

## Technology transfer? The rise of China and India in green technology sectors

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# Technology transfer? The rise of China and India in green technology sectors

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International technology transfer is central to the debate about how to curb the carbon emissions from rapid economic growth in China and India. But given China and India's great progress in building innovation capabilities and green industries, how relevant is technology transfer for these countries? This paper seeks insights from three green technology sectors in both countries: wind power, solar energy and electric and hybrid vehicles. We find that, conventional technology transfer mechanisms such as foreign direct investments and licensing, were important for industry formation and take-off. However, as these sectors are catching up, new 'unconventional technology transfer mechanisms' such as R&D partnerships and acquisition of foreign firms have become increasingly important. We argue that there is limited practical and analytical mileage left in the conventional approach to technology transfer in these sectors in China and India. We argue that the emphasis should shift from transfer of mitigation technology to international collaboration and local innovation.

## 1. Introduction

Rapid economic growth in both China and India has now been sustained for more than a decade and it is set to continue in the foreseeable future. These two countries now account for a substantial amount of the production of the world's goods and services. There is therefore increasing agreement that a global shift in economic power is under way: from the West to the East. However, the build-up of capabilities in China and India is not only occurring in the sphere of production, it is also in the sphere of innovation and technological development (Altenburg et al., 2008).

While commentators and the scholarly literature are still trying to catch up with the changing global distribution of innovation capabilities (Ely and Scoones, 2009; Leadbeater, 2007), climate change is emerging on the top of the economic and political agenda (Stern, 2007). Policymakers, scholars and the wider public increasingly agree that economic growth needs to change direction, not least in China and India. The change that is needed is one in which new technological paradigms decouple growth from environmental problems – particularly greenhouse gas emissions – through the development and use of new technologies (Altenburg and Pegels, 2012).

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