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Multinationals and foreign direct investment: Main theoretical strands and empirical effects

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ABSTRACT: This article provides a comprehensive synthesis and evaluation of the existing literature on multinationals (MNEs) and foreign direct investment (FDI). It covers both theoretical and empirical studies. On the theoretical side, it offers a chronological description of the main strands since the earliest perfect competition studies from the 1960s till new recent contributions such as the Knowledge-capital model or those on internalisation issues. On the empirical side, it concentrates on the effects of MNEs and FDI on host economies, given their controversy. It reviews their impact on foreign trade, domestic firms' productivity, market structure, wages and GDP growth. It also analyses a nascent and less known literature on empirical computable general equilibrium models that include the activities of MNEs.

Key words: Multinational enterprises, Foreign direct investment, Industry performance, Computable general equilibrium models.

JEL Classification: F21, F23, L10.

RESUMEN: Este artículo ofrece una síntesis y valoración de la literatura sobre empresas multinacionales (EMNs) y flujos de inversión extranjera directa (IED), desde una perspectiva tanto teórica como empírica. En su parte teórica desgrana las principales corrientes cronológicamente; desde los análisis de competencia perfecta de los años sesenta, hasta contribuciones más recientes como el "Knowledge-capital model" o modelos sobre internalización. En el plano empírico se centra en los controvertidos efectos de las EMNs y la IED en los países receptores, analizando su impacto sobre el comercio exterior, la productividad de las empresas nacionales, la estructura de mercado, los salarios y el crecimiento del PIB. También se analiza una literatura empírica pionera y menos conocida de modelos de equilibrio general computable que incluyen EMNs.

Palabras clave: Empresas multinacionales, Inversión extranjera directa, Comportamiento de la industria, Modelos de equilibrio general aplicado.

Códigos JEL: F21, F23, L10.

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1. Introduction

Multinational enterprises (MNEs) are nowadays the focus of much attention as they are central players in the world economy. However, their scientific analysis constitutes a young discipline. Most studies begun in the 1960s, a period in which foreign direct investment (FDI) was experiencing an enormous growth, which attracted economists' attention. This was not, however, the first moment in which FDI had grown dramatically. Baldwin and Martin (1999) describe two waves of globalisation which are related to a rise in FDI flows, among other aspects. The first wave had taken place in the period 1820-1914, and was characterised by North to South FDI in primary product sectors and railroads. The second wave initialised in the 1960s and still continues nowadays, involving FDI mainly among developed nations with a focus on manufacturing, services and outsourcing. What caused such remarkable growth of FDI in the past? What is causing it nowadays? Which are its consequences?

The study of MNEs and FDI has been a fertile research topic. A number of authors have devoted their efforts to review the literature; see, among others, Agarwal (1980), Graham (1992), Markusen (1995), Blomström and Kokko (1997), Lipsey (2002), Barba Navaretti and Venables (2004), Feenstra (2004), Caves (2007) and Greenaway and Kneller (2007). This article offers a concise but comprehensive review and evaluation of the existing literature since its beginnings till new recent contributions. In our approach to the vast array of empirical and theoretical studies on MNEs and FDI we have two main targets in mind. First, we offer a chronological description of the main theoretical strands. In particular, we show that some of the earlier studies provided enlightening ideas, which are now being developed through more formal and sophisticated analyses, such as Markusen's (2002) Knowledge-capital model, or the recent studies on internalisation issues.

Second, the effects of MNEs have been very much debated, and there is still some controversy regarding their impact on host economies, as can be seen in the active antiglobalisation movements. Therefore, we take a look to the empirical studies on this matter. We find that this is a very fragmented area of the literature, in which there are dispersed contributions and different strands according to the particular effect of MNEs analysed. Thus, there is literature on their impact on wages, a different literature on their effects on foreign trade, another one on productivity, on market structure, and so on. Apart from the idea that MNEs are more productive and pay higher wages than domestic firms, the empirical studies seem rather inconclusive regarding many of their effects on the host economies. Can we see which economic forces prevail among the several simultaneous ones that MNEs unleash in a host economy? Facing such a fragmented literature, it seems difficult to obtain an economy-wide evaluation of their impact. Therefore, this study also looks at a less known and nascent empirical line of research which seems suitable for this type of analyses, namely, computable general equilibrium (CGE) models which have recently include the activities of MNEs.

To this aim, this paper is organised as follows. We begin with the theory in the next section. We successively review the perfect competition approaches from the 1960s, which treated FDI as a mere capital movement (section 2.1); the imperfect competition approaches from the 1970s, in which MNEs' aspects were added to FDI modeling (section 2.2); the imperfect competition approaches that appeared from the 1980s onwards, which differentiate between vertical and horizontal MNEs, including the knowledge capital model and heterogeneous firms (section 2.3); and some new contributions on internalisation issues related to FDI (section 2.4). Section 3 goes on with the review of empirical studies. In its first part (section 3.1) we present some characteristics for which applied studies have found rather robust evidence. Next (section 3.2), we show some results on the impact of MNEs on foreign trade (section 3.2.1), domestic firms productivity (section 3.2.2), market structure (section 3.2.3), wages (section 3.2.4) and GDP

growth (3.2.5). In the last part (section 3.3.), we look at the results offered by computable general equilibrium models. Finally, some concluding remarks are presented in section 4.

2. Multinational firms and foreign direct investment: Main theoretical strands

2.1 Perfect competition approaches (1960s): Foreign direct investment as a capital movement

The first formalisations of FDI tended to model it as capital (i.e., a production factor) moving across countries. This idea was a logical extension of the traditional theory of investment responding to differences in the expected rates of return on capital. This view, therefore, predicted that FDI would go from capital abundant countries (where its return was low) to capital scarce countries (where its return was high). Two early theoretical contributions in this line are Mundell (1957) and MacDougall (1960).

Mundell (1957) analysed the effects of factor movements in a two-sector, two countries and two-factors ($2 \times 2 \times 2$) Heckscher-Ohlin model. Under this framework, unless factor endowments differences between the two countries are extreme, so that the factor price equalisation theorem does not hold, product and factor prices remain unchanged after a capital inflow. Another outcome stemming from his model is that the capital inflow reduces imports, i.e., trade and capital movements are found to be substitutes. This is why his contribution has been summarised in the idea that “trade in factors is a substitute for trade in goods”.

