



Benchmarking China's Innovation Drive

Should China's glowing innovation performance be taken at face value? Scott Kennedy of the Center for Strategic and International Studies considers the fuller picture in his latest report

By Jennifer Khoo

High-tech in China is booming, or so says the data. Just look at any of the innovation indicators, and you will see that China's high-tech performance has improved over the last decade in terms of market sophistication, infrastructure and creative outputs, even overtaking countries with similar levels of per capita income.

But is the data giving the fullest picture, or are there other factors at play?

In his latest report entitled *The Fat Tech Dragon: Benchmarking China's Innovation Drive*, Scott Kennedy of the Center for Strategic and International Studies takes a closer look at several indices that place Chinese performance in comparative perspective and urges a mindful interpretation of the results.

Facts or figures

The indices, developed by a range of organizations around the world, themselves demand scrutiny, says the report. The National Innovation Index (see chart 1) for instance, developed by the Chinese Ministry of Science and Technology, unsurprisingly presents the rosiest assessment of China's innovation performance. At the other end of the spectrum, the Global Creativity Index, developed by the University of Toronto, which also ranks countries on the value of tolerance, presents a very different assessment of socially conservative China.



Scott Kennedy

One problem with the metrics used to judge Chinese performance is that they don't include all players, but rather, a selection of large companies in the industry with enough resources and staying power in the market to produce something successful eventually.

"We need to have a better sense of whether the success stories are representative of broader trends and part of a larger productive ecosystem or whether they are the exceptions to the rule," says Kennedy, speaking at a recent AmCham event.

And of course, there is still insufficient understanding of how extensive government intervention has helped

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or hindered corporate performance and broader trends in innovation. We also need a better sense of where China stands relative to other countries, says the report.

China's enthusiastic filing of patents should not be taken as a reliable indicator of its high-tech progress either. Though the country now files far more international patents than Germany or South Korea and almost as many as Japan and the U.S. (see chart 2), Chinese patents have little commercial value and aren't taken seriously due to general knowledge that they are driven by the government and not the market.

"China may now be a 'large' IP country, but it is still a 'weak' one," says Kennedy.

Input vs output

Despite China's improving innovation performance in the indices, what we see isn't a well fleshed-out picture of what Kennedy calls "inputs" and "outputs" into its high-tech industries.

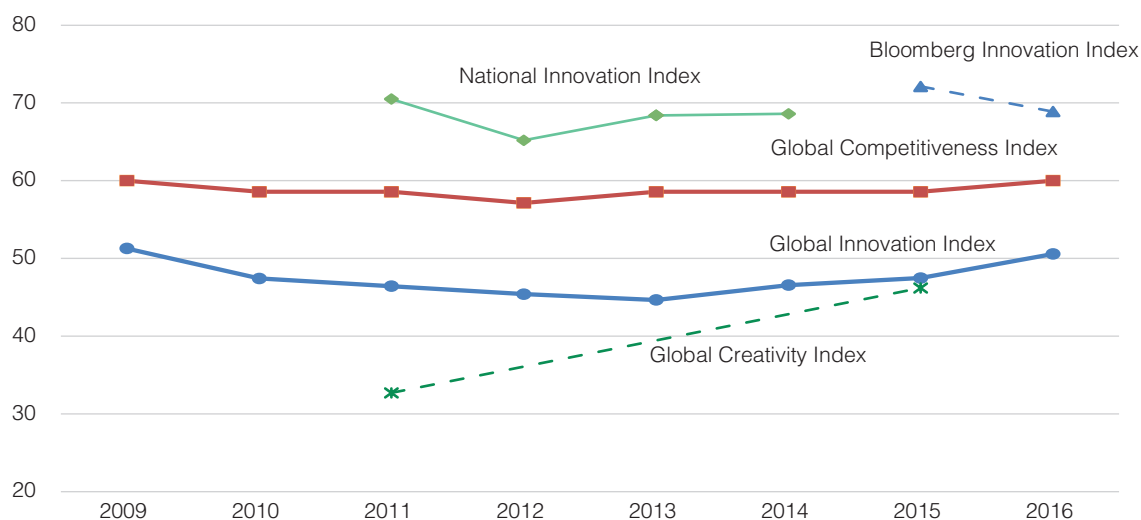
Alongside education and human capital, China is dedicating an unprecedented amount of funding to research and development (R&D). But these investments or "inputs" into innovation far outweigh the "outputs" such as commercial performance and intellectual property, data has shown. For all its efforts, China is still far from being a leader in high-tech. This "low metabolism" of inputs suggests a highly inefficient process that has yielded a disproportionate degree of false starts, failures, and waste, the report says.

