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Outward FDI and the Investment Development Path of a Late-Industrialising Economy: Evidence from Ireland

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Abstract

The Investment Development Path (IDP) hypothesis holds that a country's net outward direct investment position is systematically related to its level of economic development. Ireland is an interesting test case because of the importance of inward FDI over the last three decades, the country's rapid recent FDI-fuelled growth, and the recent increase in outward FDI by Irish-owned multinationals. We find empirical support for the IDP concept for the Irish case. Our sectoral analysis shows up important differences between Ireland's outward FDI and the bulk of FDI occurring in the world economy however. Ireland's outward FDI flows are as yet almost exclusively horizontal and they go largely into non-internationally-tradable manufacturing and services sectors. Also, the firm-specific assets of Irish multinationals lie neither in R&D nor in the type of product differentiation associated with high advertising expenditures.

Keywords: Outward FDI, Investment Development Path, Ireland.

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Introduction

Dunning (1981, 1986) and Dunning and Narula (1996) argue that a country or region's net outward direct investment position is systematically related to its level of economic development. This notion, formalised in the concept of the investment development path (IDP), proposes that at relatively early stages of economic development direct investment is primarily incoming, as firms from the backward region will not have accumulated the firm-specific assets that allow firms to set up successfully outside their home base; Caves (1996); Dunning (1988).

As development proceeds however, learning-by-doing enhances the firm-specific assets of indigenous firms, allowing outward direct investment to begin. At the same time, development causes an erosion of the country's absolute cost competitiveness, which impacts on the incentive for inward investment. At a still later stage, the country's net outward investment position becomes positive, as the nature of both inward and outward investments change. Inward investment in richer countries is more concerned with technology sourcing and market access than with the costs of production, while outward investment grows as domestic firms seek to maintain or expand competitiveness by locating production processes in lower production-cost countries.[1]

In this paper we examine whether the development of inward and outward investment in Ireland fits in with the IDP concept. Ireland represents an interesting test case for the IDP hypotheses for two reasons. First is the very rapid pace of economic development enjoyed over the last decade: income per head, measured as GNP per capita at purchasing-power-parity prices, rose from less than 65 percent of the UK level in 1990 to

rough equality with the UK (and the EU average) today, while net job creation over the same period exceeded the rate achieved even by the US, traditionally the world's "job creation dynamo".[2] It is of interest to ask whether traces of the postulated dynamic patterns in the net foreign investment position can be seen over such a relatively short period of rapid growth. Secondly, of course, there is the fact that Ireland has relied far more heavily than other EU countries on inward FDI flows as the driving force behind manufacturing-sector development. This is reflected in the data in Table 1 on the share of manufacturing sector employment in foreign-owned firms.

Table 1 here

Given the magnitude of inward FDI it is not clear whether the patterns postulated by the IDP, with outward FDI rising over time to match the levels of inward investment, are as much in evidence as in economies with less dramatic inward flows. We investigate this issue by examining the overall patterns of inward and outward FDI in Ireland in Section 1. Section 2 looks at bilateral FDI between Ireland and the US, and estimates an econometric model of the IDP following Buckley and Castro (1998). In Section 3 we examine the differences in sectoral destination between Ireland's inward and outward FDI flows, and Section 4 summarises the lessons learnt from the analysis.

1. Ireland's Inward and Outward FDI Flows

Total FDI outflow data (to all countries) is available for Ireland only for the last few years. A view of the historical record may be gleaned however from UNCTAD (1999)

[1] The basic validity of the concept is supported by the fact that outward FDI is generated almost exclusively by developed countries, and that these countries also account for about 75 percent of inward FDI.
[2] GNP is used here as it excludes the profits earned by foreign firms producing in Ireland. Irish GDP per head is higher still.

data on inward and outward investment stocks (as a percentage of GDP). These show Ireland in the late 1990s as having the third highest stock of inward investment in the EU, after Belgium/Luxembourg and the Netherlands. Ireland's outward investment stock on the other hand was third lowest, after Greece, Portugal and Austria. This suggests that until recently outward FDI flows from Ireland were not very large, as the IDP concept would suggest.

