

ECONOMICS China is moving away from low-cost manufacturing, but the basis for its innovation drive remains thin

Is the dragon catching up in the race for innovation?



China calling: in spite of some innovations it will be some time yet before Chinese companies delve deeper into new-to-the-world technology



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A fear commonly held in the west is that China is beginning to dominate both our present and, through its research and development, our future.

That this fear might be in part misplaced should be of considerable interest to investors, irrespective of which regions their portfolios currently favour.

China's economic success in the past 30 years has in the main been regarded as a consequence of the country's ability to produce manufactured goods at low cost. It is only of late that the dragon has appeared to be catching up – and catching up quickly – in terms of scientific and technological innovation.

Between 1999 and 2006 the number of domestic invention patents filed with China's State Intellectual Property Office (SIPO) rose from roughly 15,600 to more than 122,000. This represents an average increase of 32 per cent a year – on the face of it a quite remarkable figure, not least when one considers that the average annual growth rate of patents filed by American residents with the US Patent and Trademark Office (USPTO) during the same period was just 6.5 per cent.

Bold predictions back up these impressive numbers. The present 10-year National Patent Development Strategy, for instance, targets a doubling of Chinese patent application both domestically and abroad by 2015.

Yet what do these statistics and statements of intent really mean? To find out it is necessary to investigate what actually lies behind the Chinese patenting boom.

The Red Queen run

The ever-intensifying debate surrounding China's innovative prowess and potential development path has recently been based on two scenarios. These can be neatly summarised as the 'Red Queen run' and the 'middle-income trap'.

The former term was coined by Dan Breznitz, an associate professor at the Sam Nunn School of International Affairs at the Georgia Institute of Technology, in his recent book on China's extraordinary rise. Mr Breznitz was in turn inspired by the Red Queen in Alice in Wonderland, who said: "Here it takes all the running you can do to keep in the same place. If you want to get somewhere else you must run at least twice as fast as that."

The argument is that China's ability to stay close to the global technology frontier by improving on and adapting existing innovation – in other words, by running as fast as it can – is key to the country's enduring growth.

More pessimistic is the contention that without the domestic development of genuinely novel product innovation China risks falling into the same 'middle-income trap' that some believe has already claimed developing nations such as Malaysia. This, the theory goes, is the price to pay for failing to make the crucial leap from being a labour-intensive economy to a knowledge-based one.

According to a new study by the Nottingham School of Economics' Globalisation and Economic Policy Centre, the truth in fact lies somewhere between these two extremes.

The research uses an approach to analyse a dataset of roughly 20,000 manufacturing firms registered in China during the period from 1999–2006. To chart the patenting explosion and identify the reasons behind it, the study examines the patents these firms filed with both the SIPO and the USPTO between 1985 and 2006.

Crucial to the analysis is whether companies seek protection only in China or in both China and the US. This is because the direct and indirect costs associated with patent protection in the US are higher, as was the legal "novelty hurdle" in the patent examination until 2009. The distinction is vital to assessing the nature of patents and the decisions behind them.

The study's findings can justifiably be described as unambiguous. The fundamental conclusions are as follows:

- The top 10 Chinese companies filing with the SIPO during the sample period accounted for more than 75 per cent of all patents.
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USPTO during the same period accounted for 85 per cent.

➤ Many of the same companies dominate both lists.

The meteoric rise in Chinese patenting, then, has in reality been fuelled by a tiny group of authentically global players that, as their USPTO filings attest, are highly integrated into the worldwide economy. The firms patenting in both China and the US are large, young, and more intensive in the field of research and development than their peers. They are also largely export oriented and, most importantly, have a strong focus on information and communications technology (ICT) equipment.

True innovation

Thus, contrary to the nature of a bona fide 'Red Queen run', some Chinese companies do appear to be truly innovative, potentially even pushing the global technology frontier in certain niches. Yet there are precious few, and some of the most active are foreign invested.

This corroborates the oft-heard criticism that most of the innovation in China is merely incremental and that the corresponding patents therefore safeguard only 'small inventive steps' rather than substantive new technologies. This form of piecemeal innovation, although it might still be of value, plainly embodies little technological progress and remains open to accusations of being driven chiefly by government incentives designed to encourage patenting directly.

We can now appreciate that, while it is all too easy to be blinded by monumental percentage increases and headline-grabbing estimates, excitement should be duly tempered when the facts are fully appreciated.

The firms responsible for China's patenting explosion do not represent the spearhead of a bigger group of like-minded companies. They are not poised to lead the Chinese economy to a wider technological take-off. They simply reflect an exceptional and highly select group that is unlikely to herald a broader underlying leap.

Chinese patenting is concentrated in very few sectors, and even within these it is undertaken by very few firms. In fact, most patenting has occurred in ICT, an industry characterised by global 'patent portfolio races' – that is, the amassing of patents for mainly strategic purposes. In the end we are talking mostly about the success of a particularly small group within a rather peculiar industry.

The rational inference must therefore be that Chinese companies at large, for now at least, will continue to focus on incremental process innovation. It will be some time yet before most of them turn their attention and talents to 'new-to-the-world' technology.

The findings may still point to China eventually becoming an economy that competes not only on cheap labour and sheer scale but also in terms of innovation. But the basis for its transformation from imitator to innovator remains relatively thin, as with other successful Asian economies at the equivalent point in their development.

The dragon has certainly started to flap its wings, but it has not taken flight just yet.

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