Kennedy is skeptical of whether the money set aside for R&D is really going into high-tech R&D specifically, as opposed to just basic research across all industries. He estimates that only one-twentieth of R&D spending in China goes into basic exploratory scientific research. "The income being generated and recorded is less a result of true innovation and more a result of new applications or business models," he notes.

"Because China is so big, whatever it does matters."

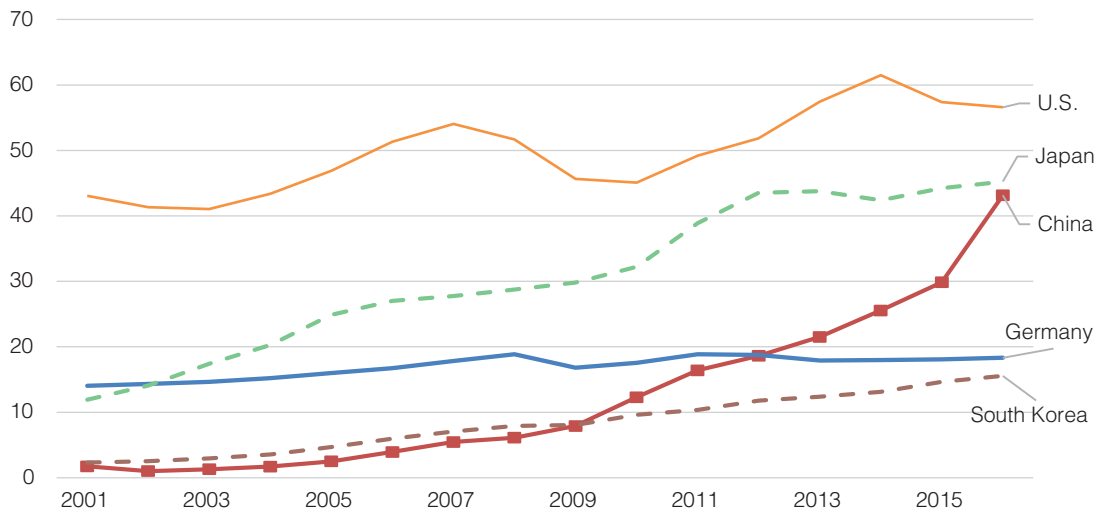
- Scott Kennedy, CSIS

Innovation Indices: China's Score



Source: The Fat Tech Dragon: Benchmarking China's Innovation Drive

International Patent Applications (Thousands)



Source: World Intellectual Property Organization.

Note: International patent applications filed under the Patent Cooperation Treaty (PCT).

It doesn't help that most venture capitalists in China are relatively risk-averse, and are only willing to invest in projects that have been done before. Most Chinese tech ventures rely on either commercial competitiveness or political connections to succeed; true innovation success requires a much higher risk.

The commercial application of high-tech to China's huge manufacturing sector – while good news for the market – can hardly be counted as groundbreaking innovation. Unhelpfully, the innovation indices don't discriminate between the different types of high-tech progress.

“Good-enough” innovation

In his report, Kennedy says China's incremental high-tech progress can be characterized as “good-enough innovation.” Indeed, the country appears to be taking a hurried (and slightly impatient) approach to progress, seemingly unafraid of making mistakes along the way but learning quickly from them.

China has also been given a head start thanks to its already strong capacity in manufacturing, the accumulation of tacit or “soft” knowledge, and the

opportunities provided by such a large market, the report suggests.

“Although there are more positive ways to interpret the data, our conclusion is that the commercial success of China's high-tech sector is not always the result of technology innovations, but of other factors,” Kennedy notes. “In addition, progress appears to be quite uneven across sectors and types of companies.”

As for business, he believes that Chinese companies will continue to face growing challenges in their interactions with MNCs and in overseas markets, regardless of the level of support they receive from their government.

Foreign governments and MNCs likewise need to decide how to strategically respond to China's approach. They could take a firm opposing stance, try to influence China's approach, or go along with the strategy as best they can. Either way, they will need to engage.

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