Table 2 here

In looking at flow data, it is important to distinguish between inflows into the International Financial Services Centre (IFSC) in Dublin and inflows into other sectors of the Irish economy. The IFSC, founded in 1987, is one of Europe's largest off-shore financial centres. Inward investment here entails the transfer of capital by foreign companies to their financial subsidiaries at the IFSC. These inflows are then mostly reinvested in overseas assets. Thus, direct-investment inflows into the IFSC are roughly matched by outward flows of portfolio investment, with little impact on the productive potential of the economy; Forfás (2000). We therefore attempt to exclude such flows of funds from our discussion.

The Irish Central Statistics Office has recently started to publish data on inward and outward FDI flows. Inward direct investment into non-IFSC sectors in Ireland came to £2.8 billion (Irish pounds) in 1998, rising to £4.8 billion in 1999.[3] Surprisingly, given the historical levels of such inflows and their importance, illustrated above, outward flows for these two years almost matched the inward flows. Outward flows totalled £2.7 billion

[3] An Irish pound is worth roughly 1.3 euros.

in 1998 and £4 billion in 1999.[4] It is estimated that these outflows rose from a level of less than £1 billion at the beginning of the decade. These numbers also tend to support the investment development path concept.

To take the analysis further requires information on both the geographic and sectoral destination of these outflows. Let us consider the geographic destination first. All data sources agree on the pre-eminence of the US and the UK as host locations. UNCTAD for example reported that the US received 47 percent of Irish companies' spend on overseas acquisitions in the period 1995-97, while the UK received 38 percent. This is corroborated by the evidence in Table 2 drawn from a database on overseas acquisitions by Irish companies.[5] Over 80 percent of overseas acquisitions were made in the UK and U.S. with the U.S. being the most important destination for Irish overseas acquisitions in 1997.

Table 2 here

Growth over time in the stock of Irish FDI in the UK is further confirmed by UK Office of National Statistics data, which reports on numbers employed in foreign-owned firms in the UK manufacturing sector. In the first year these data were reported, 1981, Irish-owned firms employed 8,900 workers in the UK. By 1996 this had climbed to over 23,000.[6]

For the two years for which Irish Central Statistics Office data is available, 1998 and 1999, around 70 percent of FDI outflows from Ireland went to non-EU countries, which

[4] Roughly half of the outflows in each year were funded by Irish companies reinvesting foreign earnings, with the remainder funded by a mix of equity and other (primarily debt) capital.
[5] Note that this data is different from outward FDI since the acquisitions may be funded through a variety of non-FDI as well as FDI sources.
[6] ONS Summary Volume – Manufacturing, Table 9.

suggests that the US has been growing in importance as a host location in recent years. Given the scarcity of Irish source data on outward flows, we are fortunate in having US Department of Commerce data on foreign-owned assets in that country.[7] As the US is also the most important source of FDI flows into Ireland, we concentrate in the next section of the paper on what the US data tell us about bilateral Irish-US FDI flows.[8]

2. Ireland-US Bilateral FDI Flows

Table 3 shows that over the course of the 1980s and 1990s Irish FDI in the US grew even more rapidly that US FDI in Ireland. This result is quite surprising, given the focus of academics and policy makers on Ireland as a host country for inward investment, rather than as a base for outward investment.

Table 3 here

The employment associated with Irish non-bank affiliates in the US (which is unfortunately the only employment data available to us) also increased considerably over the period. As shown in Figure 1, these numbers increased steadily from around 10,000 in the early 1980s to approximately 39,000 in 1997 and then surged to 65,000 in 1998 due to a spate of acquisitions of US firms. This should be seen in the context of development in the US-owned affiliate sector in Ireland over the period, where employment grew from around 38,000 in 1982 to 65,500 in 1997 and 70,400 in 1998.

Figure 1 here

[7] These data are available in the publication *Survey of Current Business* and on the Bureau of Economic Analysis website (http://www.bea.doc.gov/bea/di1.htm).
[8] See also Görg (2000) for a further, more detailed analysis of the Ireland-US bilateral FDI relationship.

Although the IDP concept outlined earlier relates to a country's total net outward investment position, we propose to explore it in terms of the bilateral investment relationship between Ireland and the US. We argue that this is of interest not only because the US is the most important source country for FDI in Ireland, but is also, as seen earlier, one of the most important, if not the pre-eminent, destination for Irish outward FDI flows.

