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HOME COUNTRY TRADE EFFECTS OF OUTWARD FDI: AN ANALYSIS OF THE PORTUGUESE CASE, 1996-2007

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Home Country Trade Effects of Outward FDI: an analysis of the Portuguese case, 1996-2007

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ABSTRACT

Given the increased internationalisation of the Portuguese economy through outward Foreign Direct Investment (FDI), particularly on the Portuguese-speaking countries, our main objective is to discuss the empirical relationship between this outward FDI and trade.

We use panel data analysis within a framework of gravity equations for exports and imports, with a sample composed by EU-15, U.S.A., Brazil, Angola, Japan and China, for the period 1996-2007.

Our main conclusion is that the empirical evidence for Portugal is consistent with a substitution hypothesis between direct investment abroad and trade, and consequently we detect a negative trade balance effect with the majority of countries in our sample, excepting Angola and, in a lesser extension, Spain.

Keywords: Foreign Direct Investment, Trade, Gravity Model, Portugal

JEL Classification: F21, C23, F14

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1. Introduction

The main objective of this paper is to analyse the effect emanating from Portuguese outward Foreign Direct Investment (FDI) on exports and imports with its main economic partners, in the period between 1996 and 2007.

This study seemed particularly relevant to us for two reasons. Firstly, we want to participate on the debate that has emerged in the last decade about what happens in home country when national firms become increasingly multinational. Before, the discussion on the effects of multinational firms tended to be focused on host countries, i.e. the countries where they operate.

Secondly, we want to evaluate if the complementary relationship between foreign production and trade, shown in most studies for traditionally outward investor economies (the most developed nations) also holds for a country like Portugal, where outward FDI is a more recent phenomenon.

The paper is structured as follows: section 2 presents the theoretical background of our research; section 3 briefly reviews the previous empirical studies regarding the question in analysis and section 4 contains the description of data and econometric methodology, jointly with the presentation of main empirical results. Finally, section 5 presents the conclusions and further research questions.

2. Outward FDI effects on trade – Theoretical background

Traditionally, there has been a divergence in terms of the theories on FDI and international trade: the latter try to explain why countries trade with each other and the former try to account for why firms produce and invest outside its borders.

In the neoclassical approach of trade theory, Mundell (1957) was the first to focus on the relationship between capital movements and trade of goods, demonstrating that FDI and exports become substitutes for each other. Upon the assumptions of the Heckscher-Ohlin-Samuelson (HOS) general equilibrium model, the flows of FDI depend on the differences in factor price and factor endowment between countries. So, he showed that the international movement of capital driven by FDI displaces the movement of those goods produced in a capital-intensive manner, leading to an equilibrium in which factor prices and product prices have the same characteristics as in the free trade equilibrium.

We can say that the substitution effect plays a prominent role in theory, like in the product cycle model developed by Vernon (1966), in which he considered that FDI affiliates´ production and sales in foreign market replace trade in the same market. Additionally, the theory of internalization (Williamson 1975; Markusen 1984) suggested that FDI substitutes for exports when there are sufficient costs to external transactions such as exporting or licensing. Moreover, the eclectic theory or OLI paradigm introduced by Dunning (1981), whose basic assumption is that a firm will engage in international production (i.e. become multinational) instead of exporting when it possesses at the same time ownership, location and internalization advantages, also considered trade and FDI as alternative strategies.

Over the last two decades, some models were developed in order to incorporate the concept of the multinational enterprise (MNE) into the standard theory of international trade. They show that the results on the relationship between capital movements and trade depend on whether the foreign operations are in goods industries or in services, are in developed or developing countries, and specially if the foreign operations´ relation to home operations is “horizontal” or “vertical”. In the first case, the MNE produces the same goods in their

home country and in multiple plants located in the host countries, and so the same (horizontal) stage of the production process is duplicated. This type of FDI is a mean to avoid some costs like trade barriers, transportation costs and other transaction costs that discourage exports, and is also known as market-seeking FDI, because is driven by market considerations.

In the second case, the firms fragment the production process geographically and locate specific stages of the value chain if countries that have factor-price differences. This type of FDI is motivated by cost considerations and it is also known as efficiency-seeking FDI.

The models based on horizontal FDI, such as Markusen (1984) and Markusen and Venables (1995) consider that the choice of MNEs is determined by factors such as the firm specific advantages (activities of research and development, marketing, managerial know.how, etc.), the firm- and plant-level economies of scale and transport costs. The firm faces the dilemma of either producing abroad or exporting and naturally the substitutability between such foreign investments and trade tends to prevail.

On the other hand, the theoretical contributions of Helpman (1984) and Helpman and Krugman (1985) show that outward FDI and trade might be complements. That occurs in the case of vertical FDI, as it generates complementary trade flows of final goods from foreign affiliates to parent firms or to the home country and intra-firm transfers of intangible headquarter services from parent firms to foreign affiliates. Lipsey and Weiss (1984) argue that one way by which complementarity occurs is when a firm´s production presence in a foreign market with one product may increase total demand for the whole line of products.

