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FOREIGN DIRECT INVESTMENT AND PROCESSED FOOD TRADE

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Concluding Remarks

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In order to make some overall sense of the papers presented in these proceedings, it is useful to begin by providing a "thumbnail" sketch of the basic thrust of the international economics literature on the role of multinational firms and foreign direct investment (FDI). The basic idea here is to give a context to the research presented, and, also, to provide a sense of where research on this topic with respect to the processed food sector might proceed in the future.

As argued by Ethier, conventional trade theory, embodied in the Heckscher-Ohlin-Samuelson (HOS) model, is rather disappointing in that it really has "nothing to say" (Ethier 1994, 109) about the role of multinational firms and FDI. Due to explicit assumptions made in the HOS model relating to perfect competition and constant returns to scale, it is perhaps unsurprising that neoclassical trade theory does not deal with multinationals, and, in addition, because factor immobility is assumed, FDI is explicitly ruled out by the traditional model.

This is not to say that FDI, characterized as a change in the location of physical capital, cannot be incorporated into the orthodox models. Ruffin (1984) provides a good survey of what the adjusted neoclassical model has to say about the relationship between trade and FDI. Samuelson (1949), Meade (1951), Mundell (1957), and others have all suggested that trade is a substitute for factor movements. This essentially follows from the Heckscher-Ohlin theorem whereby a country will export goods that embody the factor(s) in which the country is well-endowed. With factor price equalization, trade will be a perfect substitute for factor movements (Samuleson). This is also consistent with the Rybczynski theorem (1955) which predicts that as countries become more similar in terms of relative factor endowments, exports should decline. Therefore, it follows that if there is factor mobility, the export of an abundant factor such as capital will narrow the basis for trade.

As noted by Ethier (1994), even if FDI is introduced into the HOS framework, the prediction that FDI will be a function of differences in factor endowments and negatively correlated with direct exports are generally in direct contradiction with the stylized facts; essentially a large amount of two-way FDI occurs between countries at similar stages of economic development and with similar factor endowments. This also seems to be borne out by the observed patterns

of FDI in the processed food sector (Handy and Henderson, 1994). However, if both the HOS assumptions of capital immobility and similar technologies between countries are dropped, giving the framework more of a Ricardian character, then international capital movements may be a complement as opposed to a substitute for trade.

This complementarity proposition is contained in the work of Kemp (1966) and Jones (1967), and more recently in Markusen (1983). Following the latter approach, suppose in a 2X2X2 HOS-type model that both countries are completely identical, so that there is no basis for trade in either goods or factors. If there is a technical improvement (deterioration) in the home country's capital (labor) intensive sector, in the absence of factor mobility, the home country exports the capital-intensive good in exchange for the labor-intensive good. With factor mobility, capital will move into the home country, and labor will leave, which simply reinforces the trade pattern. Hence, there is a complementarity between FDI and trade, both due to the differences in technology between countries.

These predictions about FDI and trade are simply logical extensions of the conventional model as some of its restrictive assumptions are relaxed. Nevertheless, the framework of analysis is still highly aggregate in nature as befits a general equilibrium approach, ignoring the microeconomic analysis of FDI. However, as Ethier (1986, 1994) points out, an extensive, informal, microeconomics literature on multinationals has evolved, drawing on ideas from industrial organization, transactions cost theory and business economics (see Caves 1982 for a survey). A key characteristic of this approach is that FDI is not treated as the physical transfer of capital (Ruffin). Along with this there is a small, but growing empirical literature that uses methods similar to those used in industrial organization research for testing explanations of FDI (see Buckley 1985, and Casson 1987).

Dunning (1981) has described this "eclectic" approach to explaining the existence of multinational firms as the "OLI framework", where OLI stands for the specific advantages of ownership, location and internalization. Multinational firms would simply not exist if they had no advantages over existing firms in a host country (Hymer, 1976), and the OLI approach essentially provides a taxonomy for the advantages that multinational firms may have. First, *ownership* advantages refer to a firm's particular assets that are not owned by

other firms, which it wants to both protect and receive a return on. In the case of a multinational firm, these advantages might relate to firm-specific assets such as patents, trademarks, brand loyalty, research and development resources, managerial skills and other "headquarters' services". Second, *location* advantages most often relate to the benefits that an MNC reaps from avoiding various impediments to direct trade, hence the concept of "tariff-jumping". Other location advantages relate to aspects such as lower cost factors of production and access to consumers (Markusen 1995).