Figure 2 plots Ireland's net outward position with the US over the period 1980 to 1999. Note firstly that it has remained negative: FDI inflows from the US have been consistently higher than Irish outflows to the US. Secondly however, the pattern over this period which was marked by very rapid development of the Irish economy does indeed look like the U-curve predicted by the IDP.

To analyse the relationship between the net outward investment (NOI) position and economic development more formally, Dunning (1981) suggests regressing NOI on GDP, utilising a quadratic specification to allow for the non-linearity in the relationship. Dunning (1981) and, more recently, Dunning and Narula (1996) estimate this relationship for a cross-section of different developed and developing countries, and find statistical support for the use of such quadratic specifications. Evidence of such a non-linear relationship has also been presented recently for Portugal by Buckley and Castro (1998), employing time series data for the period 1943 to 1996.

Following these studies, we analyse the IDP relationship for Ireland's net outward position with the US (NOI = outward – inward FDI stocks) by estimating the following model:

$$NOI = b_0 + b_1 GDP + b_2 GDP^2 + e \qquad (1)$$

where *GDP* is real gross domestic product in Ireland and *e* is a regression error term. Estimating this equation using data for the period 1980 to 1999 yields the following result:

$$NOI = -325.609 - 0.172\ GDP + 1.78e\text{-}06\ GDP^2 \qquad (2)$$
$$\qquad\qquad (575.424) \qquad (0.027) \qquad (0.27e\text{-}06)$$

where the numbers in parentheses are heteroskedasticity consistent standard errors.[9] The R-squared obtained is 0.66. The negative sign of the coefficient on *GDP*, and the positive sign on the *GDP*-squared coefficient (which are both statistically significant at the one per cent level), provide evidence of a U-shaped relationship between Irish GDP and the country's net outward FDI position with the US, a pattern consistent with the IDP concept.

3. Sectoral Destination of Ireland's Inward and Outward FDI Flows

The Investment Development Path concept discussed earlier does not have much to say about differences in the sectoral destinations of FDI inflows and outflows. Indeed it does not clearly distinguish between vertical and horizontal flows.[10] The process of economic development would seem to have two implications of relevance. The first is that as production costs (and particularly labour costs) rise, this strengthens the incentive for domestic firms to engage in vertical FDI, shifting the labour-intensive segments of the production process abroad to lower-wage countries. The second is that as domestic firms reap the benefits of learning-by-doing, they become able to compete successfully in the home markets of earlier-developed countries, and so engage in horizontal FDI.

[9] Note that the reported estimation corrects for heteroskedasticity, which was detected in the initial regression, using the White (1980) estimator of variance. The Durbin-Watson statistic, dw(3,18)=1.97, indicates that first-order autocorrelation is not a problem.

[10] Vertical flows are associated with the international fragmentation of production, driven by factor costs, while horizontal flows are associated with goods-market access considerations.

The IDP literature remains silent on the relative strength and timing of these two effects. Our reading of the Irish situation, as explained below, indicates that the bulk of Irish outward FDI is of the horizontal type. Our sectoral analysis gives us an indication as to why this is the case. Indeed it is in raising and exploring this issue that we feel we make a contribution to the development of the IDP concept. It appears worthwhile to attempt and incorporate the distinction of vertical and horizontal FDI into the concept.

Services versus Manufacturing

Let us look first at the sectoral destination of FDI inflows into Ireland. Most FDI into services other than the IFSC is thought to stem from the UK; Forfás (2000). If we take UK FDI in Ireland as an upper bound on FDI in non-IFSC Irish services, FDI in services comes to a total of around 25 percent of the stock of non-IFSC FDI in Ireland.[11] The share of Irish FDI flows into the US that go into services, on the other hand, is around 55 percent. Much of Ireland's outwards FDI going to the UK also goes into services, as is clear from Table 4 and other evidence on Irish acquisitions of overseas retail sales outlets. Thus our first conclusion on sectoral destinations is that outflows from Ireland go primarily into services while inflows come primarily into manufacturing.[12]

Sectoral Destination of FDI Outflows from Ireland

The conclusion on outflows into services is supported by data on the overseas operations of the 10 largest Irish companies in Table 4. Forfás (2000) argues that much of Ireland's outward FDI comes from these ten companies, and that overseas investment by small and

[11] This could be considered as an upper bound as the UK is also an important investor in manufacturing industries; Barry and Bradley (1997).

