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Ireland's Inward FDI over the Recession and Beyond

Frank Barry
Trinity College Dublin

and

Adele Bergin
ESRI and NUI Maynooth

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Abstract
Ireland's FDI intensity might be thought to have left the economy particularly vulnerable to the collapse in international FDI inflows seen over the course of the current global crisis. Analysis of the performance of Ireland's FDI sectors over this period shows this not to have been the case. Their relatively buoyant export performance is instead shown to have helped to stabilise the economy. The paper also explores the country's medium-term prospects in key foreign-dominated sectors undergoing substantial structural change, specifically ICT, pharmaceuticals and international financial services. The consequences of ongoing developments in the global FDI market and in the international regulatory and corporation-tax environments are also assessed.

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Introduction

The current global downturn has been accompanied by a collapse in international FDI flows. Having reached an all-time high of almost $2 trillion in 2007, worldwide flows fell by 14 per cent in 2008. Developed countries were hit particularly hard, with inward flows falling by almost 30 percent (UNCTAD, 2009). Global FDI flows fell by a further 30 percent in 2009 (IDA, 2009). Given the FDI intensity of the economy, this collapse might be thought to have particularly adverse implications for Ireland. This proves not to have been the case.

FDI inflows in fact bear little relationship to foreign-MNC activities as measured by employment, investment or exports. The sectoral composition of MNC presence proves far more important, and earlier work has shown that this has contributed to the stability of the economy (Barry and Kearney, 2006).

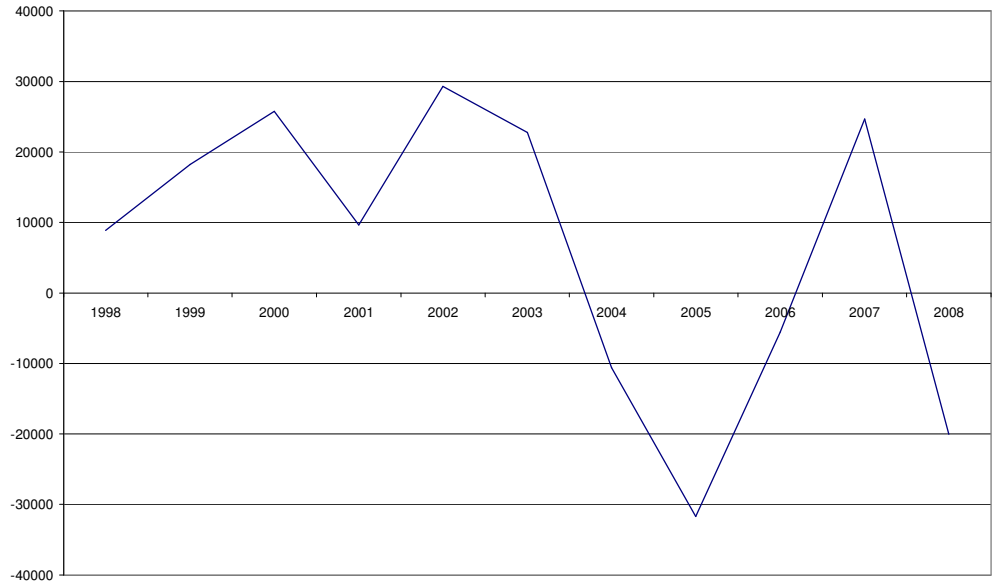
Ireland's competitive position in the global FDI market is also crucial, and competitiveness here refers not just to costs but also to less quantifiable factors such as the stability of the corporation-tax regime, Ireland's extensive network of double taxation treaties (with fifty four in place as of the Finance Bill 2010), and the robustness of the regulatory environment with respect to the production of pharmaceuticals and medical devices. Cost competitiveness will generally be a more important factor for indigenous industry and, within foreign segments, will be more important for ICT and financial services than for the pharma-chem and medical technologies sectors (Forfás/NCC, 2009, Table A). The English-language environment also remains of enduring importance, not least because it allows Ireland to attract the native speakers of other European languages that are necessary for certain fields of activity. Central and Eastern European countries would face much greater difficulties in attracting such workers.

The paper is structured as follows. The next section explores the relationship between inward FDI and real foreign-sector activity. Section 3 sets recent Irish export performance in an international comparative context and compares the performance of the indigenous and foreign-owned segments of industry and services separately. This is followed by an analysis of medium-term prospects in key foreign-dominated sectors undergoing substantial structural change, specifically ICT, pharmaceuticals and international financial services. The penultimate section considers the implications for Ireland of ongoing developments in the global taxation and regulatory landscapes. The paper closes with some concluding comments.

Section 2: Inward FDI and Foreign MNC Activity

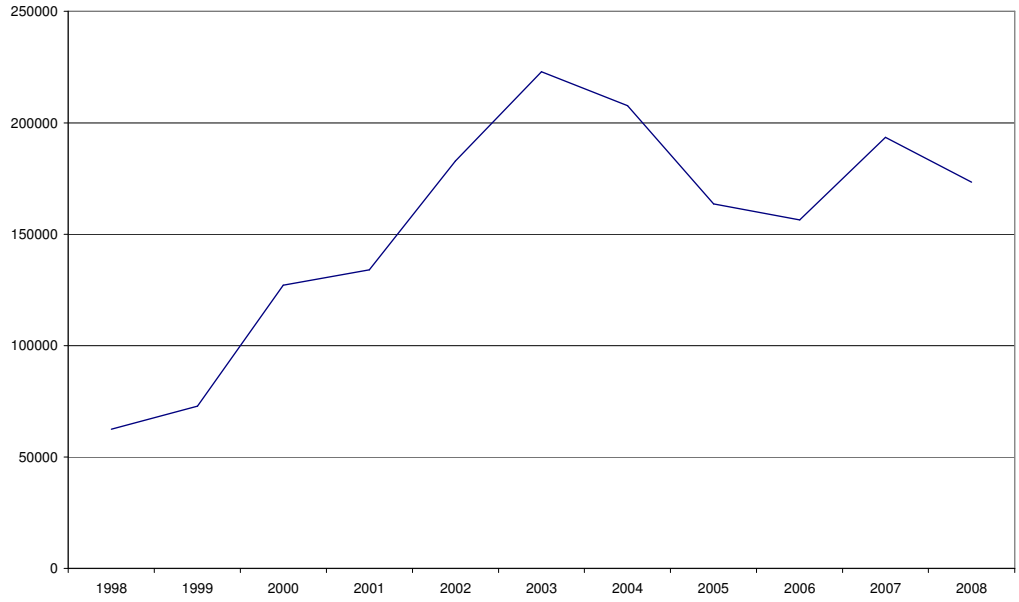
Figures 1 and 2 chart FDI inflows to Ireland and the inward FDI stock respectively. 1998 is chosen as the start date for both series, as the CSO included data on financial service enterprises from that time (Barry and O'Mahony, 2005).

Figure 1: Gross FDI Inflows to Ireland, USD millions



Source: UNCTAD (2009)

Figure 2: Inward FDI Stock, USD millions

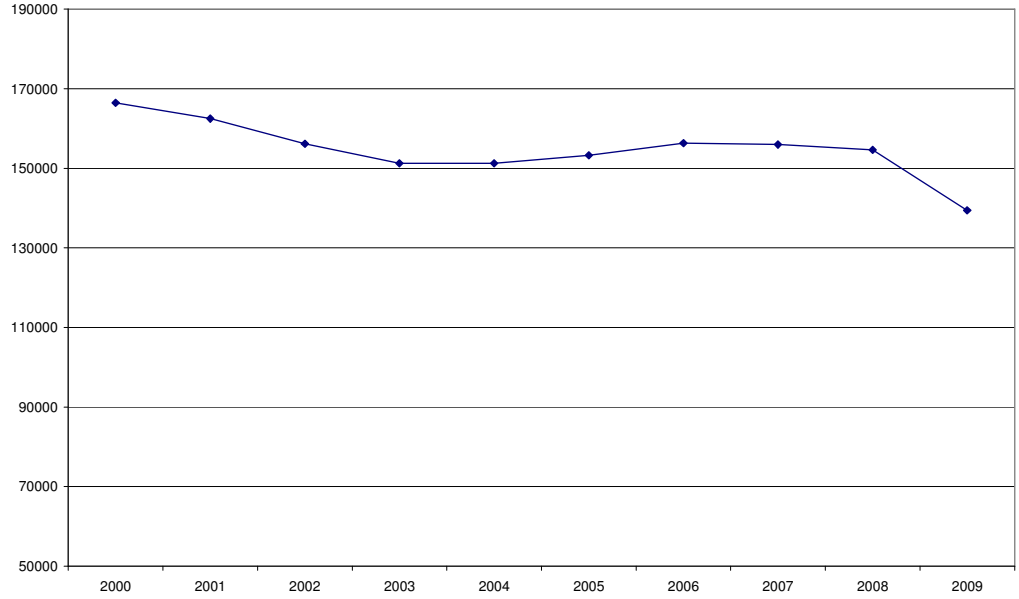


Source: UNCTAD (2009)

These data series clearly bear little relationship to the Forfás (2009) series on employment in foreign-owned industry and services charted in Figure 3.[1]

[1] Some relationship has been found between FDI stock data and activity levels. For example, Lipsey (2003) finds that US outward-FDI stocks are quite closely related across countries to absolute changes in affiliate property, plant and equipment as well as affiliate sales, but much less closely related to affiliate employment. The relationships fall apart completely however when sectoral allocations are examined. See also Barry and O'Mahony (2005).

