

China and India

Making sense of innovation and growth

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Innovation has played a modest role in explaining growth in both China and India in recent years, but both countries have work to do to sustain their promising growth paths. Moreover, there are important differences between the respective challenges that each country faces.

Last October at a conference on China and India's innovative capacity at the US National Academy of Sciences, participants debated at length whether university graduates from either country were of adequate quality to support competitive businesses in our global economy. One participant from India said, "we can just train employees... there is no need for them to graduate from college." There was little consensus on the adequacy or inadequacy of current human capital investments, despite having so many experts assembled in one place. While there is little doubt that in sheer numbers (of engineers, scientists, etc.) both economies are converging rapidly with advanced economies in the OECD, it is much less clear how long that will take, or even whether they will ever converge with each other.

This begs a question one widely hears nowadays: can India simply follow China's lead and blast off into the 21st century? It is an urgent question that goes well beyond issues of resilience. After all, vast numbers of people in India are still in poverty—indeed, far more than previously thought if recent reappraisals of purchasing

power parities prove accurate. Poverty remains widespread in China too, despite a decade of heady growth: average income levels in India and China are far beneath those of the OECD. However, both countries manage to send spaceships aloft on a regular basis, and both are a major source and attractive target of vast foreign direct investment and portfolio flows. In other words, these economic giants matter. Nevertheless, a closer look reveals many differences between them, in innovation as well as other sources of growth.

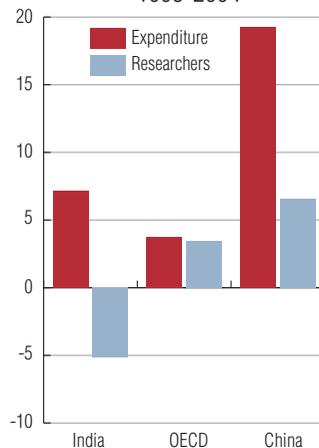
Until recently, China's per capita GDP growth was nearly twice as rapid as that of India, despite India being poorer and starting from a lower base. But in the past few years the growth gap has narrowed, as the Indian economy has accelerated. Where has all the growth come from? In China's case, much of it has come from very high

and sustained rates of investment, almost twice as high as for India. This brute force is evident in China's faster infrastructure development that has enabled urbanisation to take place twice as fast as in India. Even for the more subtle and sophisticated type of growth—through total factor productivity that captures how well capital and labour are combined together—China has exceeded India's achievement by 40%, and the gains in efficiency have in turn enhanced returns on investment.

What has driven productivity gains? This is one key to understanding the differences between the two economies. Productivity is an important long-term driver of growth, and because it influences innovation, expenditure on R&D is one of its main determinants in advanced economies. Lifting R&D spending can improve the absorptive capacity for adopting new technologies. Both China and India have increased their R&D expenditure significantly in recent years, with China's growing at almost 20% per year. However, the number of researchers has grown much more slowly, and in the case of India, their absolute numbers appear to have actually fallen! On the other hand, R&D wages have risen, as the premium on skills has increased. While relatively low R&D expenditure is not necessarily a problem in a developing economy, the stagnation of India's R&D intensity at about 1% of GDP is a concern, particularly as China's has recently risen to over 1.4%.

While the valuation of these intangible investments is far from clear due to quality differences, the divergence in inputs is reflected in research outputs as well. In particular, the number of articles published by China's scientific community has grown at a furious pace, but India's have remained comparatively static. This is ironic, as India's

R&D growth
Expenditure on R&D and number of researchers, annual rate of growth 1995-2004



Source: OECD

legal system appears to offer better intellectual property rights protection than China's, and so should promote more research activity.

Despite the importance of R&D and innovation, more basic drivers of productivity are at least as important at earlier stages of development. Chief among these is for businesses to be able to compete and expand when successful, or to close shop easily if they are not. In the case of India, there are serious restraints at both ends. One example is the country's stringent labour legislation that applies to the formal sector, where virtually all Indian exports are produced. As a result, Indian businesses are profoundly undersized by international comparison, with nearly 90% of industrial employment in firms with fewer than 10 employees, whereas in China, and most OECD countries, this share is well under 10%.

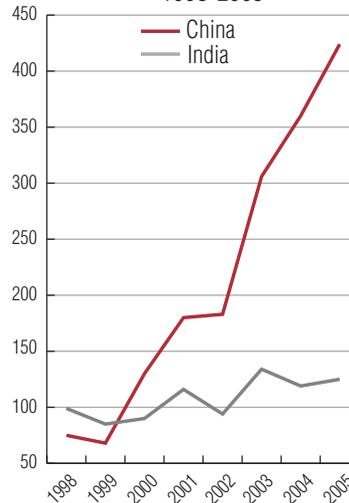
The small scale of Indian businesses is a major lost opportunity in terms of productivity, as larger firms can obtain economies of scale that deliver as much as a two-fold gain in output compared with smaller firms in the so-called informal sector. In the case of China, a similar gain in productivity has occurred through the downsizing of the state sector and the development of the private sector. While China still has a larger share of its business activity in public hands, India has been slower to privatise, despite its state sector's lower productivity.

Restrictive regulations can go a long way to explaining the weaknesses in both economies' growth patterns. These include restrictions on financial and product markets. Excessive state control in particular inhibits competition in many states and sectors. There are also restraints on business entry and operation across the board, not to mention thickets of government red tape. India's restrictions vary almost as much across states as can be observed across OECD countries.

But perhaps a more critical distinction between China and India concerns labour regulations. India's restrictions on collective dismissals in factories are more stringent

Testing results

Articles published in leading high-impact science journals 1998-2005



Source: OECD Economic Surveys: India, 2007

than those of any OECD or major emerging economy, while China's are close to the OECD average. These regulations deter large businesses, and drive jobs into the informal sector, where productivity is lower. China is currently strengthening its labour market restrictions considerably. While there is room to improve basic protections for laid-off workers in China, care should be taken not to undo the flexibility that has delivered China so many advantages.

Although there is surely much to do to make policy more conducive to business and investment, labour productivity in China and India has advanced thanks to capital deepening in firms and gains in total factor productivity. This has kept real labour costs at about 20% of the US equivalent, even in a context of rapidly rising wages. These low costs have continued to attract investors and exporters to both economies, although with a very different composition of exports: India's trade is much more oriented toward services—particularly information technology related business services; while China's is focused on goods, although its services trade is also expanding at a fast pace. This low-cost trade has helped keep the lid on inflation in the OECD area in recent years.

Worries about the competitive threat of China and India's trade abound in developed economies, and indeed the value-added technology content of this trade is increasing, in China especially, as it has become the world's third largest exporter. However, tempering these worries is the fact that the lion's share of this trade is still carried out by wholly foreign-owned firms, which do mainly final assembly work. And India has remained a much smaller player in global trade, representing only one-sixth of China's 7% global market share.

Instead, a more basic and pressing problem for India is to improve educational attainment, and produce more college graduates (see *OECD Observer*, No 263, October 2007). China now produces twice as many college graduates per year as India, up from parity less than a decade ago. The future is less certain, as demographic trends suggest China will age before it gets rich, and India's population structure is such that it will remain "young" for the foreseeable future. This will boost savings in India compared to China, whose population will begin to draw down savings more in retirement. The effect of this could be a convergence of GDP growth rates between the two economies sometime in the next decade.

There is no doubting the huge economic potential—let alone ambitions—of India and China. Yet they also have their differences, and India has arguably more basic groundwork left to do to support a rapid catch-up with OECD countries than China does. But ultimately they both face the same challenge as all major economies, and that is to reform and innovate to sustain future growth and development. ■

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