The Changing Nature of Manufacturing and Services

Irish Trends and International Context

July 2006

Forfás

The Changing Nature of Manufacturing and Services

Irish Trends and International Context

July 2006

Forfás

Table of Contents

1 Executive Summary

International trade has been central to the success story of the Irish economy. As Ireland has a relatively small domestic economy, it needs to import to a greater extent compared to countries with larger domestic economies. Such imports must, in the long run, be financed by export sales. As a trading economy, Ireland faces two main challenges. Firstly, to develop specialisation in sectors that yield the greatest possible value added, and secondly, to produce those goods and services with the greatest efficiency possible. In recent years the export performance of the services sector has outpaced that of manufacturing. As a result, the contribution of services to Irish exports increased from 21 percent in 2000 to 34 percent in 2005.

Against this backdrop, the purpose of this report is to provide a factual analysis and statistical overview of the recent trends in the manufacturing and services sectors in Ireland, and to place these trends in an international context. As such, this report aims to serve as a stimulus for informed discussion and evidence-based policy making.

The Economic Landscape is Changing

Economic development in OECD countries is characterised by a gradual process of structural change. In the initial stages of economic development agriculture typically accounts for the bulk of GDP and employment. In the next stage, as industrialisation intensifies, the share of agriculture in total value added and employment declines and the manufacturing sector grows. In recent years, many OECD economies have experienced a decrease in the number of jobs in the manufacturing sector, with a rise in the number of jobs in services.

Across the OECD services activities now account for an increasing proportion of economic output and employment, giving rise to debate that developed economies are undergoing 'deindustrialisation'. This rise in services activities is in part a reflection of rising incomes in developed economies, where consumers tend to spend an increasing proportion of income on services. It also reflects higher productivity in manufacturing compared to services, which results in falling relative prices for manufacturing products.

Manufacturing continues to play an important role in the global economy as a driver of productivity growth, innovation and R&D and technological change. Furthermore, the manufacturing sector provides key inputs to the wider economy and satisfies a broad range of final and intermediate demands.

The distinction between manufacturing and services is blurring, as manufacturing sectors increasingly assume services functions as part of their operations. This blurring complicates empirical analysis of economic activity of manufacturing and service sectors as separate entities.

The following are key trends in the global manufacturing and services sectors:

Manufacturing – International Trends

- Manufacturing production and value added continue to experience strong growth. At the same time manufacturing is declining in terms of its share of total value added in the global economy, and the contribution of the services sector is increasing.
- Manufacturing employment has decreased steadily in most OECD countries:
  - Most of this fall in employment over the past two decades has occurred in two sectors: textiles and metal products, although, increasingly, high-technology manufacturing is also affected.
  - Productivity growth is an important factor explaining the global combination of growth in manufacturing output and fall in manufacturing employment. Other factors such as offshoring and trade also play a role.

Services – International Trends

- Services account for an increasing proportion of total value added in developed economies, accounting for 68 percent of gross value added in the OECD.
- This increase is driven by a limited number of sectors - finance, insurance, and other business services (including computer services). These sectors now account for about 20 to 30 percent of value added in developed economies, while their respective shares were between 10 and 20 percent in 1980.

Ireland is Adapting Successfully to the Changing Global Environment

In the context of these international trends, Ireland's trading sectors are performing well. Manufacturing production and exports continue to increase, and the manufacturing sector continues to make a significant direct contribution to the economy. Moreover, productivity growth in Irish manufacturing has been substantial. Manufacturing employment trends in Ireland are similar to those characterising economic development in other developed countries, and the recent declines mirror trends across OECD countries.

In parallel, Ireland has capitalised on the increased tradability of services, becoming one of the leading world exporters of services. Irish employment growth in services outperforms that of competitor countries.

The following are key trends in the manufacturing and services sectors in Ireland:

Manufacturing continues to play an important role in the economy

- Production: Manufacturing output continues to grow, increasing by 28 percent in volume terms from 2000 to 2005. Manufacturing turnover has increased at a slower rate, rising by 13 percent, as the average price received for manufacturing goods fell by 10 percent since 2000.
- Employment:
  - Following a 30 year period where Ireland managed to buck international trends by growing manufacturing employment, in recent years there has been a reduction in the number employed in manufacturing. Employment in manufacturing has fallen by 31,000 (or 13 percent) since 2000.
  - These employment losses are in part due to the global ICT downturn at the turn of the century, in addition to job losses in more traditional, labour intensive sectors such as textiles and leather.
- Productivity: The fact that these employment declines occur while manufacturing production continues to increase (i.e. more output is produced by fewer people) points towards strong productivity growth in manufacturing in Ireland.
- Economic contribution: The manufacturing sector makes a significant contribution to the economy. In 2004 the estimated combined expenditure of the manufacturing sector on wages, Irish materials and services was €25 billion, and manufacturing accounted for 28 percent of total corporation tax yield.[1]

Internationally tradable services activities continue to grow

Services activities have become the primary source of employment growth in developed economies:

- In G7 countries, the number employed in services is about 60 percent higher in 2000 relative to 1960 and rose by 6 percent from 2000 to 2004.
- Ireland follows the trend of the employment growth in services evident across most developed countries. In Ireland, this upward trend since 2000 has been more pronounced, with services employment rising by 21 percent from 2000 to 2005. Services employment in Ireland increased by 411,000 from 1997 to 2005, and now represents 68 percent of total employment compared to 62 percent in 1997.

