



Innovation, imitation and intellectual property rights: Introducing migration in Helpman's model

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Abstract

We introduce perfect international labour mobility between the North and the South into the Helpman [Helpman, E., 1993. Innovation, imitation, and intellectual property rights. *Econometrica* 61 (6), 1247–1280] North South model. We analyse the effect of strengthening the intellectual property rights (IPR) protection in the South and the effect of an increase in labour endowment there on the rate of innovation in the North and on the volume of South North migration in the steady state equilibrium. The strengthening of IPR protection may produce a positive effect on the rate of innovation if the consumers are very patient in their intertemporal choice. The increase in the Southern labour endowment also has a positive effect on the rate of innovation. These results are opposite to those obtained in the Helpman [Helpman, E., 1993. Innovation, imitation, and intellectual property rights. *Econometrica* 61 (6), 1247–1280] model.

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1. Introduction

Technological change plays the most important role in determining the rate of economic growth of a country. Strengthening the intellectual property rights (IPR) protection is an important factor influencing technological change. This issue has received substantial attention in recent times. The agreement on the Trade Related Intellectual Property issues (TRIPs) under

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the GATT-WTO of 1994 requires that the developing countries should strengthen their intellectual property rights (IPR) protection. Formal scientific studies analysing the effects of strengthening IPR protection on the technological progress are also available in the theoretical and empirical literature of international trade, and there has been an ongoing debate on this issue.

Existing theoretical literature is based either on the product variety framework developed by Grossman and Helpman (1991b) or on the quality ladder framework developed by Grossman and Helpman (1991a).¹ Models developed by Helpman (1993), Lai (1998), etc. are also based on product variety framework in which technological change is viewed as product development. In all these models, R&D sector develops new product designs (technology) using labour as input, and thus, the number of products (varieties) grows over time. Also all these models consider a world consisting of an innovative North and an imitating South and assume the existence of a steady state growth equilibrium of the entire world economy. In Grossman and Helpman (1991b), imitation rate in the South is endogenously determined. However, this rate of imitation is treated as exogenous in Helpman (1993) and in Lai (1998). Grossman and Helpman (1991b) and Helpman (1993) do not consider imitation through multinationalisation of Northern firms in the South. However, in Lai (1998), the Southern firms can imitate only after multinationalisation has taken place.

The nature of the effect on the rate of innovation due to strengthening of IPR protection also varies from model to model. In Grossman and Helpman (1991b) and in Helpman (1993), strengthening of IPR protection in the South lowers the rate of innovation in the North. However, Lai (1998) shows that the rate of innovation is increased due to strengthening of IPR protection when multinationalisation is the channel of production transfer.

All these North South models of product development and endogenous growth ignore the issue of international labour mobility. These models assume labour endowments to be country specific though the per capita expenditure and hence the instantaneous level of utility of each of the two regions is endogenously determined. There is no international labour mobility even if the per capita real spendings in the two regions are different in equilibrium. There are substantial empirical evidences of international labour mobility taking place in the real world. The static two country competitive equilibrium models as well as the dynamic North–South models of exogenous growth have dealt with this problem. The existing literature consists of the works of Bhagwati and Rodriguez (1976), Kenen (1971), Grubel and Scott (1966), Rivera-Batiz (1981, 1982), Watanabe (1969), Thompson (1984), Roemer (1983), Saavedra Rivano and Wooton (1983), Wooton (1982), Mountford (1997), Bhagwati and Hamada (1974), Galor and Stark (1991), Ethier (1985, 1986), Djajic (1989), etc. Macmillan (1982) has made an interesting survey of this literature. Lundborg and Segerstrom (2000, 2002) analyse the growth and welfare effects of international migration using the quality ladder framework developed by Grossman and Helpman (1991a). However, no such analysis has been made in the product variety structure and we plan to fill up this gap.

In this paper, we introduce perfect international mobility of labour between the North and the South because this is a standard assumption made in the existing static and dynamic models of factor mobility. Following Lundborg and Segerstrom (2000, 2002), we also assume that the

¹ Glass and Saggi (2002), Horii and Iwaisako (2007), Yang and Maskus (2001), etc. have developed models based on quality ladder framework. Since our contribution is based on the product variety framework, we shall only survey the existing works based on this framework.

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