

Centrality in Production Networks and International Technology Diffusion

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Abstract

This paper examines the relationship between international research and development (R&D) spillover effects and the structure of global value chains (GVCs). It can be observed from the global input-output table that there is a hub country in each region in trade (e.g., Germany, the U.S., and Japan), and there is a possibility that these countries play an important role in the diffusion of the technology. To answer the problem that Keller (1998) suggested the possibility that it does not matter from which a country imports, I use "centrality" that implied importance in trade and examine how the central exporters affect importer's productivity in a sample of 21 countries and 14 manufacturing from 1995 to 2007. As a result, the impacts of foreign R&D from the exporters with high centrality are positively significant. Also, I find that it is also statistically significant from exporters with middle centrality in the second half of the sample period. Finally, it turns out that trading with high centrality exporters does not always produce spillover effects, as the proportion of domestic and foreign R&D flowing into a country is important.

Keywords: Production networks, Centrality, International R&D spillovers, Technology diffusion

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