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FOREIGN DIRECT INVESTMENT IN RELATION TO DOMESTIC INVESTMENT AND  
INTERNATIONAL TRADE: a survey

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FOREIGN DIRECT INVESTMENT IN RELATION TO DOMESTIC INVESTMENT AND  
INTERNATIONAL TRADE: a survey

1 INTRODUCTION

In many countries foreign direct investment (FDI, for short) has been growing over time, not only in terms of absolute value but also relative to domestic investment (see Table 1). In the Netherlands, for example, outward FDI in relation to gross capital formation has risen from 4.7% in the sixties to 18.3% in the eighties and over 20 percent, on average, in the first years of the nineties. In the same period, the ratio between inward FDI and domestic investment has almost tripled. From way back, the Netherlands has been in the top of the overall FDI-ranking within the industrialized world 1).

Table 1 FDI-flows as percentage of gross fixed capital formation  
(annual average)

Home Country	Outward				Inward			
	1960 1969	1970 1979	1981 1990	1991 1993	1960 1969	1970 1979	1981 1990	1991 1993
Belgium and Luxembourg	0.7	2.6	8.0	16.8	4.3	6.2	11.9	24.9
Canada	1.2	2.3	4.9	4.8	4.7	2.4	3.4	3.9
France	1.2	1.4	5.5	10.0	1.1	1.8	3.1	7.7
Germany	1.2	2.3	5.1	5.3	2.2	1.8	1.6	1.4
Italy	1.4	0.8	2.1	2.9	2.5	1.7	1.7	1.3
Japan	0.4	0.9	2.8	1.8	0.2	0.1	0.1	0.1
Netherlands	4.7	6.8	18.3	20.6	3.6	4.4	9.7	10.6
Sweden	1.7	3.0	15.4	7.4	1.5	0.6	2.8	9.5
United Kingdom	4.8	7.7	15.4	13.2	3.3	3.9	10.2	9.7
United States	3.4	4.4	2.3	5.7	0.4	1.2	4.9	3.3

Source: United Nations (1983, 1995)

1) Especially, when the relative size of the domestic economy is taken into account the Netherlands hold a position in the top of these FDI rankings. However, also in absolute numbers the Netherlands maintain a fairly high FDI-position. See OECD (1995) for FDI-flows in dollars and as a percentage of GDP.

The high amount of outward FDI (FDI-O, for short) for the Netherlands is sometimes said to stem from an unattractive climate for domestic investment (NI, for short). In such commentaries outward FDI is interpreted as foregone NI, bringing national employment down through creation of employment elsewhere. Also, direct investment by foreign investors in the Netherlands (inward FDI or FDI-I for short) can affect NI negatively, for instance when it surpresses potential investment projects by Dutch investors. In contradiction to these relations, some theoretical explanations and empirical evidence in the literature are in favour of a positive relation between NI and FDI-flows.

The aim of this report is to gain insights in the theoretical explanations and empirical findings for the effects of FDI-I and FDI-O on NI that prevail in the literature. In addition, relations between FDI and the closely related trade flows are investigated. The ultimate aim is to answer the question to what extent domestic investment and FDI affect each other. This can also answer the question whether Dutch NI is low because of high FDI, as the reasoning above implies.

The outline of the report is as follows. In section 2 the definition of and motives for FDI are discussed shortly. This section provides information for a first understanding of the relations between FDI, NI and trade flows. Section 3 presents an overview of studies on the relation between FDI and NI with emphasis on the empirical analyses. In a similar way, section 4 presents an overview of studies on the relation between FDI and international trade. Section 5 concludes the report by summarizing the main findings.