Recent studies like Carr *et al.* (1998) attempted to combine both horizontal and vertical motives for FDI. They basically imply that horizontal FDI is more prevalent with countries that are similar in market size, relative factor endowments and technical efficiency and vertical FDI arises when countries differ substantially in terms of factor endowments. Accordingly to them, trade and FDI between developed countries could be regarded as substitutes while between developed and developing countries tend to be complements.

Thus, as both substitution and complementary effects can occur, the main conclusion of the theoretical literature is that the impact of outward FDI on home country´s exports is not predicable a priori by any economic theory, but it is mainly an empirical question

3. Empirical studies

The question regarding the impact of outward foreign investment on domestic exports has been addressed all over the years in several countries by two different ways, which means that there is quite some variation in methodology and generality of results: the business-oriented authors analyses have attempted to examine what would have happened in specific cases if investment abroad had not been possible, and the econometric studies have tried to detect the overall relationship between FDI and home country exports in larger samples of firms or industries.

In what refers the business-oriented analyses, we can highlight the earliest contributions of Stobaught et al. (1972), who studied nine U.S. firms, and Jordan and Vahlne (1981) whose study aims to compare the domestic effects of foreign direct investment with alternative ways (like exports, licensing, and minority joint ventures) to exploit the competitive advantages of a sample of Swedish firms. The overall conclusion they reached is that

foreign direct investment has positive effects on home country exports and employment, particularly for low-technology products with high transportation costs, because the establishment of foreign affiliates resulted in large increases in the foreign market shares and in exports of intermediate products to affiliates. However, these results were based on very specific assumptions about export survival rates, i.e. the fractions of the affiliates' market share that could have been served by home exports, which were very low, concluding that most of the foreign markets have been lost in the absence of FDI.

So, these assumptions were criticized by Frank and Freeman (1978: 9), who noted that the estimates of survival rates are often based on surveys and interviews with company officials. They proposed a more "neutral" approach and used an alternative model for the U.S. economy, estimating survival rates from data on costs, revenues and demand conditions. Their calculations suggested survival rates ranging between 20 and 40 per cent, depending on industry, implying that foreign direct investment substituted for U.S. exports and that the net employment effect of FDI was negative.

The discussion about what is the appropriate counterfactual remains one of the core questions in this kind of studies, and it is likely that this debate will continue, probably with mixed results depending on assumed survival rates. In one of the most recent contributions Barba Navaretti and Castellani (2004:4) observed that "the effects of outward investment on home activities are not relevant *per se*, but with respect to what would have happened if firms had not invested abroad". In this study, they use propensity score matching to compare the performance of a group of Italian firms that do not invest abroad and another of Italian outward investors, and their results suggest that outward FDI has no significant

effect on employment growth, at the same time that significantly enhances the rate of productivity growth and output.

This problem of assessing survival rates and counterfactuals does not usually come up in the other type of studies about the relationship that we are analyzing. Indeed, the econometric studies usually employ regression analysis to determine the relation between exports and various firm, industry, and country characteristics. Controlling for as many other determinants as possible, the focus is on the partial effect of FDI — a negative coefficient implies that foreign production substitutes for exports, whereas a positive sign suggests that the opposite effect of complementarity, i.e. the stimulus to home exports of intermediate and other related products, prevails in aggregate.

The most relevant econometric studies developed over the last three decades were about countries with large experience and high levels of outward investment, like U.S.A., Sweden, Japan and France. The majority of them predict a positive relationship between outward FDI and domestic exports, and can be divided according to the level of aggregation used.

Starting by the analysis on country-level, they show dominantly a complementary effect. In this context, Swedenborg (1979, 1982 and 2001), Blomstrom, Lipsey, and Kulchycky (1988), and Svensson (1996) all based their studies on data from Swedish multinationals, although there are significant differences in the methodology used and the considered time period. The major innovation in both of Swedenborg's analyses was the introduction of 2SLS (two-stage least squares) estimations, in order to deal with the endogeneity of exports and the mutual determination with investment, i.e. the fact that both foreign production and exports may be affected by the same omitted variables. Her findings suggest that there was

no significant overall effect, or a small positive effect, of foreign production on the exports of Swedish enterprises.

The findings in Blomstrom, Lipsey, and Kulchycky (1988) do not differ significantly from those presented by Swedenborg. They concluded about no signs that large foreign production in a country reduces the country's subsequent imports from Sweden and so there are mainly positive relationships between outward FDI and exports growth, with exception of one major industry – metal manufacturing – in which an opposite effect was found.

Svensson (1996) focus his analysis on the developments during the late 1980s and early 1990s and challenged the results of these studies, arguing that is necessary to account for the foreign affiliates' exports to third countries, because they are likely to substitute directly for parent exports. Doing this, he found a substitution effect (relatively small) between Swedish investment abroad and exports from Sweden. The increasing preference among Swedish MNEs for acquisitions rather than greenfield ventures as mode of foreign market entry is likely to strengthen this conclusion. Since acquired affiliates have already established linkages with local suppliers and subcontractors, they are less dependent on imports of intermediates from the home country, at least in the short run.