Even with ownership and location advantages, there is no reason why a firm cannot simply license a firm in the host country. Therefore, there has to be some other reason why a firm chooses to be multinational. *Internalization* advantages, described by Ethier as the "Caesar of the OLI triumvirate" (1986, 803) are probably the major reason forwarded for firms to engage in FDI. Internalization is a situation where intermediate product markets are integrated within a multinational firm. Intermediate products are either tangible, semi-processed or intangible assets, such as patents, trademarks and human capital. While such assets may be transferred physically at little expense, transferring them at arms' length through the market may incur transactions costs (Williamson 1975; Caves). These costs can be avoided if the firm creates an internal market for the transfer of the asset. Increasingly, empirical work is attempting to incorporate such factors into analysis of FDI.

In the last decade a relatively small number of papers in the international economics literature have incorporated the microeconomic aspects of the OLI framework, along with aspects such as imperfect competition, economies of scale and product differentiation into general equilibrium models where multinational firms are key players (see Ethier, 1994, and Markusen, 1995 for recent surveys). As with conventional theory, these newer models make predictions about both the substitutability/complementarity of FDI and trade and how FDI is related to relative factor endowments.

A defining feature of this new literature is that while most authors appeal to the OLI paradigm, only a few actually endogenize internalization, rather most assume that internalization through FDI is advantageous. Examples of the latter, based on variations of the ownership/location advantage argument, are the models developed by Helpman (1984), Helpman and Krugman (1985) and Markusen (1984).

Helpman and Krugman have simply extended their 2X2X2 model where one industry is characterized by perfect competition, constant returns and homogenous goods, while the other, which is capital-intensive in factor use, produces a number of different varieties of a good in monopolistically competitive equilibrium, each variety subject to increasing returns. If both countries have identical factor endowments there will only be intra-industry in the different varieties, and factor price equalization precludes direct investment. As relative endowments begin to differ, the Heckscher-Ohlin theorem holds, and there is still factor price equalization. However, as relative endowments really diverge, trade does not result in factor price equalization and multinational firms evolve.

The key here is that capital is treated as an input in the production of intermediate goods described generically as headquarters' services, e.g., research and development. Intermediate good production occurs in the firm's home country, but can be utilized in any country, along with local labor, in the production of a manufactured variety, i.e. ownership/location advantages are due to multi-plant economies whereby the costs of producing firm-specific assets are spread across several plant locations. Hence, if one country is very capital abundant, its firms take advantage of lower wages in the other country by becoming a multinational firm, although physical capital itself is not transferred. Essentially, FDI occurs because of differences in factor endowments differences, and FDI substitutes for intra-industry trade in manufactures.

Other models developed by Ethier (1986), and Ethier and Markusen (1993) do model the internalization argument explicitly. For example, Ethier (1986) adjusts the Helpman and Krugman framework by assuming that the finished varieties are non-traded and labor-intensive, while the intermediate good, which can be thought of as the essential components of a final variety, involves research and development that is capital-intensive. The key to Ethier's model is that *ex ante*, the cost of the essential components is uncertain until the outcome of the research is known, although as more research is undertaken, the more likely their cost will be low. It is this uncertainty, and the complexity of writing contracts, that determines the choice between either exchanging the intermediate good at arms' length or internalizing the exchange within a multinational firm. As production of the intermediate good is capital-intensive, high rents would require complex, state-contingent contracts allowing for intermediate production to be dependent on the outcome of the research

process. Such complex contracts, and the likely incentive compatibility problems, can be avoided through internalization, and will tend occur where countries' relative endowments are similar rents are high, a result that is in direct contrast to the prediction of the Helpman and Krugman model.

In light of the economic analysis of FDI and multinationals outlined above, how can the papers in this volume be categorized? An initial reaction is that they are as "eclectic" as the OLI paradigm itself, in terms of both the topics covered, the empirical methodology used, and the degree of aggregation. As a result of this variety, it is difficult to generalize about the nature of the research and the findings. Nevertheless, a number of themes can be observed:

- first, the research presented contains no new contributions to the theory of FDI and trade, most being applications and tests of existing theories, the exceptions being the papers by Rosillo and Abbott, Ravara and Connor, and Hooker and Caswell. The first of these seeks to synthesize a number of aspects of existing approaches to analyzing FDI into a coherent methodology for studying multinational firms; the second applies option theory to an analysis of the choice firms make over shifting from joint international ventures to wholly-owned foreign subsidiaries; while the third reviews the extent to which current trade theory focuses on the issue of food quality regulations and how it might be adapted to analyze how such regulations might affect patterns of trade and FDI in the processed food sector.

The paper by Ravara and Connor is also of particular note in that it is the only one that views multinational activity in the processed food sector entirely from the standpoint of investment theory, drawing on a different literature to that reviewed above. Importantly, this approach clearly recognizes that FDI is not the simple physical transfer of capital assumed in conventional trade theory. The empirical results are interesting as they shed some light on the circumstances under which a firm would undertake international activities with the governance structure of either a joint venture or a wholly-owned subsidiary. This contributes to our understanding of when internalization becomes optimal in the processed food sector.