## 2 FDI, DEFINITION AND DETERMINANTS

Several definitions of FDI exist. Graham (1994) defines FDI as the case where citizens of one country, say the 'home' country, acquire managerial control of economic activities in some other country, say the 'foreign' country. He points out that the term FDI is a misnomer as neither an economic investment nor a net transfer between two countries is necessary to establish FDI. No economic investment takes place, for

example, when an ongoing firm is taken over by a foreign enterprise. When outward FDI is financed by borrowing in the foreign country, no actual payment takes place between the two countries: the claims and the liabilities of the home country and the foreign country increase with equal amounts. In empirical FDI-studies, FDI is measured as the observed net transfers across countries, so this is a more narrow definition of FDI. The objective to exert influence over the operations of a foreign enterprise distinguishes FDI from portfolio investment. Direct investors aim for benefits additional to the investment income that accrues to portfolio investors. The IMF guidelines (IMF, Balance of Payments Manual, 1993) leave room for subjective judgements about investment belonging to the category of portfolio or direct investment.

The main components of FDI are capital acquisitions (i.e. cross-border investment in equity), retained earnings, and inter-firm debt transactions (i.e. long and short term investment credits, changes in intra-concern accounts). Definitions of FDI can, however, differ from country to country because of different methods of compilation. In the Netherlands, for example, the balance of payments statistics on FDI only since 1996 do include retained earnings. A detailed discussion on the components of FDI in the Dutch balance of payments statistics and the way data are gathered by the Nederlandsche Bank can be found in Van Nieuwkerk and Sparling (1985). In the overview that follows we keep in mind that differences in defining and interpreting the components of FDI are essential and empirical studies should not be judged without a careful consideration of data and definitions used.

Reasons to engage in FDI are diverse and a complex of factors underlies the decision to invest abroad. Among the reasons to develop FDI are avoidance of transportation costs and trade barriers, access to cheap labour, and proximity to raw materials and customers. Apart from cost considerations, strategic decisions play a major role. Strategic motivations concern, firstly, the flexibility to react to locational differences, e.g. factor costs and market growth, or to exchange rates, and, secondly, diversifying activities over different countries to make the enterprise less sensitive to country-specific shocks. Enterprises aim to increase foreign sales and market shares to maintain or improve

their strength and positions, in particular because of increasing international competition. Cantwell (1991) contains a survey with different theories of FDI and Agarwal (1980) gives an extensive survey on determinants of FDI.

Dunning (1981, 1991) incorporates some of the FDI-theories within an eclectic approach to FDI. This approach is considered to be an important step in the search for a comprehensive theory of FDI. Dunning argues that there are three conditions that must be fulfilled before FDI takes place. First, owner-specific advantages like managerial or marketing skills must outweigh the disadvantages of operating in a foreign environment. These advantages, however, do not suffice as an explanation for firms to own and manage firms abroad. There must also be internalising advantages which guarantee that it is more beneficial to exploit owner-specific advantages by investing abroad - i.e. extending its own activities - than by other means of exploitation such as licensing these advantages to independent firms. Finally, there must be locational advantages (e.g. cheap labour or investment incentives) which make it advantageous for the firm to move part of the production facilities abroad instead of serving the foreign market entirely by exports.

Governments often use regulatory barriers and tax and credit policies to deter or attract FDI but this depends on their views on the effects of FDI on the domestic economy. Inward FDI may lead to a transfer of technology and other intangible assets (e.g. managerial or marketing skills) 2). On the other hand, foreign multinationals with market power may compete domestic firms out of the market and transfer supranormal profits to the foreign country. Graham (1995), who surveys empirical evidence on the issue whether FDI is detrimental or beneficial to the foreign country, concludes that the net effects of FDI on the foreign country are positive. This discussion on the effects of FDI on domestic factors, in particular on NI and trade, is continued in the following sections.

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2) Borensztein et al. (1995) show for developing countries that FDI-I increases economic growth because of technology spill-over effects and increased rivalry.

### 3 RELATIONS BETWEEN FDI AND DOMESTIC INVESTMENT

This section discusses studies that contain empirical findings on the relations among NI, FDI-I and FDI-O. These relations are theoretically not straightforward and, hence, the present section concentrates on empirical results. Most studies concentrate mainly on either the effect of FDI-I on NI or FDI-O on NI. Some studies are presented in Table 2 where the home country, the sample period, the effect studied and the sign of this effect are mentioned. A distinction is made between total domestic investment (denoted by TNI) that includes FDI-I, and NI that excludes inward FDI. The former represents investment in a country by domestic and foreign firms, whereas the latter includes domestic investment of domestic firms only. Section 3.1 and 3.2 discuss the studies on the relation between FDI-O and NI, and FDI-I and NI, respectively. A discussion of possible simultaneity between NI and FDI-flows follows in section 3.3.