[1] Data on economic contribution is based on agency-assisted firms.

Services exports are an increasing determinant of trade performance globally:

- From 1980-2005, world services exports have grown from 15 to 19 percent of total merchandise and services exports, driven by increased trade in Computer and Information Services, Finance and Insurance services.
- The growth in services exports is driven by a limited number of countries. The top 20 services exporters in the world account for 75 percent of global services exports.

Ireland has become one of the leading world exporters of services:

- Ireland increased its share of world services exports from 0.36 percent in 1980 to 2.2 percent in 2004, ranking Ireland the 13th highest exporter of services in the world in 2004. Between 2000 and 2005, the contribution of services to total Irish exports of goods and services increased from 22 percent to 35 percent.
- Computer, Financial and Insurance services are the most significant services export sectors in Ireland, together accounting for 60 percent of total services exports in 2005.

In parallel, international competition in locally traded services is increasing. The WTO estimates that 50 percent of global services sales are generated by the commercial presence of foreign subsidiaries in domestic markets.

Issues for Consideration

The statistical overview presented above points towards Ireland's strong performance in an international perspective. Nevertheless, some developments are borne out in the statistics that merit further consideration:

- Employment in manufacturing has fallen by 13 percent since 2000. It is difficult to conclusively ascertain the relative role of different factors. While productivity growth is an important driver of the fall in employment, displacement of employment and relocation of operations abroad for cost or market access reasons also plays a role. Some enterprise activities may not be sustainable in a higher cost economy going forward and the enterprise landscape of the future will be different to that of today. To date, Ireland has been one of the foremost beneficiaries of global foreign direct investment and offshoring by foreign-owned firms of enterprise activities (both manufacturing and services) into Ireland. Outsourcing of activities to foreign locations now affects both low and high skilled manufacturing and services jobs, and not all displacement is driven by cost. Factors such as ICT infrastructure, skills base, and the host country regulatory and business environment are also key location determinants for enterprise.
- Services employment in agency-assisted internationally traded services firms is concentrated in the Dublin region, which accounts for 67 percent of total employment. Only the Border and Southwest regions have made substantial increases in employment numbers in internationally tradable services since 2000.

- Export performance in manufacturing and services is significantly reliant on foreign-owned enterprise. Foreign-owned agency-assisted enterprises account for 66 percent of employment and 93 percent of exports of ITS firms. In manufacturing, foreign-owned agency-assisted firms account for 87 percent of total merchandise exports. It should be noted that, concurrently, the indigenous enterprise base is growing steadily in high value added sectors.

2 Manufacturing – International Trends

Chapter 2 analyses the changing nature of manufacturing from an international perspective and Chapter 3 details the Irish perspective. Chapter 2 reviews global trends in terms of production and employment in manufacturing. It also looks at the factors driving manufacturing performance, and examines Ireland's relative performance.

Summary

Global manufacturing is characterised by the following trends:

Production and value added:

- Manufacturing production and value added continue to experience strong growth.
- At the same time, manufacturing is decreasing in terms of its share of total value added in the global economy, while services are gaining an increasing share of value added.

Employment:

- Manufacturing employment has decreased in most OECD countries.
- Most of this fall over the past two decades has occurred in two sectors: textiles and metal products, although, increasingly, high-technology manufacturing is affected.

Factors driving manufacturing performance:

- Productivity growth is an important factor explaining the global combination of growth in manufacturing output and fall in manufacturing employment.
- Operating costs are an important factor determining the location of manufacturing production, and labour costs are key in the case of lower value added activities which are labour intensive.

2.1 Global Production Trends

Manufacturing production and value added continue to grow

The available data point to continued growth in manufacturing production and value added. At the same time, the share of manufacturing in total value added has slowly declined.

The declining share of manufacturing in total value is in part caused by price effects: While manufacturing production has continued to increase, manufacturing products have become relatively cheap and therefore account for a smaller proportion of the economy than they did before.[2] This price effect is due to the relatively high productivity growth in the manufacturing sector compared to the services sector and affects the relative terms of trade between industrial and services exports. Appendix 2.1 illustrates how the terms of trade between industrial and services exports have changed since 1960, with the terms of trade for industrial goods declining over this period.[3]

2.2 Global Employment Trends

Manufacturing employment has declined steadily in most OECD countries

Economic development in OECD countries has long been characterised by a gradual process of structural change. In the initial stages of economic development, agriculture typically accounts for the bulk of GDP and employment. In the next stage, as industrialisation intensifies, its share in total value added and employment declines and the manufacturing sector grows. In recent years, many OECD economies have experienced a decrease in the number of jobs in the manufacturing sector, with a concurrent rise in the number of jobs in services.

