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Endogenous labour market imperfection, foreign direct investment and external terms-of-trade shocks in a developing economy☆

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ABSTRACT

This theoretical paper shows that developing countries possess an inherent shock-absorbing mechanism that stems from their peculiar institutional characteristics and can lessen the gravity of detrimental welfare consequence of international terms-of-trade disturbances in terms of a static two-sector, full-employment general equilibrium model with endogenous labour market distortion. The supply of foreign capital in the economy is a positive function of the return to capital. Subsequently, it has been verbally explained why the main result of the full-employment model would remain valid even in a two-sector specific-factor Harris-Todaro type model with urban unemployment. The analysis leads to a couple of important policies that should be adhered to preserve this in-built system. Finally, it offers three important statistically testable hypotheses which would pave the way for future empirical research in this area.

1. Introduction and motivation

Developing countries are much more vulnerable to external terms-of-trade (TOT) (the price of its exports relative to the price of its imports) shocks relative to countries in the northern part of the world.[1] Consequences of such shocks could continue for a long time if they arise due to changes in the long-run business cycles of the developed nations. On the other hand, any changes in monetary and fiscal policies in the large trading countries like USA, China, Germany, and Japan also lead to volatility in TOT although their effects do not last long. TOT fluctuations are undesirable because they contribute to significantly increased volatility in the growth of output and hence social welfare. Studies e.g. Baxter and Kouparitsas (2006), Broda (2004), Mendoza (1995) and Kose (2002) have found that TOT fluctuations are twice as large in developing countries as in developed nations. Baxter and Kouparitsas (2006) have attributed this pattern to the heavy reliance of developing countries on commodity exports, whose prices are more volatile vis-à-vis those of manufactured goods. They also assert that sharp swings in the TOT affect many of the southern economies because they generally have a high degree of openness to foreign trade. According to Broda (2004) developing countries are also very exposed to terms-of-trade fluctuations because they have little influence over their export prices. World markets dictate the price of the goods which the developing economies export. On the contrary, developed countries and oil exporters can exert a substantial control on export prices. Hence, TOT changes in developing countries are largely determined by forces outside the control of these nations which led Mendoza (1995) and Kose (2002) to conclude that TOT movements can account for most of the output volatility in these countries.

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[1] Different aspects of international TOT changes and their consequences on the developing countries including the emerging economies have been discussed in Hove et al. (2015), Jawaid and Raza (2013), Luo and Visaltanachoti (2010) etc.

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Switching from fixed to flexible exchange rate regime and export diversification policies have often been advocated to minimize the negative effects resulting from international TOT disturbances.[2] Besides, this issue has been sufficiently addressed in the dynamic theoretical open economy literature consisting of works like Mendoza (1995) where TOT changes lead to a significant investment/capital response.

The developing countries are plagued with different kinds of distortion like imperfections in the factor markets and product market, presence of non-traded goods, both intermediate and final, structural rigidities etc. In this paper, we would like to focus only on labour market and commodity market distortions.

The labour market in a developing country like India can be partitioned into two distinct segments: formal and informal. In the formal sector of the market workers are unionized and they can wrest a high unionized wage through collective bargaining. On the contrary, workers in the informal sector earn a lower wage than their counterparts in the formal sector. Informal labour market characterized by competitive wage formation has emerged as an important institution in the entire developing world. It is beyond any doubt that the informal sector plays a very significant role in employment in developing countries constituting at least 70% of total employment of the working population (Agenor, 1996). In case of India this figure is over 90% if one includes agriculture (Marjit, 2003; Chaudhuri and Banerjee, 2007). New estimates of the share of workers in informal employment for 2011 show that informal employment is particularly widespread in Africa, the Asian regions and Latin America and the Caribbean, with a cross-country average of between 40 and 50% (Fig. 9, ILO, 2014). The magnitude of difference between the intersectoral wages measures the degree of labour market distortion.

On the other hand, commodity markets in the developing countries are also distorted. Commodity market distortions usually manifest in the form of trade distortions through tariffs and quotas on the importables. Although during the first two decades of economic reforms there had been a significant reduction in average tariff rates in most of the developing countries, data from the World Bank (2014) indicates that the tariff reduction rates have slowed down considerably in recent times. The existing rates (e.g. 4.8% in Latin American and Caribbean countries; 7.8% in Sub-Saharan African countries and, 6.1% in Middle East and North African countries in 2010) are still quite higher than the average tariff rate of all countries in the world taken together (2.7% in 2010). Quite interestingly, the average tariff rate has increased (from 7.2% in 2009 to 7.8% in 2010) in the Sub-Saharan African countries in recent years. On the other hand, in the South Asian countries including India, the average rate of tariffs had decreased from 12.7% in 2006 to 7.4% in 2008 and then increased to 8.3% in 2010. See http://data.worldbank.org/indicator/TM.TAX.MRCH.WM.AR.ZS/countries

In this backdrop, a relevant question is apart from switching from flexible exchange rate system whether the developing countries should or should not resort to any other policies to partially neutralize the short run harmful effects of exogenous TOT shocks. Unfortunately, we do not come across any static trade-theoretic general equilibrium model in the literature that has dealt with such an important issue.

