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Foreign capital, non-traded goods and welfare in a developing economy in the presence of externalities☆

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ABSTRACT

A three-sector, three-factor general equilibrium model is developed for a small open developing economy where an inflow of foreign capital generates externalities in the presence of a non-traded final commodity. There are two types of capital and the efficiency of labor depends positively on the consumption of the non-traded commodity. Effects of inflows of foreign capital on social welfare and human capital formation are examined. The analysis finds that while capital that is used in all the sectors may improve welfare, capital used specifically in the non-traded sector is likely to affect social welfare adversely. These results, which hold for a wide range of parameter values, can at least question the desirability of allowing entry of foreign capital in the non-traded final good sector that emanates externalities.

1. Introduction

In a two-commodity, two-factor full-employment general equilibrium structure for a small open economy, an inflow of foreign capital with complete repatriation of foreign capital income does not change social welfare. However, in the presence of a tariff the result is different. Brecher and Diaz Alejandro (1977) have found that inflows of foreign capital are necessarily immiserizing if the import-competing sector is capital-intensive and is protected by a tariff. Here welfare is defined as a positive function of national income. An inflow of foreign capital leads to an expansion of the capital intensive import-competing sector thereby cutting back the volumes of trade further for a small open economy and moves it further away from the free trade situation, which is the optimal policy. In the literature, the Brecher–Alejandro proposition has also been re-examined in terms of three-sector full-employment models like Beladi and Marjit (1992a,b) with the third sector being a duty-free zone.

As the developing countries are plagued by economic dualism of different types, factor market distortions and structural rigidities, some attempts have been made to analyze the welfare impact of foreign capital inflow using a Harris and Todaro (1970) framework.[1]

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[1] The introduction of labor market distortion in the form of unionized wage in the urban formal sector in an HT structure can in no way affect the welfare result relating to foreign capital due to a special property, called 'envelope property', implied by this framework. In an HT framework, the average wage of labor in the economy is equal to the rural sector wage. So long as the rural sector wage remains unchanged, there is no labor reallocation effect on welfare due to foreign capital inflow, and therefore, results are similar to those obtained in a full-employment framework.

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For example, Khan (1982) has considered a mobile capital Harris–Todaro (HT) model with urban unemployment. A third sector, called an urban informal sector, which absorbs the unemployed urban workers at a low and competitive wage rate, has been introduced in the works of Grinols (1991), Chandra and Khan (1993) and Gupta (1997). The immiserizing result of foreign capital in the presence of a tariff protected import-competing sector has been found to be valid in general[2] despite the presence of an additional sector.

Many economists have now successfully been able to show that foreign capital might be welfare improving in the developing economies in several cases. The works like Marjit and Beladi (1996), Chaudhuri (2005, 2007) and Chaudhuri, Yabuuchi, and Mukhopadhyay (2006) have demonstrated how foreign capital might produce favorable effects on welfare taking into consideration some essential features of the developing economies e.g. existence of labor market distortion, presence of the vast informal economy and non-traded goods. In particular, as found in the works of Marjit and Beladi (1996) and Chaudhuri (2001a), if foreign capital is allowed to enter an intermediate good (internationally traded or non-traded) sector, it may be welfare-improving. Besides, Chaudhuri (2005) has shown that even in a 2×2 full-employment structure with tariff and labor market distortions, an inflow of foreign capital may be welfare-improving. Also Chaudhuri (2007) has found that in a HT structure with agricultural dualism and a non-traded final commodity, it is possible to show that an inflow of foreign capital might improve social welfare.

