SESSION 1.2 (INNOVATION, INEQUALITY AND SUSTAINABLE DEVELOPMENT)

Regional diversity and inclusive innovations: A case study of India

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Abstract: Modern economic growth is a trend towards homogenization. The theory of structural transformation postulated by Simon Kuznets and Hollis B Chenery amply brings out the fact that the evolution of economic structure in general and industrial structure in particular shows convergence of the economic and industrial structure at higher level of economic development. Indian government has made an attempt after Independence to initiate modern economic growth through the use of science and technology to follow and realize the patterns of economic growth of the industrially advanced countries of the world. However, there are glaring regional disparities continue to exists in India and have increased over the period of time. The gap between the bottom states of India such as Bihar, Odisha, Madhya Pradesh, Rajasthan and Uttar Pradesh and the rich states has increased especially after the economic reforms in India. This paper seeks to answer the fundamental question of why economic disparities are existing across Indian states and why these are thriving often attract the attention of the economists. Therefore, there are numerous studies that examine the various factors that may explain this disparity. However, there are paucity of economic literature that examines the persistent disparity across Indian states following systems of innovation approach. This study strives to fill this gap in economic literature.

This paper following systems of innovation approach will examine both socio-economic and science and technology indicators to ascertain the regional disparity in India and science and technology policy that has further stimulated it. It will cover 16 major Indian states and will use simple statistical techniques such as growth rates and descriptive statistics. The decomposition analysis will be employed to dissect the factors responsible for structural change occurring across Indian states.

The study mainly concludes that the states with the higher income have a higher proportion of R&D and better quality and quantity of S&T indicators as compared to the low income states. This further promotes exclusion and therefore, for inclusion the states

need to spend the appropriate amount of R&D as per the population in order to decrease regional disparity. For this, inclusive innovation should be encouraged. Further, in order to see which innovation is inclusive, it depends on the institutional arrangement. All the innovations are linked; they may be inclusive or exclusive. The institutional arrangement decides whether an innovation is inclusive or exclusive.

The major policy implications derived from the study are less developed states should develop their secondary and primary sectors in terms of output shares of sectors and create more employment opportunities across all the sectors. The low income states should set up more Science and Technology and R&D institutions and spend more on R&D. These states should persuade more investment on scientific manpower in order to generate more output, hence encouraging more patents and FDI. Also, they should encourage greater urbanization, increasing the installed and generated power capacity and develop more educational institutions; both at the primary and college level at shorter distances.

Regional inequality in China from innovation system perspective: Lessons for India

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Abstract: This study contributes to the current understanding on inter-regional inequality in China from innovation system perspective. Informed by the capability approach in economic theory of human welfare and drawing from the innovation system perspective, it presumes that whether a region is income poor or innovation poor is governed by its learning capabilities in general technological learning capabilities in particular. It articulates technological learning capability as distinct from innovation capability and argues that total number of patent applications could be considered as an appropriate indicator of the former. Empirical analysis based of patent applications for the period 1990-2012 observed a declining trend in inter-regional inequality in technological learning capability since around 2006. Study also notes that the trend in inter-regional income inequality has been in sync with technological learning capability. Econometric analysis of the drivers of technological learning capability, as postulated by the innovation system perspective, showed the positive influence of interaction among different actors in the innovation system along with regional innovation system characteristics. The study, therefore, underlines the need for further strengthening the systems that foster technological learning capability for addressing regional inequality in innovation capability. This finding is of much relevance for India wherein there is evidence of growing inequality at different levels.

Contemporary Inequality in the States of India: Cross-sectional and Panel Estimations

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Abstract: Over the years inequality of income and wealth has increased significantly in most advanced economies. Economist like Thomas Piketty predicted that inequality of wealth will increase through the rest of the century. In India, with the formulation of NITI Aayog it is being claimed that Government is enabling cooperative federalism among the states. In view of these it is important to find out the growth rate of the states. The objective of the present paper is to explore the rate of inequality in different states of India. Convergence principle is employed here to study the inequality among the different states. Convergence refers to the process by which economies or regions tend to grow faster than their rich counterparts. In the present study per capita income at constant prices is taken as the source of convergence or divergence. The aim here is to verify the inequality among the states using direct and indirect measures of convergence. Alternatively, growing literature use panel estimates hence, this technique is also used. It is found that the states are diverging with respect to their per capita income. In view of the persistent inequality of the states of India necessary policy prescriptions are proposed.

Innovation Systems and Inequality: Dimensions of a Policy Problem IN India

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Abstract: In a paper presented at the Atlanta Conference on Science, Technology and Innovation Policy Sept.2013, we had analysed India's S&T led innovation system, and argued that the state should enable institutional reform to ensure innovation for inclusive development. We argued that unless institutional reforms are enabled, existing capabilities in S&T will continue on a 'business as usual' mode, without any new linkages or interactions with other innovation system components, or new competencies to effect innovation in and for rural India. The focus was on inclusive innovation - on rural India as home to the worst levels of un- and under-employment, poverty, hunger, malnutrition, gender and caste violence, and poor infrastructure and production services. Two years down the line we are certain that the recommended institutional reforms are impossible today. This paper submits that the intention or policy goal of inclusive innovation presents

a multi-dimensional and historically twisted policy problem; one that current policy makers complacent in their problem oriented policy analyses refuse to acknowledge. Interpretive policy analyses on the other hand, helps us see prevalent policy instruments and ways of planning or formulating them, question the policy processes and policy intelligence involved. The paper argues that given the horizontal and vertical inequalities and the ceremonial institutions (values and practices) that govern innovation, the instrumental institutions for technological change enabled by policy (the state) can only be weak or superficial. It asks how inclusive innovation (which in the Indian context has to translate to more jobs and better incomes for millions in the workforce) is possible, if production investments and S&T/technological capacities are governed by weak instrumental institutions, weighed down by past ceremonial values and practices.