0.88 standard deviations. From an historical perspective, the arrival of the first antibiotics (sulfa drugs) to the USA reduced MMR nearly two times as much in early suffrage versus late suffrage states. Despite large effects on women's health, the various measures of gender prejudice we use—as well as the arrival of sulfa to USA—are shown to have no significant effect on gender neutral diseases.

## **19. Inequality Between and Within Skill Groups: The Curious Case of India.**

Manisha Goel (Pomona College)

*Abstract* - I show that wage inequality fell within various skill groups in India, while simultaneously increasing between them over the period 1983-2005. Returns to education increased with the wages of college graduates rising relative to high school graduates who in turn earned increasingly more than less educated workers. However, wage inequality fell within education groups. Regression adjusted results similarly show that inequality increased between narrowly defined demographic groups but declined within them as indicated by a compression of the residual wage inequality. This, previously undocumented, divergent trend in inequality between and within skill groups in India cannot be explained by arguments in the extant literature for why developing countries have witnessed a rise in wage inequality in recent decades following trade liberalization. The two main arguments – greater imports of skill complementary technology and offshoring from developed countries – both of which increase the demand for skilled workers, predict an increase in both between- and within-group inequality. I argue that growth in offshored tasks from developed countries that are routine in content, but performed by high-skilled workers, can lead to the divergent trends in inequality between and within groups, as observed in India. Two other potential explanations – compositional changes in the labor force and reduced labor market frictions – also do not fit the evidence.

## **20. Do Right to Work Laws Worsen Income Inequality? Evidence from the Last Five Decades**

Devesh Roy (International Food Policy Research Institute)

*Abstract* - There is an ongoing debate about whether changes in labor regulations such as the Right to Work (RTW) laws are contributing to the rising trend of income inequality in the U.S. We adopt the Synthetic Control Method (SCM) for comparative case study to examine the impact of a state's adoption of an RTW law on its income inequality. We use a wide range of inequality measures for Idaho, Louisiana, Oklahoma and Texas, states that enacted their RTW laws between the 1960s and the 2000s. We find that the RTW laws did not impact income inequality in these states. This result is underpinned by additional findings of lack of impacts of these laws on unionization, wages and salaries, and investment.

## **21. Gestational Surrogacy Contracts and Social Ignominy with Discrete Effort.**

Amrita Pramanick (Jadavpur University)

*Abstract* - This paper attempts to characterize the optimal incentive schemes in surrogacy contracts in terms of a hidden action model with limited liability in discrete effort levels. The basic premise on which the model is viewed is the surrogate primarily perceives the task as a pure economic activity. Against this, inefficiency is a likely to occur when surrogate faces lower outside option whereas multiple efficient contracts can be achieved in case of surrogates facing higher outside option. Next we assume that the surrogate suffers from a feeling of social ignominy since she views this renting a womb activity as a money making exercise. With this feature all the optimal contracts become inefficient and unique.



## **22. Magnifying Effect of Reference Dependence in Vertically Differentiated Duopolies.**

Priyanka Kothari (Indian Statistical Institute, Delhi)

*Abstract* - Researchers have hitherto modelled incumbents as entities who resort to strategies to keep entrants of the market with a few exceptions that present an interesting case wherein an incumbent firm is better off with the entry of another identical firm. We extend that research for entrants that offers a sufficiently different (higher or lower) quality of the product manufactured by our incumbent. While these results can be primarily explained by market coverage, the results are remarkably stronger when we introduce reference dependent consumers. In our two-product market, consumers consider the high quality product as their reference point, against which they evaluate the low quality product. Firms account for this aspect of consumer behavior. We conclude that the presence of reference dependence reduces price sensitivity and softens price competition. This paper gives a new reason for why an incumbent might want to invite entrant and concludes that sufficient quality differential (capturing entire market) will guarantee the same.