Braunerhjelm and Oxelheim (2000) also analyse this relationship on Swedish economy and argue it may vary depending on industry characteristics. They found that outward FDI and exports tend to be complements in industries that rely on immobile natural resources (Heckscher-Ohlin industries), but that they may be substitutes in industries relying on technology, brand names, and other intangible assets (Schumpeter industries).

In this context, we can also refer Eaton and Tamura (1994), who analyse the American and Japanese bilateral flows of trade and FDI with a hundred of partners for the period 1985-1990. They used a modified gravity model, by which each variable of internationalisation (export, import, inward FDI and outward FDI) is explained by the population of the partner country, its income *per capita*, its density and its endowment in human capital, finding for the Japan and U.S.A. a strong correlation between outward FDI and exports, as well as for imports. In contrast, Andersen and Hainault (1998) used time-series analysis and find evidence of complementarity between exports and outward FDI flows for U.S.A., Japan and Germany, but no significant relationship for the United Kingdom.

Using two panel data sets on the operations of 29 U.S. multinational firms abroad and the operations of foreign affiliates operating in the United States, Clausing (2000) find a strong positive effect of outward FDI on exports, particularly when the intra-firm trade is considered. Finally, the time-series analysis of Alguacil and Orts (2002), for the period 1970-1992, found evidence of a positive Granger-causality from Spanish FDI to exports. Considering the studies on industry-level, they have mixed results. Lipsey and Weiss (1981) consider 44 foreign markets in which U.S. firms compete against 13 other exporting countries in 1970 and found a positive effect. According to them, and depending on the industry, one dollar of local sales leads to a 2 cents to 78 cents of additional exports to the corresponding market, at the same time that the production of U.S. affiliates abroad substituted for exports to the host country of third countries. In a later study, the same authors (Lipsey and Weiss 1984) analyzed foreign production and U.S. exports in 14 industries in the manufacturing sector, obtaining a positive and significant relationship in

11 of them.

Focusing on bilateral trade and direct investment relationships for France, Fontagné and Fajot (2002) found complementary relationship between outward FDI flows and net exports both for countries as a whole and for individual industries. Furthermore, the impact of outward FDI on trade is much larger impact when spillovers between sectors are considered. A similar conclusion was obtained by Chédor, Mucchielli and Soubaya (2002), whose analysis on panel data for individual French firms reported complementarity between direct investment abroad and home country exports.

Also the analysis who used data from Japan (Lipsey, Ramstetter and Blomstrom 2000) and Australia (Productivity Commission 2002) concluded about a positive effect of outward investment on home exports in the minority of industries where it can be discerned.

At this level of aggregation, there have been some studies who concluded about the opposite effect, but in a lesser dimension. That was the case of Graham (1996), whose analysis for years 1983, 1988 and 1991 demonstrate a predominant complementarity relation between U.S. outward FDI and exports, but also a confirmation of the substitution hypothesis. It deserves specially relevance Brainard (1997) whose cross-section analysis for 1989 of total sales, exports and imports of the U.S. MNEs affiliates, in 27 markets, found evidence of a strong substitution effect on industry level, that he called “proximity-concentration trade off”. According to him, when the income *per capita* of the destination market catches up the U.S. level, the U.S. multinationals tend to substitute FDI for exports.

Referring to studies with firm-level data, Lipsey and Weiss (1984) used information on intermediate versus finished products within the firms in their sample. They found, in 1970,

a strong complementary relationship between the U.S. affiliates production of intermediate goods in the host country and the exports in the same region. At the same time, this relation becomes weaker and even negative when finished goods are taken into account. Head and Ries (2001) used a panel data set to examine the relation between outward production and exports for 932 Japanese manufacturing firms, over the period 1966-1990. They concluded about a net positive effect, but also important differences across firms. In particular, those firms that are not vertically integrated and are unlikely to ship intermediate inputs to overseas production affiliates show evidence of substitution.

In a recent empirical study for companies from 10 European countries, Oberhofer and Pfaffermayr (2007) confirmed the complementarity hypothesis between FDI and exports and, at the same time, stated that a considerable number of firms use a combination of both FDI and exports to serve foreign markets.

Finally, using product-level data, Blonigen (2001) found that both effects may arise, depending on the nature of the relationship between parents and foreign affiliates: he detected for the period 1978-1994 a substitution effect between the production of Japanese automobile parts in the U.S. and Japanese exports of the same products to the U.S., at the same time that a complementarity between Japanese automobiles (final goods) production in the U.S.A. and Japanese exports of automobile parts. In a recent study, Türkan (2006) used a panel data analysis and identified for the period 1989-2003 a strong complementary relation for intermediate goods and a slight negative effect for finished goods.

Thus, the main conclusion emerging from the empirical studies on the effects of outward FDI on home-country exports is that positive associations are more common, although there are some examples of negative correlations. The most relevant explanations for

diverging results is the level of aggregation used and, at the same time, we should also consider "the frequency of results indicating no association in either direction" (Lipsey 2002, p.12).

4. Our study

4.1 Data and methodology

The main sources of this research were the Banco de Portugal Statistical Database, for data on trade (exports and imports) and outward FDI, and Eurostat for data on GDP, both measured in Mio Euro. We have also collected data on population from United Nations and Eurostat, and on straight line distance between Lisbon and the other countries´ capital city from www.globefeed.com.