Figure 2.1 illustrates the trends in numbers employed in manufacturing from 1995 to 2005 (with 1995 as base year) in Ireland, Switzerland and USA (countries for which comparable data is available):[4]

- From 1995-2001, Ireland performed relatively well. In this period, employment in manufacturing in Ireland increased by 17 percent whereas in Switzerland and the US there were no significant gains in the numbers employed in manufacturing.
- However, from 2001 to 2005, a decline occurred in Ireland similar to that experienced in USA, and more pronounced than the decline in Switzerland. While manufacturing employment in

---

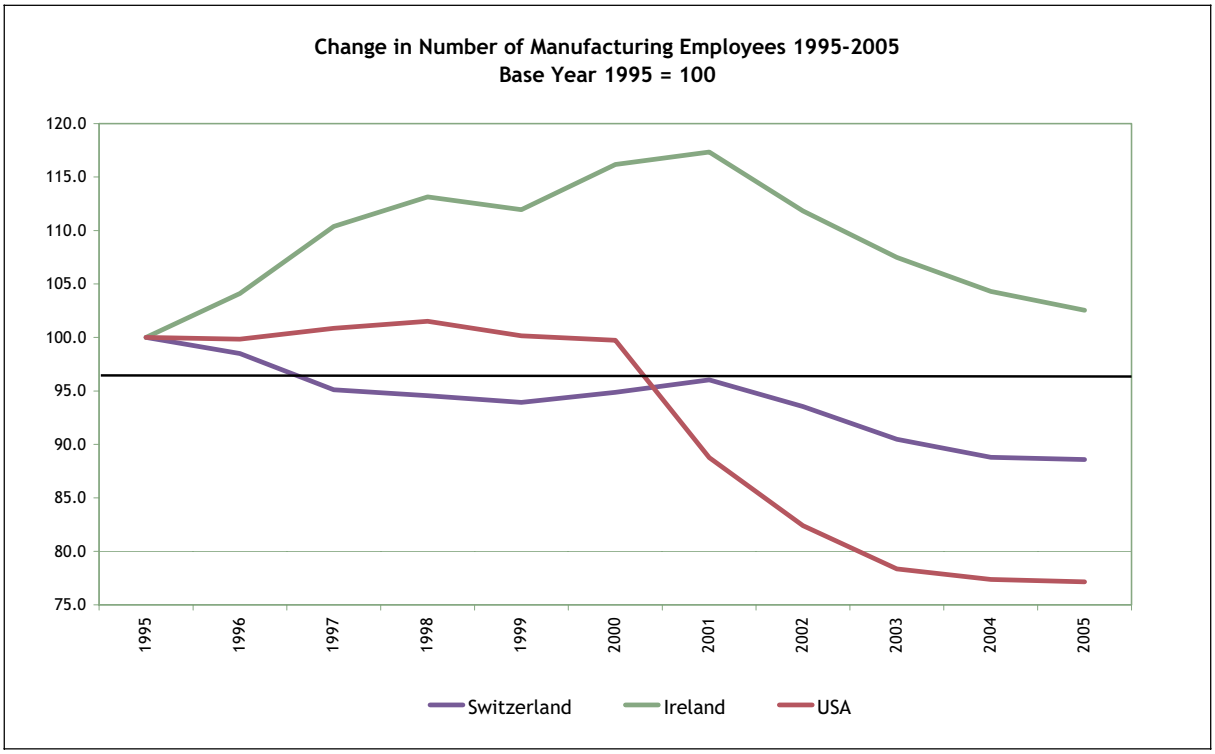
[2] OECD, "The Changing Nature of Manufacturing in OECD Economies", February 2006.

[3] The worsening terms of trade for manufacturing products can be partly explained by the fact that, as countries become richer and personal income rises, a higher proportion of consumption will go to services as opposed to manufacturing goods.

[4] Due to large variations in data classifications submitted by national statistics offices to OECD, only a limited number of countries are directly comparable.

Ireland in 2005 is still above the base year of 1995, the trend since 2001 indicates a significant reduction in the numbers employed.