## **23. Endogenous Favouritism with Status Incentives: A Model of Optimal Inefficiency.**

Oindrila De (Jadavpur University)

*Abstract* - The paper identifies conditions under which 'inefficient' favouritism emerges as an optimal outcome even when the principal does not exhibit ex-ante preferential bias for any particular agent. We characterize how the optimal incentive scheme is influenced in the presence of status incentives. Using a moral hazard framework with limited liability in a multi-agent framework, it is shown that in presence of higher valuation for status incentive inefficient favouritism is more likely to dominate over fairness. Moreover, inefficient favouritism emerges as the optimal outcome when revenue of the firm is sufficiently low.

## **24. India–ASEAN Free Trade Agreement: An Ex Post Evaluation.**

Avijit Mandal (Maulana Azad College, Kolkata)

*Abstract* - Ex post effects of the India–ASEAN Free Trade Agreement reveal that India's balance of trade with ASEAN has deteriorated, there is weak correspondence between tariff reforms and trade expansion, India's imports of primary goods have increased rapidly, and ASEAN's imports of processed goods have increased most rapidly. Finally, the aggregate value of the net surplus with the government after taxing gainers and subsidizing losers was positive up to 2012 but has been declining ever since because trade with the rest of the world has fallen for both India as well as ASEAN owing to the global slowdown.

## **25. Foreign Ownership and Profitability: Performance of Indian Firms using Dynamic Panel Approach.**

Neha Saini (Faculty of Management Studies, University of Delhi)

*Abstract* - Foreign capital in developing countries have been increasing with the greater pace since last decade of nineteenth century due to liberalised policies and effective macro-economic conditions. Since 1990s till 2010, FDI inflow in developing countries was 46.1% of the global FDI inflow. And similar trends has also been visualised in Indian economy as well. The survey report by Ernst and Young manufacturing sector and high potential of domestic market is the main reason for high attractiveness, however improvement in the quality of logistics and transportation will accelerate the India's attractiveness as the destination for manufacturing. FDI has expanded rapidly in emerging countries on account of liberalised and attractive policy framework in respective countries. Due to increased liberalisation, privatisation, deregulation of industrial structure and deduction of trade barrier the attractiveness of foreign investors towards India has increased. Including private equity, venture investment capital and private equity funds the announcement has been made worth \$14.2 billion spread across 928 deals in first nine months of this year (2105). The investment was quite high in year 2007 as \$18 billion which was earlier a landmark with 700 deals. The quantum of investment has jumped very high as compared 2014 having investment of \$8.22. For several decades this area is under consideration of strategy building where researcher study potential effect of institutional factors on firm performance. Institutional variables include varieties of regulations, fiscal and monetary policy, and government characteristics of the firm. In this study the purpose is to estimate the contribution of firm ownership type on performance. In this paper we tried to explore the importance of ownership in firm performance using firm level data which has been collected from Bloomberg data base for the period of 2005-2014 for 254 firms included the firms having foreign ownership in different forms namely 179, foreign (2012) highlight the fact that 71% of investment in India went to direct investment (FDI), and other two as 37, Venture capital (VC) and 38, Private equity (PE) firms. This study fall in the broad category focussing on foreign ownership in general. There has been number of study available showing the impact of foreign ownership on firm performance. The results of the study are mixed but overall results suggest that type of ownership differ in their contribution to performance variation over the period of time. Our premises here is that each type of ownership may it be state, private and foreign is having specific goals and constraints that offer different opportunities for resource allocation and acquisition. Here in this paper the focus of the study lies with the foreign ownership and firm performance. Foreign ownership in emerging countries are found to contribute to firm performance.