Figure 3 Employment in Export-Oriented Foreign-Owned Industry and Services



Source: Forfás (2009)

There are a number of reasons for this lack of relationship. One is that the Forfás data refer only to exporting ("agency-assisted") firms while the FDI data pertain to all sectors, including non-tradables (McDonnell et al., 2007). A second is that the data aggregate IFSC and non-IFSC FDI. As UNCTAD (2004, p. 104) notes, "a good deal of services FDI – notably that in holdings and financial affiliates – involves activities with little value added, employment, sales or investment expenditure on fixed capital". A third is that the FDI data include only a sub-set of the forms of investment finance employed by MNCs, specifically inward equity flows, intra-company loans and reinvested earnings. Barry and O'Mahony (2005) show that FDI inflows in particular sectors are typically lower and much more volatile than measures of real foreign-MNC investments in plant and equipment.

The fact that gross FDI inflows to Ireland were negative over several recent years – indicating that inter-affiliate loan advances and repayments from resident foreign-owned enterprises exceeded inward equity flows and reinvested earnings – is indicative of the complexity of MNC financing decisions. For some years, IFSC transactions contributed to the negative aggregate; for other years, it was driven by non-IFSC inflows (Table 1).

Table 1: Inward Investment; € million

	IFSC inflows	Non IFSC inflows
1998	4,332	3,573
1999	11,720	5,373
2000	14,006	13,974
2001	5,197	5,588
2002	14,656	16,501
2003	4,445	15,740
2004	-13,939	5,397
2005	-25,851	369
2006	5,068	-9,487
2007	1,739	16,313
2008	-23,247	9,573

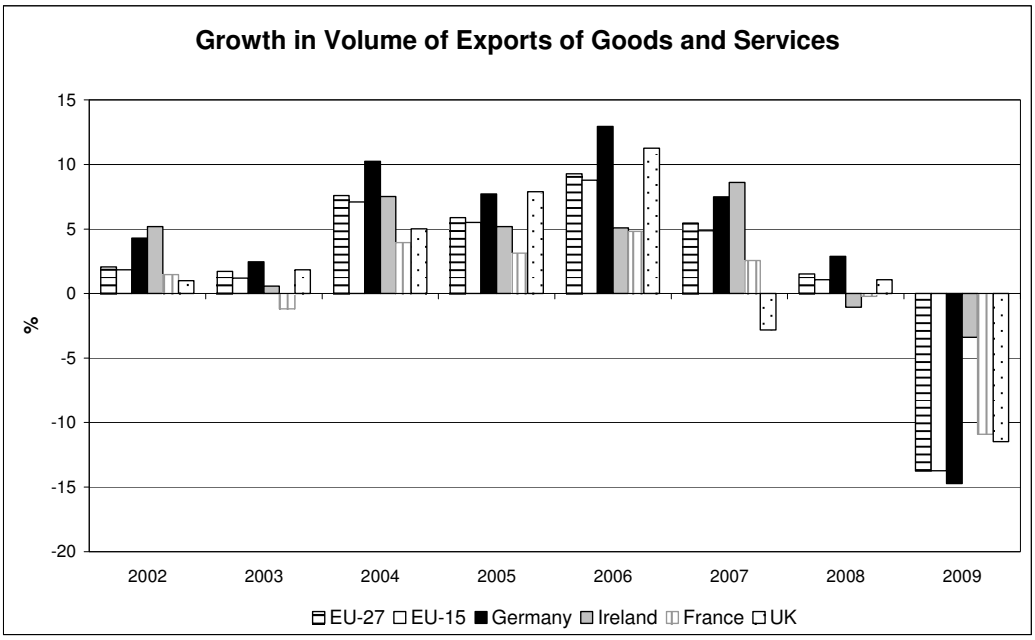
Source: CSO International Investment Position (various years)

Section 3: The Performance of Indigenous and Foreign-Owned Exportables over the Recession

Irish exports have held up reasonably well over the global downturn in comparison to the rest of Europe (Figure 4), and this applies both to goods (Figure 5) and services (Figure 6). Total Irish exports declined by around 3.5 percent in 2009 while exports in the other countries and blocs shown declined by between 10 and 15 percent.[2]

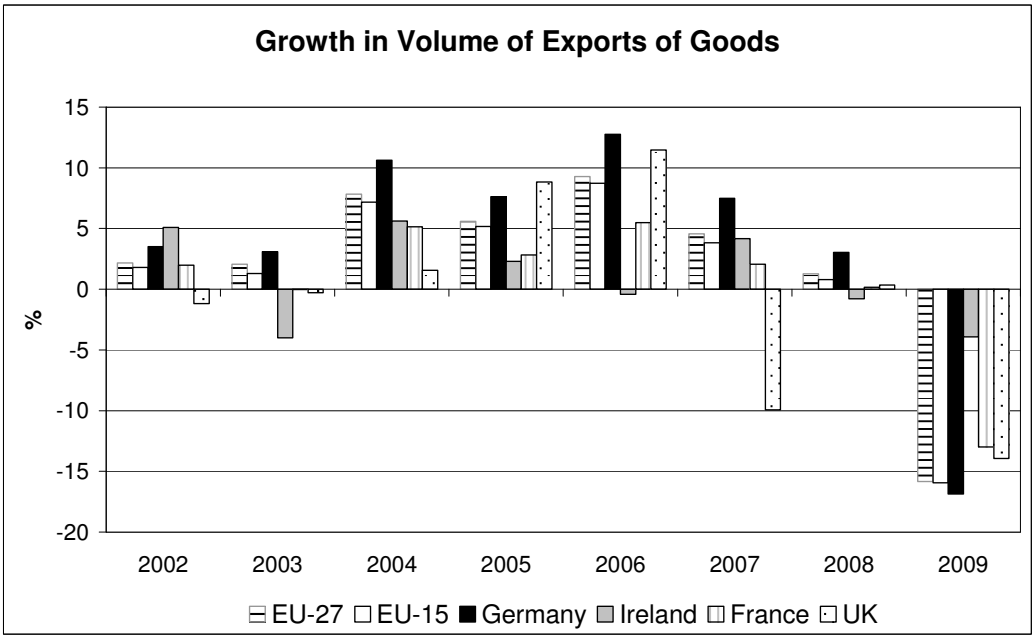
[2] 2009 data other than for Germany are forecasts.

Figure 4: Growth in Volume of Exports of Goods and Services; various countries



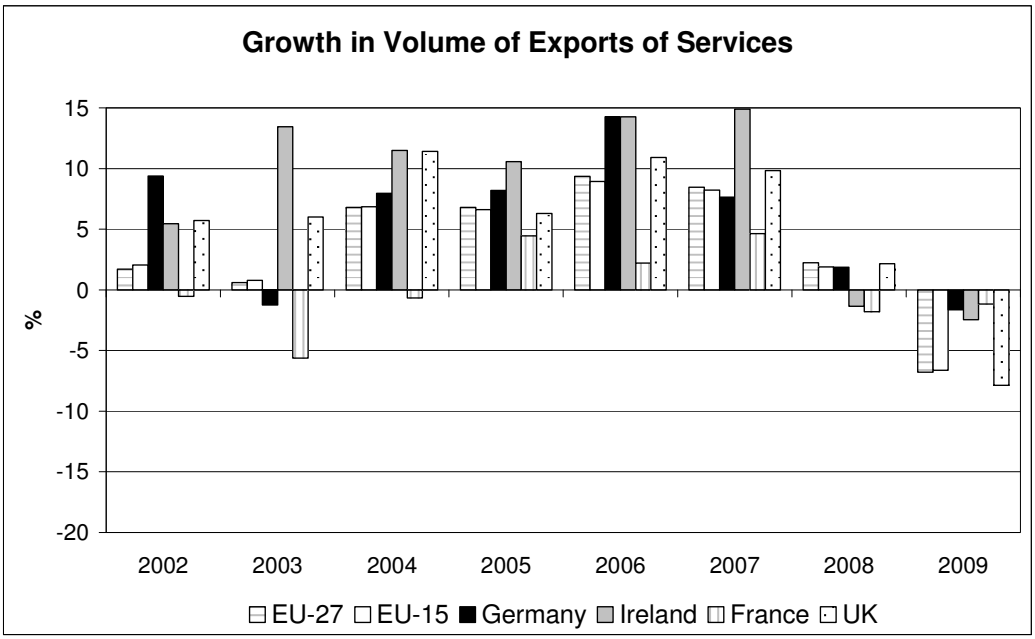
Source: Eurostat: Exports and imports by EU countries and third countries - volumes.

