

# How the deficiencies of the financial system reduce spending on technological innovation and diffusion

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## Abstract

This paper starts from the rather uncontentious proposition that the development and diffusion of new technology tends generally to increase employment, because it involves investment and thus contributes to aggregate demand. It then focuses on how financial systems, broadly defined, affect such development and diffusion. It looks first at development – technological innovation. It argues that different sectors and sub-sectors vary in the characteristics they require in the financial system for successful innovation – and thus it is an advantage for there to be a diversity of financial systems in the world, so that national (even regional) economies can specialise in the fields for which their financial system fits them (and/or develop financial systems suited to the fields in which they have specialised). Nonetheless there are certain characteristics of financial systems which are generally helpful to technological innovation:

- industrial *expertise*;
- *engagement* with firms;
- mechanisms for *appropriation* of the returns to innovation that involve *stakeholder inclusion*.

It argues that the globalisation of trade and (above all) finance has detracted from the industrial expertise and still more from the engagement of the major financial institutions. These changes have been adverse to innovation. It has also led to an increased emphasis on the appropriation by shareholders of the returns to innovation, to the exclusion of other stakeholders – particularly through the widening and deepening of intellectual property rights (IPR). This has had mixed effects on innovation. Further, it has led to a reduction in diversity in the financial systems of developed countries (and others): in itself also adverse to innovation.

The paper looks next at diffusion. This involves a stylised distinction: in practice innovation shades into diffusion along a continuum. However it is helpful in shifting the focus to developing economies, where technological change involves much diffusion and little innovation. For diffusion, particularly in developing economies, the list of three characteristics given above should be in reverse order: industrial expertise is useful; engagement with firms is most important; the issue of appropriation is vital. What firms in developing countries need in the early stages of their technological development is a well-worked out *imitative* technology strategy. This requires the strong inclusion of stakeholders (employees and related firms) and the freedom to copy technologies already well developed and diffused in developed economies. Such freedom is denied through the acceptance by developing countries of the current American rules of IPR. My research on China has moreover shown that the financial system there is generally poor in engagement and inclusion.

The technological development of domestic firms in developing countries is thus inhibited. The alternative for the diffusion of technology in developing countries is either

- multinational firms do it within their own subsidiaries there
- domestic firms do it via a dependent technology strategy which requires regular ‘transfusions’ of new technology from advanced foreign firms

Either way, technological development is restricted: less adaptation is done to the circumstances of developing countries, and fewer firms emerge there able to contribute to real innovation as Japanese, Korean and Taiwanese firms have done. Less employment is generated ‘organically’, and (as an alternative) more has to be generated by maintaining an artificially-undervalued currency. Likewise, in developed countries less employment is generated by technological innovation and development than would be with better financial systems; and accordingly more resort is had to expansionary monetary policy, with the results we see all around us.