- second, Malanoski *et al.* and Overend *et al.* both examine the relationship between FDI and trade in the processed food sector, although they each use very different levels of data aggregation in order to conduct their empirical analysis. Malanoski *et al.* analyze the nature of the

relationship over time between trade and FDI in processed food using annual data from the Bureau of Economic Analysis for SIC 20 exports from the US to other countries, and sales of US-owned foreign affiliates. Using simple correlation analysis, Malanoski *et al.* are unable to find strong empirical support for either complementarity or substitution between trade and FDI in aggregate data, although when the data is disaggregated into regions, they do find a substitute relationship for OECD countries and a complementary one for non-OECD countries.

In the second study, Overend *et al.* utilize data at the firm level to examine the FDI/trade relationship. Using time-series data on exports and numbers of overseas subsidiaries for a sample of five major food processing firms, the authors adopt a Seemingly Unrelated Regression estimation procedure to test for both a current effects and lagged effects relationship between trade and FDI. Their results indicate a complementary relationship over some range of FDI, followed by a threshold level where firms switch to a substitution strategy. In addition, the relationship between trade and FDI is a lagged one.

Both of these studies are interesting empirically in that they highlight a problem that seems to be endemic to research on FDI and multinationals - how to measure FDI. Malanoski *et al.* use sales of foreign affiliates as a proxy, while Overend *et al.* use numbers of subsidiaries. Neither can be regarded as completely satisfactory, but they are probably the best available proxies. However, if adequate time-series are not available in the public domain, then the use of firm-specific data is probably the next-best option, and both studies are to be commended for having utilized such data.

- third, at least five of the papers in the proceedings appeal in some way to the OLI paradigm. For ease of exposition, these papers can be categorized under two headings: first, there are the papers by da Silva, Anastassopoulos *et al.*, and Moeller which consider FDI and the OLI approach in the context of economic integration/liberalization; second, the papers by Neff and Malanoski, and Hooker and Caswell, while not explicitly referring to the OLI approach, are implicitly treating food quality and standards issues as potential non-tariff barriers to trade, and, hence, fall into the category of FDI providing a locational advantage.

In the first group, da Silva's paper is notable for its incorporation of OLI-type factors into a gravity equation model which is then used to analyze the impact of the process of European Union economic integration on patterns of trade and FDI. It is also notable for including aspects of

Porter's (1990) theory of national competitive advantage, a feature that Rosillo and Abbott also appeal to in their search for a coherent model of internationalization. da Silva's results suggest that both ownership and location characteristics, and aspects of Porter's paradigm are important in explaining patterns of FDI in Europe.

Moeller's paper on food industry FDI in Central and Eastern Europe also uses the OLI framework as a means of analyzing the likelihood of Western European food processing firms investing in these regions. Although based on a simple interview approach, the study does suggest that Dunning's firm-specific characteristics approach may be a useful framework for analyzing FDI in countries that have recently been transformed from command to market economies. The study also highlights the types of research problem one is likely to encounter in conducting analysis of the East and Central European food processing industries.

In the second group, both sets of authors focus on food quality regulations. This is an issue that has come to the forefront following successful completion of the Uruguay Round, and both papers outline the intuitively appealing possibility that food quality regulations could affect FDI in the processed food industry, although neither paper offers any concrete empirical evidence that this has occurred. This seems to be an eminently suitable topic for future research.

In conclusion, these proceedings constitute an interesting set of papers on FDI and the processed food industry, and the authors should all take credit for contributing to our understanding of this fascinating area. Nonetheless, in the light of the research presented, and the theory of FDI and multinationals, there are two aspects on which future research might be focused.

- first, there seems to be a huge gap between the theory and empirical practice. In some respects this is data driven, and the need for better data series on FDI seems imperative for future empirical research. However, application of the theory seems, in the main, to be reduced form approximations to the theory. Therefore, the possible use of structural models, similar to those developed in the "new empirical industrial organization", is an area worth considering with respect to the microeconomic analysis of multinationals, while incorporating FDI into computable general equilibrium models would be a means of analyzing the more aggregate models of the trade literature in a rigorous manner.

- second, although some of the papers did address issues relevant to policymakers, this was not a major theme in the papers. As Overend *et al.* note, the issue of FDI replacing exports, and by extension jobs, was a feature of the political debate over the North American Free Trade Agreement, yet very few papers addressed explicitly the welfare implications of either outbound or inbound FDI. There is an existing literature on the benefits from the export of capital and the impact of factor movements on income distribution (see Ruffin). With expansion of existing regional trading agreements and creation of new ones on the agenda, this is a critical issue for future research.

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