[12] The share of US FDI assets in manufacturing in Ireland fell to 44 percent in 1999. If we exclude the share of US assets in IFSC related activities however, manufacturing's share in the remainder (what we are tempted to call "real" US FDI inflows) rises to above 70 percent.

medium Irish enterprises is low by European standards. Note that four of these companies are located in services sectors.

Table 4 here

It is clear from this table that besides services companies there is a strong representation of firms in non-tradable manufacturing activities in the list of Irish firms with overseas operations. The most important of these are in sectors such as building materials and paper and packaging. This evidence is supported by material assembled by Enterprise Ireland, the government agency tasked with supporting domestic manufacturing and software firms. Table 5 lists employment in Enterprise Ireland supported firms in 1999. The data shows that over 40 percent of employment by Irish firms abroad is in the sector which includes the two largely non-traded manufacturing goods. Expansion abroad in both these fields of activity, services and non-tradable manufacturing, entails horizontal rather than vertical FDI. If these companies expand abroad they do so for market-access reasons, i.e., in order to penetrate and grow in new markets.

Table 5 here

Why do we see so little vertical FDI outflows from Ireland? Here we need to remind ourselves of the reasons why firms choose to set up production facilities abroad. These are based on the importance of intangible firm-specific (or proprietary) assets, the full benefits of which are more easily reaped through intra-firm rather than conventional market relationships. R&D and superior product differentiation through advertising are generally found to be the most important firm-specific assets associated with multinationality; Caves (1996), Markusen (1995).

Of the sectors with which the leading Irish firms are associated, only pharmaceuticals and some segments of food are advertising-intensive, according to Davies and Lyons (1996, Table A2.1). It will also be apparent that only one of the firms listed in Tables 4, Elan, is located in what the OECD (1994) classify as a high-technology sector. This is also the only one of these companies to feature in a list of the top thirteen patent holders among Irish indigenous enterprises; O'Sullivan's (2000).

Irish multinational companies do not appear therefore to follow the standard pattern associated with multinationality. As R&D, technology and advertising related characteristics do not appear to be important for the majority of Irish multinationals, we may conjecture that their predominant proprietary assets appear to be in the management field in largely non-traded sectors.

This explains the lack of vertical multinationalisation. It is also worth bearing in mind that, as Caves (1995, p.83) pointed out, factors such as R&D and advertising that generally give rise to MNEs also represent barriers to entry into these industries. The fact that the proprietary assets of Irish MNEs do not lie in these areas serves as an illustration of the difficulties facing firms in late-developing regions in surmounting the entry barriers that characterise more conventionally multinational sectors.

Finally, before looking briefly at the sectoral characteristics of inward investments, we should mention the fact that growing numbers of Irish "new economy" firms have recently begun to set up operations in the US.[13,14] Why should high-tech firms from a

[13] The acquisitions associated with most of these firms are small however, on the order of several million Irish pounds, paling in comparison to the £840 million spent by AIB on US purchases in 1997, the £418 million spent on US acquisitions by CRH in 1996 and the £82 million spent by Waterford Wedgewood in 1999.

relatively peripheral region be drawn to set up US operations so early in their lives? According to Cryan (1999) the answer revolves around the need to network. Without a local presence there is little possibility of being featured in the US press, of developing relationships with computer vendors or of attracting the attention of venture capitalists. The importance of a US base is summed up by one venture capitalist who is quoted as saying:

"I will not invest in a company that is any more than a 35-minute drive from my office. I need to keep an eye on my investment and it's very difficult to do that if the company headquarters is 6,000 miles away."[15]

This outward FDI is also driven by market-access considerations therefore.[16]

Sectoral Destination of FDI Inflows into Ireland

As much has been written about FDI flows *into* Ireland (see, for example, Görg and Strobl, 2001 and Barry and Bradley, 1997) we can deal with this material briefly, focussing only on the contrast between the sectoral destinations of inflows and outflows. Table 6 below shows the most important sectoral destinations for inflows, measured in terms of share of employment in foreign-owned industry in Ireland.

Table 6 here

Recall that almost no high-technology sectors were represented in the group that served as destinations for FDI outflows. By contrast, most of the sectors which attract FDI

[14] To the (still relatively small) extent that Ireland exhibits outward FDI in modern sectors, this appears to have developed through a symbiotic relationship with inward FDI rather than as an automatic consequence of economic convergence, as appears to be the perspective advocated by Dunning; on the indigenous Irish software sector, for example, see Ó Riain (1997).

