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Opening services markets within Europe: Modelling foreign establishments in a CGE framework ☆

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Abstract

Foreign direct investment (FDI) in services is often more important to supply foreign markets than cross-border trade. A complete analysis of services liberalization therefore requires the modelling of FDI. This paper presents the treatment of FDI in our CGE model WorldScan based on the ideas of Petri [Petri, P.A., 1997. Foreign direct investment in a computable general equilibrium framework. Paper Prepared for the Conference, Making APEC work: Economic Challenges and Policy Alternatives, March 13–14. Keio University, Tokyo] and Markusen [Markusen, J.R., 2002. Multinational Firms and The Theory of International Trade. MIT Press] that firms which establish affiliates abroad also transfer firm-specific knowledge. Consequently, capital owned by suppliers from home and foreign countries are not perfect substitutes. We apply this model to the proposals of the European Commission to open up services markets. Even when FDI in services could increase by 20% to 35%, the overall economic impact is limited. Our assessment suggests that GDP in the EU25 could increase up to 0.4%. These effects could be up to 0.8% higher if foreign capital also increases the overall productivity of the services sector.

JEL classification: F23; C68; F15

Keywords: FDI; CGE models; Trade in services; Economic integration

1. Introduction

Foreign direct investment (FDI) in services is often more important to supply foreign markets than cross-border trade. In spite of the importance of FDI,[1] in particular in commercial services sectors, theories and empirics on trade are

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[1] FDI flows have mounted from 100 billion US$ in 1980 to about 600 billion US$ per year in the period 1998–2003. The increase of FDI flows outpaced that of trade flows: FDI flows have increased by about 25% per year in the eighties and nineties, while trade flows have increased annually by about 10%. Sales of foreign daughter companies have increased by 10% to 15% each year while GDP increased at most by 5% per year. Sources: Markusen (2002) and UNCTAD (2004).

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much further developed than on FDI. There are large-scale computational general equilibrium (CGE) models developed to analyse trade policies, based on microeconomic theory, equilibrium mechanisms, and the forward and backward linkages between various inputs and output markets.[2] In contrast, the general equilibrium effects of FDI flows are not widely examined in CGE models.[3]

Recently Petri (1997) and Markusen (2002) conducted a research on the microeconomic underpinnings of FDI and incorporated their ideas in general equilibrium models. Markusen (2002) has developed theories on the behaviour of multinationals in their decisions to service foreign markets by exports or commercial presence. A firm establishing an affiliate abroad also transfers firm-specific knowledge to that affiliate. This assumption implies that capital is more substitutable between countries within a specific sector than between sectors within a country. Examples of the modelling of FDI in CGE models are the FTAP model (Hanslow et al., 2000), Rutherford and his co-authors with several models (Markusen et al., 2005; Rutherford et al., 2005), and a version of the Michigan model (Brown and Stern, 2001).

The first objective of this paper is to present our modelling of FDI in WorldScan: CPB's computational general equilibrium model for the world economy. The second is to apply it to the Services Directive of the European Commission which aims to open up services markets within the EU by increasing cross-border trade and foreign establishments.

What makes our modelling differ from the work of others? First, we contribute to the literature on modelling FDI in CGE models by improving the match between theoretical models with data requirements and availability. Second, the model has to be suitable to analyse commercial services trade because we want to analyse FDI in services. Most multicountry CGE models with FDI only distinguish three sectors. There are CGE models with FDI that distinguish many sectors, but these are often one-country models. This makes sense because other CGE–FDI models are expanded on the dimension of ownership putting a limit on the number of sectors. For our policy application we need to model at least three services sectors (transport, other commercial and government services), apart from manufacturing, energy and agriculture. However these additional sectors come at a cost. Where other CGE models discriminate in a production region in principle the foreign affiliates from all other regions by sector, we discriminate only foreign capital (apart from domestic capital). The production functions of all these firms for ownership are "merged" in one foreign affiliate The main reason is that there are no reliable data to distinguish empirically the production possibilities between all these foreign affiliates in a region. The data to calibrate the production functions by ownership are lacking. Third, we use FDI bilateral stock data for 2001, while other models often use data from the nineties. A fourth contribution of our model is the inclusion of productivity spillovers from foreign affiliates to domestic firms. Foreign affiliates also compete with domestic firms at their home market, not only on output markets, but also on input markets. Moreover, foreign affiliates can transfer knowledge and intangible capital to hired employees or providers of intermediate deliveries. The question is whether these so called FDI spillovers affect the productivity of domestic firms.

As a policy application we analyse the economic effects of increased FDI induced by the Services Directive in the EU. This directive is a relevant exercise for analysing FDI policies in WorldScan, since the target sector – other commercial services – represents about 40% of the economy and it is a multilateral policy instead of unilateral. The output of this application consists of four simulations. They deal with the lower and upper bound of the expected FDI increases, analyse possible rent removal associated with FDI barriers and gauge the effects of productivity differences between foreign and domestic capital.

Our application is based on the previous work by Kox and Lejour (2006), who concluded that intra-EU trade in other commercial services can increase by 30% to 60% and FDI by 20% to 35%. In a related study, De Bruijn et al. (2008), find that the induced-trade effect of the Services Directive (including the country of origin principle) could increase GDP in the EU by 0.3% to 0.7% and consumption by 0.5% to 1.2%. The analysis of Copenhagen Economics (2005) on the Services Directive estimated that GDP could increase by 0.6% including trade and FDI effects. This paper focuses exclusively on the economic effects of FDI changes caused by the Services Directive and therefore it complements the analysis of De Bruijn et al. (2008) on the trade effects.

[2] Examples of these so called global CGE models are the GTAP model (Hertel, 1997), the Linkage model (Van der Mensbrugghe, 2001), the Mirage model (Bchir et al., 2002), Michigan model (Brown and Stern, 2001), G-Cubed Model (McKibbin and Wilcoxen, 1999), WorldScan model (Lejour et al., 2006), and the model of Rutherford (1999).

[3] Recently, many empirical papers have been published on FDI flows and the productivity of FDI. See Blonigen (2005) for a review of the empirical literature on the determinants of FDI and Rojas-Romagosa (2006) on the productivity effects and the references included there.