Figure 2.1 % Change in Number of Manufacturing Employees 1995-2005*



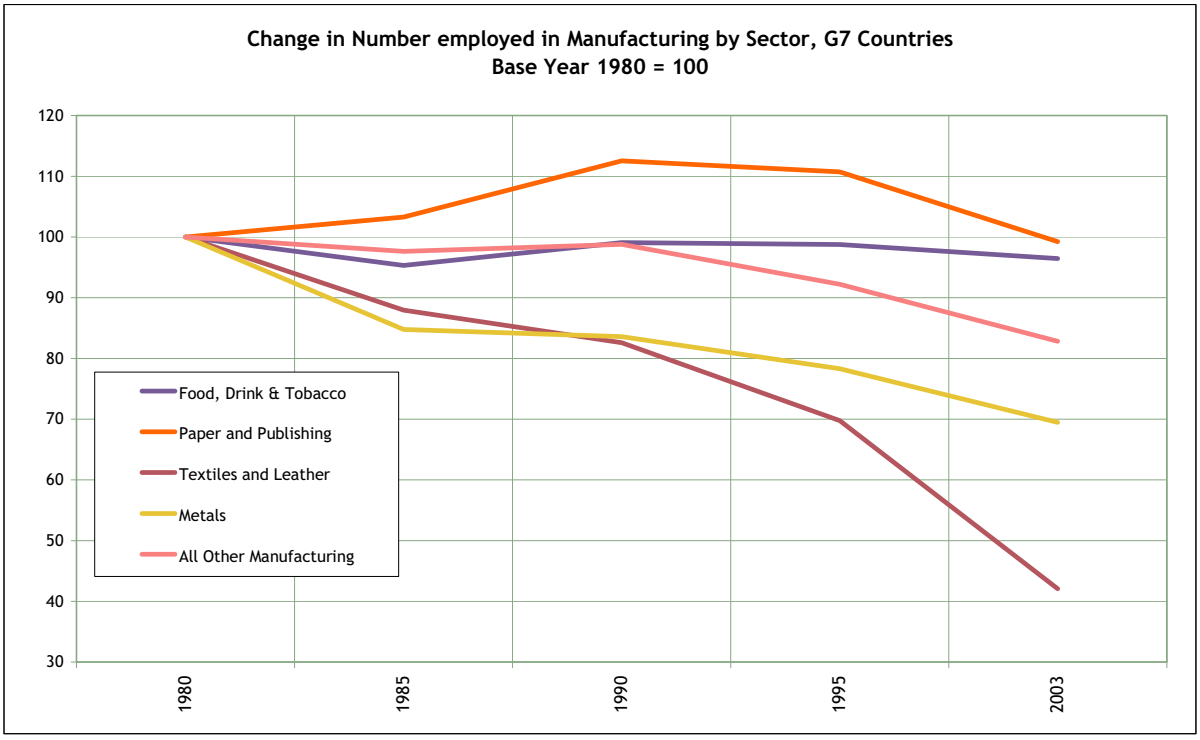
Source: OECD Main Economic Indicators 1999-2006.
*Note 2005 figure is based on average of Quarters 1-3 2005

Appendix 2.2 provides cross-country evidence confirming that over the last decade most OECD countries have experienced a steady decrease in the share of manufacturing in total employment.

Manufacturing employment shifts vary across sectors

While overall manufacturing employment has declined across the OECD, not all sectors have fared equally. Figure 2.2 shows the change in manufacturing employment by sector (with 1980 as base year) for the G7 countries. (The G7 countries account for approximately 70 percent of manufacturing employment in OECD). This graph shows that within manufacturing much of the fall in employment over the past two decades has occurred in two activities, textiles products and metal products. The table in Appendix 2.3 provides data for all sectors within manufacturing for the period 1980 – 2003.

Figure 2.2 Change in Number Employed in Manufacturing by Sector, G7 Countries, 1980-2003



Source: OECD STAN Industrial Database 2004[5]

2.3 Factors Driving Global Manufacturing Performance

Productivity growth

Key drivers of productivity growth include enhanced automation and work processes through new technologies, effective use of ICT and investment in human capital. Effectively employed, these drivers can significantly reduce the contribution of labour as an input to production.

The decrease in manufacturing employment in OECD countries is driven partly by productivity growth (implying that more output can now be produced with fewer workers), but is also affected by the growth of manufacturing capacity in non-OECD countries.[6]

[5] Data for 2003 is missing for France and Germany
[6] OECD, "The Changing Nature of Manufacturing in OECD Economies", February 2006.

Cost of doing business and location of manufacturing production

The value chain in enterprise is increasingly disaggregated, so that activities are distributed to their most economic or strategic location. Labour costs are an important factor determining the location of manufacturing production, especially lower value added activities which tend to be more labour intensive. Although labour costs account for only a fraction of total manufacturing costs, according to the OECD it is one of the factors most linked to location decisions. This does not take away from the fact that other factors such as technical skills, infrastructure, adequate IP protection and host country regulatory and business environment are also significant location determinants.

Driver of innovation and technological change

Manufacturing continues to be an important and integral part of the economy. It provides inputs to other sectors of the economy and satisfies a broad range of final and intermediate demands. High value added manufacturing, in particular, is a key driver of innovation and technological advance. It increases opportunities for attracting and embedding R&D activities, collaboration with the higher education sector and stimulating networks. Input-output tables illustrate that manufacturing remains more important to total economic activity than suggested by other indicators, such as share in value added.[7]

[7] OECD, "The Changing Nature of Manufacturing in OECD Economies", February 2006.

3 Manufacturing – Trends in Ireland

Chapter 3 reviews Irish trends in manufacturing. It analyses recent trends in production, employment and the economic contribution of the manufacturing sector to the Irish economy. It then reviews the issues of outward direct investment and offshoring and the blurring of manufacturing and services activities in an Irish context. Finally, it reviews indigenous and foreign-owned manufacturing.