Our data covers 12 years (1996-2007) and, being Portugal the home country, the sample is composed of 18 host countries – UE15 (considering Belgium and Luxembourg together), U.S.A., Angola, Brazil, China and Japan – that account for 76 percent of the Portuguese outward investment, 82 percent of Portuguese imports and 87 percent of Portuguese exports in that period.

The following table contain the descriptive statistics for the totality of sample, while in the appendix we present the same information by country, taking in account that for some of the countries there are only nine temporal statistic moments because data on GDP are only available after 1998.

Table 1: Summary statistics (totality of sample)

Variable	Obs	Mean	Std. Error	Min	Max
Exports	216	1345810	1815718	17796	1.07e+07
Imports	216	1902801	2908322	5896	1.69e+07
Investment	216	1284299	1782580	4	6314408
GDP	207	1385983	2254599	5782.511	1.13e+07
Distance	216	1.24e+08	2.85e+08	3620065	1.31e+09
Population	216	3698.571	2925.815	516.05	11145.27

In this paper, we use random-effects panel data analysis within a framework of gravity equations for exports and imports.

On the one hand, gravity models have been strongly used in the empirical literature on the determinants of FDI and trade. They were formulated in analogy with Newton's law of universal gravitation (two objects attract each other in direct proportion of their masses and in inverse proportion of the distance separating them) to explain the volume of trade and capital flows among countries. Their basic assumption is that exports and imports are positively related to GDP per capita and population, interpreted in terms of effective demand and market size, and negatively to distance, as a proxy for transportation costs. Additionally to these standard variables, in the present study we include outward FDI as an explanatory variable, whose coefficient reflects the substitution or complementarity effect on trade.

On the other hand, panel data or longitudinal data is an increasingly popular technique of analysis, with several advantages over conventional cross-section or time-series models. The major one is that panel data endows regression with both a spatial and temporal dimension, and thus it follows the same cross-sectional units (countries, states, firms, households) over a particular time span. Furthermore, it gives the researcher a large number of observations, increasing the degrees of freedom and hence improving the efficiency of econometric estimates. In our study, we use random-effects panel data model because it allows for time-invariant variables (like distance) to be included among the regressors.

4.2 Results

Before interpreting the estimation results, presented in Tables 2 and 3, we should refer that we use the logarithmic form of the variables[1], and thus each one represent:

- **lexp** the log of Portuguese exports for host country,
- **limp** the log of Portuguese imports from host country,
- **lgdpcap** the log of host country´s GDP per capita,
- **lpop** the log of host country´s population,
- **ldist** the log of distance between Lisbon and the host country´s capital city,
- **linv*** the log of Portuguese direct investment in host country, with ang=Angola, bra=Brazil, usa=U.S.A., jap=Japan, chi=China, spa=Spain and eu=EU15 without Spain.

[1] As a consequence, the coefficients are expressed in terms of elasticities, measuring the responsiveness of trade flows with regard to percentage changes in the independent variable

Table 2: Estimation model for exports

Lexp	Coefficient	Std. Error	Z-Value
Lgdpcap	0.5744213***	0.0739333	7.77
Lpop	0.8010306***	0.0995913	8.04
Ldist	-0.7429428***	0.2874844	-2.58
Linvang	0.1573063***	0.0332695	4.73
Linvbra	-0.0773881**	0.0390169	-1.98
Linvusa	-0.0512798	0.0432297	-1.19
Linvjap	-0.2102121***	0.0604741	-3.48
Linvchi	-0.3582747***	0.0722592	-4.96
Linvspa	0.0795772**	0.0399897	1.99
Linveu	-0.0083314	0.0115327	-0.72
Constant	7.970356***	2.507655	3.18
Observations	207		
R-squared	0.8118		
Number of Groups	18		

Note: ***, ** and * mean significance level of 1 %, 5 % and 10 % , respectively

Concerning the relationship between Portuguese outward FDI and exports, the results reported in Table 2 depend on the partner country. For Angola, we observe a positive and highly significant correlation (the respective coefficient shows that a 1% increase in Portuguese FDI in this country implies a 0.16% increase in exports) and there is also

evidence of a complementarity effect for Spain, at 5% significance level. By other way, we find a very significant substitution effect for Japan and China (a 1% increase in Portuguese FDI in these economies is associated with 0.21% and 0.36% decreases in exports, respectively) whereas in case of Brazil such negative relationship is significant at 5% level.

