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The protection of intellectual property rights and endogenous growth: Is stronger always better?

Yuichi Furukawa*

The 21st Century Center of Excellence Program, Graduate School of Economics and Graduate School of Business and Commerce, Keio University, 3-1-7-5F Mita, Minato-ku, Tokyo 108-0073, Japan

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Abstract

This paper uses a variety expansion model of endogenous growth to examine the effect of intellectual property rights (IPR) protection on economic growth in a closed economy. Most of the studies in the literature show that, in closed economies, enhancing the protection of IPR increases the expected duration of monopoly and the associated incentive to innovate. A large incentive to innovate enhances the growth rate. However, allowing for technological sophistication that is driven by the cumulative experience in producing a final good, enhanced protection can have a negative effect on growth by increasing the share of monopolized sectors. Because the scale of production falls as a result of monopoly pricing, the experience accumulation declines with stronger protection of IPR. As a result, stronger IPR decreases the productivity of the final sector, the associated demand for innovation, and economic growth. This paper shows that, if the latter dominates the former, IPR protection is not growth enhancing.

JEL classification: O31; O34; O4

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*Tel.: +81 3 5427 1869; fax: +81 3 5427 1872.
E-mail address: furukawa_you@yahoo.co.jp.

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1. Introduction

In recent decades, the broader issue of intellectual property rights (IPR) protection has been at the center of public policy debates. A major argument in favor of stronger IPR is that it stimulates economic growth by protecting innovators from imitation, thereby encouraging innovation. In fact, many countries have strengthened their protection of IPR by reforming their patent systems. However, although this view is widely accepted, recent work, both theoretical and empirical, indicates that, in a closed economy, the relationship between IPR protection and economic growth is actually not so clear.[1]

This paper shows, in line with the recent work, that IPR protection may not enhance economic growth in an endogenous growth model with costless imitation: that is, 'stronger is always better' is incorrect.

The crucial assumption in the model is that the accumulation of experience gained by using intermediate machinery improves the productivity of final good firms that make use of this machinery as an input, through the *learning by experience* effect.[2] Although the literature has studied the effects of IPR protection on economic growth and the economic implications of learning by experience separately,[3] this paper finds an important link between them as described in the following.

A common perception is that tightening the protection of IPR increases the expected duration of monopoly and the associated incentive to innovate. A large incentive to innovate enhances the growth rate. However, allowing for technological sophistication that is driven by the cumulative experience of using machinery, tightened protection can have a negative effect on growth. Because tightening IPR increases the proportion of monopolized sectors and monopolistic pricing reduces the level of production, the accumulation of experience is reduced, producing a decline in final sector productivity. Less productive final output firms imply smaller demand for intermediate machinery because intermediates are bought only by final firms in the model presented below. Finally, this reduced demand in turn weakens the incentive to innovate new machinery as a source of economic growth. If the latter dominates the former, IPR protection is not growth enhancing. More specifically, the long-run rate of innovation has an inverse-U shape as a function of the rate of imitation, which is an inverse measure of IPR protection, when the intensity of accumulated experience in the final sector is sufficiently high. The conclusion of the present paper emphasizes a role for relaxing IPR protection as a growth-enhancing policy.

[1] See Gould and Gruden (1996), Koléda (2005), and Horii and Iwaisako (2007).

[2] Some of the literature uses the term 'learning by doing.' Although, in general, these terms are used almost interchangeably, here I adopt the term 'learning by experience' to emphasize the accumulation of *experience*.

[3] The learning by experience is only one departure from the existing literature on IPR protection and growth: the model presented below differs from that of Kwan and Lai (2003) essentially in that the learning by experience is assumed, and the Kwan and Lai model had differed from the 'lab-equipment' model used by Rivera-Batiz and Romer (1991) only in assuming costless imitation.