The suggestion that capital flows do not have any effect on factor prices, obtained in a Heckscher-Ohlin model, is a rather surprising result. In fact, adding the assumption of specific factors to a simple ($2 \times 2 \times 2$) Heckscher-Ohlin model considerably changes the outcomes, as

capital inflows do affect factor rewards and gives rise to cross-hauled FDI flows, i.e., there will be two-way flows between pairs of countries (Caves, 1971; Jones, 1971; Neary, 1978; Brown et al., 2003; Caves, 2007). This is a nice characteristic which matches the empirical evidence of most developed countries simultaneously sending and receiving FDI inflows.

Rather than analysing factor movements, as in Mundell (1957), MacDougall (1960) focuses on the simplest case of a capital inflow into a one-sector economy. FDI inflows in this setting lower the capital rent in the receiving economy, but also increase labour productivity. The latter effect predominates, increasing welfare for the receiving economy.

Some findings from the models above, such as two-way flows of direct investment, or the potential substitution between trade and FDI are genuine intuitions. However, this theory does not seem to be convincing as an explanation of FDI. The bulk of FDI flows originates in (and is directed to) developed economies, which should be capital abundant (Barba Navaretti and Venables, 2004, chapter 1; Markusen, 2002; UNCTAD, several years). In fact, the share of developing economies in world gross FDI flows has usually been around 20-25 percent since the 1970s onwards (Barba Navaretti and Venables, 2004, chapter 1). Furthermore, only a small number of developing economies receive these FDI inflows in the last years, e.g., China accounts for nearly one-quarter of the total, and a few economies in Asia and Latin America account for the rest, whereas flows going to Africa are nearly negligible (Barba Navaretti and Venables, 2004, chapter 1; UNCTAD, several years). This means that capital does not go to high return locations, i.e., developing countries with low capital endowments. Nevertheless, data problems may lead to defend that this theory still holds because it was tested using inappropriate variables. On the one hand, there are many problems to calculate the correct rate of return. Empirical analysis usually relies on profits calculated from an accounting point of view which differ from those derived from economic criteria. This is so because MNEs use transfer prices for transactions between the

parent and subsidiaries to make profits arise in countries with the most favourable tax environment, among other reasons. On the other hand, Yeaple (2003) maintains that aggregation biases might be behind the empirical outcome that FDI is not related to differences in capital endowments (and, consequently, on the rate of return of capital) across countries.

In the 1960s and 1970s some economists worked on the empirical relationship between FDI, the rate of return and risk (Agarwal, 1980). The so called *portfolio theory* predicts a positive relation of FDI with respect to the rate of return and a negative one with respect to risk. Portfolio diversification may help to reduce the total risk involved, i.e., a firm can reduce risks by undertaking projects in more than one country. However, the portfolio theory is an extension of a vision of FDI as capital movements. In this sense, it is still incomplete. We see clearly nowadays, that the essence of FDI is that it is related to a particular type of firms' production abroad. Each firm has a unique bundle of factors, competencies and procedures which get transferred to foreign operations when FDI occurs. Therefore, FDI is best thought of as movements of firms, rather than simple movements of capital (Graham, 1992; Lipsey, 2002; Markusen, 2002; Barba Navaretti and Venables, 2004, chapter 11; Feenstra, 2004). This idea had appeared earlier. Indeed, some authors abandoned the emphasis on FDI as capital movements and turn their attention to the MNE. We will come back to this shortly.

Before continuing, however, we should comment that many theoretical and empirical models have treated FDI as capital flows. An example is Feenstra and Hanson (1996), which offers a variant of the Heckscher-Ohlin model in which they introduce skilled and unskilled labour, apart from capital, as factors of production. In their setting, MNEs headquartered in developed countries (North) send capital to open subsidiaries to developing countries (South). MNEs transfer to the South tasks that are less skilled-intensive than those of the North but more skilled-intensive than those usually carried out by firms in the South. Their model yields an interesting

outcome regarding wages. Skilled labour wages will increase in the South and in the North, while unskilled wages lose in both areas. Their finding is consistent with their own econometric testing on Mexico's case in the 1980s.

2.2 Imperfect competition approaches (1970s): Adding multinationals

The theories discussed above are based on the assumption of perfect competition in domestic factor and/or product markets. They belong to the traditional trade theory that has dominated for decades, based on competitive, constant-returns models. Hymer's (1976) work showed that the idea of FDI as a simple capital movement responding to rates of return (with or without risk) did not match the real characteristics of MNEs' activities. His pioneering analysis was in his PhD Dissertation, which dates back to 1960, but was published much later, in 1976. The consequences of his contribution were and still are very important. He drew attention to the MNE, in particular, to the type of assets the MNE owned and to the difficulty of transferring those assets - due to *market imperfections*-. Two main types of market imperfections are relevant. One arises from MNEs' advantages with respect to firms with no foreign operations (the differentiation between firm types -MNEs versus domestic- violates the assumptions of perfect competition); and the other is due to transaction costs. Let us briefly review both in turn.

First, MNEs have some advantages compared to local firms. When establishing plants in a foreign country MNEs have some disadvantages compared with local firms (e.g., ignorance of customers' preferences, legal system, institutional framework and the cost of operating away from the parent company). If, despite these disadvantages, MNEs decide to establish plants abroad, they must possess some advantages to which existing or potential local competitors have no access and that more than compensate the disadvantages. Second, the concept of transaction costs. Transaction costs arise from the difficulties of using the market to organise transactions

(e.g., it is hard to design a contract between the firm and its suppliers that contemplates all the circumstances that may arise in the future), therefore the firms' internal procedures are better suited than the market to organise transactions. This point will be further developed later on.

A different approach to FDI should also be mentioned: the product-cycle theory (Vernon, 1966). This theory gave useful explanations for the expansion of US MNEs after World War II. It explains FDI as a reaction to the threat of losing markets as a product matures, and as a search of cheaper factor costs to face competition. Its essence is that most products follow a similar life cycle. In a first stage, the product appears as an innovation which is sold locally in the same country where it is produced (the US). This is so in order to facilitate satisfying local demand while having an efficient coordination between research, development and production units. In a second stage, the product begins to be exported (to Western Europe). In a third stage, some competitors arise in Europe. If conditions are favourable the firm will establish foreign subsidiaries there to face the increased competition and it may also establish subsidiaries in less developed countries to have access to cheaper labour costs to enhance its competitiveness.