Table 3: Estimation model for imports

Limp	**Coefficient**	**Std. Error**	**Z-Value**
Lgdpcap	0.7875787***	.103995	7.57
Lpop	0.9251523***	.1226934	7.54
Ldist	-1.087938***	.375721	-2.90
Linvang	0.1080935**	.0445392	2.43
Linvbra	0.0356726	.0504695	0.71
Linvusa	-0.0905869	.0552145	-1.64
Linvjap	0.0079596	.0804228	0.10
Linvchi	-0.0170666	.1010815	-0.17
Linvspa	0.0345169	.050541	0.68
Linveu	0.0325443*	.0169438	1.92
Constant	9.092187***	3.370479	2.70
Observations	207		
R-squared	0.8424		
Number of Groups	18		

Note: ***, ** and * mean significance level of 1 %, 5 % and 10 % , respectively

Similarly to exports, the impact of outward FDI on imports, expressed in Table 3, depends on the partner country. Thus, we detect a significant complementarity effect for Angola (a 1% increase in Portuguese FDI implies a 0.1% growth of imports), but weaker than for exports, and also a positive correlation for European Union countries without Spain. In what refers to Brazil and Spain, the positive relationships observed are not statistically significant.

For the two models, the coefficients associated to GDP per capita, population and distance have the expected sign and are highly significant. So, both exports and imports are increasing in the partner country´s population as well as its per capita income, and decreasing in distance between Portugal and the partner country.

5. Conclusions

The results we achieved on this paper confirm that the impact on home country´s trade of the increased internationalisation of the Portuguese economy on the last decade, transforming the country to a net exporter of capital, is not predicable with certainty and must rely on empirical evidence.

In this context, our main conclusion is that, contrarily to most of the previous empirical works, the Portuguese outward FDI is negatively related to exports suggesting a substitution effect, and thus a negative trade balance effect, for the majority of countries in our sample. The exceptions to this tendency were Angola and, in a lesser extension, Spain, for which the effect on exports outweighs that on imports, and consequently direct investments abroad have a positive contribution to the trade balance of Portugal with these countries. This finding is particularly relevant, and may act as a stimulus to a stronger

Government support to outward FDI, taking in account that Spain is Portugal´s top trading partner (with a share of about one third of the country´s international trade) while Angola is a former colony which was in 2007 the sixth most important client of Portuguese products and a growing destination for Portuguese investment overseas.

The present study requires further analysis with more disaggregated data that would allow us to evaluate how outward FDI affected trade within the manufacturing sector, as well as to apply a more sophisticated model than the gravity model we used. Unfortunately those data are not available in Portugal, so that this constraint could be overcome by case studies on major outward firms.

REFERENCES

AFRICANO, A.P. and MAGALHÃES, M. (2005), "FDI and Trade in Portugal: a gravity analysis", *FEP Working Papers*, no. 174, Porto

ALGUACIL, M. and ORTS, V. (2002), "A Multivariate Cointegrated Model Testing for Temporal Causality between Exports and Outward Foreign Investment: the Spanish Case", *Applied Economics*, 34, pp. 119-132

ANDERSEN, P.S. and HAINAULT, P. (1998), "Foreign Direct Investment and Employment in the Industrial Countries", *Bank for International Settlements Working Paper*, 61

BARBA NAVARETTI, G. and CASTELLANI, D. (2004), "Investment Abroad and Performance at Home: Evidence from Italian Multinationals", *CEPR Discussion Paper*, no. 4284, London

BARBA NAVARETTI, G., VENABLES, A.J. *et al.* (2004), *Multinational firms in the world economy*, Princeton University Press, Princeton

BLOMSTRÖM, M., and KOKKO, A. (1997), "Home Country Effects of Foreign Direct Investment: Evidence from Sweden", *NBER Working Paper*, no. 4639, Cambridge

BLOMSTRÖM, M. and KOKKO, A. (1998), "Multinational Corporations and Spillovers", *Journal of Economic Surveys*, vol. 12: pp. 247-277

BLOMSTRÖM, M., LIPSEY, R.E. and KULCHUCKY, K. (1988), "US and Swedish Direct Investment and Exports" in R. Baldwin, ed., *Trade Policy Issues and Empirical Analysis*, University of Chicago Press, Chicago

BLONIGEN, B. (2001), “In Search of Substitution Between Foreign Production and Exports”, *Journal of International Economics*, no. 53: pp. 81-104

BLONIGEN, B. (2005), “A review of the empirical literature on FDI determinants”, *NBER Working Paper*, no. 11299, Cambridge

BRAINARD, S.L. (1997), “An Empirical Assessment of the Proximity-Concentration Trade-Off between multinational Sales and Trade”, *American Economic Review*, vol. 87, no. 4, pp. 520-544

BRAUNERHJELM, P. and OXELHEIM, L. (2000), “Does Foreign Direct Investment Replace Home Country Investment? The Effect of European Integration on the Location of Swedish Investment”, *Journal of Common Market Studies*, vol. 38, no. 2: pp. 199-221

CARR, D.L. *et al.* (1998), “Estimating the Knowledge-Capital Model of the Multinational Enterprise”, *NBER Working Paper*, no.6773, Cambridge

CHÉDOR, S., MUCCHIELLI, J.L. and SOUBAYA, I. (2002), “Intra-Firm Trade and Foreign Direct Investment: An Analysis of French Firms”, in LIPSEY, R.E. e MUCCHIELLI, J.L., eds., *Multinational Firms and Impacts on Employment, Trade, and Technology*, Routledge, London and New York

CLAUSING, K. A. (2000), “Does Multinational Activity Displace Trade”, *Economic Inquiry*, vol. 38, no.2, pp. 190-205

