



Firms' location decisions and minimum wages

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ABSTRACT

We consider the impact minimum wage laws have on firms' location choices in a new economic geography model with exogenous minimum wage constraints. The minimum wage policy has a twofold influence on the relative attractiveness of the home country, simultaneously affecting its relative cost competitiveness and its aggregate income. The end effect depends on interactions between the skilled and unskilled segments of the labor market. If workers are strongly substitutable, the effect of raising low-skilled workers income is more than compensated by a drop in their employment level. Under such circumstances, a high minimum wage policy reduces the country's attractiveness by increasing production costs and reducing aggregate demand. Aggregate demand is further reduced once adjustments in skilled wages linked to international competitive pressures are taken into account.

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1. Introduction

The impact of labor market institutions on macroeconomic performance has long been at the heart of discussions in economic and political circles. The debate rages on today, especially given the increasing degree of trade and financial liberalization in the recent decades. The increasing mobility of factors of production opens new opportunities for firms to choose in which country to locate and produce. This is likely to have implications on the performance of various labor market policies.

In this paper, we pay a particular attention to this dimension. We focus on minimum wage laws and ask how it affects firms' location decisions in an international setting. As noted by Dolado et al. (2000) or Dickens et al. (1999), the last two decades have shown a considerable resurgence of interest towards minimum wage policy in OECD countries.¹ In general, two opposite arguments characterize

the debate on the impact of minimum wage laws. On the one hand, high minimum wages are argued to prevent flexibility: By raising marginal costs, they have adverse effects on labor demand and employment. This is particularly true for unskilled workers, directly affected by the minimum wage requirement. But Cahuc et al. (2001) show that minimum wage policy may also deteriorate the situation of skilled workers, the magnitude of the effect depending on the substitutability between skilled and unskilled workers. On the other hand, proponents of the regulation argue minimum wages help maintaining the purchasing power of low-skilled workers. These workers are the most vulnerable to international competition and skill-biased technological changes (see Dolado et al., 2000 or Biscourp and Kramarz, 2003). A high-minimum wage policy would therefore entail an “income effect” that helps sustaining aggregate demand.

Our theoretical framework takes into account both the cost competitiveness loss and the income effect of minimum wage policy, which jointly affect firms' location patterns. Importantly, the model incorporates the possibility that adjustments in the unskilled labor market may also spread on the skilled labor one. This turns out to be of key importance. We show that the ultimate effect of minimum wages on production patterns crucially depends on the way both skilled and unskilled labor market segments adjust to wage rigidities. This question is central in the labor market literature but has hardly been discussed in an international context.

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¹ As illustrated by several increases in the US minimum wages during the 1990s (in 1990, 1991, 1997), the imposition of a minimum wage in the United Kingdom (2000) after its suppression in 1993 or recent successive rises in the French “SMIC” over legal requirements.

The labor market literature devoted to minimum wage policies has not reached consensus, both theoretically and empirically.² But the vast majority of the existing work has focused on closed economy mechanisms, where production structure is taken as given. In a globalized context, however, the “cost competitiveness” argument is becoming increasingly pressing. Increases in production costs induced by wage rigidities are indeed more costly when it comes to compete with foreign producers that do not face the same constraints. Withstanding competition pushes firms to modify their production process to reduce costs, if not to relocate in countries with more flexible labor markets.

The paper takes into account this dimension by analyzing the impact of minimum wage policy on the country's attractiveness for investors. We investigate the question in a new economic geography framework. Initiated by Krugman (1991), the new economic geography literature focuses on the determinants of production patterns and firms' location decisions in an international setting. It identifies two major determinants of such decisions, relative production costs and aggregate demands. The framework is thus particularly well-suited to capture the twofold impact of minimum wages discussed in the labor market literature. However, while most of the literature assumes flexible labor markets, our paper explicitly relates labor market imperfections and endogenous entry of firms.

The link between labor market regulations and firms' location choices has recently been investigated, both empirically and theoretically. On the empirical side, Dewit, Görg and Montagna (2003), Hajkova et al. (2003), or Javorcik and Spatareanu (2005) study the role of labor market institutions in affecting foreign direct investment (FDI) flows. In general, estimation results suggest that more flexible employment protection legislations enhance FDI inflows. However, Dewit et al. (2003a) find that a high level of employment protection discourages FDI outflows.³

The question has also been investigated in theory. A first strand of papers addresses the role of labor market regulations on firms' location choices in presence of uncertainty and strategic interactions. Haaland and Wooton (2007) study how uncertainty on the labor market and industrial output affects investment decisions by multinational firms. Dewit, Leahy and Montagna (2003) analyze the effects of employment protection on location patterns in an oligopolistic framework. They show that more flexible employment protection is not necessarily an advantage as long as one takes into account strategic interactions between firms.

Contributions of Strauss-Kahn (2005), Picard and Toulemonde (2006) and Pflüger (2004) are closely related to the modeling approach retained in the paper. Strauss-Kahn (2005) investigates the impact of globalization on the employment inequality between skilled and unskilled workers in a general equilibrium framework with wage rigidities. While she investigates location choices of vertically-differentiated segments of production, we rather focus on the location of firms producing horizontally differentiated goods. In this framework, we explicitly study the impact of cross-country differences in minimum wage policy.