Summary

Processes of structural change similar to those that characterise economic development in other OECD countries are occurring in Ireland. Appendix 3.1 charts how the sectoral composition of GDP and employment in Ireland from 1960 onwards has evolved towards less reliance on agriculture and more emphasis on services.

In light of the international context described in Chapter 2, the following statements can be made about the performance of the Irish manufacturing sector relative to competitor countries:

Production:

- Manufacturing production[8] and manufacturing exports continue to grow.
- In volume terms, manufacturing production increased by 28 percent between 2000 and 2005, outperforming average growth in the OECD.
- In volume terms, manufacturing exports increased by almost 32 percent between 1999 and 2004.

Employment:

- The sectoral profile of manufacturing has changed significantly in the past decade, with strong employment gains in modern sectors of Chemicals and Medical Devices from 1995-2005.
- However, since 2000, following a 30 year period where Ireland managed to buck the trend by growing manufacturing employment, there has been a reduction in the number employed in manufacturing.[9]

[8] Industrial production increased by 28 percent in volume terms (number of units produced) between 2000 and 2005 (CSO: Industrial Production Index).
[9] As of Q3 2005, employment in manufacturing has declined by 31,400 since 2000, a decline of 13% (see below).

- Not all manufacturing sectors have declined equally in terms of employment, with the largest number of job losses (in the 2000 – 2005 period) occurring in:
    - Office Machinery and Equipment;
    - Radio, Television and Communication Equipment;
    - Electrical Machinery and Computers;
    - Pulp, Paper and Recorded Media;
    - Textiles.
- The fact that these employment reductions occur while manufacturing production continues to increase points towards the role of productivity growth. However, other factors such as increased offshoring and trade also play a role in explaining the fall in manufacturing employment.[10]
- Data on productivity growth in Ireland needs to be interpreted with caution, as transfer pricing inflates multinational corporations' (MNCs) productivity and export performance. Moreover, productivity growth is concentrated in a limited number of sectors.

Economic contribution:

- Manufacturing makes a strong direct contribution to the Irish economy in terms of wages, expenditure on Irish inputs and services, and corporation tax yield. [11]

Blurring of manufacturing and services:

- The distinction between manufacturing and services is blurring, as manufacturing sectors increasingly assume service functions as part of their operations. This makes empirical analysis more difficult and calls some traditional views of the characteristics of manufacturing into question.

---

[10] Research by Ward (2006) suggests that the decline in US manufacturing jobs can be much better explained by manufacturing productivity growth rather than structural and competitive factors (such as China's exports to the US). Research by Boulhol and Fontagné (2005) suggests that only 20 percent of the deindustrialisation between 1970 and 2002 was due to offshoring and trade effects.

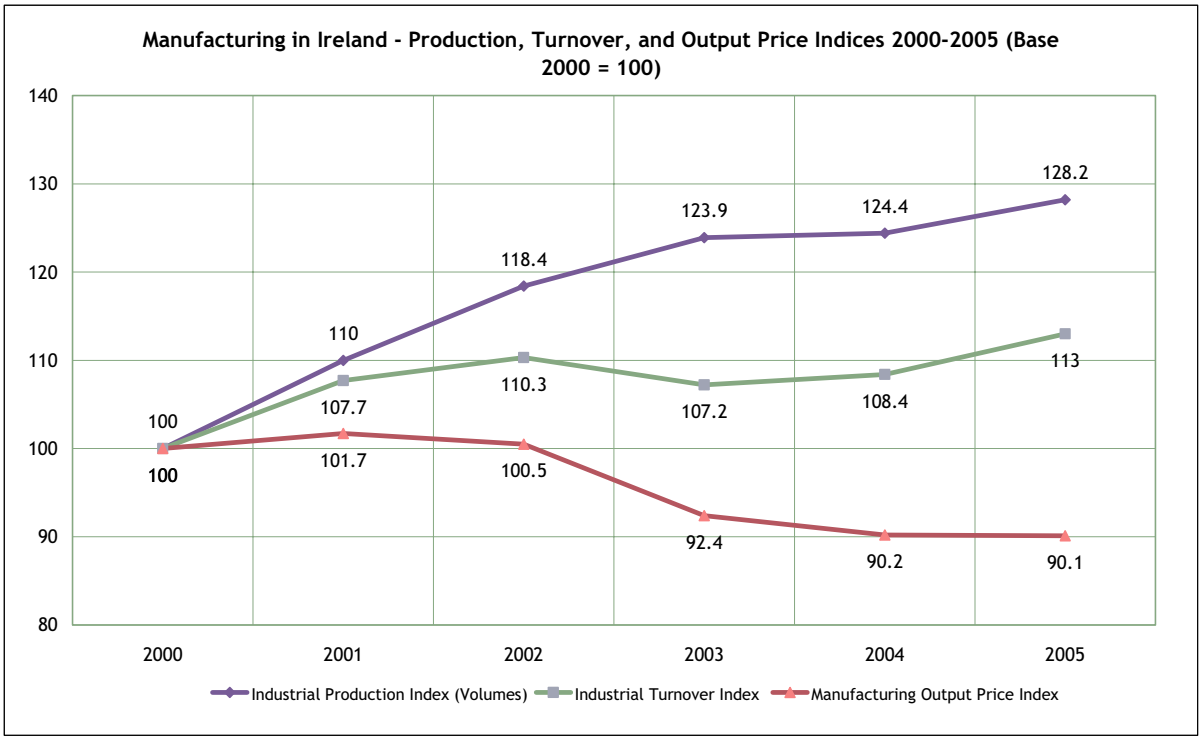
[11] According to Forfás expenditure data of agency-assisted firms, manufacturing expenditure on wages, Irish-sourced materials and Irish-sourced services amounted to €25 billion in 2004, and the manufacturing sector accounted for around 27 percent of total corporation tax yield in the same year.