DESAI, M.A., FOLEY, C.F. and HINES JR., J. R. (2005), “Foreign Direct Investment and Domestic Economic Activity”, *NBER Working Paper*, no. 11717, Cambridge

DUNNING, J. H. (1981), “Explaining the International Direct Investment Position of Countries: Towards a dynamic and development approach”, *Weltwirtschaftliches Archiv*, vol. 117: pp. 30-64

EATON, J. and TAMURA, A. (1994), “Bilateralism and Regionalism in Japanese and US Trade and Direct Foreign Investment Patterns”, *NBER Working Paper*, no. 4758, Cambridge

ELLINGSEN, G., LIKUMAHUWA, W. and NUNNENKAMP, P. (2006), “Outward FDI by Singapore: a different animal?”, *Transnational Corporationss*, vol. 15, no. 2: pp. 1-40

FALK, M. and HAKE, M. (2007), “A Panel Data Analysis on FDI and Exports”, *FIW Research Report*, no.12, Vienna

FONTAGNÉ, L. and PAJOT, M. (2002), “Relationships between Trade and FDI Flows within Two Panels of US and French Industries”, in LIPSEY, R.E. e MUCCHIELLI, J.L., eds., *Multinational Firms and Impacts on Employment, Trade, and Technology*, Routledge, London and New York

FRANK, R.H. and FREEMAN, R.T. (1978), *Distributional Consequences of Direct Foreign Investment*, Academic Press, New York

GRAHAM, E.M. (1996), “On the Relationships among Direct Investment and International Trade in the Manufacturing Sector: Empirical Results for the United States and Japan”, *Working Paper of the Institute of International Economics*, Washington D.C.

HEAD, K. and RIES, J. (2001), “Overseas Investment and Firms Exports”, *Review of International Economics*, vol. 9, no. 1: pp. 108-122

HELPMAN, E. (1984), "A Simple Theory of International Trade with Multinational Corporations", *Journal of Political Economy*, vol. 92, no. 3: pp. 451-471

HELPMAN, E. and KRUGMAN, P.R. (1985), *Market Structure and Foreign Trade*, The MIT Press, Cambridge

HYMER, S. H. (1960): *The International Operations of National Firms: A Study of Direct Foreign Investment*, MIT Monographs, The MIT Press, Cambridge

JORDAN, J.L and VAHLNE, J.E. (1981),"Domestic Employment Effects of Direct Investment Abroad by Two Swedish Multinationals", *Working Paper*, no. 13, Multinational Enterprises Programme, International Labour Office, Geneve

KOKKO, A. (2002), "FDI and the Structure of Home Country Production", in B. Bora, eds., *Foreign Direct Investment: Research Issues*, Routledge, London and New York

KOKKO, A. (2006), "The Home Country Effects of FDI in Developed Economies", *Working* Paper, no. 225, European Institute of Japanese Studies, Stockholm School of Economics, Stockholm

LIPSEY, R.E. (1995), "Outward Direct Investment and the U.S. economy", in FELDSTEIN, M., HINES, J.R. e HUBBARD, R.G., eds., *The Effects of Taxation on Multinational Corporations*, University of Chicago Press, Chicago

LIPSEY, R.E. (2002), "Home and Host Country Effects of FDI", *NBER Working Paper*, no. 9293, Cambridge

LIPSEY, R.E. and WEISS, M.E. (1981), "Foreign Production and Exports in Manufacturing Industries", *Review of Economics and Statistics*, vol. 63: pp. 488-494

LIPSEY, R.E. and WEISS, M.E. (1984), "Foreign Production and Exports of Individual Firms", *Review of Economics and Statistics*, vol. 66, no. 2: pp. 304-308

LIPSEY, R.E., RAMSTETTER, E. and BLOMSTRÖM, M. (2000), "Outward FDI and Parent Exports and Employment: Japan, the United States and Sweden", *NBER Working Paper*, no. 7623, Cambridge

LIPSEY, R.E. (2002), "Home and Host Country Effects of FDI", *NBER Working Paper*, no. 9293, Cambridge

MARKUSEN, J.R. (1984), "Multinational Firms, Multiplant Economies and Gains from Trade", *Journal of International Economics*, vol. 16, no.1: pp. 205-226

MARKUSEN, J.R. (2002), *Multinational Firms and the Theory of International Trade*, The MIT Press, Cambridge

MARKUSEN, J.R. and VENABLES, A.J. (1995), "Multinational Firms and the New Trade Theory", *NBER Working Paper*, no.5036, Cambridge

MUNDELL, R. (1957), 'International Trade and factor Mobility', *American Economic Review*, 47 (3), pp. 321-335

OBERHOFER, H. and PFAFFERMAYR, M. (2007), "FDI versus Exports, Substitutes or Complements? A Three Nations Model and Empirical Evidence", Paper presented on the ETSG 2007

PRODUCTIVITY COMMISSION (2002), *Offshore Investment by Australian Firms: Survey Evidence*, Australian Productivity Commission, Melbourne

RIESS, A. and UPPENBERG, K. (2004), "The internationalisation of production: moving plants, products, and people", *EIB Papers*, vol. 9, no. 1

