

global environmental governance is still unclear. But as Dauvergne and Lister correctly insist, we should not assume that the Big Brands will ever put real sustainability first. Their business *is* business, after all. It would be a mistake to blithely hand over our search for sustainability to them. *Caveat emptor*.

Gallagher, Kelly Sims. 2014. *The Globalization of Clean Energy Technology: Lessons from China*. Cambridge, MA: The MIT Press.

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When it comes to tackling climate change, no other country than the United States garners as much attention as China. A rapid increase in energy consumption in China has coincided with growing economic prosperity. China is not only the world's largest consumer of energy but also its largest producer of greenhouse gas emissions.

Kelly Sims Gallagher's book seeks to debunk this image of China as an environmental laggard. She has written an upbeat and optimistic book about the steps China has taken to build a more sustainable economy by moving away from a resource-intensive economy to a more diversified one. Through the globalization of cleaner energy technologies—defined as “more efficient, renewable, and low-carbon energy technologies” (p. 15)—China is transforming its energy sector, developing new industries, and reducing its carbon intensity.

Gallagher offers a compelling argument about the mechanisms through which China has become a world leader in the development and deployment of cleaner energy technologies. She puts forth a theory about the barriers and incentives that explain the international transfer of cleaner energy technologies, highlighting the importance of domestic government policy, intellectual property, and available financing. At times the argument is repetitive, owing to the book's organization around three hypotheses concerning barriers to the international transfer of technology. However, the main crux of the book comes through clearly: “There are no insurmountable barriers to the global diffusion of cleaner energy technologies” (p. 176). Gallagher demonstrates the ease of accessing capital in China to support cleaner energy industries; while the infringement of clean energy intellectual property is a concern, it is not a serious impediment. In fact, she finds that since the late 2000s, the Chinese government has been bolstering its intellectual property regime. Most importantly, China has successfully developed and deployed cleaner energy technologies mainly because of Chinese government incentives for creating market demand, especially through market formation policies.

The book's strength rests with its rich and well-researched cases. Importantly, Gallagher demonstrates through case studies that technology transfers no longer flow only North to South (whereby an advanced industrialized

country transfers equipment to a developing country) but also North to South to North, South to South, and South to North. Gallagher furthermore shows her grasp of the development and deployment of cleaner energy technologies in the way she analyzes the growth of four industries: gas turbines, advanced batteries for vehicles, solar photovoltaics, and coal gasification. Woven throughout the cases are excerpts from interviews she carried out in China, Germany, and the United States that illuminate how foreign firms transferred technology to Chinese firms, which in turn acquired and developed cleaner energy technologies and then exported them. Chapter 7 details conditions that helped facilitate global diffusion of cleaner energy technologies: internationalization of university education; international collaboration among firms, universities, and research institutes; the increased normalcy of migration; the emergence of a global energy technology innovation system; the proliferation of national market-formation policies; trade liberalization and new international institutions; and China's willingness to provide financing. For example, the internationalization of university education proved vital for growth of the Chinese solar industry, by allowing Chinese students to study abroad and return home, bringing with them improved technological know-how and ties to international networks.

Will other countries reap the gains that China has made in clean energy technology innovation? Gallagher does not seem to think so. She stresses that the "China experience is unique and cannot be easily replicated," owing to the "sheer size of the Chinese economy" and the Chinese political system's use of long-term planning (p. 154).

Nonetheless, Gallagher draws upon the Chinese situation to argue that bigger may be better in the cleaner energy domain. In contrast to traditional wisdom, she writes, "it is not at all clear that smaller, individualized technologies are better for developing countries" (p. 20). Rather, she argues that a "[b]igger market scale is critically important for the global diffusion of cleaner energy technologies" (p. 20). It remains unclear, however, whether the scaling up of cleaner energy technologies also generates negative environmental impacts.

The Chinese government has demonstrated a commitment to reducing dependence on energy-intensive industries and introducing more efficient ones by specifying targets in its five-year plans and promulgating new laws, standards, and rules. However, Gallagher's book focuses on businesses and national policies rather than delving more deeply into implementation at the local level. Further research could track the extent to which firms embrace a greener approach throughout their entire product life cycle.

*The Globalization of Clean Energy Technology* will surely be a primary text for anyone interested in learning about China's energy sector and business innovation in China. The book captures the dualities and complexities of Chinese energy economy—both highly polluting and at the forefront of green technology.