

Innovation Systems, Inequality and Exclusion: Evidence from Innovation in Low Carbon Energy and ICT Diffusion in India

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Going by the empirical evidence that since 1950, 13 economies have grown at an average rate of seven percent a year or more for 25 years or longer (Commission on Growth and Development 2008), it may be inferred that under globalization, high growth may not be beyond the reach of many developing countries. Evidence also suggests that episodes of high growth under globalization have not been inclusive *inter alia* on account of the co-evolution of growth and inequalities at different levels. It appears that while the recipe for high growth is presumably ready, what is missing is a credible cookbook of inclusive development - an issue of current concern not only for Nobel Laureates like Amartya Sen and Joseph Stiglitz and development scholars in general but also for many of the scholars who approach development from innovation system perspective. Yet, our understanding on the ways to achieve inclusive development by addressing inequalities at different levels, at best, remains rudimentary. Like the earlier schools of thought from Adam Smith and Schumpeter to new growth theorists, innovation system perspective, which by now has emerged as the most widely used approach in innovation studies (Fagerberg and Sappasert 2011), considers innovation as the key to growth and development process.

Since innovation breeds development, the nature of developmental outcomes, equal or unequal for example, would be influenced by the underlying innovation system and the capabilities and competence that it generates at the level of individuals and organizations. There is much in common between Amartya Sen's call for capabilities and freedoms and the innovation system perspective that underline the need for interactive learning, innovation and competence building at the level of individuals and organizations. In a seminal contribution, Amartya Sen (2000) articulated different forms of social exclusion which stands in the way of capabilities and freedom. Drawing insights from the innovation system perspective and social exclusion, the present study presents empirical evidence for different forms social exclusion (active exclusion, passive exclusion, constitutive and instrumental exclusion) in the innovation system. The study also articulates, new analytical categories of exclusion/inclusion (transient and sustained exclusion; subordinated inclusion and illusive inclusion), in the innovation systems and provides empirical evidence from case studies of innovation in low carbon energy and ICT diffusion in India wherein multiple spaces of exclusion have contributed towards the generation and sustenance of inequalities.

Keywords: *Globalization, Innovation system, Low carbon Energy, Social exclusion*