Figure 5: Growth in Volume of Exports of Goods; various countries



Source: Eurostat

Figure 6: Growth in Volume of Exports of Services; various countries



Source: Eurostat

To what extent might these results be due to differing sectoral export compositions? Recall that the categories accounting for the bulk of foreign-sector exports from Ireland are, in order of importance: chemicals/pharma, electrical and electronic (predominantly IT equipment), software services and medical devices.

Tables 2 and 3 below reveal that computer and information services have increased as a share of EU15 services exports over the downturn, while the aggregate of financial and insurance services has declined. Within manufacturing, pharma and chemicals have outperformed, as have medical devices (suggesting that these sectors are less vulnerable to recession), while computer equipment has underperformed.

Table 2: Percentage Share of Various Sectors in Total EU-15 Services Exports

	2005	2006	2007	2008	2009 Q1-3
Insurance services	2.1	2.6	2.7	2.6	2.9
Financial services	8.6	9.7	10.8	10.0	9.3
Computer and information services	5.6	5.8	6.0	6.5	6.6
Other business services	27.7	27.6	27.5	28.3	27.9
Rest of Services	56.0	54.4	52.9	52.6	53.3

Source: Balance of Payments, Eurostat

Table 3: Percentage Share of Various Sectors in Total EU-15 Goods Exports

	SITC Code	2005	2006	2007	2008	2009 M1-11
Food, animals, beverages and tobacco	**0-1**	7.5	7.2	7.5	7.9	8.9
Crude materials, inedible, except fuels	**2-4**	8	8.8	8.7	10.3	8.6
Chemicals and related products, n.e.s.	**5**	15.8	15.7	16.1	16	18.4
Medicinal and pharmaceutical products	54	5.1	5	5.2	5.3	6.9
Manufactured goods classified chiefly by material	**6**	15.2	15.7	16.2	15.6	14.2
Machinery and transport equipment	**7**	40.5	39.9	38.9	37.5	35.9
Office and data processing equipment	75	3.7	3.6	3	2.6	2.7
Miscellaneous manufactured articles	**8**	11	10.7	10.6	10.5	11.6
Professional, scientific and controlling apparatus	87	2.1	2	2	2	2.2
Instruments and Appliances, n.e.s., for medical, surgical, dental or veterinary purposes	872	0.7	0.6	0.6	0.7	0.8
Commodities and Transactions n.e.c.	**9**	2	1.9	2	2.2	2.4

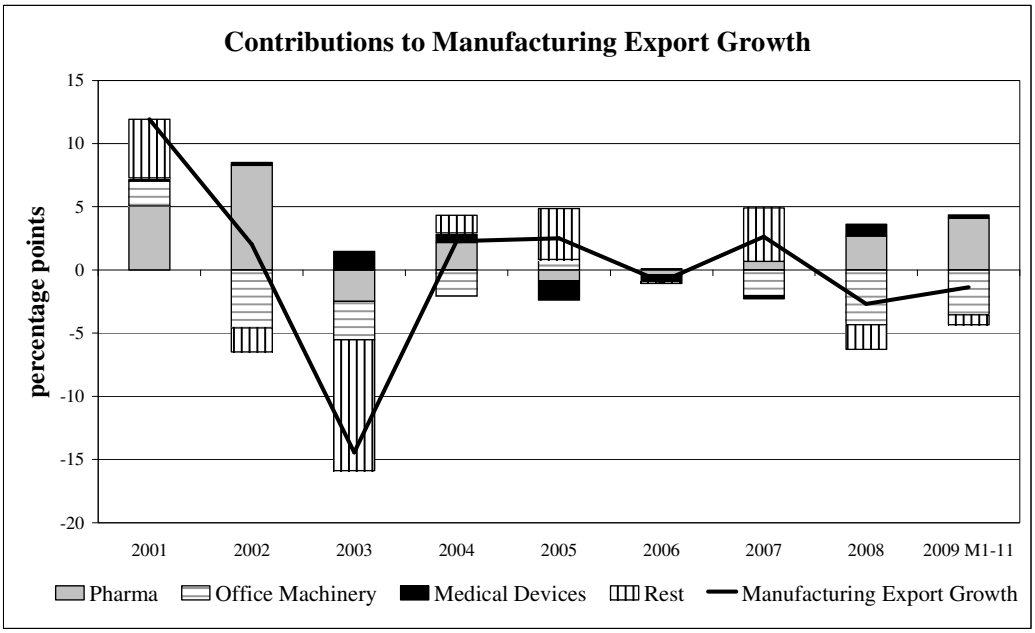
Source: External Trade Statistics from Eurostat available at:
http://epp.eurostat.ec.europa.eu/newxtweb/mainxtnet.do

The impact on Ireland of these sectoral developments at the EU15 level will be influenced by the country's revealed comparative advantage (RCA). For example, Ireland does not have an RCA in transport equipment, which will help to insulate the country since the European (and indeed global) transport equipment sectors have performed poorly over the recession. RCA indicators are typically available only for manufacturing, though the "recorded media" manufacturing sector has over time blended into computer and information services. Based on 2000-04 data, Ireland had a strong RCA in recorded media, pharma and other chemicals, and medical and surgical equipment (sectors which performed well at the EU level), and in office and computing machinery (which performed poorly), as well as in a number of food and drink sub-sectors (Amador et al., 2007).

Figures 7 and 8 chart the contributions of these and other sectors to Irish manufacturing and services export growth over the period 2001-2009. As in the case of the EU15, pharma and medical devices exports helped to stabilise the economy, while office machinery imparted a destabilising effect.[3] Computer and information services, by contrast, had only a neutral effect, on which we will comment later.

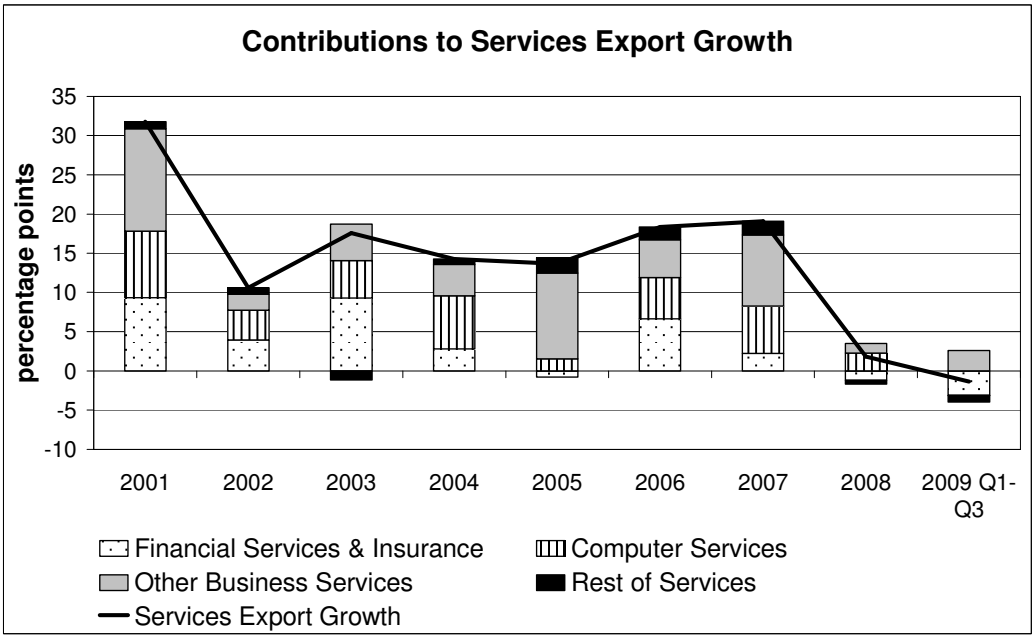
[3] While fears of a swine flu epidemic may have contributed to the buoyant demand for pharmaceuticals over the last year of so, the particular pharmaceuticals involved were Irish imports rather than exports.