Vernon (1979) himself recognised that the circumstances had changed rapidly since his theory was developed and that this had considerably weakened its predictive power. However, the product-cycle theory provided a framework under which a number of authors dealt with crucial questions about FDI. Hirsch (1976), for example, worked on the circumstances which influence a firm's decision on whether using exports or FDI to serve the foreign market. His model takes into account the costs of managing production abroad as well as the asset specificity of the capital owned by MNEs in a simple but complete framework. Other studies, this time empirically oriented, worked on the effects of tariffs on FDI and on the predominance of MNEs in industries characterised by differentiated output and more highly educated employees. Thus, we find some authors that, while being related to the product cycle theory, were already using

modern approaches to FDI, anticipating those of the 1980s. Before moving on to that period, though, we have to devote some attention to the important work of Dunning.

The analysis of Hymer (1976) was given an important step forward by Dunning's work (1977, 1979, 2000). Dunning put together already existing elements in a coherent and unified framework. He provided a triad of conditions necessary for a firm to become a MNE. These three conditions constitute the basis of the eclectic or OLI paradigm, where OLI stands for "ownership, location and internalisation". Ownership means the sort of advantages that MNEs should have in the same line of what has just been explained when talking about Hymer's contribution. Location gives the idea that for a MNE to establish a new plant in a foreign country, this country must have some advantages compared to the home country of the MNE. These advantages may be cheaper factors of production, better access to natural resources, a bigger market, and so on. Finally, the internalisation idea had also been noted by Hymer, when he dealt with transaction costs. It may be more beneficial for a firm to exploit its ownership advantages within its subsidiaries than to sell or license them to other independent firms.

The central concepts of the OLI paradigm have also been introduced in a dynamic framework known as the Investment Development Path (IDP). This concept relates the inward and outward direct investment position of countries with their corresponding stages of development (Dunning, 1981; Dunning and Narula, 1996). It suggests that countries tend to go through five main stages of development. Each of the stages links the GNP level with the net outward investment (NOI) position, i.e., the difference between outward and inward FDI stocks.

2.3 Imperfect competition since the 1980s: Vertical versus horizontal multinationals

We have already alluded to the emergence of the importance of the firm in the framework of the

analysis of FDI. This had also been the case in trade theories. Indeed, trade theories had begun to incorporate important elements of the industrial organisation literature, such as imperfect competition, economies of scale and product differentiation starting at Krugman (1979, 1980) and Helpman (1981). Clearly, the new approach was a considerable improvement in trade models. What is more, it further provided a framework in which MNEs could integrate better into the trade theory. Imperfect competition, economies of scale and differentiated products are more in accordance with Hymer's enlightening ideas regarding the nature of the MNE.

A new literature on MNEs has risen from this perspective integrating modern industrial organisation into trade theories. It is an approach that deals primarily with the incentives, or determinants, for FDI to arise. Taking a microeconomic perspective, the theory relies on location and ownership determinants, according to Dunning's terminology. Location advantages are related to the host country (factor prices, factor endowments, and distance measured as transport costs). Ownership advantages are captured from technological aspects of the firm, such as economies of scale, R&D efforts and transport costs. In what follows we will highlight some remarkable contributions stemming from this line of research.

Within this approach some studies concentrate on the analysis of horizontal MNEs or FDI, whereas others do the same on the vertical side of the phenomenon. Vertical MNEs are those which geographically separate each stage of the production process according to relative cost advantages. They, therefore, look for low-cost inputs and supply their output to other subsidiaries of the MNE through intra-firm exports. The link between vertical MNEs and intra-firm trade should not be overlooked, particularly because intra-firm trade, in turn, accounts for a relevant and increasingly growing part of international trade (Hanson et al., 2003). Horizontal MNEs are those producing roughly the same product in different locations in order to gain an easier access to the host market, i.e. they are mainly interested in sales in the foreign country.

Let us begin with the studies on vertical MNEs. They deal primarily with the following question: why do firms sometimes break the production process across borders rather than keeping all stages in the home country? A pioneering model was that of Helpman (1984). He introduced MNEs in an enriched general equilibrium framework of trade including imperfect competition and differentiated products. Helpman, thus, introduced vertical MNEs in a model with monopolistic competition and differentiated products, that was otherwise a $2 \times 2 \times 2$ Heckscher-Ohlin trade model. He was the first one to formalise the logic of the fragmentation of production in such a framework. In his model the incentive for vertical MNEs to arise stems from factor price differences across countries. Helpman showed that by splitting production processes with different input requirements MNEs can exploit cross-country differences in factor prices by shifting activities to the cheapest locations. Helpman's model proves that in the presence of factor price differences across countries, firms have an incentive to geographically separate capital-intensive production of intangible assets (headquarters services, for example) from the more labour-intensive production of goods.

Therefore, the sort of MNEs described by Helpman, the vertical MNEs, tends to be more prevalent when there are differences in relative factor endowments among countries. Furthermore, in the case of vertical MNEs, FDI and trade are complements: "the larger the difference in relative factor endowments the larger is the volume of trade" (Helpman, 1984, p. 467). Intuitively, vertical MNEs have to deliver unfinished goods for further processing to affiliates and also final goods are traded within the group (parent and affiliates) till they reach different markets to be sold. Apart from the finding that FDI and trade are complementary, there is an additional effect of FDI. In his model, the introduction of MNEs increases the possibilities of FDI leading to the elimination of international factor price differences.

Zhang and Markusen (1999) offer a $(2 \times 2 \times 2)$ model of vertical MNEs in a Cournot oligopoly

framework, which differs from the monopolistic competition approach of Helpman (1984) and incorporates transport costs that were absent in the latter. Zhang and Markusen's model predicts a positive relationship between the size of the host country and the number of vertical multinationals. There is a minimum threshold size below which no FDI takes place. The reason for this lies in transport costs and economies of scale. All production that cannot be sold in the host country market will have to be shipped back to the parent's country, which entails paying for transport costs. If trade costs and economies of scale are low then the host country size is not so important, though. The model also suggests the need for a minimum threshold of skilled labour in the host country where fragmentation takes place. Below that minimum FDI is discouraged. Finally, MNEs lead to a more skilled labour-intensive production in both countries. This yields the prediction of a rise in the real wage of skilled labour in both countries when MNEs arise.