Table 2 Empirical results on the relations between FDI and NI

Author	Home country	Period	Effect	Result
Belderbos (1992)	The Netherlands	1978-1984	FDI-O and NI	negative
Stevens and Lipsey (1992)	US	1960-1975	FDI-O and NI	negative
Blomström and Kokko (1994)	Sweden	1970-1986	FDI-O on NI	negative
Feldstein (1995)	18 OECD countries	1970-1990	FDI-O on NI FDI-I on NI FDI-I on TNI	negative none positive
Borensztein et al. (1995)	69 industrial countries	1970-1989	FDI-I on NI FDI-I on TNI	positive positive
Van Loo (1977)	Canada	1948-1966	FDI-I on NI FDI-I on TNI	negative positive



### 3.1 Outward foreign direct investment and domestic investment

On the micro-level outward FDI and domestic investment are related because of financial and production interactions. In case of perfect capital markets, i.e. in a Modigliani-Miller world, a firm will raise debt as long as investment is profitable. A firm that decides upon investing in the home or a foreign country is not limited and its FDI-O and NI will not interact. Under imperfect capital markets, on the other hand, financial constraints impose an interaction between investment at home and abroad. In practice, informational asymmetries make raising debt more expensive the more leveraged the firm is. If one project is undertaken, the other is confronted - other things being equal - with higher capital costs. Hence, investment projects in different locations compete for funds. On the basis of financial constraints, the relation between FDI-O and NI is thus negative on a firm level. However, investment projects in foreign countries can be accompanied by additional domestic investment to support the international activities of the multinational firm. Domestic investment can rise because R&D activities in the home country increase or because the head-office offers services to the foreign affiliates. According to the negative relation between FDI-O and NI that is found in micro-studies that concentrate on the behaviour of firms, the negative effect through financial interactions dominates the possible positive effects of production interactions.

Blomström and Kokko (1994) survey empirical studies for Swedish firms and reach this conclusion as FDI-O depresses NI. Stevens and Lipsey (1992) arrive at a similar conclusion in their micro-study for the US. They admit, though, that the estimates can also be interpreted as correlation coefficients rather than uni-directional effects. In a model where firms maximize profit they show that the resulting optimal investment trajectory is a stock adjustment process in which the internally generated cash flows (retained earnings) determine the speed of adjustment to the desired stock of FDI. Estimation results with their model show a negative interaction between outward FDI and domestic investment.

Based on studies of the behaviour of multinational firms it can thus be concluded that the relation between outward FDI and domestic investment is a negative one. It is by no means clear, however, whether the same relationship holds at the aggregate level of an economy. Investment projects that are not undertaken by a particular multinational firm can induce investment activities by other firms in this area. In this scenario, multinational firms exploiting investment opportunities in foreign countries leave room for other firms to exploit the domestic investment opportunities that are not (yet) undertaken. Consequently, there is no crowding out of domestic investment. The results of the aggregate cross-country study by Feldstein (1995) confirm, however, the conclusions of firm level studies. Extending the basic Feldstein and Horioka (1980) specification, Feldstein finds a strong negative impact of FDI-O on NI. The money that flows abroad apparently goes at the cost of domestic investment on a dollar for dollar basis. This study of Feldstein is straightforward but can be criticized on the fact that important variables, like relative prices, are neglected in his analysis.

Belderbos (1992) studies two Dutch industries (food and metal/electronics). According to his results corporate investment decisions can be simplified into a two-stage process. The multinational firm is assumed to determine the overall capital budget first and to divide the budget over domestic investment and foreign investment depending on relative locational advantages in a second step. A distributional model is used in the analysis. Belderbos concludes that investment is distributed over different countries according to the relative advantages and includes the lagged FDI stock which shows that the adjustment process is not immediate. The results indicate that there is a guilder for guilder substitution between outward FDI and domestic investment. Criticism on this model is that the use of a distributional model seems (unduly) restrictive. The main conclusion on the interaction between FDI-O and NI can be influenced by this restriction.