STOBAUGH, R.B. *et al.* (1972), *US Multinational Enterprises and the US Economy*, Harvard Graduate School of Business Administration, Cambridge

SVENSSON, R. (1996), "Effects of Overseas Production on Home Country Exports: Evidence Based on Swedish Multinationals", *Weltwirtschaftliches Archiv*, 132, pp. 304-329

SWEDENBORG, B. (1979), *The Multinational Operations of Swedish Firms*, Almqvist & Wicksell International, Stockholm

SWEDENBORG, B. (1982), *Svensk industri i utlandet. En analys av drivkrafter och effekter*, Industrial Institute for Economic and Social Research, Stockholm

SWEDENBORG, B. (2001), "Determinants and Effects of Multinational Growth: The Swedish Case Revisited", in BLOMSTRÖM, M. e GOLDBERG, L., eds., *Topics in Empirical International Economics*, University of Chicago Press, Chicago

TÜRKAN, K. (2006), "Foreign Direct Investment and Intermediate Goods Exports: Evidence from USA", Akdeniz University, Antalya

UNCTAD (2006), *World Investment Report 2006 FDI from Developing and Transition Economies: Implications for Development*, United Nations, New York and Geneve

VERNON, R. (1966), "International Investment and International Trade in the Product Cycle", *Quarterly Journal of Economics*, 80, pp. 190-207

WILLIAMSON, O. (1975), *Markets and Hierarchies: Analysis and Antitrust Implications*, Free Press, New York