What about the horizontal approach? This is concerned with the question: why do firms decide to serve foreign markets through FDI rather than simply exporting? This is not a recent question (see, e.g., Hirsch (1976)), and we have nowadays a better idea regarding its answer. A pioneering theoretical contribution, though, that includes the analysis of this decision in a general equilibrium trade model with imperfect competition is Markusen (1984). In the same line goes the work of Brainard (1993, 1997). Her main findings are that firms choose horizontal FDI versus exporting when the gains from avoiding trade costs outweigh the costs of maintaining capacity in multiple markets. More technically, horizontal MNEs are more likely to arise when: 1) firm-level scale economies of scale are high, 2) plant-level scale economies of scale are low, and 3) trade costs are high. She, further, tested her predictions empirically and obtained robust support for them.

Markusen and Venables (1998, 2000), offer two models of MNEs that also support the predictions of Brainard's model. Their novelty lies in their well-grounded outcome regarding two

other determinants of the emergence of horizontal MNEs: countries' size and factor endowments. Horizontal FDI flows are increasing in countries similarities in size, as measured by GDP, and factor endowments; i.e., the more similar in GDP and factor endowments two countries are, the more FDI will take place between them. Note this outcome is just the opposite to that offered by models of vertical MNEs. Furthermore, these two models deliver a strong prediction regarding the relationship between trade and horizontal MNEs. When countries have a similar size and factor endowments, trade tends to go down and MNEs tend to increase. Thus, trade and horizontal FDI are substitutes, again the opposite relationship compared to that predicted by vertical MNEs models.

Helpman et al. (2004) construct a model of intra-industry firm heterogeneity which is consistent with Brainard's and Markusen and Venables's main conclusions on horizontal FDI, which is the type of MNEs that all these models consider. The chief contribution of the former is that FDI sales relative to exports are larger in sectors with more firm heterogeneity. Firms' heterogeneity is a promising future line of research, which brings the model closer to reality, at the cost of the difficulty of obtaining appropriate firm-level data.

We have previously referred to Markusen's work. However, probably, his most important contribution is the knowledge-capital model, developed in Markusen (1997; 2002, chapters 7 and 8). In that model, he uses a two-country, two-factor and two-good model in which both vertical and horizontal MNEs are included simultaneously. This means a step forward in MNEs' modeling, which is of particular relevance given the empirical importance of both types of flows (see below). Interestingly, the knowledge capital predictions' are quite close to those in the horizontal MNEs' model. Markusen is, further, one of the few authors, to the best of our knowledge, that offers a detailed study regarding the welfare effects of MNEs to which we turn now. A deeper analysis of the rich contributions of his book is available in Latorre (2004).

He maintains that MNEs may benefit both countries in his model. However, it is the larger one that loses if indeed one country loses. This is the country in which MNEs' headquarters are, so he concludes that in contrast to some conventional arguments, it is generally the host economies that are ensured of gains and the parent countries that could lose from investment liberalisation. Markusen also looks at the effects on a host economy of trade liberalisation, investment liberalisation, and simultaneous investment and trade liberalisation. This perspective allows him to show that the host economies' welfare is highest under full liberalisation (investment and trade liberalisation). He notes that the knowledge-capital model has a "pro-skilled labour bias", which is an important factor in making results go against the logic of traditional theory. The "pro-skilled labour bias" means that the effects of MNEs' emergence are analogous to a change to a more skilled-labour intensive technology in the world in general. In other words, MNEs make both countries specialise in more labour-skilled technologies than before MNEs' arrivals. An important consequence can be drawn from the skilled labour bias. If a factor of production loses from MNEs' emergence it will be unskilled labour. This finding is consistent with the results of Feenstra and Hanson (1996) and Zhang and Markusen (1999).

Finally, within this framework of location and ownership advantages, a latest approach is a line of research which incorporates R&D decisions into theoretical models of the MNE. MNEs are generally characterised by a strong effort in R&D activities. However, the intangible nature of many of these assets makes it difficult to incorporate them into theoretical (and empirical) models. An interesting answer to this is offered by Sanna-Randaccio and Veugelers (2003, 2007). Their theoretical model analyses the costs and benefits of undertaking R&D activities in a subsidiary of the MNE versus keeping those activities within the headquarters. The empirical evidence on this shows that R&D activities are mostly done in the headquarters, however we also have evidence that subsidiaries are increasing the scope of this sort of activities (Sanna-Randaccio and Veugelers, 2003). The authors obtain two important conclusions. First, the more

technologically advanced the host economy is, the more likely it will benefit from the presence of foreign subsidiaries performing R&D activities. Second, the potential harmful effects of MNEs are likely to diminish if they are not direct competitors in the same market of the local firm. In other words, vertical (or inter-industry) relationships between foreign and local firms (i.e., backward and forward linkages) are more beneficial than horizontal (or intra-industry) ones.

2.4 Recent contributions on internalisation issues

The theories analysing the issue of internalisation come to cover a gap present in those theories more oriented to location and ownership advantages. The latter give an idea of the incentives to produce abroad but do not explain why foreign production will occur within firm boundaries (i.e., within the MNEs), rather than through arm's-length subcontracting (i.e., contracts with independent firms, a phenomenon known as *outsourcing*). We showed above how internalisation issues were central in the analyses of Hymer and Dunning. However, there is a recent literature which has formalised internalisation including it in the framework of more advanced trade theories, not available when Hymer and Dunning's outstanding contributions appeared. We offer in the next paragraphs a brief overview of this new literature.

When choosing between arm's-length subcontracting versus internalising, the MNE, as well as a national firm, faces a trade-off. On the one hand, if the firm decides to internalise its foreign operations it will have to pay the higher costs involved in setting up and running a wholly owned plant in a foreign country; on the other hand, if the firm decides to outsource it will have to face some market failures affecting contractual relationships with local firms. Local firms tend to have more information about their market than a MNE has. If there were no contractual problems firms would decide to outsource activities to local suppliers to profit from their experience. However, there are market failures arising from the difficulty of coordinating and controlling the

actions of local firms through contracts. In most cases, the firm that outsources has to pay a high rent to local firms to ensure that the process “will work”. This results in a reduction of the profits accruing to the firm that outsources, incentivating internalisation. There are many possible market failures; we will rely on those that appear more often in the literature of MNEs.

