

A north–south model of intellectual property rights protection and skill accumulation

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Abstract

This paper examines how stronger intellectual property rights (IPR) protection in the south affects the processes of R&D investment, technology transfer and skill accumulation. It finds that stronger IPR protection has only a temporary impact on the innovation rate while it has a negative impact on the long-run imitation rate. In the north, the impact on the process of skill accumulation is negative and increases the within-country wage inequality. In the south, the impact is ambiguous and depends on the externality that skill accumulation generates on the process of education. In addition, the paper shows that skills play a crucial role in attracting FDI inflows, and strengthening IPR protection may be ineffective in attracting technological knowledge when the level of local skill is low.

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1. Introduction

Probably one of the most striking results on globalization and growth is that strengthening the protection of intellectual property rights (IPR) in developing countries has the effect of reducing the flow of knowledge transmission (Helpman, 1993; Lai, 1998; Yang and Maskus, 2001; Glass and Saggi, 2002).

Recently, a new vintage of papers has revisited this issue by adding many other aspects of globalization to the basic framework. Focusing on the huge increase in outsourcing of the late

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four decades, [Glass \(2004\)](#) finds that an increase in the intensity of imitation decreases the rate of innovation and the extent of outsourcing, while increasing the relative wage of the south. A similar result has been reached by [Dinopoulos and Segerstrom \(2005\)](#). In their model, globalization corresponds to an exogenous increase in the size of the population of the south. Without foreign direct investment (FDI), they find that strengthening IPR protection leads to a permanent increase in the relative wage of the north, to a decrease in the long-run rate of imitation, but to only a short-run decrease in the rate of innovation. In the presence of FDI results are reversed and lead to the conclusion that in order to attract FDI, developing countries must make IPR safer. This will both rise their relative wage rate and attract technology from abroad.

[Glass and Wu \(in press\)](#) build a general equilibrium, R&D-based endogenous growth model with the aim of seeing if the difference in the type of innovation might alter the consequences of IPR protection. In their model, an exogenous decrease in the imitation intensity, in a setting in which FDI is costless and innovation takes the form of quality improvements, discourages FDI and reduces the innovative effort of developed countries. On the contrary, when innovation takes the form of an ever-expanding variety of horizontally differentiated products, stronger southern IPR protection encourages FDI and spurs investment in R&D.

Even though this matter has been dealt with extensively, the study of globalizing IPR protection has not yet analyzed the relationship between the strength of IPR protection in developing countries, skill accumulation and within-country wage inequality. A weak technology absorptive capacity has been recognized as perhaps the main problem facing developing countries that want to get nearer to the technological frontier. On the one hand, [Benhabib and Spiegel \(1994, 2005\)](#) find empirical evidence that human capital and technological progress are complementary factors in the process of growth and development, and that the adoption of advanced technologies is often restricted by the availability of particular skills in people. On the other, [Maskus \(2000\)](#) points out that the relationship between IPR protection and the level of economic development is U-shaped, so that low level of IPR protection might be growth-improving for economies at an early stage of economic development.¹ In such a case, imitation turns out to be more effective than innovation in bridging the technology gap, so that human capital is what matters for developing economies to be able to absorb and adapt foreign knowledge and catching-up with an ever-moving technological frontier.

In this paper, I explore the role played by IPR in enhancing the long-run rate of innovation and giving incentives to private agents in developing countries to acquire skills and education to enable them absorb and implement foreign technological knowledge. The key assumption is that in the south skilled workers perform R&D tasks with the main goal of absorbing foreign technology and adopting it to replicate existing northern firm's product. With respect to the standard literature, this paper introduces two further important modifications. First, the model does not present scale problems in the balanced-growth path (BGP) and generates a non-explosive long-run rate of growth. Second, the industry strategic setup is such that all industry leaders find it optimal to charge the same markup over their own marginal cost, independent of where the previous industry leader resides.

¹ [Chen and Puttitanun \(2005\)](#) develop a model to study how the trade-off between innovation and imitation may affect a developing country's choice of IPR. In their model the country's IPR crucially depends on its level of development in a non-monotonic way. They provide empirical evidence confirming both the positive impact of IPR on innovations in developing countries and the presence of a U-shaped relationship between IPR and economic development.

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