Figure 7: Sectoral Contributions to Irish Manufacturing Export Growth



Source: CSO External Trade Statistics; these data refer to values in € million. The fall in 2003 is more marked than in Figure 5 above (which refers to the volume of exports) due to falling export prices, while the fall in 2009 is less marked due to rising export prices (ESRI, 2009, Table 8).
Note: The graph shows the growth in manufacturing exports in the first 11 months of 2009 compared to the first 11 months of 2008.

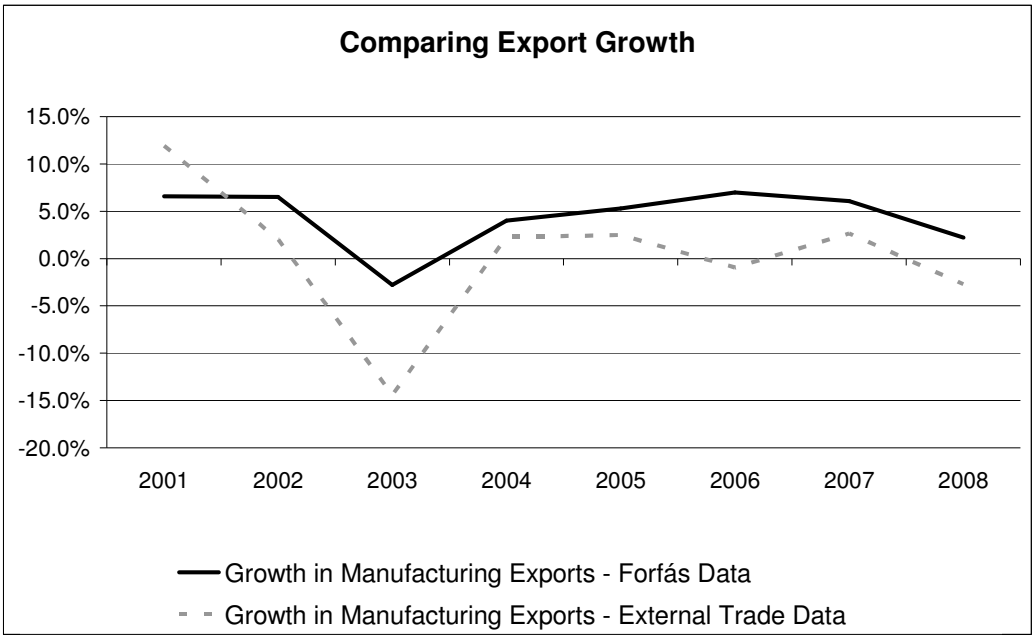
Figure 8: Sectoral Contributions to Irish Services Export Growth



Source: CSO Balance of Payments.
Note: The graph shows the growth in services exports in the first three quarters of 2009 compared to the first three quarters of 2008.

Forfás provides export and employment data by nationality of ownership, which allows us distinguish between the performance of indigenous and foreign-owned firms. We note first however a discrepancy that arises between the Forfás export data and the official external trade statistics, as charted in Figure 9. While the Forfás data show only a downturn in export growth in 2008, the trade statistics show an absolute decline.

Figure 9: Export Growth in the Forfás and External Trade Statistics Data



The Forfás export data are available only up to 2008. Table 4 shows that the foreign-owned sector accounted for 90 percent of the very substantial export growth over the 2000-07 period and of the very modest export growth between 2007 and 2008. Within the foreign-owned sector in the latter period, there were substantial increases in absolute terms in exports of (i) computer programming, consultancy and related activities (accounting for 53 percent of the total increase in exports over the period), (ii) food, drink and tobacco (27%), (iii) medical devices and other miscellaneous products (12%), and (iv) chemicals (10%), while there were substantial declines in exports of (v) computer, electronic and optical products (-12% of the total increase), and (vi) financial services (-10%).

Table 4: Exports (€000)

	2000	2007	2008	Share of increase, 2000-07	Share of increase, 2007-08
Indigenous Manufacturing	7,579,242	9,872,937	10,007,755	6	3
Indigenous Services	1,547,956	3,070,346	3,418,764	4	7
Foreign Manufacturing	47,977,611	66,433,594	68,011,392	50	36
Foreign Services	24,561,217	39,479,174	41,859,620	40	54

Source: Forfás (2008) Annual Business Survey of Economic Impact, appendix

Before leaving the export data, we should mention the other channels through which foreign MNCs impact directly on the Irish balance of payments on current account. The overall impact consists of exports **less** imports, foreign-MNC profits (though some of these are reinvested) and royalties and licence fees. Some illustrative values on these other components are presented in Tables 5a and 5b.

Table 5a: The Foreign Sector and the Irish Balance of Payments; €millions

	2005	2006	2007	2008
Foreign MNC Exports	91,399	100,239	105,913	109,871
…Materials purchases from abroad	21714	25691	26476	26429
…Services purchases from abroad	17683	22260	23889	25720

Source: Foreign MNC exports, materials purchases and services purchases data from Forfás (2008).

Table 5b: The Foreign Sector and the Irish Balance of Payments; €millions

	2005	2006	2007	2008	2009 Q1-Q3
Reinvested earnings	4257	9475	18246	18011	16276
Dividends and distributed branch profits	26341	19920	16787	12653	9986
Royalties/licence fees	15482	17534	18622	22550	17644

Source: CSO Balance of Payments Statistics.
Note that the different data sources in Tables 5a and 5b mean that the series are not directly comparable.

Turning now to employment, it is important to bear in mind that the Forfás data refer only to agency-assisted firms and hence specifically to *exportables*. The data reveal employment in exportables to have been largely flat over the 2000 to 2007 period, with employment increases in indigenous and foreign services largely offsetting declines in indigenous and foreign manufacturing (Table 6).

Table 6: Employment in Exportables

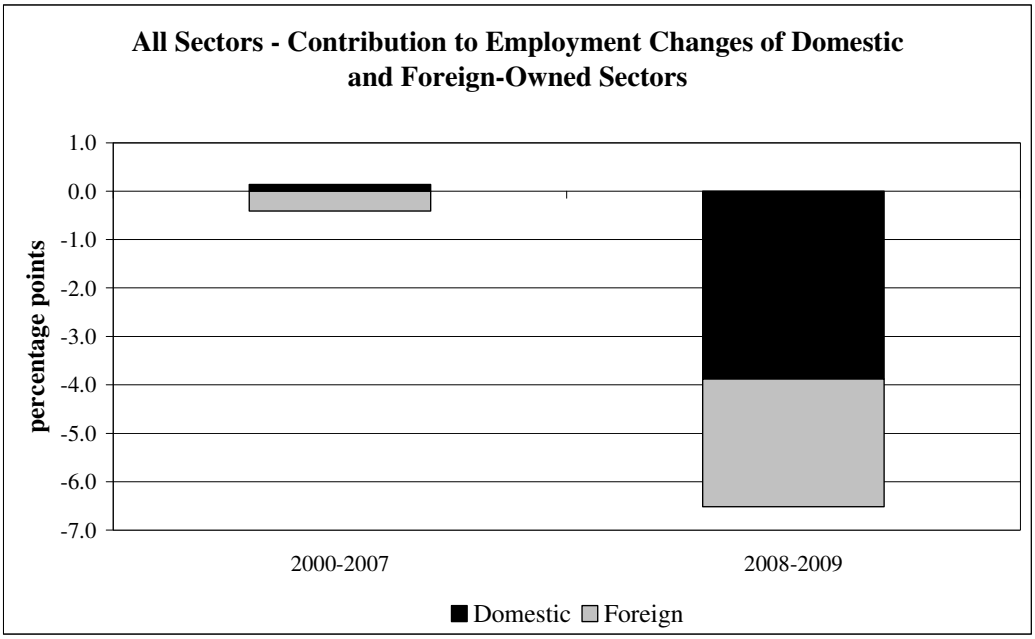
	2000	2007	2008	2009
Indigenous Manufacturing	123,188	117,509	109,046	92,792
Indigenous Services	30,082	39,351	42,362	39,804
Foreign-owned Manufacturing	118,594	96,962	94,358	83,990
Foreign-owned Services	47,840	59,003	60,275	55,467
Total	319,704	312,825	306,041	272,053

Source: Forfás (2009): Annual Employment Survey (provisional)

The expansion in the ratio of services to manufacturing employment can be expected to continue over the longer term, as is the normal pattern in economic development, but the stagnation in overall exportables employment is not necessarily indicative of future trends, as exportables employment would have been crowded out by the massive growth of non-traded sectors such as construction over this period (Morgenroth and Fitz Gerald, 2006).