One of the possible market failures is the hold-up problem. This problem has two components. One is the difficulty of writing contracts covering all possible contingencies in the relationship between a firm and its external supplier. The other one is that the local supplier has to do some specific investments to produce the components demanded by the firm it serves, or from a different angle, that the goods he will produce for its customer are very specific, which makes it difficult to sell them to other customers. The local supplier knows that the contract will be incomplete and the specificity of its production. He may fear that after having invested to produce the input for the firm, this firm may refuse to pay claiming that some contingencies uncovered by the contract have occurred. They may then have to renegotiate the contract and so long as the investments made by the local supplier are specific to that relationship he will be in a weak bargaining position. Under these circumstances, local suppliers are likely to underinvest, compared to what they would do if there were no market failures. This inefficiency of suboptimal investment reduces the total return to outsourcing.

Ethier (1986) was the first one to analyse the hold-up problem in a context of MNEs’ activities within a general equilibrium framework. More recent papers using a general equilibrium framework to analyse the hold-up problem include Grossman and Helpman (2003), Antràs (2003), and Antràs and Helpman (2004). The inclusion of internalisation issues in a general equilibrium framework with MNEs is a very promising line of research still in its infancy.

Incomplete contracts also arise from the difficulty of protecting intangible assets. Ethier and Markusen (1996) first formalised the case of transferring an intangible asset with superior knowledge embodied. Once its knowledge has been transferred to the licensee, this may set up its own plant and start competing with the original owner of the knowledge. To avoid this, the firm facing the outsourcing versus internalising decision needs to design an optimal licensing contract. In this case, the contract should promise important rents to the local supplier to make defection unprofitable. But these high rents may be too costly to the firm, again incentivating internalisation.

Sometimes, what is at stake is the asset of the firm's good reputation. The local supplier may not be so interested in maintaining or enhancing that reputation. This local supplier may be a franchise which prefers to provide a good of lower quality thus saving on cost and making more profits. If quality is not observable to consumers before purchase, the local suppliers may free-ride on the reputation of the firm, make big profits for a period and then break the contract. To avoid free-riding the firm may again transfer attractive rents to the franchisees so that they are interested in maintaining that contract. This may be a too expensive method of controlling quality and the firm will consider internalising. A model along these lines is that of Horstmann and Markusen (1987), which is revised and expanded in Markusen (2002, chapter 13).

Other market failures arise from the so called agency costs, which also apply to a wider spectrum than the outsourcing versus the internalisation field. However, it arises in this case when there are informational asymmetries between the firm and its local supplier. Local suppliers may have different objectives than those of the firm, and if their operations are not observable by the firm, they may manipulate information on the state of the market to extract a surplus. In these circumstances, the firm should design a contract that ensures that the local supplier will say the

truth about the state of the market, which may entail a great difficulty. A model dealing with this situation is Horstmann and Markusen (1996), which is revised in Markusen (2002, chapter 15).

A firm faces a wider variety of possibilities between the two extremes of outsourcing and internalisation that we have so far considered. There is not much research on these intermediate varieties, though. A firm may, for instance, engage in different types of joint ventures, where this term denotes a situation in which “two or more entities have joint ownership of a firm and none is in the position to exert unilateral control of the firm” (Barba Navaretti and Venables, 2004, p. 300). A recent model of joint ventures (Rauch and Trindade, 2003) can allow us to show a final market failure. The model analyses the matching of firms, i.e., the difficulty for a firm to find the most suitable local supplier to the specific component or activity that the firm needs. The authors conclude that when the uncertainty about the right international partner diminishes, joint ventures lead to a greater integration of international labour markets than autarky. Furthermore, the lower this uncertainty the more the outcome from their model approaches the perfect capital mobility framework of the MacDougall’s (1960) one-sector economy. This is again a nascent research topic which seems of great interest.

Finally, recall that this internalisation issue is not a peculiarity of MNEs. National firms also face the decision of “make (internally in the firms’ own plants) or buy (from external suppliers)”. Certainly, internalisation advantages are one of the determinants of the emergence of MNEs, as Hymer and Dunning pointed out, but it goes beyond the domain of MNEs. We turn now to empirical issues.

3. Empirical literature on the effects of multinationals and foreign direct investment

3.1 Two characteristics of multinationals with a rather strong empirical support

3.1.1 Multinationals are more productive than domestic firms

The comparison with those firms that do not have foreign operations is clear: MNEs are much more productive. This outcome is obtained in studies using either total factor productivity (Doms and Jensen, 1998; Evenett and Voicu, 2001; Lipsey, 2002) or labour productivity (Doms and Jensen, 1998; Djankov and Hoekman, 2000; Conyon et al., 2002; Helpman et al., 2004). This makes a lot of sense, because, as already mentioned, MNEs have “a very distinctive bundle of capabilities” (Barba Navaretti and Venables, 2004, p. 278), the “ownership advantages” on which the OLI paradigm is based (Dunning, 1977, 1979, 2000).

An interesting taxonomy has been found. MNEs are larger and more productive than exporting firms, which in turn, are also larger and more productive than firms with no foreign operations (Helpman et al., 2004; Helpman, 2006; Greenaway and Kneller, 2007).

3.1.2 Multinationals pay higher wages than domestic firms

Many studies support this conclusion (Agarwal, 1980; Aitken et al., 1996; Doms and Jensen, 1998; Djankov and Hoekman, 2000; Conyon et al., 2002; Brown et al., 2003; Barba Navaretti and Venables, 2004, chapter 7; Lipsey, 2002; Lipsey and Sjöholm, 2003, 2004; Huttunen, 2007). This result holds for MNEs operating in both developed and developing countries. The reasons for this, however, are not clear and there are many possible explanations:

- 1) Because MNEs tend to be more prevalent in sectors which employ a large number of nonproduction workers and have high levels of R&D (Molero and Buesa, 1993; Markusen 1995; Molero, 2000; Bajo-Rubio and López-Pueyo, 2002; Markusen, 2002, chapter 1; Barba Navaretti and Venables, 2004, chapter 1; Blonigen 2005). Accordingly, many of their employees receive higher wages, pulling average wages up.
- 2) MNEs usually are large firms (Molero, 2000; Barba Navaretti and Venables, 2004, chapter 1; Djankov and Hoekman (2000); Helpman et al., 2004; Helpman, 2006), and large firms, in general, tend to pay higher wages (Lipsey, 2002).
- 3) As MNEs carry with them a bunch of superior assets, this should raise labour productivity, *ceteris paribus*. Wages remunerating more productive labour experience a tendency to be higher, unless the MNE has considerable market power in the labour market. We know that market power in the labour market will diminish if MNEs are in urban areas because competition from other firms is likely to flatten their perceived labour supply (Brown et al., 2003). In this latter case, maybe higher wages are due to higher productivity.
- 4) MNEs can pay higher wages to avoid their employees to leave and work for other firms, thus transferring valuable MNEs' knowledge to other firms.
- 5) It could also be the case that the labour hired by MNEs is more productive per se. MNEs may choose the best workers by paying them more than the rest of firms.