In this theoretical exercise, introducing endogenous labour market distortion and trade distortion in an otherwise Heckscher-Ohlin-Samuelson (HOS) trade model for a small open economy, we have demonstrated that the developing economies possess an inbuilt shock-absorbing mechanism that arises due to their peculiar institutional characteristics e.g. existence and gravity of labour market distortion. The unionized wage in the formal sector labour market is endogenously determined through collective bargaining. Then the basic model has been extended to incorporate unemployment. Using a two-sector, specific-factor Harris and Todaro (1970) (HT, hereafter) type general equilibrium model we have verbally argued why the main result of the basic model with full-employment would hold even in the extended model with unemployment. Furthermore, we have shown that policies aimed at deregulating the labour market hurt the effectiveness of the inherent shock-absorbing capacity of these countries. Hence, the developing countries instead of going in for labour market reform in a big way are advised to undertake liberalized trade and investment policies for shielding themselves at least to a certain extent from the detrimental consequences of volatile price movements in the international market.

Finally, the present analysis suggests a few important statistically testable hypotheses. First, with the help of cross-country data, it can be examined whether TOT movements in either direction have caused smaller fluctuations in per capita GDP in the economies with larger wage dispersion relative to the countries with lower intersectoral wage differentials. Second, fluctuations in per capita GDP in a small country arising out of TOT changes is positively correlated with the degree of restrictions standing in the way of free flows of foreign capital into in the economy. Finally, economies with higher degree of protectionism are more prone to international price movements vis-à-vis the other set of countries. Because it is purely a theoretical exercise empirical validation of these results is beyond the scope of this paper. However, future empirical research in this area should address these aspects.

2. The model

We consider a two-sector, full-employment general equilibrium model for a small open economy with endogenous labour market imperfection in sector 2.[3] In sector 2 (a formal sector) workers receive the endogenously determined unionized wage, W^*, while their counterparts in sector 1 (an informal sector) receive the competitive wage, W. Capital is perfectly mobile between the two sectors and its economy-wide return is r. All markets, except the labour market in sector 2, are perfectly competitive. Production functions exhibit constant returns to scale with positive but diminishing marginal productivity to each factor. Sector 1 and sector 2 are the exports and import-competing sectors, respectively. Commodity prices, P_is are given by the small open economy assumption. However, the import-competing sector is protected by an import tariff at the ad valorem rate, t so that the domestic price of commodity 2 is $(1+t)P_2(=P_2^*)$. Labour and domestic capital endowments are also exogenously given.[4] Therefore, in this model we have labour market distortion in the form of unionized wage in sector 2 as well as product market distortion in the form of an import tariff on commodity 2. Finally, commodity 1 is taken to be the numeraire.

The unionized wage is determined as a solution to the Nash bargaining game between the representative firm and the representative labour union in the unionized formal sector (sector 2) industry. Assuming homogenous firms and labour unions in sector 2 we here directly borrow the simple unionized wage function as derived in details in Chaudhuri (2016, Section 2.1) which is as follows.

$$W^* = W^*(P_2^*, W, U); \text{with } \left(\frac{\partial W^*}{\partial U}\right), \left(\frac{\partial W^*}{\partial W}\right), \left(\frac{\partial W^*}{\partial P_2^*}\right) > 0 \quad (1)$$

In Eq. (1) the parameter, U denotes the bargaining strength of the labour union in each formal sector firm.[5] The properties of this

[2] See for example, Hoffmann (2007), Tornell and Velasco (2000), Broda (2004), Broda and Tille (2003), Mendoza (1995) and Kose (2002) and Haddad et al. (2011).

[3] In a subsequent section we will introduce HT type unemployment in the formal (urban) sector and examine the robustness of our results obtained in the production structure with full-employment.

[4] The aggregate capital stock of the economy consists of both domestic capital and foreign capital which are perfect substitutes. The supply of foreign capital is, however, endogenously determined. This has been subsequently explained.

[5] One of the most important objectives of the labour unions is to bargain with their respective employers so as to set the unionized wage, W^* as much higher as possible above their reservation wage i.e. the informal sector wage, W. The higher their bargaining power, U the larger would be the intersectoral wage differential. However, U is amenable to policy measures. If the government undertakes different labour market regulatory measures e.g. partial or complete ban on resorting to strikes by the trade unions, reformation of employment security laws to curb union power, U takes a lower value.