Figure 10 details the contribution of the domestic and foreign-owned sectors to overall employment developments over the 2000-07 and 2008-09 periods. It shows that while indigenous exportable employment was more buoyant over the earlier period, it has suffered more in the downturn. This is likely to reflect the substantially greater reliance of the indigenous segment on the domestic market.[4]

Figure 10

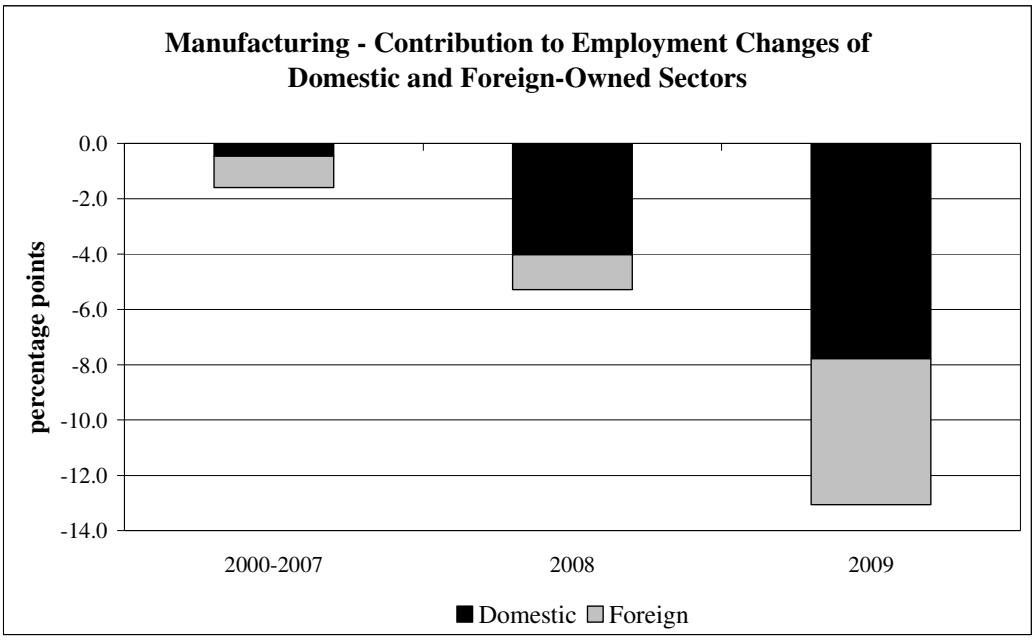


Source: Forfás (2009): Annual Employment Survey (provisional)

The same explanation underlies developments on the manufacturing front, as seen in Figure 11.

[4] Forfás (2008) reports export to sales ratios of 41% and 52% for indigenous manufacturing and services companies for 2008, compared to 96% and 95% for their foreign-owned equivalents. The figures for manufacturing are consistent with those reported by the Census of Industrial Production.

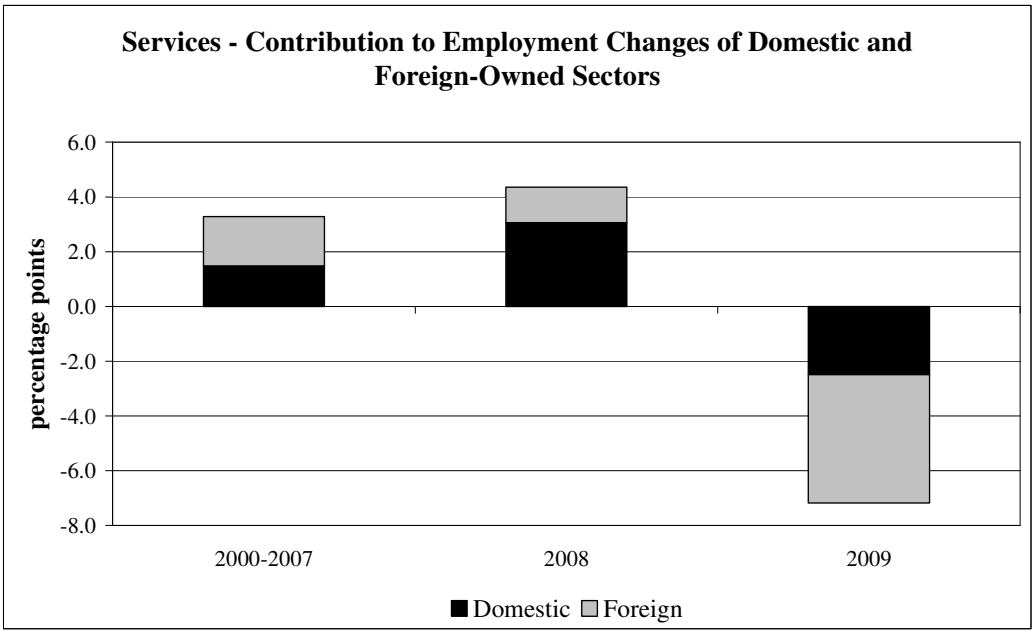
Figure 11



Source: Forfás (2009): Annual Employment Survey (provisional)

A different pattern prevails with respect to services however. The contribution of the foreign segment dominated in the earlier period while the indigenous segment has been more buoyant over the downturn in 2008 and 2009.

Figure 12



Source: Forfás (2009): Annual Employment Survey (provisional)

Fifty percent of the fall in services employment in 2009 was due to job losses in the foreign-owned IT and computer services segment which, in Ireland, is associated with the mass-market packaged software of MNCs like Microsoft. This mass-market segment appears to have suffered more over the downturn than the niche sectors inhabited by the indigenous software industry.[5]

Finally, it is of interest to compare employment performance in exportables relative to developments across the entire economy. Table 7 details employment performance in indigenous and foreign-MNC exportables (from the Forfás dataset), and across the entire private and public sectors.[6]

Table 7: Employment in Exportables and in the Public and Private Sectors

	2000	2007	2008	2009		% change, 2000-07	% change, 2007-08	% change, 2008-09
Foreign-owned Exportables	166,434	155,965	154,633	139,457		-6.3	-0.9	-9.8
Indigenous Exportables	153,270	156,860	151,408	132,596		2.3	-3.5	-12.4
Aggregate Economy (thousands)								
	2000	2007	2008	2008, Q1-3	2009, Q1-3	% change, 2000-07	% change, 2007-08	% change, 2008-09
Private Sector	1,354	1,665	1,628	1,648	1,461	23.0	-2.3	-11.4
Public Sector	343	457	472	467	482	33.5	3.2	3.2
Total	1,697	2,123	2,100	2,116	1,943	25.1	-1.1	-8.1

Sources: Forfás (2009) for exportables; ESRI databank and QNHS for aggregate economy.
Note: The aggregate-economy figures for 2009 are based on the average seasonally adjusted employment levels for the first three quarters of the year; the growth rate for 2009 is computed against the figures for the first three quarters of 2008.

The table shows that employment in foreign-owned exportables fell less in 2008 and 2009 than employment in the entire private sector, which is consistent with the pattern identified earlier whereby this segment has helped to stabilise the economy over the course of the downturn. Indigenous exportables, on the other hand, fell more in 2008 and 2009 than did employment in the entire private sector. This poor performance is ascribable to a number of related factors; sterling weakness, poorer growth performance in the UK than in the eurozone or the OECD, particularly in 2009, and

[5] This is supported by the finding of stronger export growth in the indigenous than in the foreign segment in 2008. The 2009 export data are not yet available.
[6] The public sector is defined (imperfectly) from the QNHS data as comprising the following segments: public administration and defence; compulsory social security; education, human health and social work activities. The 2000 figures are taken from the ESRI databank. The figures for 2009 are based on the average seasonally adjusted employment levels for the first three quarters of 2009, with the 2009 growth benchmarked against the first three quarters of 2008.

the fact that a high proportion of indigenous exportable output goes to the UK or otherwise competes with sterling-denominated output.[7]

Section 4: Medium-Term Prognosis for ICT, Pharmaceuticals and International Financial Services

Information and Communications Technology

While Ireland in the late 1990s was one of the major European centres of computer hardware production, accounting for 5 per cent of global computer exports and 6 per cent of electronic component exports, Barry and van Egeraat (2008) showed that the sector has been in sharp decline since then, with production relocating eastwards to Asia and Central and Eastern Europe. Around 10,000 jobs – comprising one-third of the sector – were shed, with around two-thirds of these occurring in NACE 30 (office machinery and computers).

Of the five microcomputer companies existing in 1998, by 2002 only Dell and Apple continued to assemble microcomputers, while Apple's system assembly operations had been seriously downsized. On the basis of these trends, they concluded that Dell's assembly operations were unlikely to remain in Ireland over the medium term.[8] This prediction was borne out in January 2009 when it was announced that the company was to shift production to its Polish plant and to third-party contractors, with the loss of 1,900 assembly jobs. These jobs typically paid only €10-14 per hour however, a figure well below the average for the NACE 30 sector, and the latter is itself below the average for computer services and related services activities (NACE 72).