² In the theoretical field, the adverse effect of minimum wage obtained in the neoclassical model is questioned in non-competitive frameworks, as shown by Bhaskar and To (1999) in an oligopsonistic model, Cahuc and Zylberberg (1999) in a search equilibrium model, Manning (1995) in an efficiency wage model or Cahuc and Michel (1996) in a training-enhancing framework. The related empirical literature does not reach a clear-cut conclusion either. Papers based on “natural experiments” often get insignificant effects of minimum wage shocks on employment (see Card and Krueger, 1994 for the US, Machin and Manning, 1996 for the UK, and Dolado et al., 1996 for several European countries). Yet, empirical papers on individual data most obtain a significant (and negative) impact of minimum wage on the specific segment of low-skilled workers (see Kramarz and Philippon, 2001; Cardoso and Portugal, 2006 or Laroque and Salanié, 1999).

³ Referring to this empirical FDI literature is not fully appropriate though. Our theoretical framework indeed models entry and exit of firms in a given location, while previous empirical papers use data on FDI flows, i.e. data on the creation of new foreign plants by multinational firms. However, there are not much empirical studies about firms' entries and exits to refer to, as data on firms' location choices are much scarcer and poorer than FDI data. Comparing our theoretical predictions with the empirical FDI literature amounts considering determinants of location choices for new firms and for affiliates of existing multinationals to be similar.

Picard and Toulemonde (2006) also study the role of wage rigidities on firms' location decisions in a model of wage bargaining, while Pflüger (2004) investigates how social policies (unemployment subsidies and taxes) affect location patterns. As in our model, both papers obtain that the “income effect” of wage rigidities is potentially reinforced in an international setting. The underlying mechanism is tied to a standard Home Market Effect: Under increasing returns to scale and costly trade, firms agglomerate near consumers with a high purchasing power. Under some conditions, the competitiveness loss of firms located in the high-wage country is thus partially compensated by the Home Market Effect. In turn, this tends to mitigate the negative impact of wage rigidities on the country's attractiveness.

The novelty of the paper is to study the way interactions between the skilled and unskilled labor markets affect firms' location patterns. In particular, we show that the strength of the Home Market Effect induced by a high minimum wage policy depends on the substitutability between skilled and unskilled workers.⁴ When wages are exogenous, a minimum wage increase raises aggregate income if the nominal effect is not compensated by a drop in low-skilled employment. This is the case when skilled and unskilled workers are low substitutes. If instead substitutability is high enough, a minimum wage increase makes firms in the differentiated sector substitute unskilled for skilled workers, thereby implying a reduction in aggregate income.⁵ In that case, the (negative) income effect strengthens the cost competitiveness loss induced by a country imposing a high minimum wage level.

When we take into account endogenous adjustments of skilled wages, the substitution effect in the increasing returns to scale sector is exacerbated by the decrease in equilibrium skilled wages. The source of downward pressures on skilled wages lies in international competition in the homogenous good market. By raising production costs, the minimum wage increase tends to raise the price of the homogeneous good and reduce its production. Labor demand, hence skilled wages, drop as a consequence.⁶ This, in turn, lowers the income effect induced by the minimum wage shock. Thus, the case for a positive income effect due to high minimum wage policy, that counteracts the competitiveness loss of firms, is even less likely as long as one takes into account international competitive pressures.

The rest of the paper is structured as follows. Section 2 presents our general framework which incorporates the main features of the new economic geography framework and wage rigidities. After solving the model in general equilibrium, we study the impact of a rise in the domestic minimum wage on firms' entry decisions in Section 3. Section 4 concludes.

2. Theoretical framework

2.1. Main assumptions

The world economy is divided in two countries, Home and Foreign, with foreign variables denoted with a star. The domestic (foreign) country is populated with \bar{L} (\bar{L}^*) unskilled and \bar{Q} (\bar{Q}^*) skilled workers. As standard in the literature, we assume that workers are perfectly mobile across sectors but immobile across countries. Skilled and

⁴ In this respect, our model shares some similarities with Toulemonde's (2006). The author builds a new economic geography model, in which the differentiated sector employs skilled labor and workers can invest to acquire skills. As in our model, firms' location choices affect the composition of the labor demand, which in turn modifies aggregate demand. However, we do not introduce endogenous skill-acquisition choices. Instead, skilled and unskilled workers are substitutable in the production of differentiated goods, so that changes in relative wages endogenously affect the composition of labor demand.

⁵ The labor market literature offers empirical evidence that these substitution effects occur in the data, as surveyed by Neumark and Wascher (2008), Chapter 3.

⁶ This perverse effect of minimum wages on skilled wages is consistent with empirical evidence in the labor market literature, stressing that changes in the minimum wage have a significant impact on wage inequality (see evidence in Lee, 1999 or Neumark and Wascher, 2008, Chapter 4).

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