## **26. Determinants of Trade Costs and Trade Growth Accounting Between India and the European Union during 1995-2010.**

Somesh Mathur (Indian Institute of Technology, Kanpur)

*Abstract* - The present study aims to utilize the micro-founded measure of trade cost derived by Novy (2013) to estimate the relative bilateral trade costs of India with its European Union partners. The advantage of using such a model is that the trade costs can be derived entirely by using observable trade data. The results show that Indian tariff equivalent with its major EU trading partners has declined by 20 percentage points between 1995-2010, with Malta and Latvia experiencing the greatest decline. The study then decomposes the bilateral trade growth to ascertain whether it is an outcome of increased domestic production or reduction in bilateral and multilateral trade barriers. Novy's model indicates that the decline in relative bilateral trade costs explains the greatest percentage of this trade growth, which is partially offset by decline in multilateral resistance terms that has diverted trade away to other trading partners primarily in South and South-east Asia and North America.

## **27. Impact of Terrorism on Tourism in India.**

Yashobanta Parida (Institute of Economic Growth)

*Abstract* – This present study empirically examines the impact of terrorism activities on inbound tourism and foreign exchange earnings from tourism in India using annual data covering period 1980-2011. Using Auto-Regressive Distributed Lag (ARDL) model, we find that there is a long-run relationship among variables such as foreign tourist arrival, foreign exchange earnings and terrorism in India. The long-run coefficients based on ARDL approach show that, there exists inverse relation between terrorism activity and foreign tourist arrival in India. Similarly, there exists positive relationship between economic development (proxied by per capita income) and tourist arrival in India. The findings of the study suggest that, Government should invest more in tourism sector, which would help in generating more employment and foreign exchange earnings. Further, the empirical results also suggest that the measures adopted by Government of India such as bringing 180 countries under the ambit of Visa-On-Arrival as well as increasing FDI in the sector will go a long way in stepping up inbound tourist arrivals and consequently boosting foreign exchange earnings as well. Additionally, Government must also work to improve the tourism infrastructure and provide a greater sense of security to tourists, particularly women, among other things.

## **28. Is the GDP Stationary? Comparing Panels for Developing and Developed Countries.**

Surbhi Badhwar (Delhi School of Economics)

*Abstract* - This is a study of data generating processes underlying the output series of developing and developed countries. In this paper, we examine whether Gross Domestic Product series is stationary, separately for developing and developed countries. We compare results for the two sets of countries using panel unit root tests. Giving due consideration to both time as well as cross-sectional dimension of data, the stochastic properties of the data are examined through panel unit root tests. In this

context, we conduct a range of Panel Unit Root Tests as they have higher power than the conventional individual time series unit root tests. For robustness purposes, we systematically analyse results of first as well as second generation panel unit root tests. In the former group of tests, we focus on Levin, Lin and Chu (2002) Test, Im, Pesaran and Shin (2003) Test, Maddala and Wu (1999) Test, and Choi (2001) Test. In order to take into account the cross-sectional dependence in the units, second generation panel unit root tests are conducted. In this category of tests we discuss results from Choi (2006) Test, Moon and Perron (2004) Test, Pesaran (2007) Test and Bai and Ng (2004) Test. The results from these tests show overwhelming evidence of non-stationarity in the output, variously defined in nominal or real terms and total or per capita terms. This is a significant result which is robust to changes in bandwidth parameters, kernel functions and presence of deterministic trend in the model specifications of the tests. While both sets of countries exhibit patterns of non-stationarity, our results show that developing countries have stronger tendencies towards non-stationarity. The implications of non-stationarity are quite significant for macroeconomic policy decisions by state as also macroeconomic forecasting of output.

## **29. Output Synchronization of the Economy in the Post reform Period**

Rajesh Raj (Reserve Bank of India)

*Abstract* - This Study examines if cyclical fluctuation in India's output was synchronised with other major economies of the world in post-reform period. Using panel GMM estimation, the study establishes that in the post-reform period cyclical output of Indian economy shared a common trend with some of the advanced economies and the EMEs. The sources of such business cycle synchronisation were found to be increased trade intensity, similarities in productive structure, similar monetary policy stance and events of major economic crisis.