Crucially, Dell was to maintain its Global Innovation Solutions Center and European Command Center in Limerick and its sales and marketing support functions in Dublin, with the company's remaining 2-2500 jobs spread evenly across both sites. According to the company, its Irish operations would "continue to co-ordinate EMEA manufacturing, logistics and supply-chain activities across a range of functions including product development, engineering, procurement and logistics."

This relative upgrading of the company's operations is again in line with the industry trends identified by Barry and van Egeraat. They showed that the Irish operations of Apple, Digital and IBM had all followed a similar path. Apple's Cork campus now has responsibility for sourcing and logistics and acts as landlord for R&D groups engaged in localisation and software, while European customer support services and finance functions had also been transferred to Ireland.

Having closed its manufacturing plant in Galway in 1993 and been acquired by Compaq, Irish employment levels in the former Digital returned towards their peak, but were now concentrated in PC support and HQ services in Dublin and at the European Software Centre in Galway.

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[7] 47 percent of indigenous manufacturing exports go to the UK, compared to 14 percent for foreign MNCs (CIP 2007; see also Barry, 1997). For services, 54 percent of indigenous exports go to the UK, compared to 19 percent for foreign MNCs (Lane and Ruane, 2006).

[8] http://www.irishtimes.com/newspaper/finance/2008/0317/1205510793343.html

In 2001, part of IBMs manufacturing operations were relocated from Ireland but there was new investment in areas such as supply chain management. Call centre support for personal computers re-located to lower cost regions and the technical support call centre was transformed into a "dotcom centre" with staff selling services directly to clients rather then simply offering support. The Dublin Software Lab has been expanded and in 2004 the Dublin Centre for Advanced Studies, one of seven such centres run by IBM worldwide, was launched. Most recently the company established three Competency Centres developing software in areas such as biomedical search and service-oriented architecture, an IBM Business Incubation Centre, a European Venture Capital Centre, an Innovation Centre and new supply chain operations.

Customer support activities feature in all of these transformations. These should not necessarily be thought of as low skill however. A UK report by CM Insight (2004, p 160) finds that Ireland attracts more high-value, less price-sensitive contact centre activity than other offshore locations. The report remarks on the substantial element of technical and software support in the Irish sector as well as a relatively high ratio of team leaders to agents, suggestive of a focus on quality and on more complex and less scripted contact centre functions.

As Barry and van Egeraat (2008) show, the decline in computer hardware jobs in Ireland since the late 1990s has been associated with a progressive increase in jobs in business process export activities.

With the relocation of Dell activities, some media commentators wondered whether Intel might be poised to follow suit. There is nothing in the trends analysed by Barry and van Egeraat to suggest this however. Intel's operations and the economic geography of its sector are completely different from Dell's, and the company had already shifted lower value-added activities abroad. The company's high-end activities, carried out at its semi-conductor factories (FAB plants) located in the US, Israel and Ireland, entail imprinting microprocessors in volume onto single silicon wafers.[9] These wafers are then cut, tested and assembled in low-cost locations in Costa Rica, Malaysia, China and the Philippines, with a further low-end plant under construction in Vietnam. The high-end plant under construction in China reflects the growing importance of the Chinese market (and possibly the country's continuing attempts to inhibit high-tech imports) rather than a shift of high-end activities to lower-cost locations.

Since 1989, Intel has invested over $7 billion in its Irish plants, including an investment of $2 billion in the Fab 24-2 plant which opened in 2006 and is one of the most technically advanced, high-volume semiconductor manufacturing sites in the world. Furthermore, the firm's Irish operations have a very strong record within the company in terms of process development, compliance auditing etc. (Durkan, 2000). Barring some unanticipated firm- or sector-specific shocks, Intel's continuing presence in Ireland into the medium term seems secure.

[9] Intel's Leixlip campus is the company's fourth largest manufacturing site and the largest fabrication facility outside the United States.

Pharmaceuticals

The need to satisfy US Food and Drug Administration (FDA) regulations has an important impact on the location of the pharma sector. This militates against less stable and poorer governance environments, where corners might tend to be cut, as will be obvious when one considers the hit to a pharma company's share price when product safety is challenged. Trust – e.g. between the FDA and the Irish Medicines Board – is crucial and takes time to establish between the various parties. Standards apply equally to generics, as evidenced by the 2008 FDA ban on imports of more than 30 generic medicines produced by India's Ranbaxy Laboratories, after finding serious and extensive violations of good manufacturing practice at two Ranbaxy plants (PWC, 2009).

The strength of a country's intellectual property rights protection also impacts on the location of both pharma and medical devices (Smyrzanska Javorcik 2004), and this varies more widely across locations than might be supposed (Ginarte and Park 1997).

Employment growth in pharmaceuticals in Ireland has been strong and continuous over most of the last two decades, even when employment in other manufacturing sectors has contracted. The country has increased its export market share substantially since the late 1980s, and Irish operations have shifted into higher value-generating activities in both manufacturing and R&D (Van Egeraat and Barry, 2008). Of all manufacturing sectors, educational attainment is highest in the broad Chemicals category (which includes pharma), and this sector displays the highest level of wages per head (Van Egeraat and Barry, 2008).

What are the current and likely medium-term trends in the pharma sector? The large pharma companies will suffer from the imminent patent expirations of many leading drugs, while the pipelines for further blockbuster drugs are known to be sparse. Lipitor, for example, which accounts for a quarter of Pfizer's current annual sales and a significant number of the company's Cork employees, comes off patent in 2011.

The sparse product pipelines explain the continuation – against trend – of mergers and acquisitions within the sector. Two mega-mergers, between Pfizer and Wyeth and between Merck and Schering Plough, took place in the first quarter of 2009, reflecting diversification and the convergence of the pharmaceutical and biotechnology subsectors.

At the time of the merger, in January 2009, Pfizer and Wyeth together employed 5,500 people in Ireland. While the savings realised will undoubtedly lead to global job losses in the aggregated company, the merger could save Pfizer's Irish manufacturing facilities after the products currently produced there come off patent. Patent expiry should be associated with increased production as monopoly power disintegrates, though Ireland might need to exert greater efforts to attract generic producers.

Stable and well-regulated environments are even more important for biologicals than for chemicals, since they are more vulnerable to impurities in the production process and more susceptible to damage from heat, light and motion. Such environments will be still more important again for gene and tissue-based therapies which will grow in

importance over the next fifteen years (PWC, 2009). Proximity to end users is also more important with respect to the latter products.

In terms of organisational structures, PWC (2009) predicts that pharmaceutical companies will enter more complex networks of alliances over the next decade, will outsource the production of mass-market medicines to contract manufacturers in low-cost, low-tax jurisdictions, and manufacture and distribute complex specialist therapies themselves in their home markets.

With more complex, collaborative and geographically dispersed supply chains, the difficulty of separating tax jurisdictions and being subjected to double taxation will grow. PWC (2009) suggests that this will lead to the location of more value-adding activities in regional hubs characterised either by low taxation or generous R&D tax incentives. For example, this report suggests that a hub specialising in R&D could assume responsibility for coordinating and managing relations with third-party research organisations, administering the complex funding mechanisms needed to pay for outsourced research, negotiating intellectual property contracts, registering and enforcing patents etc. Similarly, a manufacturing hub could assume responsibility for global supply chain management and related processes. PWC (2010) concurs with the necessity to ensure that Ireland locates itself at the centre of regional and global supply chain hubs. Ireland has benefited from precisely these sorts of evolutionary processes in other sectors, as seen in the earlier discussion of ICT firms such as Apple, Digital/Compaq and IBM.

International Financial Services

The range of international financial services activities carried out in Ireland, and aggregate employment levels for the various segments, are detailed in Table 8.

Table 8: Irish International Financial Services Activities

Banking and Capital Markets	**Investment Management**	**Insurance**
Activities		
Corporate Finance	Discretionary Fund Mngt.	Life
Structured Finance	Non-discret. Fund Mngt.	Captive
Investment Banking	Fund Servicing	Non-Life
Securitisation	Trustee and Custodian Servicing	Reinsurance
Treasury Mngt.	Transfer Agency Services	
Asset Financing/Leasing	Asset Management	
Employment (2007)		
10,000	9,000 (Admin.: 6500; Mngt.: 2500)	3,000

Source: Expert Group on Future Skills Needs (2007) Future Skills and Research Needs of the International Financial Services Industry

Given the role of the financial services sector in the current global crisis, discussion of the prospects for the International Financial Services Centre (IFSC) is necessarily speculative at this stage, but medium-term prospects will undoubtedly differ across

different activities.[10] Ireland has developed a high concentration of activities particularly in funds and insurance and, according to Wojcik (2007), history and size matter for the long-term prospects of international financial centres because of strong path dependence and the intensity of scale economies.