A foreign direct investment (FDI) is often accompanied by transfer of superior technologies of production that raises the productivity of the workers in the capital-receiving countries through externalities. There exists a large theoretical literature dealing with such aspects.[3] However, this literature has paid very little attention to analyzing the consequence of such an FDI-induced technology transfer on the welfare of the developing countries using the simple general equilibrium structure. Notable exceptions are, however, Chaudhuri (2001b, 2005) where an inflow of foreign capital is accompanied by transfer of technology that raises the efficiency of labor and hence the effective labor force in efficiency unit. In the former work social welfare worsens following an expansion of the tariff-protected, import-competing sector while in the latter welfare is likely to improve owing to an increase in aggregate wage income although the protected sector expands. However, externalities due to an FDI may well occur through changes in intersectoral composition of output even in the absence of any technology transfer. The present paper purports to analyze such a case where an FDI may expand a non-traded sector that produces a final good (services) whose consumption directly raises the efficiency of the workers. A three-sector, three-factor, full-employment general equilibrium model has been developed. There are two types of capital, of which capital of type K is used in all the three sectors of the economy and capital of type N is specific to the non-traded sector. The possibility of welfare improvement through an FDI has been explored in the backdrop of a developing economy where there are tariff and labor market distortions.

The results of the analysis indicate that an FDI of capital of type N although raises the human capital endowment of the economy, may adversely affect social welfare under reasonable conditions. On the contrary, an inflow of foreign capital of type K is likely to be welfare-improving in the presence of a certain degree of labor market distortion. Although these effects crucially hinge on institutional and technological characteristics and the trade pattern of the relevant country, they can at least question the desirability of allowing entry of foreign capital in the non-traded final good sector that generates externalities.

2. The Model

We consider a small open developing economy consisting of three sectors: sector 1, sector 2 and sector G. Sector 1 produces an agricultural commodity (X_1) with labor (L) and capital of type K. Sector 2 produces a manufacturing commodity (X_2) by means of labor and capital of type K. Finally, sector G is a non-traded sector that uses labor and two types of capital, K and N, to produce a final commodity (services), X_G. It is assumed that sector 1 is the export sector, sector 2 is the import-competing sector and sector G is the producer of a non-traded final good (services) which is consumed domestically. The import-competing sector (sector 2) is protected by an import tariff.[4] Workers in the agricultural sector earn the competitive wage, W, while the wage rate in the manufacturing sector and the non-traded sector is W^*, which is institutionally determined, and $W^* > W$. The labor allocation mechanism is as follows. Workers first compete for getting jobs in sector 2 and sector G where the wage rate is high due to institutional reasons. But those who cannot get employment in those two sectors are automatically absorbed in sector 1 providing the competitive and low wage. So we have labor market distortions.[5] Due to the assumption of a small open economy, prices of commodity 1 and commodity 2 are internationally given. Since commodity (services) G is internationally non-traded, its price is

[2] Grinols (1991) is, of course, a notable exception.

[3] See Markusen (1995, 2002), Norback and Persson (2002), Neary (2002, 2003), Markusen and Venables (2002), Mattoo, Olarreaga, and Saggi (2004), Glass and Saggi (2002), Blalock and Gertler (2008), Mathew and Mukherjee (2014), Mukherjee and Tsai (2013) among others.

[4] From the work of Bhagwati (1971), it is well known that in a small open economy the optimal tariff is zero. However, the government in a developing economy like India finds no alternative but to keep some tariffs on importables mainly on account of political and social pressures keeping in view the employment preserving effects of tariffs. In this context it may be noted that in a developing economy with multiple distortions the effect(s) of any parametric changes on social welfare might change enormously compared to the one distortion case. This is because the effects of different distortions might move in the two opposite directions nullifying each other's effects. Hence the net welfare effect depends on the relative magnitudes of different effects.

[5] An employment subsidy in the form of a wage subsidy by the same rate in the two unionized sectors may not be desirable in the present context because of the following reasons. It lowers the effective wage cost of labor in the two unionized sectors and raises the return to capital of type K i.e. r (see Eq. 2). Consequently, this lowers the competitive wage, W (see Eq. 1) of the common workers. In a large democratic developing country like India, the implementation of this policy would be vehemently opposed by political parties and social activists on the ground that it would increase both poverty and income inequality.