To summarize, recent empirical studies show that the relation between FDI-O and NI is negative on a firm level and suggest that the same relationship holds at the macro-economic level.

### 3.2 Inward foreign direct investment and domestic investment

Another interesting question is whether FDI-I replaces NI or whether total domestic investment increases beyond the size of the resource inflow through complementary effects. In the discussion that follows, FDI-I is not incorporated in NI. In case where FDI-I replaces NI less than one for one, the effect of FDI-I on total domestic investment (denoted by TNI) is thus still positive. In theory, the effect of FDI-I on NI may have either sign. Competition in product and financial markets can lead multinationals to replace domestic firms. On the other hand, because of rivalry in production or technological spill-over effects FDI-I can complement and hence stimulate NI.

In most studies, FDI-I is found to stimulate total domestic investment. Borensztein et al. (1995) study inward FDI from industrial countries into developing countries. They find support for an effect on NI that is complementary to the inward FDI, called the 'pulling-in' or 'crowding in' effect. The theory of Graham and Krugman (1991) that FDI is to be more productive than domestic investment is corroborated: a foreign firm has to compensate for the better knowledge and access to the domestic markets of a domestic firm. Although, in the cross-country study of Borensztein et al. the higher productivity seems to entail complementary domestic investment, it is pointed out that the effect can be biased upwards as the FDI-measure used does not take into account debt and equity raised in the foreign country. The FDI-figures underestimate the total value of FDI and so coefficients can be overestimated.

Van Loo (1977) used a simultaneous model with equations for national income, unemployment, exports, imports, consumption and total domestic investment and finds a positive direct effect from FDI on NI in Canada. Along with this direct effect from FDI, Van Loo (1977) discusses indirect effects from FDI on NI through changes in consumption, exports and imports. In Van Loo's study, the overall effect of inward FDI on domestic investment is calculated by solving the structural model for the investment variable. This effect can be interpreted as a long-run effect and consists of an indirect and a direct effect. The indirect effect turns out to influence NI negatively as FDI-I surpresses

consumption and exports and stimulates imports which cause declining expenditures and income. Combining the positive direct effect and the negative indirect effect, the overall effect of FDI-I on domestic investment seems to be substitutionary. This negative effect, however, is not large enough to compensate the FDI inflow by which the effect of FDI-I on TNI is positive.

Feldstein (1995) finds that FDI-I (retained earnings excluded) has no effect on total domestic investment which implies that it replaces domestic investment dollar for dollar. If retained earnings are included, the effect of FDI-I on total domestic investment is about one, which implies that there is a positive effect on total investment and no replacement of domestic investment. The special feature of this study is that the effects of outward and inward FDI on domestic investment are analysed within one specification.

To summarize, the empirical studies give no conclusive answer to the question what the sign of the effect of FDI-I on domestic investment is. The effect of inward FDI on total domestic investment, though, seems to be positive for the different studies reviewed here for different countries and different sample periods.

### 3.3 Simultaneity between foreign direct and domestic investment?

Most studies concentrate on the effect of outward or inward FDI on domestic investment but the possibility of endogeneity problems is recognized. If domestic investment increases, for instance because of beneficial investment subsidies or lower capital taxes, foreign investors are also likely to be attracted. The increase in NI is thus accompanied by an increase in FDI-I because of a good investment climate and, hence, a positive correlation between these investment flows is to be expected. Similarly, outward FDI will be low when the conditions for investing in the home country are attractive in comparison with foreign countries. On the other hand, higher capital budgets of multinational firms are likely to increase both domestic investment and outward direct investment. The correlation between FDI-O and domestic investment is thus unknown. In general, authors handle the possibility of simultaneity

problems by controlling for as much relevant factors as possible or by using instrumental variable estimation techniques.

