Foreign direct investment and search unemployment: Theory and evidence ☆

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ARTICLE INFO	ABSTRACT
	This paper proposes a simple multi-industry trade model with search frictions in the labor market. Unimpeded access to global financial markets enables capital owners to invest abroad, thereby fostering unemployment at the extensive industry margin. Whether a country benefits from foreign direct investments (FDI) in terms of unemployment depends on the respective country's net-FDI, measured as the difference between in- and outward FDI. The link between FDI and unemployment derived in the model is tested using macroeconomic data for 19 OECD countries on unemployment, FDI, and labor market institutions. Results support the model in that net-FDI is robustly associated with lower rates of aggregate unemployment.

1. Introduction

The ongoing integration of product and labor markets has stimulated a lively debate about the pros and cons of globalization. Supporters often stress the beneficial effects that arise due to increased export opportunities, whereas globalization's detractors are usually more concerned about job losses due to heightened competition from so-called low-income countries. Economics can contribute to this debate in that it can rationalize the fear that more intensive global economic-interdependency generates by identifying the merits and downsides of this process and by quantifying the labor market outcomes of the potentially opposing effects. The public debate that surrounds these issues has frequently been characterized by a lack of clarity regarding the definition of globalization and a failure to account for different elements of this process which may have contrasting implications for domestic and international labor markets. This paper focuses on the implications of capital mobility for domestic and international labor markets by proposing an empirical test on the link between FDI and unemployment. The test is based on a simple multi-industry model with unemployment due to search frictions. Closely related to Dutt, Mitra, and Ranjan (2009), I incorporate Mortensen and Pissarides (1994) search frictions into a trade model. However, capital markets are integrated, which facilitate the study of foreign direct investment and its effects on equilibrium unemployment. Moreover, the trade model

employed features a continuum of industries. Thus, the outcome of the model is different from previous studies in that the effect is ex-ante ambiguous and highly depends on whether a country is the FDI receiving or sending country.[1]

The intuition behind that result is that FDI directly affects intermediates (labor) demand at the extensive margin through endogenous adjustments of capital costs. The adjustments in production costs trigger an expansion of the FDI receiving country's range of active industries through higher competitiveness in industries located close to the former cutoff. This boosts demand for intermediates and thus reduces equilibrium unemployment.

To the best of my knowledge, this paper is the first focusing on the unemployment effects of global sourcing in a model with a continuum of industries from both an empirical and a theoretical perspective. Lin and Wang (2008) present empirical evidence on the effects of capital-outflows on equilibrium unemployment, but their analysis does not feature the distinction between inward and outward FDI. This distinction is crucial at least in the model presented in the theory section of this paper where the sign of the effect is different depending on whether a country is the receiving or the sending country. The empirical strategy is borrowed from Dutt et al. (2009), or Felbermayr, Prat, and Schmerer (2011b).

Also closely related to this paper are two contributions by Mitra and Ranjan (2010) and Davidson, Matusz, and Shevchenko (2008) both focusing on the employment effects of outsourcing in trade models with search frictions. Mitra and Ranjan (2010) propose a two sector model with one input factor labor. In their model outsourcing decreases equilibrium unemployment. Outsourcing in Davidson et al. (2008) forces some of the high skill workers to search for jobs in the low skill sector. This stirs up job competition in the low skill sector and thus triggers a rise in unemployment. Bakhtiari (2012) focuses on the effects of offshoring on low-skilled wages. The model predicts that offshoring 0.5% of unskilled jobs is associated with a 0.3% rise in unskilled real wage.

Kohler and Wrona (2010) highlight the existence of a non-monotonicity between offshoring and unemployment. They identify channels through which offshoring can affect demand for intermediates at the intensive and extensive margin. The two opposing effects lead to an outcome where the sign of the effect hinges on the level of offshoring. Also closely related is an emerging literature on the labor market effects of globalization. Brecher's (1974) seminal paper about the labor market effects of a minimum wage in the Heckscher Ohlin model can be seen as a foundation for a large and emerging literature about the employment effects of globalization. Davidson, Martin, and Matusz (1988, 1999) incorporated the Pissarides search and matching framework into a Heckscher Ohlin type of trade model. Moore and Ranjan (2005) investigate the link between trade liberalization and skill-specific unemployment in such an extended Heckscher Ohlin framework. More recently the spotlight has been directed towards the popular Melitz (2003) international trade model. Egger and Kreickemeier (2009) show how rent-sharing with heterogeneous firms that pay fair wages helps to explain the residual wage inequality and the so-called exporter wage premium. Trade liberalization in their approach increases wage inequality. Helpman and Itskhoki (2010) and Felbermayr, Prat, and Schmerer (2011a) analyze potential employment effects in a heterogeneous firms model with search frictions. Based on their earlier study, Helpman, Itskhoki, and Redding (2010a, b) investigate the effects of globalization on wage inequality and unemployment when workers and firms are heterogeneous.

2. Theory

The model employed to study potential labor market effects of FDI is an extended version of the Feenstra and Hanson (1996, 1997) general equilibrium trade model with search friction a là Pissarides (2000) in the labor market. One modification of the original Feenstra and Hanson (1996, 1997) model is that the production of the continuum of final consumption goods takes place on two different levels. Final goods are assembled using intermediate inputs and capital within each industry. Intermediates are produced by input of homogeneous labor only, which is a simplification of the original model that distinguishes between high- and low-skill workers. The main contribution to the literature is the micro-foundation of the wage-setting mechanism through search and matching and wage negotiation between employers and employees. Firms have to post vacancies in order to recruit new workers before both sides start bargaining wages. The firm sets up shop and starts producing the intermediate good once wage negotiations are successful. The search and matching part of the model is based on small firm version of the Mortensen and Pissarides (1994) search and matching framework. Intermediates are produced by firms that hire exactly one worker and produce one unit of the intermediate good. Wages, goods prices, and thus world income is jointly determined in general equilibrium, which creates an interdependency between the final- and the intermediate goods producers. Put differently, wages paid to workers producing the intermediates map into intermediate goods prices, which implicitly determines the price of the final good.

2.1. The model

2.1.1. Consumer demand

Following the lines proposed by Dornbusch, Fischer, and Samuelson (1977), or Feenstra and Hanson (1996, 1997) I assume that the whole continuum of goods is consumed by a representative household according to a Cobb–Douglas preferences function

$$ln\ Y = \int_0^1 \varphi(z) ln x(z) dz, \qquad (1)$$