

## **The future: productivity and sustainability**

N K Singh

*Posted online: Sunday, June 11, 2006 at 0000 hrs IST*

The recently concluded Stanford Conference on 'Challenges of Economic Policy Reform in Asia' debated a variety of issues that concern Asia's future. One that affects India and China in particular—fiscal federalism—was the subject of my last piece. Two other areas that generated vigorous discussion were the comparison of productivity in India and China as well as energy, environment and sustainable development.

On productivity trends, the main issue was why total factor productivity in China has accelerated far more than India. The broad conclusions converged on two factors: barriers to technology diffusion, and misallocation of resources across firms. Total factor productivity could be doubled if capital and labor could be allocated efficiently and bigger plants were allowed to expand. Medium-sized plants could also become more efficient. The key policy to enable diffusion of technology and improved resource allocation? Flexible labour policies and provisions for quicker entry and exit for firms. This would not only permit optimal technology use but also enable growth in a wider variety of geographic locations. Other policy priorities to address included minimising financial distortions, reducing disproportionate taxes (based on equity considerations) on efficient firms, and scaling back specific policies which limit the size of firms (such as reservations for small-scale industries). All of these inhibit prospects for improving technology.

Whatever the route, India must improve total factor productivity, or its incremental capital-output ratio, to realise the somewhat daunting growth targets contemplated for the Eleventh Five Year Plan. Simply increasing savings and investment will not be sufficient. The ICOR rates in India have barely moved over the past years. This is an area where the returns from some policy changes will have greater, and faster, impacts on growth than efforts in other directions.

Also on the topic of technology, it was noted that while India is moving towards increased focus on research and development, there were still substantial barriers to fomenting and disseminating innovation. The recent passage of a legislation protecting intellectual property rights was a step in a positive direction, but remains to be fully tested. In the medium term, however, protection of both technology transferred as well as the domestic companies' advances will contribute to innovation that is inspired by, and uniquely suited to, advancing India's economic growth. The framework for financial sector reform to encourage financing of such innovation was a more complicated question. Here, the expertise of some of Silicon Valley's venture capital community was brought to bear. The primary focus should be on improving the legal basis to support the often complex contracts between investors and start-up companies.

Another interesting issue was the model and simulations in a paper titled 'China, The US and Sustainability: Perspectives Based on Comprehensive Wealth', by Nobel Laureate Kenneth Arrow, Partha Dasgupta, Lawrence Goulder, Kevin Mumford, and Kirsten Oleson. Its analysis was designed to consider well-being and sustainability through a comprehensive wealth accounting. This included valuing natural resources such as clean air and water as well as measuring human well-being.

Sustainability was being considered in a broader sense: in terms of the capacity to provide for the well-being of future generations. The principle indicator of a comprehensive measure of health was one that included both marketed and non-marketed assets. In the initial conclusions, and contrary to popular perception, in China, investments in reproducible capital (manufactured capital goods) contributed the most to increase in general wealth. Technology

also played a significant role. China's depletion of natural resources has not yet had as big an impact on wealth as do the contributions from investment in reproducible and human capital. The same is true of the US, where increases in human capital significantly outweigh the adverse wealth effects from resource depletion and higher oil prices.

Of course, many of these conclusions, they concede, depend greatly on the assumed shadow prices and the uncertainties surrounding technological change. Nonetheless the assessment is contrary to the prevalent public perception that China's economic growth is resulting primarily from activities that damage air quality and water purity.

Population growth, productivity trends, and changing technology paradigms can dramatically alter these conclusions, however. Vinod Khosla's suggestions at the conference that technology will significantly alter the cost and availability of alternative fuels, and country energy models like those for India, suggest a basic rethink of the models as well as great uncertainty. Also, one area which the analysis does not consider is that even while China's economic growth may be sustainable, its implications for the global economy needed closer examination. Pollutants know no boundaries.

The rich analysis, however, is well-worth replicating for a large demographic entity like India, which will be a major energy guzzler and, by conventional wisdom, a big polluter with similar consequences. Certainly, while it is not easy to replicate this analysis, leaving out India would leave this study incomplete. Uncertainties aside, however, energy, its security, its sustainable use, and the quest for alternative, affordable energy forms to enhance productivity sustainably for the long run is at the heart of current geopolitics. In focusing on these issues, the Stanford conference has made a worthwhile contribution.