#### 4 RELATIONS BETWEEN FDI AND INTERNATIONAL TRADE

In Table 3 some empirical studies are presented that investigate the relation between inward and/or outward FDI, on the one hand, and exports and/or imports denoted as X and M, respectively, on the other hand.

Table 3 Empirical results on the relations between FDI and trade

Author	Home country	Period	Effect	Result
Blomström and Kokko (1994)	Sweden	1970-1986	FDI-O on X	positive
Van Loo (1977)	Canada	1948-1966	FDI-I on X FDI-I on M	negative positive
Ietto-Gillies (1989)	UK	1962-1984	FDI(I+O) and X FDI(I+O) and M	positive positive
Pain (1996)	12 industrial countries	1981-1992	FDI-O on X Netherlands: FDI-I on X Netherlands:	various none various none
Barrel and Pain (1996)	US	1971-1988	X on FDI-O short term long term	negative positive
Pfaffermayr (1996)	Austria	1981-1991	FDI-O on X	positive
Van der Zwet (1996)	The Netherlands	1979-1992	FDI-O/TNI on X FDI-O/TNI on M	none none

FDI and international trade, i.e. X and/or M, are often confirmed to be closely related. In case where investors buy capital goods in a foreign country in order to start a business there, exports start increasing if, for instance, goods needed for production are to be transported from the home to the foreign country. Or the other way around, final goods that are now (cheaply) produced in the foreign country are imported in the home country. So, FDI-O can thus increase X as well as M. However, often

it is also argued that outward FDI replaces exports by moving production abroad. This is the case when final products that were exported to the foreign country in the past, are now produced and sold in that foreign country. Furthermore, also the foreign affiliate can export to third countries that were served by the home country in the past. Imports may decline as a result of FDI-O as production is moved abroad so that inputs do not need to be imported anymore. Inward FDI may stimulate exports when it is invested in firms that produce export goods or it may replace exports when intermediate goods or raw materials that used to be exported are now used for production in the domestic country. Inward FDI may decrease imports when it is used to produce goods that were formerly imported. Imports, however, may also increase as FDI-I increases expenditures. As the particular effect of FDI on international trade on the firm level depends on the specific situation, the question about the signs of the overall effect is an empirical one.

Blomström and Kokko (1994) survey studies that investigate the effect of outward FDI on exports for Sweden. They find that complementary effects dominate substitution effects such that the net effect of outward FDI on exports is positive. Furthermore, Blomström and Kokko stress that FDI-O affects the structure of Swedish exports.

The small structural model for the Canadian economy of Van Loo (1977) shows a negative effect from FDI-I on exports and a positive effect on imports. Van Loo claims that the industry is not able to adjust to the increased demand as a result of the inflow of FDI within one year, which is the time unit used for estimation. Subsequently, prices increase and exports fall. According to Van Loo, the positive effect of inward FDI on imports can be seen as the result of several opposing effects. The price effect, as mentioned before, and the increased demand as a result of inward FDI stimulate imports.

Some other studies investigating the trade-FDI relationship are Ietto-Gillies (1989), Pain (1996), Barrell and Pain (1996), Pfaffermayr (1996) and Van der Zwet (1996). Ietto-Gillies (1989) takes inward and outward FDI together as a measure of the spread of international production and argues that the more production is spread over the world the more

components and intermediary products are moved over the world leading to an increased trade. The empirical results confirm that there is a complementary relation between the total FDI measure and international trade. Ietto-Gillies finds a one-to-one relation in the UK both for FDI and X and for FDI and M. It should be pointed out, though, that no functional relationship is investigated. The study shows that average growth rates of total FDI (inward plus outward) have been almost equal to average growth rates of imports and exports, respectively, in several countries.

Using an error-correction specification, Pain (1996) estimates for 12 industrial countries the long-run relationship between exports and the relevant world trade, the price and quality of exports and the stock of inward and outward FDI. The empirical results of Pain's paneldata study show that the effects of outward and inward FDI on exports differ per country. For the Netherlands both effects are zero.