The downturn has affected the three categories – Banking, Funds and Insurance – differently. Insurance has been least affected at the European level, while the impact on the funds sector has been mixed. London Economics (2009) reports that total assets under management by asset managers residing in the EU27 fell by more than 20 percent over 2008, while Forfás/NCC (2009) notes that there was an equivalent decline in the net asset value of funds administered in Ireland in the six months since September 2008. The head of State Street – Ireland's largest funds servicer – notes however that "estimates at the height of the crisis that up to a third of hedge funds would go bust globally and kill off Ireland's fund administration industry have proved unfounded". Indeed the company has hired additional staff in Ireland over the period, helped by the 'post-Madoff effect' (Irish Independent, Feb. 18, 2010).

The banking and capital markets segment has been hit hardest, with a huge drop in securitisation for example (Finance Magazine, 2009), though aircraft leasing, for which the IFSC is the leading global centre, has prospered. Perhaps counter intuitively, given that the aviation sector tends to contract severely during recessions, leasing companies do well; in addition to getting better prices on aircraft from manufacturers, many airlines opt to lease, rather than buy, aircraft during a downturn.[11]

Forfás/NCC (2009) cites the 2009 Finance Dublin Yearbook to the effect that employment in the IFSC fell by 0.6 percent in 2008. While employment in IFSC-based banks fell by four percent, there was an eight percent increase in the numbers employed in insurance and a marginal increase in fund administration.

What though of the sector's medium-term prospects? Activities internal to the banking system grew far more rapidly than end services to the real economy since the late 1980s (Financial Services Authority, 2009) and this had led to widespread questioning of the value to society of the innovations which have been occurring within the sector. Regulations are likely to be more strictly policed into the future and discussions are ongoing on a possible role for a European System of Financial Supervisors in overseeing and coordinating the work of national supervisors.[12] Stricter regulation at the global or EU level may lead to a shrinking of the sector, which will of course exert pressures on the IFSC as well as other financial hubs. "Light-touch" or principles-based as opposed to rules-based regulation has come in for substantial criticism, and this was one of the factors argued to represent a competitive advantage for the IFSC.[13]

As against this however, a number of concurrent developments have reduced the competitive advantages of a number of the IFSC's competitors. Among these are the

[10] We use the term IFSC to refer to the sector rather than to the original Dublin docklands site.
[11] http://www.irishtimes.com/newspaper/finance/2010/0215/1224264467495.html
[12] http://ec.europa.eu/news/economy/090923_en.htm
[13] The Taoiseach of the time noted in May 1990, for example, that regulation of the IFSC was being achieved with "commendable flexibility and without detailed rule books" (Reddan, 2008, 71).

G20's targeting in 2009 of regimes with financial and banking secrecy laws and the Obama administration's clampdown on Caribbean tax havens, as discussed in the next section of the paper.[14]

Section 5: The Tax Regime and the International Regulatory and Tax Landscapes

The suddenness of the onset of the Irish fiscal crisis led to fears as to the sustainability of the country's low corporation tax rate.[15] In tackling the crisis, the government made it clear in the three budget speeches of 2009 and 2010 that the corporation tax rate would not be changed, and this approach was endorsed by the 2009 report of the Commission on Taxation. If consolidation efforts were to run into difficulty, however, the perception that the rate could not be maintained would grow, with consequent detrimental effects on inward FDI, for which the stability of the tax rate is crucial.

A low corporation tax rate, furthermore, is especially effective in attracting FDI when global corporate profitability is high, as in the 1990s. It might not be expected to be as effective, *ceteris paribus*, in an era of lower corporate profitability. Thus Reddan (2008, p. 153) notes that when global financial markets were in recession, "firms which had been looking at the emerging funds centre now thought twice about incurring the expense of a start-up. Bank of Bermuda … was one such firm which had been looking at establishing an IFSC operation but had deferred the move due to its weak performance internationally".[16] Any large losses recorded over the global downturn, furthermore, would reduce the attractions of a low corporation-tax environment because of the possibility of rolling losses forward.

Ongoing developments in the international regulatory and tax landscapes, on the other hand, offer opportunities as well as possible threats. Ireland was not threatened by the moves made by the G20 in 2009 to target low tax regimes with financial and banking secrecy laws because Ireland adheres to full exchange of information. The fact that other EU countries such as Austria, Belgium and Luxembourg were placed on a grey list acts to the benefit of the IFSC as a competitor location.[17]

Nor were the fears expressed by some Irish commentators on the possible consequences of an Obama victory in the US borne out. Such fears were based on discussions over the course of the race for the Democratic Party nomination on

[14] Ireland recently fell from 10th to 23rd position in a periodic survey of 75 global international financial service centres (City of London, Global Financial Services Index, September, 2009). An examination of the factors takes into account however suggests that this is likely to reflect the depth of the Irish downturn rather than adverse developments with longer-term implications.

[15] A Financial Times editorial of 11th January 2009, for example, suggested that "in the long run the commitment not to raise the 12.5 per cent corporate tax rate may prove to be unsustainable."

[16] The standard modelling approach is to assume an element of fixed costs associated with establishing an FDI operation. Low corporate profitability reduces the marginal benefit of a low-tax location but leaves the fixed cost unchanged. For firms already established in a low-tax location, the suggestion that they might choose to channel more of their depleted profits through the jurisdiction would imply initially sub-optimal behaviour.

[17] http://www.reuters.com/article/GCA-G20/idUSTRE53177T20090402

possible changes to US tax treatment of US overseas MNC affiliates, which account for around half of foreign MNC employment in Ireland.[18]

To see why such fears – born of populist electioneering – were exaggerated, it is necessary to establish first the nature of the current tax treatment of overseas profits. As Hines and Rice (1994) explain, the United States taxes income on a residence basis, meaning that American corporations and individuals owe taxes to the US government on all of their worldwide income, whether earned in the United States or not. Low-tax environments remain attractive for two reasons however. The first arises because US firms are not eligible for a tax rebate from the US authorities when foreign taxes in excess of the US tax rate are levied. Since all foreign income and foreign taxes paid are added together in the computation of the foreign tax credit issued by the US authorities, low-tax environments allow US firms to operate in other foreign high-tax environments without penalty.[19] The second reason arises because foreign profits are taxed in the United States only when repatriated. Firms therefore earn interest on their residual US tax liability for as long as they defer repatriation of these profits.

The consequences of either reducing the ability to avail of low-tax regimes or of limiting the benefits of deferral can be quite complicated. It is not necessarily the case, firstly, that the US tax authorities lose out from foreign low-tax-regime activities. As Hines and Rice (1994) point out, US tax liabilities are greatest when American firms earn their foreign profits in such locations, since fewer foreign tax credits are available on these profits. Profitable business operations in such regimes may also stimulate complementary business investment in the United States

With respect to deferral, some Irish media commentators speculated that the US tax laws might be changed so that liability would arise upon generation rather than, as now, upon repatriation of overseas profits. Why were these fears in fact unlikely to be realised? Such a move would reduce sharply the incentive to engage in outward FDI, not least by reducing reinvested earnings, which finance around 40 percent of US FDI in Europe (Lundan, 2006). And, populist politics notwithstanding, outward FDI is not a zero sum game. Nor would current US affiliate sales in Europe – which are a multiple of US exports to Europe – necessarily be replaced by US exports. In fact, the US Department of Commerce estimates that 40 percent or more of goods exported from any developed country go to overseas subsidiaries and affiliates.[20]

In the event, the tax proposals of the new US administration announced in May 2009 proposed only very minor changes to the clauses on deferral and instead focused, as in the case of the G20, on expanding reporting requirements. This in effect targeted Caribbean tax havens such as Bermuda, the Caymans and the British Virgin Islands. The White House document outlining the proposals noted for example that one

[18] Census of Industrial Production for manufacturing; comparison of CSO Annual Services Inquiry (2006) with Forfás (2009), assuming that US services firms tend to have 20+ employees and are export-oriented, reveals that US firms account for around 50 percent of employment in exportable services also.

[19] Desai, Foley and Hines (2006) provide evidence in support of this contention. They show that the firms most likely to initiate operations in low-tax regimes are those with growing activities in nearby high-tax countries.

[20] http://www.mtholyoke.edu/acad/intrel/drucker.htm

address alone in the Cayman Islands housed almost 19,000 corporations, most of which had no other physical presence in the islands.[21] The proposed changes were part of the Foreign Account Tax Compliance Act introduced in the Senate and House of Representatives in October 2009. The Bill proposed stricter reporting requirements on foreign financial institutions (defined as "foreign investment vehicles" such as mutual funds, hedge funds and other entities that hold deposits or financial assets for the account of others) regarding US account holders.