3.1 Production Trends in Ireland

Manufacturing production continues to grow

CSO data indicate that manufacturing production (in volumes[12]) increased by 28 percent between 2000 and 2005 (Figure 3.1). While volume growth has increased substantially since 2000, manufacturing turnover[13] has not increased at the same pace, rising by 13 percent from 2000 to 2005. This reflects the fact that the average price received for manufacturing goods has fallen by 10 percent since 2000.

Figure 3.1 Manufacturing in Ireland – Production, Turnover and Output Price Indices



Source: CSO Database Direct

Irish manufacturing exports grow, but global export share declines

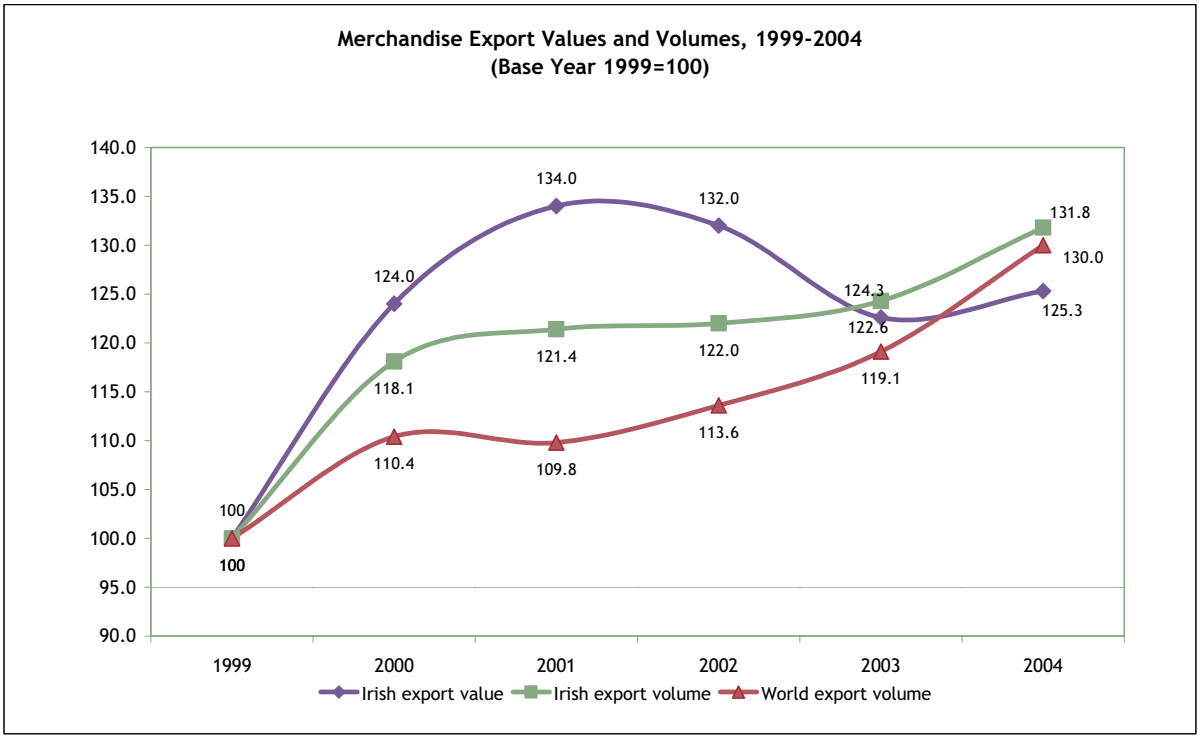
Since 1999, the volume growth in Irish merchandise exports surpassed the global average (Figure 3.2), but the gap has been narrowing over the last few years. Using 1999 as the base year, Irish exports increased by 25 percent in terms of values and by almost 32 percent in terms of volumes. However, Ireland's global market share in value terms has declined.

