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Labor market effects of export processing zones in the presence of unemployment

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ABSTRACT

When foreign firms motivated by higher profits engage in off-shore production activities of unemployment ridden host countries, concerns increase about the possibility of exploitation of local workers. However, using a two good two factor model this paper shows that foreign firms' engagement under the scenario actually improves the host country's structure of wages, skill composition, employment level and wage inequality which cannot be achieved under full employment in the host countries. This paper thus presents a mechanism that explains the effects of export processing zones observed in most of the transitional economies of the world. Results have practical implications for traditional structural changes expected for these economies. Although foreign firms come to earn profits, it is possible for host country workers to take a part of the rent away from the foreign firms as they are doing currently in different parts of the world.

1. Introduction

The creation of Export Processing Zones (EPZs) has become an integral part of the globalization and integration of world trade. Its impact on the growth of exports and efficient utilization of global supply of goods and services has varied by countries. Discussions have also taken place about the economic and political resistance against it. One common element in these debates and discussions is that EPZs have been created mostly in the transitional economies and newly industrialized countries. These countries usually suffer from severe unemployment and one of the most important objectives that has been cited for creating EPZs is to increase employment.

Interestingly however, theoretical underpinning of the rationale behind the offshore trading or EPZs (also known as the enclave sector) so far has been done using the assumption of full employment (Brown et al., 2007; Lipsey, 2002; Arndt, 1999). The work that deserves a special attention in this regard is that of Jones and Marjit (1995, henceforth referred as J & M) who have picked a theoretical point that hasn't found its place in the literature before but that has been a stylized fact of many EPZs all over the world. The point in their analysis is that the foreign element in the new technology brought in by the foreign firms activates certain hidden traits of the domestic labor force. With that notion they have described and modelled the labor market effects of foreign investment in an enclave sector of an underdeveloped economy, however, with the assumption of full employment.

It reminds us that the factor that attracts foreign firms, namely the availability of cheap labor is more likely with unemployment. The analysis in the current paper borrows the core model of J & M to show that foreign firms would have much more favorable effect on employment, wage structure, skill composition and wage gaps of the host country when it faces unemployment compared to full employment in that country. This incorporation of unemployment is the difference between the core model of J & M and the model used for this paper where labor market effects cover more facets than described by J & M. The presence of unemployment actually brings out the efficacy of their model used in describing the real world situations (see also Gaston and Gulasekaran, 2013).

For example, as presented in their report to International Labor Office (ILO), Fu and Gao (2007) show that the introduction of EPZs has increased employment in China by 18% from 1995–2007 and increased the share of capital intensive and technology intensive industries from 64% to 76% during that time period. The share of average wage of Chinese Enterprises in that of Foreign Funded Enterprises has increased from 62% to 90%, and the share of expenditure on education and skill training in total expenditure has also grown at a high rate during that period. Creation of EPZs is also credited for robust regional growth in Vietnam (where they are known as Special Economic Zones) which has attracted a significant foreign capital together with foreign technology (Pan and Ngo, 2016). These effects encompassing different aspects of the labor market are also observed in Bangladesh, Kenya,

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Malaysia and some other countries (Milberg and Amengual, 2008).

The purpose of this paper is to explain a mechanism through which all these changes experienced by China, Vietnam, Sri Lanka, Bangladesh and many other transitional developing economies are brought in by the offshore trading or the EPZs.

To maximize profits foreign firms, in this model with unemployment, move to the offshore areas of a host country to use its low wage unskilled labor with foreign skilled labor and advanced technology. Furthermore, foreign firms believe that some of the unskilled workers of the host country possess a potentially developable hidden skill that, if revealed after working in the foreign firms for a given period, would match the skill level of foreign skilled workers. Foreign firms would then be able to replace the costly foreign workers with the newly skilled local workers. The nature of the foreign technology is such that it brings out the hidden talent of the host country unskilled workers. This is a rather unrealistic assumption. However, when this assumption is replaced with a more plausible scenario where foreign firms train these workers for a given period of time conclusions still hold. Using a two good two- factor model the analysis in this paper shows that foreign firms' engagement in the offshore production activities reduce unemployment that is not possible in the model developed by J & M. Since additional production activities are supposed to create employment, this result is not at all counter-intuitive and it matches with the employment effects cited in the literature (Bottini et al., 2007; Goldberg and Pavcnik, 2007; UNCTAD, 2004; Lipsey, 2002; Arndt, 1999).

However, the production structure in this paper's model provides additional channels to favorable employment effects. This structure is consistent with the profit motives of foreign firms and it helps to reduce the unemployment further. For example, the skilled workers that foreign firms bring with them are costly not only because they are from the high wage source country, but they also need to have additional wage incentives to work in a place far from home. To lower the production cost, firms are expected to transform at least some of the hired unskilled host country workers into skilled workers by bringing out their hidden potential (either by allowing them to work as unskilled workers for a while or by formal training) to replace high wage skilled workers. This creates demand for local workers. This is evident from the impact of EPZs in China and Vietnam. For example, as mentioned before, EPZs in certain regions of China have spent as much as 7% of total expenditure in training and skill development (ILO, 2005).

