

Abstract

A great deal of empirical evidence shows that a country's production structure and productivity growth depend on its own R&D capital formation. With the growing role of international trade, foreign investment and international knowledge diffusion, domestic production and productivity also depend on the R&D activities of other countries. The purpose of this paper is to empirically investigate the bilateral link between the U.S. and Japanese economies in terms of how R&D capital formation in one country affects the production structure, physical and R&D capital accumulation, and productivity growth in the other country.

We find that production processes become less labor intensive as international R&D spillovers grow. In the short-run, R&D intensity is complementary to the international spillover. This relationship persists in the long-run for the U.S., but the Japanese decrease their own R&D intensity. In addition, U.S. R&D capital directly contributes to Japanese total factor productivity growth by three and a half times more than Japanese R&D capital directly contributes to U.S. productivity gains. International spillovers cause social rates of return to be around ten times the private returns.

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