Barrell and Pain (1996) distinguish short term and long term effects of exports on outward FDI for the US. The short term effect of their error-correction model shows a negative effect of exports on outward FDI. However, the long-run effect appears to be positive. The authors argue that exports stimulate foreign investment to deliver services in the foreign country. This study confirms that also in investigating trade and FDI simultaneity should be accounted for. This is confirmed by Pfaffermayr (1996) who finds complementary effects between outward FDI and exports with causation in both directions 3). He estimates a dynamic fixed effects model with two equations where determinants of FDI and exports which are unobserved like product differentiation or transportation costs are captured by fixed industry and time effects. Pfaffermayr finds causation in both directions but the positive effect of FDI on exports seems stronger than the reverse effect. Another interesting point made by Pfaffermayr is that Bergsten et al. (1978) provide evidence which suggests that the relation between FDI-O and

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3) Also an earlier study of Pfaffermayr (1994) found, using Granger-causality tests, that outward FDI caused export and vice versa.

exports is complementary at the beginning of the internationalization process (like in Austria) but turns into a substitutionary relationship as this process goes on.

Van der Zwet (1996) draws the attention to globalization 4). For this reason she concentrates on the ratio of Dutch FDI-O to Dutch TNI. If this ratio increases, Dutch firms are spreading more business activities internationally. The effect of this ratio on both X as well as M is estimated but not found to be significant. The main conclusion from this analysis is that FDI does not affect the Dutch economy negatively. This study does not contradict other investigations that find an effect between FDI and international trade as the effect of FDI-O on trade can still be significant. It is however not fully clear why the absence of a significant effect of the ratio of FDI-O to TNI on X or M is a sufficient condition for the absence of an effect on the Dutch economy as a whole. It is after all mainly the ultimate effect on economic growth in terms of output or GDP, that is expected to be more influential on employment than trade.

To summarize, FDI can influence international trade and in most cases the effect on exports as well as on imports is positive. However, the results differ per country, industry or firm depending on the particular situation (the structure of production and trade and the underlying determinants of FDI). Moreover, simultaneity between FDI and international trade is not negligible.

## 5 CONCLUSIONS

For various reasons foreign direct investment, domestic investment, and international trade are closely related. From a theoretical point of view, the relation is not clear-cut. Empirical research indicates that there is a negative relation between outward FDI and domestic investment. On the other hand, a positive relation between inward FDI

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4) In this context, globalization is defined as the tendency of firms to increase the geographical spread of their business activities.



and total domestic investment is shown by empirical studies. The magnitude of this effect differs across studies. Some studies find a complementary effect implying that total domestic investment increases more than the FDI-inflow and others find signs of substitution, indicating that total domestic investment increases less than the resource inflow. The effect of FDI on international trade seems to be non-negligible. Although the majority of studies reviewed point to a positive relation between FDI and trade, the empirical evidence does not show a predetermined relation. The relations between FDI and international trade seem to differ per country depending upon the structure of the national economy, the composition of prevailing production and trade patterns, and the stage of the internationalization process.

Various methodologies are adopted in the studies mentioned here. Most studies adopt an (arbitrary) reduced form model and not many statistics are provided to reveal the validity of the estimates. The lack of a solid theory on FDI, NI and trade is probably one of the main reasons for the diversity of models used and, consequently, the estimation results. Other reasons hampering the comparability of empirical studies are differences in FDI-definitions in the countries considered and different opinions of the authors about the relevant FDI-concept.

The question whether FDI is detrimental or beneficial for employment has thus not been answered yet. The answer depends on FDI being inward or outward and it is the macro-economic relation between FDI and employment that matters. A macro-economic empirical study for the Netherlands can reveal the quantitative and qualitative relation between FDI, domestic investment and employment. It follows from the present study that it is necessary to take trade into account and it seems important to adopt a full modelling approach. Furthermore, simultaneity problems between NI, FDI and trade require a general modelling approach. Also other factors like GDP and relative prices should be adopted. Another important aspect, emphasized for example by Van der Zwet (1996), concerns the need for sectoral analyses. Some Dutch sectors might clearly have taken advantage of FDI-I whereas others have suffered from the negative effects of FDI-O because of a tough international competition.

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