---

[12] Volume refers to the number of units produced

[13] Turnover takes into account both the number of units produced, as well as the price received for these goods. As a result, turnover is affected both by changes in volumes produced and changes in prices received

Figure 3.2 Merchandise Export Values and Volumes 1999-2004



Source: Forfás, International Trade and Investment Report, 2005

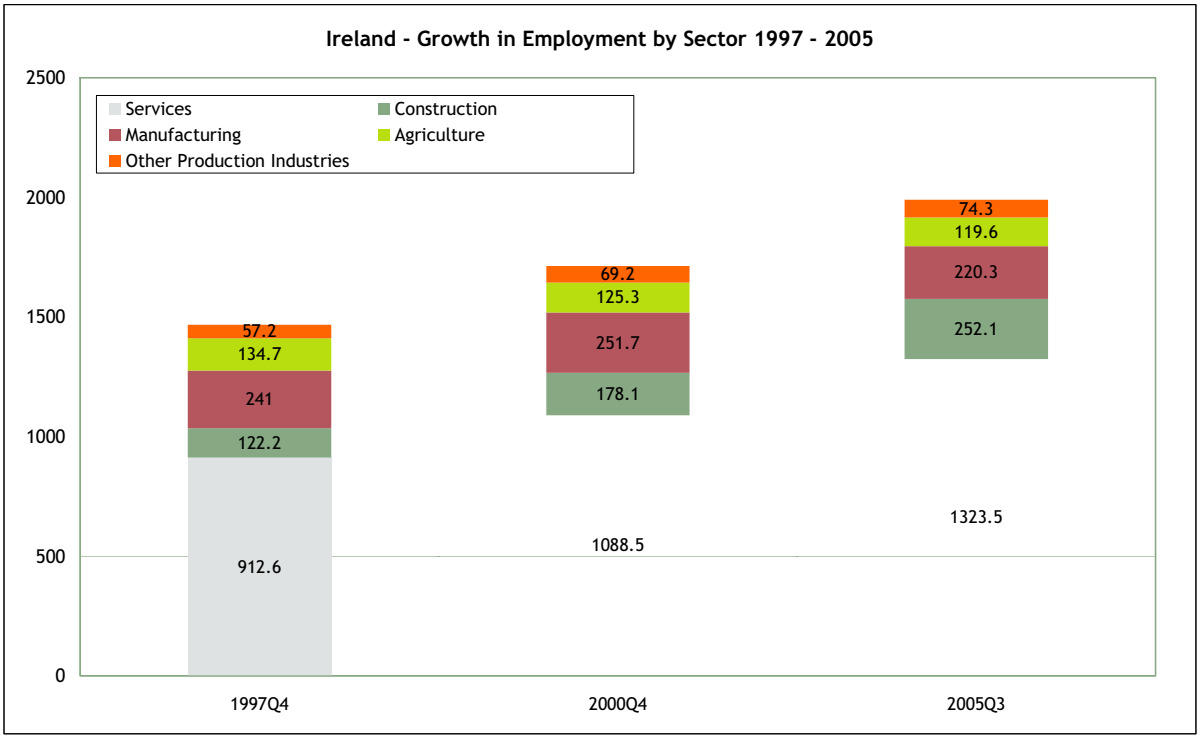
3.2 Employment Trends in Ireland

Ireland's manufacturing employment trend is similar to other OECD countries

As outlined in Section 2.2, manufacturing employment is declining across the OECD, and therefore Ireland is not unique in this regard. Looking at employment throughout the Irish economy by broad economic sector (Figure 3.3 and Appendix 3.3), the following key points can be made:

- There has been a sharp increase in total employment - over 520,000 people entered employment between 1997 and 2005;
- Simultaneously, there has been a large increase in employment in the services and construction sectors. (Employment in financial services and other business services grew by almost 100,000 and employment in the construction sector grew by 130,000 since 1997);
- The number of people employed in manufacturing has declined. (Employment within manufacturing has fallen by 31,400 from 251,700 in Q4 of 2000 and stood at 220,300 in Q3 of 2005.) This decline has been more than offset by the rise in the number of jobs in services.

Figure 3.3 Employment Trends in Ireland by Broad Economic Sector 1997-2005



Source: CSO: Quarterly National Household Survey / Database Direct

Productivity growth is a driver of employment decline

Combining the manufacturing production data from the previous section with the manufacturing employment data indicates that in recent years more manufacturing goods have been produced by fewer people, and that productivity growth has been a contributor to the fall in manufacturing employment in Ireland.

Data on productivity growth in Ireland needs to be interpreted with caution, as transfer pricing inflates MNCs productivity and export performance. Moreover, productivity growth is concentrated in a limited number of sectors, notably those sectors dominated by foreign-owned firms.

Other factors such as increased offshoring and trade also play a role in explaining the decline in manufacturing employment in Ireland in recent years. (The role of offshoring is further discussed in Section 3.4). It is difficult to conclusively ascertain the relative role of productivity growth versus the actual displacement of employment and relocation of operations abroad for cost or market access reasons.