[15] Irish Times, Friday, March 26, 1999.

[16] The fact that production-cost considerations (in this case the cost of venture capital) also come into play does not prevent it being classed as horizontal investment.

inflows are so classified.[17] Of the nine sectors listed here, the top five are classed as high-tech by OECD (1994). Of the remaining four, two are classed as medium technology (motor vehicles and chemicals) and two as low technology (food and textiles). Within the food sector, furthermore, 90 percent of foreign employment is in segments classified by Davies and Lyons (1996, table A2.1) as ones in which advertising expenditures are important. This reflects the standard pattern found internationally.

4. Conclusions

In this paper we report evidence on inward and outward FDI flows for Ireland. Inflows have grown substantially over time, and are generally regarded as being the driving force behind the economy's dramatic recent growth; Görg and Ruane (2000), Barry (1999). According to Eurostat, no other EU country had as high a ratio of inward to outward investment flows in the late 1990s. We have pointed out however that outflows from Ireland have grown even more sharply than inflows in recent times. This evidence is consistent with the "investment development path" (IDP) hypothesised by Dunning (1981, 1986).

Due to the dearth of consistent time-series data on outflows from Ireland we cannot evaluate the IDP hypothesis empirically on total FDI stocks or flows. The US is the most important source of FDI flows into Ireland, however, and the evidence adduced here suggests that it has also become the most important destination for Irish outflows. We therefore utilise US data to test the IDP hypothesis on bilateral Irish-US flows, and our results confirm those of previous studies.

[17] This difference in the technological orientation of the destinations of inward and outward FDI flows is further supported by balance of payments data. In 1999 for example, the country paid out over £5 billion in overseas royalties and licence payments while receiving only £300 million.

We go on to analyse the sectoral destinations of inflows and outflows, on which the IDP hypothesis is silent. We show that most Irish outflows to the US are in the services sector, while most inflows are into manufacturing. This appears to be the case for the aggregate (as opposed to bilateral) data also. Furthermore, most manufacturing outflows are into classic non-traded sectors, such as construction materials and paper and packaging, while this is assuredly not the case for FDI inflows into Ireland; over 90% of the output of the foreign-owned segment of Irish manufacturing is exported

The sectoral destination of outward FDI flows from Ireland is somewhat reminiscent of the discussion in Caves (1995, p.238-240) of developing-country multinationals. Irish firms have clearly not (yet?) surmounted the formidable entry barriers associated with the development of firm-specific assets based on R&D and strong product differentiation, as O'Malley (1987) predicted.

The proprietary assets associated with Irish MNEs appear instead to be managerial in nature, and to be located almost exclusive in (non-traded) downstream sectors; this does not appear to create a strong incentive to engage in vertical multinationality (as opposed to conventional trade) in accessing upstream inputs.

Much of the literature analysing the implications of outward investment focuses on vertical investments, whereby labour-intensive segments of the production process are shifted abroad. Blomström et al. (1997) for example find for US firms that increased foreign production is associated with reduced employment in the parent company. This can lead to an expansion of headquarters services and high-skill employment in the home base however. Locating abroad to source new technologies on the other hand may lead to a downsizing of domestic R&D facilities and high-skill employment; Blomström and

Kokko (2000).[18] Technology sourcing may also be associated with positive externalities however, as argued by Globerman et al. (2000).

With most Irish FDI outflows concentrated in lower technology sectors, spillover benefits from headquarters services in Ireland may be less likely to arise than in the case of firms whose proprietary assets lie in R&D. In the case of Ireland's "new economy" firms locating in the US however, the various offsetting effects discussed above may arise, and should be worth exploring.

Overall, the Irish experience supports the view that as poorer countries converge on richer ones the sectoral destination of their FDI outflows will reflect a different pattern from that observed in the outflows from earlier-developed economies. It should be worthwhile investigating whether this hypothesis is borne out in the case of other late industrialisers also.

[18] This may be seen as an example of the type of agglomeration effects that inhibited the development of dynamic industrial sectors outside the European core at the time of the Industrial Revolution; Pollard (1985).

