

Globalization and China's Growth: A Longitudinal Analysis of Impacts on Worldwide Energy Use

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Reduced transport costs and improved communication technology have led to an increasingly tight network of trade flows across many parts of the world, as well as lots of foreign direct investment. China's growth is an immediate consequence of its success in ensuring a crucial position in this network. This paper attempts to quantify the impact of China's take-off on worldwide energy use in the period 1995-2006. Two main questions will be addressed.

First, to what extent did relocation of production activities from the Rest of the World to China lead to changes in energy use, taking into account that energy efficiencies vary across the world? Second, to what extent did rising purchasing power of substantial parts of the Chinese population lead to increased energy use, in China itself and elsewhere in the world? In view of the fact that both relocation and growing consumer demand in China will most probably be continuing phenomena for the next decade, answers to these questions shed useful light on policy questions regarding depletion of (non-renewable) energy sources.

The analysis is based on the WIOD-database (currently being developed), which consists of annual full intercountry input-output tables including 40 countries covering about 85% of world GDP and industry-level data on energy use of several types (coal, oil, natural gas, solar, etc.). Input-output analysis allows for indicators that explicitly take into account that the energy use associated with assembly activities that are well-represented in China's coastal zone is likely to be different from vertically integrated production, although the final product may be identical. Energy used in the production of the raw materials and components that are traded to China can explicitly be linked to the assembly activities that combine these into final products.