

Innovation, Diffusion, and Trade: Theory and Measurement

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Summary

In the last decade, developing countries that expanded their range of imports grew much faster than average. For instance, China and India grew at an average annual rate of 8% over 1994–2003 against a world average of 2%; at the same time, their growth in imported varieties was 5 times that of developed economies. This evidence suggests a positive correlation between the growth of imported varieties and economic growth. At the same time, developing countries invest few resources in doing R&D, whereas 80% of the R&D investment in the world is concentrated in a few rich countries (the United States, Europe and Japan). Thus, developing countries may benefit from the R&D embodied in the goods they import, which allows them to grow faster than average and catch up to the technological frontier.

This paper explores the mechanisms through which trade and growth are connected. Innovation and adoption of imported varieties are at the center of analysis. Rich countries do mainly innovation, whereas developing countries do mainly adoption. By importing varieties, they are able to benefit from the R&D embodied in the goods that rich countries produce and export. As the country gets closer to the technology frontier, innovation is less costly relative to adoption.

The main policy implications of the paper are the following: (i) Developing countries, further away from the technology frontier, should adopt policies that encourage imports or adoption of technologies. These are mainly policies that improve the institutional environment of the country and reduce the fixed costs of penetrating foreign markets, and (ii) Developed countries, closer to the technology frontier, should adopt policies that encourage innovation to keep growing and pushing the frontier.