Table 1: Proportion of Manufacturing Employment in Foreign-Owned Firms

Country	Year	Proportion of manufacturing employment in foreign firms
Czech Republic	97	16
France	96	26
Finland	97	10
Germany	96	7
Hungary	97	28
Ireland	96	47
Italy	95	10
Japan	96	1
Netherlands	96	11
Norway	96	14
Sweden	96	15
Turkey	96	6
UK	96	16
US	92	7

Source: OECD (1999) Measuring Globalisation: The Role of Multinationals in OECD Economies

Table 2: Overseas Acquisitions by Irish Companies

Region	1995		1996		1997	
	£000	%	£000	%	£000	%
UK	453,350	67	979,140	42	484,190	24
US	64,550	10	999,300	43	1,300,060	66
ROW	157,650	23	371,100	15	197,996	10

Source: CFM Capital (various years) *Acquisitions Survey*

Table 3: Outward and Inward FDI Stocks

(in million $ at 1996 prices)

	1980	1983	1986	1989	1992	1995	1998	1999
Irish FDI in US	174	318	476	1702	2413	4840	12842	17222
US FDI in	3957	5332	5700	5608	8305	8150	15472	18998

Ireland

Note: both data series were deflated using the US GDP deflator available at http://w3.access.gpo.gov/usbudget/fy2001/hist.html#h10.

Source: own calculations based on US Department of Commerce data

Table 4: Overseas Operations of the 10 Largest Irish Companies

Company/ Sector	Activity basis	Ireland	US	UK	ROW
Allied Irish Bank (banking)[a]	Assets	48	26	24	2
Bank of Ireland (banking)	Assets	60	12	19	9
Elan (pharmaceuticals)	Turnover	-	19	-	81
CRH (building materials)[b]	Turnover	13	49	19	28
Smurfit (paper and packaging)[c]	Turnover	11	7	11	71
Irish Life (insurance)	Premiums	61	26	11	2
Kerry (food)	Turnover	22	36	-	42
Independent (newspapers)	Turnover	43	-	6	51
Waterford Wedgewood (glass)	Turnover	7	38	24	31
Greencore (food)	Turnover	78	-	-	22

Notes: [a] Having entered the market in 1988, AIB is now one of the 50 largest bank holding companies in the US, with assets of close to $20 billion and a workforce of 6,500.
[b] Following recent acquisitions, CRH's expanded US materials businesses now has sales of some £1 billion per annum, and annual output of 400 million tons of aggregates, 15 tons of asphalt and 2.7 million cubic yards of ready-mixed concrete.
[c] The recent merger of Smurfit's US operations with Stone Container makes it one of the five biggest producers in the packaging industry, and these five now control nearly 60 per cent of North American capacity.

Table 5: Overseas Employment of Irish Firms outside the Financial Sector

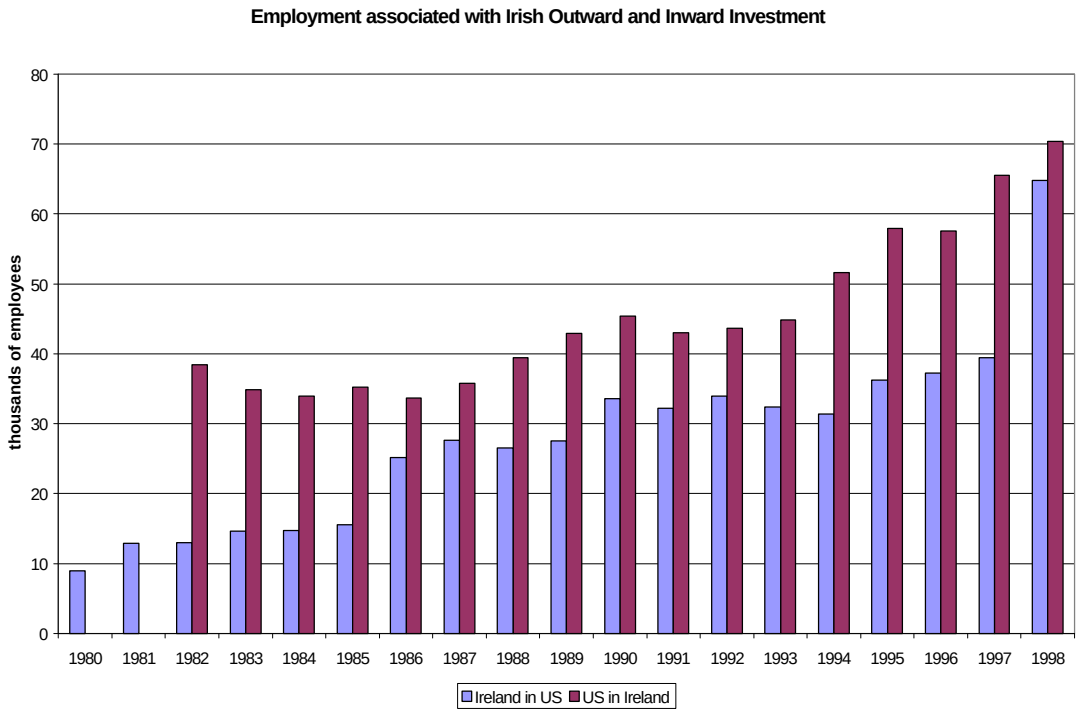
Sector	Numbers employed in overseas facilities
Pharmaceuticals/Print and Packaging/Construction	54,957 (44%)
Engineering	18,388 (15)
Electronics and Precision Components	2656 (2)
Food and Drink	44047 (35)
Timber and Furniture	511
Consumer products	523
Software and International Services	5080 (4)
Total	126,162