Several studies deal with this latter point. Conyon et al. (2002) use a sample of firms in the United Kingdom, which have been acquired by domestic or foreign firms. Their dataset contains firms' performance before and after the change in ownership. This helps them to isolate the effect of "foreign ownership". Interestingly, they find that labour productivity of firms acquired by foreigners was lower than the labour productivity of the firms acquired by domestic firms. This would suggest that MNEs were not choosing firms with the best employees. Lipsey and Sjöholm (2004), after controlling for the quality of labour, find a substantial wage premium in MNEs. However, as they estimate the wage premium without fixed effects for individual establishments,

there may still be unmeasured characteristics (e.g., capital intensity) of individual firms that are associated with both high wages and foreign ownership. Therefore, there may be other factors accounting for the differences in wages, apart from skill levels. In another study, which includes establishment fixed effects, Lipsey and Sjöholm (2003) still obtain a wage premium for workers in foreign firms. Huttunen (2007) has analysed the effects of foreign acquisitions on wages of different skill groups using panel data on Finnish establishments, which include plant-specific fixed effects and more modern econometric techniques. Her results also indicate the existence of a wage premium in foreign firms. This gives evidence for the idea that in Finland higher wages in foreign firms are not due to the quality of the workforce, but to foreign ownership itself.

3.2 Some empirical effects of multinationals and foreign direct investment

3.2.1 Multinationals and foreign trade

It is not easy to find out whether MNEs tend to generate trade deficits or surpluses in the host economy. On the one hand, FDI inflows may reduce or increase imports received by the host country. There is evidence for both cases (Blomström and Kokko, 1997; Goldberg and Klein, 1999; Blonigen, 2001 and Swenson, 2003). Lipsey and Weiss (1981; 1984) find a positive relationship between FDI and imports but fail to consider endogeneity stemming from the characteristics of the host market. Bajo-Rubio and Montero-Muñoz (2001), having corrected for endogeneity, also find a positive relationship, while Gruber and Mutti (1991) using similar data to Lipsey and Weiss (1981) find an insignificant negative relationship between FDI and imports. On the other hand, more evidence exists regarding the idea that FDI inflows increase exports of the host economy (Blomström and Kokko, 1997; Lipsey, 2002; Greenaway and Kneller, 2007).

The relationship between FDI and trade is related to the predominance of vertical or horizontal

MNEs. Recall that for the former trade and FDI are complementary whereas for the latter they are substitutes. Indeed, the findings in Blonigen (2001), Head and Ries (2001) and Swenson (2004) suggest that FDI increases imports of intermediate inputs from the host economy but decreases imports of finished products. Which type of MNEs prevails? Markusen states that: “the weight of empirical evidence suggests the dominance of horizontal motives for foreign production” (2002, p. 128). He defends this idea for the world, as a whole, because most FDI flows are among developed economies, which according to his view tend to be horizontal. However, Markusen himself also acknowledges (2002, p. 189) that “vertically integrated firms are important in some industries and surely important to some host countries”.

Using data for inward and outward U.S. affiliate sales, Carr et al. (2001) obtain support for Markusen’s knowledge capital model which considers the simultaneous presence of vertical and horizontal MNEs. However, with respect to their results, Blonigen et al. (2003) argue that there is some misspecification in the proxy for skill-labour differences that, when corrected, leads to econometric results that support the horizontal MNEs model. This would give less importance to the weight of vertical US MNEs. Nonetheless, in their reply, Carr et al. (2003) explain some flaws existing in the approach of Blonigen et al. (2003), such as the use of FDI stocks rather than MNE’s data, which are the focus of the theory developed by Markusen.

Hanson et al. (2003) have obtained robust evidence for the importance of vertical US MNEs and argue that their results are at odds with those derived by Carr et al. (2001). They give a reason why they find strong evidence of vertical FDI. This is because they use micro-level data on foreign affiliates whereas previous work uses data that aggregates not just across the activities of a given affiliate but also across all affiliates.

3.2.2 Multinationals and domestic firms' productivity

One of the most studied effects from FDI is that of spillovers, i.e., positive or negative externalities arising from the presence of MNEs. One type of externalities is the arrival of new or better products introduced by foreign affiliates from which consumers benefit. This aspect, however, has been generally neglected in the empirical industrial organisation literature of MNEs. By contrast, some computable general equilibrium models report that FDI inflows raise welfare by increasing the number of varieties available for consumers (e.g., Bhir et al., 2001, and Rutherford and Tarr, 2008). Other type of externalities is related to the more advanced techniques and know-how that MNEs bring with them. This may be transferred to domestic firms voluntarily (through the creation of linkages or licensing agreements with domestic firms) or involuntarily (through imitation or labour mobility). Many studies on spillovers have focused on whether this transference of new technologies from MNEs affects domestic firms' productivity. In this respect, the results are fairly ambiguous.

The studies on Eastern European countries –an area that has received a lot of attention in the last few years– seem quite eloquent. Djankov and Hoekman (2000) find a negative effect of the presence of MNEs on domestic firms acting within the same sector in the Czech Republic. Also for the Czech economy, Damijan et al. (2003) do not detect horizontal spillovers and finds negative spillovers for R&D intensive firms, whereas Kinoshita (2001) finds positive spillovers for those R&D intensive firms. In the rest of six transition economies which Damijan et al. (2003) also study, positive intra-industry effects were obtained only for Romania, but Konings (2001) finds negative spillovers for this same country. All these studies use the same methodology (panels), firm-level data and analyse a very similar period of time, 1992-1998, approximately.

Some other studies are also noteworthy given their particularly careful econometric approach.

Aitken and Harrison (1999) find evidence for negative spillovers on domestic firms' productivity in Venezuela. FDI reduces the output of those firms, which makes them produce in less efficient points of their declining average cost curve, thus, reducing their productivity. Haskel et al. (2002) obtain evidence of positive horizontal spillovers in the United Kingdom. However, these positive spillovers do not seem to be large enough to justify the amount of money spent by the government to attract MNEs. Smarzynska (2004) finds positive spillovers through backward linkages and no evidence for horizontal or forward linkages in Lithuania. This suggests that vertical spillovers may be more likely than horizontal ones. These latter analyses, together with the ones covering a wider spectrum of studies (e.g., Görg and Greenaway, 2004; Barba Navaretti and Venables, 2004, chapter 7; Crespo and Fontoura, 2007) show a vague, and even negative, evidence of MNEs' effects on domestic firms' productivity.