APPENDIX

Table 4: Summary statistics (by country)

```
. bysort country: summarize exp imp inv gdp pop dist
-------------------------------------------------------------------------------
-> country = Angola

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         exp |        12    652941.8    415363.4     279042    1680390
         imp |        12       66189    99383.58       5896     361262
         inv |        12    141627.3    324354.1       3669    1151341
         gdp |         9    18694.53    12545.09   5782.511   39542.85
         pop |        12    1.47e+07     1453640   1.26e+07   1.70e+07
-------------+--------------------------------------------------------
        dist |        12     5772.05           0    5772.05    5772.05

-------------------------------------------------------------------------------
-> country = Austria

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         exp |        12    200047.5    27552.09     170991     241554
         imp |        12    292578.6    93374.53     170172     486346
         inv |        12    102119.7      115597       8547     336000
         gdp |        12    218519.1    28606.03   182634.4   270836.8
         pop |        12     8081130    121756.9    7953067    8298923
-------------+--------------------------------------------------------
        dist |        12     2298.18           0    2298.18    2298.18

-------------------------------------------------------------------------------
-> country = BelgLux

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         exp |        12     1184398    220062.4     791078    1606826
         imp |        12     1313470    238375.2     878874    1729119
         inv |        12     1262886     1316071       2274    3285637
         gdp |        12    129078.9    22677.04    92690.5   163082.9
         pop |        12    1.03e+07    201299.8   1.00e+07   1.06e+07
-------------+--------------------------------------------------------
        dist |        12    1788.095           0   1788.095   1788.095

-------------------------------------------------------------------------------
-> country = Brazil

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         exp |        12    192737.7    42004.18     130169     259381
         imp |        12    689537.4    328229.3     358774    1367059
         inv |        12    950527.1     1091710      26662    3813823
         gdp |         9    660757.9    160285.7   488316.8   958919.4
         pop |        12    1.78e+08     9112551   1.64e+08   1.92e+08
-------------+--------------------------------------------------------
        dist |        12     7280.06           0    7280.06    7280.06
```

```
-------------------------------------------------------------------------------
-> country = China

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         exp |        12       93998    68196.32      17796     213905
         imp |        12    420313.7    240171.7     174049    1012905
         inv |        12    1158.583    868.8497        176       2953
         gdp |         9     1653888    453643.6    1030993    2481103
         pop |        12    1.26e+09    3.30e+07   1.20e+09   1.31e+09
-------------+--------------------------------------------------------
        dist |        12     9664.06           0    9664.06    9664.06

-------------------------------------------------------------------------------
-> country = Denmark

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         exp |        12    298559.6    46739.68     239483     383200
         imp |        12      264835    48710.05     200246     355161
         inv |        12    344660.1    414789.2      12413    1485299
         gdp |        12    182727.9    26906.84   145323.9   227671.2
         pop |        12     5354106     62444.2    5251027    5447084
-------------+--------------------------------------------------------
        dist |        12     2477.58           0    2477.58    2477.58

-------------------------------------------------------------------------------
-> country = Finland

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         exp |        12    171808.3    49903.21     121705     265344
         imp |        12    230176.7    37042.68     143062     286259
         inv |        12    675982.3    678848.9       2782    1850395
         gdp |        12    138976.9    23720.59   101260.2     179734
         pop |        12     5191553    49570.47    5116826    5276955
-------------+--------------------------------------------------------
        dist |        12     3360.36           0    3360.36    3360.36


-------------------------------------------------------------------------------
-> country = France

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         exp |        12     3655074    600951.8    2750590    4756886
         imp |        12     4039118    505327.5    2949637    4747636
         inv |        12     2809740     1377712     641828    4509637
         gdp |        12     1529017    214902.2    1239836    1892244
         pop |        12    6.13e+07     1339687   5.95e+07   6.34e+07
-------------+--------------------------------------------------------
        dist |        12     1452.94           0    1452.94    1452.94
```

```
-------------------------------------------------------------------------------
-> country = Germany

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         exp |        12     4470739    436062.6    3768057    5181200
         imp |        12     6080791      958129    4313057    7532267
         inv |        12     3163857     2118395     339199    6012482
         gdp |        12     2122846    161233.3    1907246    2422900
         pop |        12    8.23e+07    239865.8   8.18e+07   8.25e+07
-------------+--------------------------------------------------------
        dist |        12     2311.66           0    2311.66    2311.66

-------------------------------------------------------------------------------
-> country = Greece

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         exp |        12    114346.3    20090.61      86769     148630
         imp |        12    72280.75    22030.37      35140     104176
         inv |        12    162878.8    271745.3          4     720501
         gdp |        12    160071.4    39013.16   109733.9   228180.3
         pop |        12    1.09e+07    153026.3   1.07e+07   1.12e+07
-------------+--------------------------------------------------------
        dist |        12     2851.63           0    2851.63    2851.63

-------------------------------------------------------------------------------
-> country = Ireland

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         exp |        12    143290.5    33554.26      90901     183891
         imp |        12    305542.7    104074.8     152792     464887
         inv |        12    570885.2    345669.9      73343    1183129
         gdp |        12    122466.3    42914.29    58278.3   190602.5
         pop |        12     3902970    225638.6    3620065    4314634
-------------+--------------------------------------------------------
        dist |        12     1640.03           0    1640.03    1640.03

-------------------------------------------------------------------------------
-> country = Italy

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         exp |        12     1161581    262679.4     713233    1563268
         imp |        12     2718197    240882.6    2223505    3030737
         inv |        12    317961.3    272780.1      62043    1064041
         gdp |        12     1263727    176813.4   992152.1    1535540
         pop |        12    5.75e+07    838781.1   5.68e+07   5.91e+07
-------------+--------------------------------------------------------
        dist |        12     1841.48           0    1841.48    1841.48
```

```
-------------------------------------------------------------------------------
-> country = Japan

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         exp |        12    124952.8    57256.55      86391     299106
         imp |        12    706744.7    182663.9     525359    1025677
         inv |        12    19294.33    10704.33       6126      41096
         gdp |        12     3879756    519867.1    3196746    5056700
         pop |        12    1.27e+08    742244.7   1.26e+08   1.28e+08
-------------+--------------------------------------------------------
        dist |        12    11145.27           0   11145.27   11145.27

-------------------------------------------------------------------------------
-> country = Netherlands

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         exp |        12     1122753    111509.4     937269    1298992
         imp |        12     1895637      375176    1177748    2576481
         inv |        12     4353214     2265287     306472    6314408
         gdp |        12    444661.8    78490.21   329315.5     567066
         pop |        12    1.60e+07    314215.9   1.55e+07   1.64e+07
-------------+--------------------------------------------------------
        dist |        12     1863.73           0    1863.73    1863.73

-------------------------------------------------------------------------------
-> country = Spain

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         exp |        12     6118136     2533454    2873480   1.07e+07
         imp |        12    1.15e+07     3331489    6077948   1.69e+07
         inv |        12     3705201     1997352     745018    5695363
         gdp |        12    726548.4    189106.1   490476.2    1050595
         pop |        12    4.13e+07     1767046   3.94e+07   4.45e+07
-------------+--------------------------------------------------------
        dist |        12      516.05           0     516.05     516.05

-------------------------------------------------------------------------------
-> country = Sweden

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         exp |        12    409850.5    35182.19     338499     459317
         imp |        12    479873.2    83966.43     306639     598134
         inv |        12    326007.6    164176.6     155760     635931
         gdp |        12    266032.8    36504.97   217516.4   331952.2
         pop |        12     8927179    91416.52    8837496    9113257
-------------+--------------------------------------------------------
        dist |        12     2988.42           0    2988.42    2988.42
```

```
-------------------------------------------------------------------------------
-> country = United Kingdom

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         exp |        12     2654480    261854.8    2065605    2915284
         imp |        12     2162213    200374.3    1791204    2499549
         inv |        12     3478810     1396053     982684    5996181
         gdp |        12     1588248    317355.4   960590.2    2047289
         pop |        12    5.92e+07    883247.4   5.81e+07   6.09e+07
-------------+--------------------------------------------------------
        dist |        12     1585.46           0    1585.46    1585.46

-------------------------------------------------------------------------------
-> country = U.S.A.

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
         exp |        12     1454886    365057.6     841446    2114312
         imp |        12     1046774    214070.6     828669    1618358
         inv |        12    730569.2    325150.6     250986    1236655
         gdp |        12     9385522     1592960    6156265   1.13e+07
         pop |        12    2.89e+08    1.07e+07   2.73e+08   3.06e+08
-------------+--------------------------------------------------------
        dist |        12     5737.22           0    5737.22    5737.22
```

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