Table 6: Sectoral Destinations of FDI Inflows into Ireland

Sector	Share of employment in foreign-owned industry
Professional Instruments	9.6 %
Electrical Apparatus	9.2 %
Communications Equipment	8.8 %
Pharmaceuticals	8.8 %
Office and Computing Machinery	8.7 %

Food	8.5 %
Motor Vehicles	6.5 %
Textiles	6.3 %
Chemical Products	5.3 %

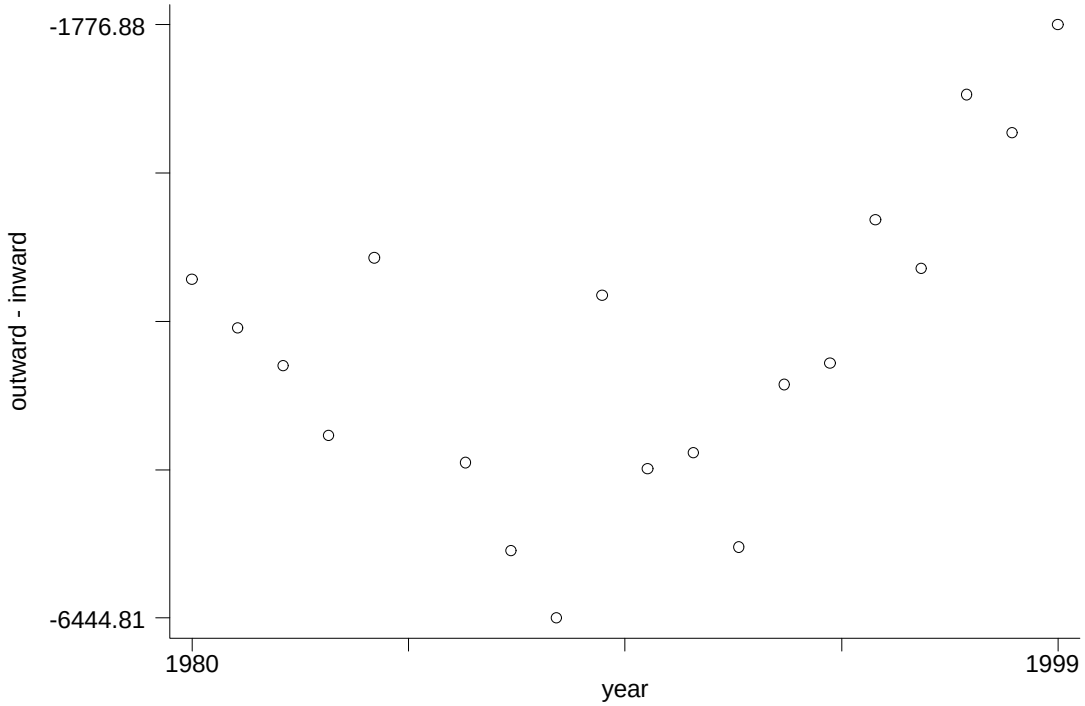
Figure 1



Source: own calculations based on US Department of Commerce data

Figure 2

Development of Irish Net Outward Investment Position



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