3.2.3 Multinationals and market structure

Another important, and nearly under-researched, aspect is the effect of FDI on market structure. Theoretical predictions (Ferrett, 2004) are consistent with both a pro-competitive effect (i.e. they promote competition and reduce price-cost mark-ups) and a more concentrated structure (i.e. they "crowd out" (less efficient) domestic firms with the danger of turning the market into a more oligopolistic structure). Markusen and Venables (1998, 2000) and Markusen (1997, 2002) show that the type of firms (MNEs versus domestic) which will prevail depends on the relative endowments and size of countries, of the level of transport costs, and of firm-level and plant-level economies of scale. Therefore, in the end, as happens with most effects of FDI, whether MNEs crowd out domestic firms or not, is an empirical matter. Empirical studies on this aspect, however, are scarce and particularly troubled with methodological problems (Barba Navaretti and Venables, 2004, chapter 7).

Co (2001) derives a complex interplay between previous levels of concentration, the type of FDI undertaken (i.e., greenfield versus non greenfield) and the timing of adjustments in the levels of concentration after the entry of MNEs in the US economy. Barrios et al. (2005) and Sembenelli and Siotis (2005) find that the pro-competitive effect first dominates but is gradually outweighed by positive externalities in Ireland and non R&D intensive sectors in Spanish manufacturing, respectively. However, the latter authors find that in R&D intensive sectors positive spillovers result in an increase in margins after the entry of MNEs, thus leading to a more concentrated market structure.

There is a nascent literature on plants shutdowns which could be seen as related to this issue of market structure. However, so far, this literature has focused on the firms and plants characteristics associated with the shutdown decision and has not analysed the dynamics of the process. A recent outstanding contribution is Bernard and Jensen (2007) who find, with US data, that single-plant firms have higher probability of death than multiplant firms and MNEs. However, this is due to the fact that the latter type of firms are usually characterised as larger, older and more productive than domestic firms. When they control for these characteristics, plants belonging to multiplant firms and MNEs are more likely to close than single plant units. This line of research may give us some hints to analyse the effects of MNEs on market structure. It is not nationality itself which matters, but a comparison of firm and plant characteristics between incumbent firms and the MNEs which arrive.

3.2.4 Multinationals and wages

We have seen that MNEs pay higher wages, but this result does not tell us about the effects of MNEs on average wages of the whole economy. In particular, MNEs' wages can be above domestic ones as a result of a negative effect caused by MNEs, e.g., the presence of MNEs

causes a large fall in average wages, with a disproportionate negative effect on workers of domestic firms. There is empirical evidence, rather scarce, but still some evidence, of this type of effect. Aitken et al. (1996) find that FDI had a negative and significant effect on the average wages of workers employed by domestic firms in Venezuela, while for Mexico FDI had the same negative (although non significant) effect. Feenstra and Hanson (1996) show that MNEs increased the wage of skilled workers relative to unskilled ones in Mexico in the 1880s. These findings are consistent with the theoretical model they build and also with Markusen's (1997; 2002, chapters 7 and 8) knowledge-capital model. With a rich dataset Huttunen (2007) also obtains results in this line. She derives a clear causality indicating that foreign acquisitions themselves lead to higher wages in Finland, and that the increase in wages are higher the more educated workers are.

One may also look at the effect of MNEs' entry on average wages in a country or industry. Aitken et al. (1996) find that the wage increase for workers in foreign firms counteracted the negative effect for domestic workers in Venezuela, so that average wages increased in that country. Feliciano and Lipsey (1999) could not find a significant effect for the average wage in manufacturing in Mexico; but, for the rest of sectors, average wages increased. Indeed, Lipsey (2002, p. 34) summarises the scarce available evidence on the effect on average wages as positive in the sense that MNEs' entry increased them. All in all, this is still an area in which further research should be done, a task which would be facilitated by the availability of better data on labour' skills and their corresponding wages (Markusen, 2002, chapter 1).

3.2.5 Foreign direct investment and economic growth

MNEs often exhibit more advanced techniques and high levels of R&D expenditures, possess higher skills and experience, and so on. These characteristics lead to think about the role of

MNEs as promoters of technological innovation and progress and, therefore, of economic growth. However, given the “intangible” nature of these assets it may be difficult to empirically grasp their impact on growth. What are the results of empirical studies? These studies have found that FDI increases growth when host economies characteristics point to the existence of an “absorptive capacity”. What exactly constitutes that absorptive capacity varies. It may be related to a high income level (i.e., rich) countries (Blomström, Lipsey and Zejan, 1994), an open trade regime (Balasubramanyam et al., 1996), a highly educated workforce (Borensztein et al., 1998, Campos and Kinoshita, 2002) or well-developed financial markets (Alfaro et al., 2004; 2006).

An exception to this positive relationship is the study by Carkovic and Levine (2005). Using a panel for 72 economies over the period 1960-1995 they find no evidence that either the level of education, income, trade openness or the financial system development are critical for the effect of FDI on growth. Nor do FDI flows themselves impact on GDP growth, after controlling for endogeneity, country-specific effects and the inclusion of lagged dependent variables in the growth regression. However, using the same methodology in an analysis for a group of developed and homogeneous economies, Bajo-Rubio et al. (2008) have found a clear positive impact of FDI on growth. This latter analysis again shows that due to the presence of absorptive capacity, in this case, in the Spanish regions, FDI flows increase growth in them.

3.3 A review of computable general equilibrium models that include multinationals

As mentioned earlier, the empirical literature seems to offer rather fragmented and dispersed contributions of the different types of effects of MNEs. This makes it difficult to derive their economy-wide impact. A recent generation of computable general equilibrium (CGE) models allows combining a set of effects arising from the presence of MNEs in a unified framework to obtain their overall impact on factor and commodity markets, trade flows and so on. This

approach, thus, offers quantitative results for their impact on aggregate variables, such as GDP and welfare, as well as many other sectoral variables.

