Intellectual property rights protection and unemployment in a North South model: A theoretical analysis ☆

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Abstract

In this paper, we analyse a North South dynamic general equilibrium model of the international product cycle to study the effects of strengthening the Intellectual Property Rights (IPR) protection in the South on the rate of innovation in the North and on the level of unemployment in the South. Introducing efficiency wage hypothesis into the standard Grossman–Helpman [Grossman, G. and E. Helpman, 1991b. Endogenous product cycles. The Economic Journal, 101, 1214–1229.] product variety framework we explain unemployment equilibrium in the unskilled labour market in the South. We show that the strengthening of Intellectual Property Rights (IPR) protection has a negative effect on the steady state equilibrium rate of innovation. However, its effect on the level of unemployment in the South depends on the relative wage gap between these two regions. In the wide gap equilibrium case, stronger IPR protection lowers the level of unemployment. However, in the narrow gap case, this raises the level of unemployment. We also analyse the effects of changes in labour endowments in both the countries.
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1. Introduction

The purpose of this paper is to analyse the effect of strengthening the Intellectual Property Rights (IPR) protection on the rate of economic growth in developed countries and on the level of unemployment in less developed countries when different countries of the world are involved in free and unrestricted trade. We use a North South product cycle model as developed by Grossman and Helpman (hereafter called GH) (1991b). Endogenous growth is driven by the

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introduction of the new differentiated products in the North which are later imitated in the South; and the unemployment in the unskilled labour market in the South is explained by the efficiency wage hypothesis.

There are two branches of the existing literature to which our paper is related. The first one focuses on the relationship between the long run rate of economic growth and the level of unemployment in a closed economy framework.[1] A subset of these works considers unemployment resulting from efficiency wage.[2] However, these papers do not consider the North South product transfer through imitation in the South; and hence do not analyse the role of IPR protection in the South. The other branch of the literature deals with the effects of strengthening IPR protection in the less developed countries on the rate of economic growth and on the welfare in the different trading countries of the world. However, these papers use North South models based on GH (1991a,b) framework and assume full employment of labour in all the countries.[3] The model of Arnold (2002) is the only exception in the North South literature because it deals with the unemployment problem in the North. However, Arnold (2002) does not consider unemployment in the South caused by the efficiency wage hypothesis. In reality, less developed countries suffer from severe unemployment and underemployment problems of unskilled (uneducated) labour in agricultural sectors and in urban informal sectors.

In this paper, we extend the GH (1991b) model introducing unemployment in the South caused by the efficiency wage hypothesis. We consider a South with two types of labour — skilled and unskilled; and introduce efficiency wage hypothesis in the unskilled labour market. Mirrlees (1976), Stiglitz (1976), Dasgupta and Ray (1986) and many others explain unemployment of unskilled labour in less developed countries using the efficiency wage hypothesis in static models. However, the North has only skilled labour. In the Western developed countries, the illiteracy rate is negligible and the percentage of unskilled (uneducated) workers is very low. So we do not consider unskilled labour in the North. However, illiteracy is a serious problem in poor countries of South Asia and Africa. Agricultural sectors and Urban informal sectors in less developed countries are mainly dependent on unskilled (uneducated) workers. Size of the formal sector in a less developed country is far lower than the size of the unorganised (agriculture and urban informal) sector. Efficiency wage hypothesis is generally valid for those workers who are underpaid because the improvement in their income raises their levels of consumption and working abilities. Rodgers (1975), Bliss and Stern (1978) etc. provide empirical evidences in favour of this hypothesis. Unskilled workers of agricultural and informal sectors earn substantially less than skilled workers of the formal sectors.

This framework allows us to analyse the effects of strengthening IPR protection on the rate of economic growth and on the level of unemployment in the steady state equilibrium of the world economy. We show that the movements of growth rate and unemployment level due to strengthening of IPR protection may not be unidirectional; and the nature of their movements depends on the North South wage gap. In both the wide gap and the narrow gap cases, stronger IPR protection in the South lowers the balanced rate of growth of both the regions and raises the North South relative wage in the new steady state equilibrium. However, the level of unemployment in the South is increased in the narrow gap case and is decreased in the wide gap case.

We also analyse the effects of changes in factor endowments of both the regions. The expansion of the Southern skilled (Northern) labour endowment raises the rate of innovation (growth) and raises (lowers) the rate of imitation. A similar result is also obtained from the GH (1991b) model. The level of unemployment in the South is increased (decreased) due to an expansion of the Northern (Southern skilled) labour endowment in the narrow gap case. However, in the wide gap case, the expansion of the Northern labour endowment does not affect the Southern unemployment at all. So the effect of the change in the Northern labour endowment on the level of Southern unemployment crucially depends on the North South wage gap. The expansion of the unskilled labour endowment in the South does not affect the innovation rate and the imitation rate and only raises the level of unemployment there. Like GH (1991b), the North South relative wage varies directly (inversely) with the size of the Northern (Southern skilled) labour endowment in this model. However, the change in the unskilled labour endowment in the South does not affect the North South relative wage at all.

This paper is organised as follows. The model of the international product cycle with unemployment in the South is presented in Section 2. Section 3 presents the reduced form steady state equilibrium conditions and analyses the effects of strengthening IPR protection and of changes in labour endowments on the unemployment level and on the growth

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[1] See, for example, Bean and Pissarides (1993), Aghion and Howitt (1994), Palokangas (1996), Van Schaik and De Groot (1998), Stadler (1999) etc.

[2] See, for example, De Groot (1998), Van Schaik and De Groot (1998), Stadler (1999) etc.

[3] See, for example, Grossman and Helpman (1991b), Helpman (1993), Lai (1998), Yang and Maskus (2001), Glass and Saggi (2002) etc.