Within weeks of the White House announcement, it was reported that global consulting firm Accenture was to shift its corporate HQ from Bermuda to Dublin on foot of concerns about the "ongoing criticism of companies that are incorporated in Bermuda."[22] Insurance companies XL Capital and Willis Group also moved to Dublin, the former from the Cayman Islands and the latter from Bermuda.[23] A number of other companies were also reported to be considering following suit.[24]

Related to the tax haven issue however, and one where some further tightening of restrictions might be anticipated, is the regime governing the transfer offshore of intellectual property (IP). Sullivan (2004) notes that the profits of US foreign subsidiaries booked in 18 low-tax regimes, which soared over a short number of years, represented 58 percent of the foreign profits of these MNCs, which he suggests "far exceeds the share of economic activity that multinationals conduct in those low-tax countries". Of these profits, furthermore, "it is believed that a considerable portion was derived from the exploitation of intangible assets held outside the United States" (Lev, 2002).[25]

The Wall Street Journal has targeted Ireland for a number of years on this issue. A page 1 article in the edition of November 7 2005, for example, noted that the 1997 allocation by Microsoft of intellectual property to an Irish subsidiary, which collects fees from Microsoft sales to many other countries, "helps the computer giant to shave at least $500 million from its annual tax bill…The subsidiary has a thin roster of employees and the software was mostly developed outside Ireland, but the subsidiary controls more than $16 billion in Microsoft assets". This report does not provide the full picture however. Until 1984, US firms had been permitted to transfer intangible property developed in the US to foreign affiliates without triggering US tax liability, as long as the goods produced by the intangibles were sold outside the United States. The Deficit Reduction Act of 1984 rescinded this exemption (Hines and Rice, 1994). Since then, IP offshoring is subject to a cost-sharing agreement under which the

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[21] Details available at: http://www.whitehouse.gov/the_press_office/leveling-the-playing-field-curbing-tax-havens-and-removing-tax-incentives-for-shifting-jobs-overseas

[22] http://www.irishtimes.com/newspaper/frontpage/2009/0528/1224247599404.html

[23] http://www.businessinsurance.com/article/20100117/ISSUE01/301179969

[24] http://www.businessweek.com/bwdaily/dnflash/content/jun2009/db20090628_851524.htm

[25] That the EU might also be concerned about the competitive advantage this gives to US corporations is suggested by a dispute that broke out between the US and the EU in 2000 over a sales tax break that US federal law allowed its exporters through the use of "foreign sales" subsidiaries set up by Boeing, Microsoft, GM and hundreds of other US companies in locations such as the Virgin Islands, Barbados and Guam. The EU challenged the policy on the grounds that it amounted to an illegal effort to subsidize exports by making them more competitive; http://query.nytimes.com/gst/fullpage.html?res=9A04E2D9163CF933A05756C0A9669C8B63&partner=rssnyt&emc=rss

participants (e.g. a US parent company and its Irish subsidiary) agree to share IP development costs, or ongoing maintenance costs necessary to preserve its commercial value, in proportion to their relative share of anticipated benefits. Former US Treasury International Tax Counsel Stephen Shay (2008) remarks, however, that the rules are "easily avoided by the well advised" and suggests that "it would be interesting to know what percentage of related party cost sharing agreements involve one or more unsuccessful products compared with arm's length agreements".

As documented on the website of Sentinel, an Irish financial services company that advises US clients and others on these matters, Irish-resident American companies could end up paying an effective tax rate significantly lower than the standard Irish corporation tax rate by inserting a non-resident Irish company in a Caribbean tax haven between the Irish-resident company and the US parent.[26] The thrust of the Obama administration's proposals thus far has been to remove this intermediate layer, which creates an incentive to bring structures and related activities on-shore into Ireland (PWC, 2010).

Of more immediate concern for Ireland is the fact that the European Commission has made no secret over the years of its desire to see corporation tax rates harmonised at the EU level. Early proposals in this respect were criticised on the grounds that harmonisation made no sense without consolidation of the corporate tax base. Current proposals from the Commission on the introduction of a common consolidated corporate tax base (CCCTB) are designed to achieve the latter. The proposed apportionment formula for manufacturing will include "sales by destination", which will severely disadvantage smaller member states. Barry (2010) argues that implementation might well trigger further tax-driven industrial relocation. This can arise for two reasons. Firstly, participating member states may raise tax rates since the CCCTB system gives them greater control over the tax revenues allocated to them. Secondly, since 'paper profits' could no longer be shifted across locations, firms would have a stronger incentive to shift real production in response to differing tax rates (Van der Horst, 2008). Hence the CCCTB is likely to increase harmonisation pressures at the EU level.

Concluding Comments

Global FDI inflows have collapsed over the current economic crisis. FDI inflows however bear little relationship to real MNC activities in terms of exports, employment and investment. The sectoral composition of a country's inward FDI is of much greater importance in terms of its vulnerability to shocks. The paper has shown that the foreign-owned segments of industry and services in Ireland have helped stabilise the economy in the face of the global recession. Exports of pharmaceuticals and medical devices have been buoyant. Ireland has been transitioning out of computer assembly and into computer services, though the latter segment has proved vulnerable to the collapse in export markets, as of course have international financial services. IT services are likely to recover, while the prospects for financial services differ across market segments. Ireland seems well positioned particularly in the funds and insurance segments. The ongoing convergence of

[26] http://www.sentinel.ie/06%20EY%20American%20Ireland%20IP%20Transfer.pdf
As Reddan (2008) notes, the general practice for hedge funds, for example, is to domicile in the regulation-light Cayman Islands and to be serviced by the industry in Ireland.

pharma and biotech offers opportunities for Ireland in the face of the presumptive end of the era of blockbuster drugs. The G20 and US administration's targeting of bank secrecy and tax haven jurisdictions will act to the advantage of the IFSC, though the proposed introduction of a common consolidated corporate tax base will increase the pressures on Ireland's corporation tax regime.

We now turn to consider the longer-term sustainability of Ireland's FDI-oriented development strategy which has been called into question recently by several influential commentators. Craig Barrett, former chairman of Intel, argued in a recent speech in Dublin that "the future is not one where foreign direct investment will drive growth". Similarly, Robert Shapiro, former undersecretary of commerce for economic affairs in the Clinton administration, advised in a 2008 lecture that "Ireland must wean itself from dependence on FDI…. FDI is a transitional strategy, not an end game strategy that creates a lasting impact."[27]

While these warnings may be of value as exhortations not to lose sight of the importance of developing the capabilities of indigenous firms, are their underlying assumptions justified? While Ireland is unusually FDI-intensive, the FDI-intensity of all economies is increasing over time, as is the transnationality of firms.[28] Are global FDI flows unlikely to return to growth? Recall that FDI flows are associated with the firm-specific economies of scale that characterise advertising-intensive and R&D-intensive sectors. Such goods and services may be judged likely to continue to increase as a share of the consumption bundle, suggesting that global FDI flows are likely to return to growth (Barry and Hannan, 2003).

Are FDI flows to Europe likely to be diverted to Asia as the latter attracts an increasing share of global flows?[29] Again this must be deemed unlikely as the world economy remains highly regionalised, by government regulations, cultural differences and trade costs.[30] The bulk of international trade in the European and Asian triads remains within their internal markets while nearly half of North America trade is between the NAFTA countries (Rugman, 2001). Furthermore, any increase in transport costs due to oil depletion and/or global carbon taxes, as predicted by many analysts (see e.g. Krugman, 1996), would further regionalise vertical FDI while triggering increased horizontal FDI as a response to rising export costs.

[27] The texts of these speeches are available at: http://www.irishtimes.com/newspaper/finance/2010/0212/1224264272768.html and http://www.smurfitschool.ie/aboutsmurfit/news/newsarchive/title,20742,en.html respectively.
[28] Between 1990 and 2005, the number of transnational companies doubled to 70,000, the number of TNC affiliates grew more than fourfold, and the number of countries in which the average TNC operated grew from four to ten (UNCTAD World Investment Report, 2006).
[29] The question presumes that investments in different regions are substitutes rather than complements. Desai et al. (2005) find to the contrary that US MNC investments abroad are associated with increased home investments by the US parent companies. Resmini and Siedschlag (2008) find that FDI inflows to China have been complementary to FDI inflows to the EU15.
[30] Time spent in transit plus direct transportation costs sum to the equivalent of a 21 percent tariff on US exports; Anderson and van Wincoop (2004).

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Institute for International Integration Studies
The Sutherland Centre, Trinity College Dublin, Dublin 2, Ireland