From a theoretical perspective CGE techniques have been used to undertake analyses that do not rely on real data but on a range of simplified values for different variables of the model –the so called “numerical CGE models”–. This is the approach in Markusen and Venables (1998, 2000) and Markusen (1997; 2002, chapters 5 to 9), mentioned above, and, more recently, in Markusen et al. (2005) and Alfaro et al. (2006). This latter methodology uses sophisticated theories (synthesised in a generous number of equations) for which computational methods greatly facilitate solving the model and establishing interesting taxonomies in solutions for different levels of the variables (e.g., the interaction of factor endowments and the size of the host and home countries, or different values for trade costs, with the absence or existence of MNEs or of different types of MNEs). These models tend to analyse real world problems for which data are difficult to obtain by simplifying the dataset assumed. The inclusion of real data in such a rich theoretical framework constitutes a challenge for modelers.

The “empirical CGE models”, by contrast, are based on data from real economies, which are embedded in a robust theoretical framework, namely, the Arrow-Debreu general equilibrium model. For a long time they have not included MNEs, nevertheless, in the last decade, a few of them have sought to derive their effects. We review now the scarce contributions in this line. Petri’s (1997) paper is, to the best of our knowledge, the first CGE model incorporating FDI. He initialises a small number of papers mainly concerned with the effects of FDI liberalisation, which is a central element in most trading agreements. The author analyses the APEC (Asia-Pacific Economic Cooperation) liberalisation process. Welfare increases in the area where liberalisation takes place, but decreases in the rest of the world. This latter region loses FDI (which goes to APEC) and experiences a fall in wages. His results suggest that the rest of the

world not only foregoes gains by not liberalising FDI but also loses because of failing to keep up with liberalising neighbours.

Following the pioneering work of Petri (1997), the FTAP model analyses the impact of liberalising FDI barriers in the services sectors (Dee and Hanslow, 2000). Quantitative results for the impact on GDP, income, welfare and sectoral output are derived for the world as a whole and for nineteen regions. A second version of the model (Verikios and Zhang, 2001) introduces more sectoral detail. According to their findings, developed and developing regions gain from liberalisation but developing ones gain more.

Bchir et al. (2002) simulate the impact of trade liberalisation between the European Union and its periphery in a dynamic model. FDI inflows increase the capital stock and the number of firms (and product varieties) in the periphery resulting in a rise in wages of skilled and unskilled workers. Again, FDI liberalization leads to an increase in GDP and welfare in that area.

Rutherford and Tarr (2008) analyse the impact for income distribution in Russia, due to its accession to the World Trade Organisation, in a model of 55,098 households. While accession is beneficial for 99.9 per cent of the households, the entry of MNEs in services sectors is key, accounting for 70 per cent of the mean welfare gains to Russia, averaged over all households.

Analysing the impact of FDI through a lessening of the “estimated” levels of those barriers, as simulated in all previous models, may introduce biases in the analysis. Latorre et al. (2008) extend the GTAP model to quantify the effects of MNEs using a different approach. In a 20-sector model for the Czech Republic, they derive the impact of the entry of MNEs in some selected manufacturing and services sectors. Profit repatriation by MNEs seems to play a key role since, if it were high, the positive effects of MNEs’ entry might be partially or even totally offset.

4. Concluding remarks

This article reviews the main theoretical strands on FDI and MNEs, together with the empirical evidence available on some of their eventual effects on host economies. First, we look at the development of the theory since its beginnings. The earliest analyses, which appeared in the 1960s tended to model FDI as capital crossing borders in perfect competition settings. The work of Hymer drew attention to the idea that FDI flows were better understood as movements of a particular type of firm, the MNE, which owned some sort of superior or special assets. The introduction of a different type of firm broke the assumption of homogenous producers and goods and led to imperfect competition as a framework for the analysis of MNEs. On the other hand, the need to transfer superior assets across borders by MNEs introduced transaction costs in the analysis, which lies behind the possibility of internalisation versus establishing contracts with independent suppliers. The analysis of Hymer was given an important step further by Dunning's OLI paradigm, which clearly stated that, for a firm to become a MNE, ownership, location and internalisation advantages are needed.

In the 1980s, ownership and location advantages have been formalised in theoretical models of vertical and horizontal MNEs in the context of a complex industrial organisation approach. Many earlier intuitions are given a mathematical format. These efforts are nowadays still conducted along, at least, two outstanding lines:

- 1) Powerful computational methods, which allow theories to incorporate a great deal of relationships and specifications. This permits playing with simulations of different levels of factor endowments, size, trade costs and even types of MNEs, among others, to establish interesting taxonomies in solutions; e.g., Markusen and Venables (1998, 2000) and Alfaro et al. (2006).

2) Models with heterogeneous firms are bringing mathematical formalisations closer to the fact that there are many different types of firms acting within sectors in the economy (e.g. Helpman et al., 2004). More recently, the idea of internalisation is also being treated in more ambitious mathematical formats (e.g., Antràs and Helpman, 2004), thus reinforcing the analysis of an important aspect of the activities of MNEs.

On the empirical side, it seems clear that MNEs are more productive than firms with no foreign operations, and pay higher wages than domestic firms. But regarding their effects the evidence is less conclusive and sometimes troubled with methodological aspects. There is mixed evidence on whether they lead to an increase in imports for the host economies while more support exists to the idea that they increase their exports. With respect to spillovers, some may find it counterintuitive, but the superior assets that MNEs hold do not generally lead to positive externalities for the host economies, e.g., an increase in the productivity of domestic firms, and there even exists some evidence on negative spillovers. At the macro level, however, many studies confirm a positive impact on GDP growth when host economies exhibit the so called “absorptive capacity”. Much work still needs to be undertaken to grasp the effects of MNEs on market structure, as research is still scant in this area. Finally, MNEs pay higher wages than domestic firms and this generally brings about an increase in average wages. However, there is some exceptional evidence showing that MNEs have led to a general decrease in wages which a disproportionately bigger effect on domestic wages.

We have also looked at the few CGE models available which have recently introduced MNEs, searching for a more comprehensive evaluation of their effects. Their findings support the idea that MNEs increase the average wage levels of the host economy, and lead to increases in GDP and welfare. Some results, however, have shown that profit repatriation may counteract and, if repatriation is high, completely offset, the positive effects of the entry of MNEs. These analyses

offer quantitative evaluations of the impact of MNEs on both microeconomic and macroeconomic variables in different sectors, countries and regions. Their combination of a rich theoretical framework with actual data on real economies, offers a new perspective for the empirical analysis of the effects of MNEs.

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