



MNEs and wages: The role of productivity spillovers and imperfect labor markets[☆]

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ABSTRACT

Disentangling the labor market implications of increased foreign capital flows remains important. This paper provides a unifying framework allowing to study the wage implications of multinational enterprise (MNE) activities, pointing to the importance of controlling for both labor market imperfections and productivity spillovers from foreign to local firms. Results show that increased MNE activities increase average wages in the local economy while contributing to a larger wage dispersion between the MNE and local firms. While the results pertaining to average wages depends heavily on the frictions in the labor market, how much the wage dispersion alters also depends on the extent of productivity spillovers from the MNEs to the local firms and the complementarity between domestic and foreign capital.

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1. Introduction

The increasing prominence of Multinational Enterprises (MNEs) in the worldwide production activities over the past decades has generated significant interactions between them and the local firms.¹ According to UNCTAD's, 2007 World Investment Report over the past two and a half decades the number of workers employed in the foreign affiliates of MNEs has increased threefold and represents around 3% of worldwide employees. This ever-increasing presence of MNEs in global production is expected to create both productivity and wage spillovers. Indeed one would expect that productivity and wage spillovers from MNEs to local firms occur simultaneously, where the extent of both spillovers depends on each other. While the literature has focused on both spillovers independently, studies that take into account the possible interactions among the two spillovers are very few in number. Furthermore, in disentangling the labor market effects of increased foreign firm presence most of the studies have assumed perfectly competitive labor markets, ignoring possible frictions.

The following exercise seeks to identify the individual role played by the labor market imperfections and the extent of productivity spillovers on the wage spillovers from increased foreign firm

presence. The analysis not only allows to identify the wage spillovers from MNEs to domestic wages but also allows studying the wage premium paid by foreign firms under different extents of productivity spillovers and labor market imperfections.² We construct a model where the productivity spillovers and labor market imperfections are explicitly modeled and we study three main questions: How do the absolute wages paid by foreign and local firms compare in cases with or without labor market imperfections and productivity spillovers from foreign firms? How does the foreign firm premium, defined as the ratio of the wages paid by foreign to those paid by local firms, differ across these models? Finally, does taking into account the labor market imperfections and productivity spillovers alter our expectations of how absolute wages and foreign firm premium change upon increased foreign direct investment (FDI)?

Ample studies have looked into the productivity spillovers from foreign to domestic firms, ranging from studies on Venezuela by Aitken and Harrison (1999), on Indonesia by Blomström and Sjöholm (1999) on the Czech Republic by Djankov and Hoekman (2000), on Lithuania by Javorcik (2004), on the US by Keller and Yeaple (2003) and on the UK by Haskel et al. (2007), among many others. Another strand of the literature has focused on the wage spillovers from foreign to domestic firms, including studies by Aitken et al. (1996), Feenstra and Hanson (1996) and Lipsey and Sjöholm (2004), among others. However, none of these studies look into the interactive role

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¹ We use the terms foreign firms and multinationals interchangeably.

² We use the term foreign firm premium to capture the wage premium paid by the foreign firms. From this point on we will define it as the ratio of the wages paid by foreign firms to the wages paid by domestic firms.

played by the two spillovers, and explicitly model the link between productivity spillovers, labor market imperfections and wage spillovers. This paper tries to fill this gap in the literature.

As identified by Aitken et al. (1996), Feenstra and Hanson (1996), and Lipsey and Sjöholm (2004), among others, foreign firms tend to pay different wages than domestic firms. While studies by Driffield and Girma (2003), Conyon et al. (2002), Martins (2004), Aitken et al. (1996) document the foreign firm premium to be greater than one, where the foreign firms pay higher wages than domestic firms, Lipsey and Sjöholm (2004), Almeida (2007), Barry et al. (2005) and Girma et al. (2001) suggest that this is not always the case, there are instances where the domestic firm pays higher wages than foreign firms do.³ In the following exercise we study the role played by labor market imperfections and the extent of productivity spillovers in influencing the level of the foreign firm premium, as well as how the foreign firm premium evolves when the MNEs activities in the host country increase.

In summary, taking cue from the void in this literature, the following analysis shows the importance of taking into account both the extent of productivity spillovers and the labor market imperfections when studying wage spillovers. In this manner, this study is closely related to Barry et al. (2005) who explicitly study the counteracting roles of productivity spillovers and labor-poaching activities of MNEs in generating wage spillovers and also allow for frictions in labor markets but unlike this paper they do not formally model for these imperfections in the labor market. The below analysis adds to this framework by formalizing the imperfections in the labor markets by use of search models.⁴ Using a very basic search model framework we are able to shed light onto the three questions we pose.