Furthermore, since the production structure uses a mix of skilled and unskilled workers, additional demand for host country workers (to be used with skilled workers) is created (e, g., skilled and unskilled workers are used in a fixed proportion which portrays the use of non-production and production workers in the empirical analysis of Feenstra and Hanson, 1997). Finally, an enclave-led growth or growth induced by offshore production activities stirs up investment in local productive activities (by creating more human capital suitable for local industries) that becomes a new source of employment. This expansion of productive activities and investment in human capital become a component of productivity growth resulting from enhanced export (See Yang and Mallick, 2014). The possibility of hiring local workers and the complementarity between skilled and unskilled workers are also present in the core model of J & M; however, unlike their model these features are used to generate the favorable employment effect in the present paper.

With regard to the skill formation, the existing literature lacks any direct analysis of effects of foreign production activities on skill composition of the host country work force. However, the World Bank (1997) argues that developing countries should adopt policies to encourage additional human capital formation to attract more FDI. Moreover, several empirical studies suggest that both demand for skilled workers and skilled workers' wages (although under different sets of assumptions) go up in the host country following the production activities of the foreign firms (Ernst and Sanchez-Ancochea for Costa Rica, 2007; Feenstra and Hanson, for Mexico, 1997; Fajnzylber and Fernandes for Brazil, 2004; Amiti and Konings for Indonesia, 2005).[1]

In this paper's analysis, foreign firms convert local unskilled workers into skilled workers to replace high- cost home- country workers. Thus, the host country will have new kind of skilled workers suitable only for the foreign production. Additionally, the enclave-led growth results in new capital formation that leads to increased investment in human capital suitable for the domestic industry. Thus the model in my paper increases the skill composition of labor force by creating two types of skilled workers suitable for two different types for production activities—one for the foreign production and the other for the host country production. This phenomenon has also been observed in several studies. In describing the potential non-neutrality of technological advancement, Mallick and Sousa (2017) using National Bureau of Economic Research and Center for Economic Studies manufacturing data base show that technology has a positive and statistically significant relationship with skill-unskilled labor ratio. This rising skill endowment usually increases the welfare of the whole economy (Lutz and Turrini, 2006).

In discussing the wage inequality, empirical evidence provides a mixed picture. Brown et al. (2007) suggest favorable effects of foreign direct investment (FDI) and multinational firms on wages and working conditions of the host country workers. Feenstra and Hanson (1997) and Pissarides (1997) show an unfavorable effect in the form of increased wage gap between high and low skilled workers when outsourced low skill-intensive goods from the North become relatively high skill-intensive goods in the South. Jones and Marjit show that under full employment with a homogeneous labor force, foreign firms' production activities affect the structure of local wages favorably, even when these firms keep on earning a profit higher than what they have contemplated.[2] In my model, the interaction between the foreign production structure and the labor market distortion not only generates higher wages for newly skilled local workers suitable for foreign production activities, it also increases the wages of host country unskilled workers. This reduces both the inequality between similarly skilled foreign and host country workers and the wage gap between skilled and unskilled workers of the host country. Unskilled workers' wages that stayed stagnant in the core model by J & M, go up in my model because of the incorporation of unemployment. This reiterates the argument that McMillan and Rodrik (2011) has put forth in their NBER paper that transitional economies experience reduction in productivity gap and thus the wage gap as they go through structural changes (see also Jingjing, 2013).

The conventional belief is that foreign firms move in to earn profit and their ex-post profits are usually higher that their contemplated profit. In my analysis the ex-post profit under unemployment is lower than that with full employment and it is also lower than the contemplated profit, at least, for a part of foreign firms' stay in the off-shore areas.

The actual dispersion between the ex-ante and the ex-post profit depends on how the labor market distortion in the host country plays itself out. Foreign firms, therefore, cannot be sure about the actual profit. While the foreign firms, motivated to earn profit, may take this uncertainty into consideration, their total profit will still be positive should they move to the off-shore area.

Furthermore, the world economy will gain not only because of the higher employment and production but also from the favorable skill composition and the income distribution effects in the labor market of the host economy (by siphoning off some of the rents of the foreign

[1] However, Bardhan (2006) shows with data from China that FDI creates a huge middle class and Egger and Egger (2003) show for Czech Republic and Hungary that demand for unskilled workers goes up.

[2] For other empirical evidence see Aitken et al., 1996; Budd et al., 2002; Cooper, 2001; Glewwe, 2000; University of Chicago Magazine, 2000; World Trade Organization, 2000.