Results point to the important role played by the labor market imperfections and productivity spillovers in all three aspects. Results suggest that, when labor market imperfections are taken into account upon increased FDI average wages in the economy will increase, where both foreign and domestic firms pay higher wages. Therefore the model supports the idea that foreign direct investments (FDI) create wage spillovers, where increased foreign firm presence increases wages paid by domestic firms. However, the dispersion in wages between those paid by foreign and local firms, i.e. the foreign firm premium, is altered upon increased MNE activities. While the former result is independent of whether or not there are any productivity spillovers from foreign to domestic firms, the extent of the change in the wage dispersion critically depends on the extent of productivity spillovers. The higher the extent of productivity spillovers less is the change in the foreign firm premium (or in other words less the change in wage dispersion). This theoretical finding has a significant bearing on the empirical literature that seeks to identify the wage effects of increased FDI. The framework points to the importance of controlling for the labor market imperfections in empirical estimation of the impact of increased MNE activities on wages. Reduced form estimation equations based on this unifying framework should ensure that when estimating the link between local or foreign firm wages and FDI one controls for both the local and foreign firm productivities, both the domestic and the foreign firm capital stock, and final good prices. As such, this framework points to important omitted variables in many of the existing empirical wage studies linking FDI and wages, and it explains why wages, both absolute and relative, differ in level across countries and in how they change after increased FDI.

The rest of the paper is structured as follows. The model is discussed in Section 2, results are presented in Section 3 and Section 4 concludes.

2. The model

2.1. Main assumptions

All agents are risk-neutral, infinitely-lived and discount the future at the common rate r . The economy is populated by a continuum of workers with the measure normalized to one. There are two types of jobs, foreign and domestic. The productivity of these jobs depends on the type of capital, whether or not it is a domestic or foreign firm. The productivity in each firm is denoted by A_i , $i = D, F$ where D stands for domestic firms and F stands for foreign firms. The amount of output produced in the domestic and foreign jobs with different types of workers is denoted as follows:⁵

$$y_i = A_i k_i^{\alpha_i}, \quad i = F, D \tag{1}$$

where k_i stands for the capital. The level of technology in the domestic firms can increase with higher foreign firm presence due to possible productivity spillovers, $A_D = A k_F^\gamma$. The parameter A denotes the domestic firm's productivity net of the foreign firm's spillovers, whereas γ denotes the extent of productivity spillovers from the foreign capital, k_F .⁶ In this model increased foreign firm presence is measured as increased amounts of foreign capital used in the production by foreign firms, i.e. higher values of k_F , which itself is endogenously determined.

The revenue of foreign and domestic firms net of non-worker costs is as follows:

$$R_i = p_i y_i - p_{ki} k_i, \quad i = F, D \tag{2}$$

where p_i is the price of the final good produced by firm i , y_i is the output produced by firm i , p_{ki} is the price of the capital used by firm i and finally k_i is the capital used by firm i . The price of capital, p_{ki} , is also modeled as different across firms, where one can envisage the differences being due to the nature of FDI which inherently has more intangible assets incorporated in it than the domestic firm capital stock.

Once a firm hires a worker, it rents capital in a perfectly competitive market, where the profit maximizing amount of capital is determined by it being paid its marginal revenue product⁷:

$$k_i = \left(\frac{p_i \alpha_i A_i}{p_{ki}} \right)^{1-\alpha_i} \tag{3}$$

According to Eq. (3) we can model increased FDI via an exogenous increase in any one of the following variables: p_F , p_{kF} , α_F or A_F .

2.2. Matching

Job seekers and firms with vacant jobs are matched in pairs through an imperfect matching technology. The total flow of contracts between a job seeker and a firm is determined by a standard constant returns to scale matching function, $m(v_D + v_F, u)$, where v_D and v_F stands for the mass of domestic and foreign vacancies, respectively and u is the mass of unemployed workers. $\eta = \frac{v_D}{v_D + v_F}$ denotes the fraction of vacancies posted by domestic firms. The labor market tightness is denoted by $\theta = \frac{v_D + v_F}{u}$. The rate at which firms meet a

³ See Ruane and Uğur (2004) for a discussion of the reasons for why there may exist a foreign firm premium.

⁴ Bayraktar Saglam and Sayek (forthcoming) construct an encompassing framework in studying the wage gap between skilled and unskilled labor as well as domestic and foreign firm workers taking into account labor market frictions.

⁵ See Davidson et al. (2008) for a similar depiction.

⁶ This is based on the evidence provided by several studies regarding the positive productivity spillovers of FDI, see Javorcik (2004) and Barry et al. (2005).

⁷ This modeling can be interpreted as either the firms explicitly renting capital from the market or implicitly charging such a price for their internal transactions on their income statement.

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