Manufacturing employment shifts vary across sectors

Within manufacturing the following are key trends in terms of employment between 2000 and 2005 (Table 3.1):

- While the total number employed in manufacturing is slightly higher in 2005 than in 1995, the sectoral makeup of employment has changed significantly in this period:
    - Employment in Medical, Precision and Optical has increased by 9,800, and the number employed in Chemicals increased by 4,900.
    - In more traditional sectors, Wood and Wood Products, Non-metallic Minerals and Basic and Fabricated Metals also achieved strong relative increases.
    - The most pronounced relative decrease in employment occurred in Textiles, and Leather. In these sectors employment figures have more or less fallen by half.
- The most pronounced absolute decreases in employment occurred in the following sectors:
    - Office Machinery and Equipment (loss of over 9,000 jobs – from 24,100 to 14,800);
    - Radio, Television and Communication Equipment (nearly 7,000 – from 14,700 to 8,000);
    - Electrical Machinery and Computers (over 6,000 – from 14,000 to 7,800);
    - Pulp, Paper and Recorded Media (nearly 5000 – from 24,600 to 19,700);
    - Textiles (5,000 - from 9,900 to 4,900 employees).
- Employment declines have occurred both within sectors dominated by multinationals (computers, electrical machinery, and ICT) as well as largely indigenous-owned sectors (textiles and leather, in line with international trends). (Section 3.6 discusses the relative performance of indigenous and foreign-owned sectors in further detail).

Table 3.1 Employment within Manufacturing 1995-2005

	1995 Q4	2000 Q4	2005 Q3	% 2000 to 2005 Change	% Change 1995 to 2005
Food and Beverages; Tobacco	44,700	44,200	46,200	5%	3%
Textiles	19,200	9,900	4,900	-51%	-74%
Leather	1,400	700	300	-57%	-79%
Wood and Wood Products	4,300	5,600	6,800	21%	58%
Pulp, Paper and Recorded Media	18,800	24,600	19,700	-20%	5%
Chemicals	18,400	23,600	23,300	-1%	27%
Rubber and Plastics	9,100	10,400	9,700	-7%	7%
Other Non-Metallic Minerals	8,900	11,200	10,700	-4%	20%
Basic and Fabricated Metals	12,900	15,100	15,500	3%	20%
Machinery and Equipment, N.E.C	13,900	14,700	10,900	-26%	-22%
Office Machinery and Computers	14,200	24,100	14,800	-39%	4%
Electrical Machinery and Apparatus, N.E.C	10,800	14,000	7,800	-44%	-28%
Radio, Television and Communication Equipment	7,600	14,700	8,000	-46%	5%
Medical, Precision and Optical Instruments	12,400	18,300	22,200	21%	79%
Transport Equipment	9,300	10,300	8,900	-14%	-4%
Manufacturing N.E.C	9,100	10,300	9,900	-4%	9%

Source: CSO: Database Direct

3.3 Economic Contribution of Manufacturing Sector in Ireland

Manufacturing expenditure (agency-assisted firms) significantly contributes to Irish economy.[14]

The manufacturing sector makes a significant contribution to the Irish economy in terms of expenditures on wages, and Irish-sourced materials and services. The combined manufacturing spend on wages, Irish-sourced materials and services amounted to €25 billion in 2004 (Table 3.2 and Appendix 3.4).

Table 3.2: Manufacturing Expenditure in Ireland – Wages, Materials and Services 1995-2004

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Economic Impact of Manufacturing Sector	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**
Wages	4,548	4,863	5,501	5,901	6,472	7,306	7,595	7,529	7,537	7,815
Irish-sourced materials	8,547	8,940	9,900	10,855	11,871	11,757	12,822	12,177	11,325	11,292
Irish-sourced Services	4,427	5,077	5,810	6,351	6,447	5,433	5,585	5,534	5,906	5,851
Total	17,522	18,880	21,211	23,106	24,790	24,495	26,002	25,240	24,768	24,958

Source: Forfás Agency Data

Manufacturing spend on wages:

- Has increased from 1995 to 2004 from €4.5billion to €7.8billion. Spend on wages has remained relatively stable since 2000 while employment has declined, suggesting rising unit labour costs.
- Looking at expenditure on wages by broad sector (Food/Drink/Tobacco, Other Traditional Sectors and 'Modern Manufacturing'[15]), illustrates that 'Modern Manufacturing' accounts for 45 percent of total wages expenditure.

Manufacturing expenditure on Irish sourced materials:

- Fell by €1.5 billion since a peak of €12.8 billion in 2001.
- 'Modern Manufacturing' accounts for almost the entire decline, falling by €1.1billion since 2001, while materials spend in Food/Drink/Tobacco fell by €0.4 billion.

Manufacturing expenditure on Irish-sourced services:

- Has remained relatively stable, at €5.8 billion 2004, having peaked at €6.4 billion in 1999.
- Expenditure on services by 'Other Traditional Sectors' accounts for most of this reduction, falling from €1.7 billion to €1.2 billion from 1999 to 2004. Food/Drink/Tobacco expenditure

[14] This section is based on Forfás Agency Data

[15] 'Modern Sectors' include manufacture of Chemicals, Electrical and Optical Equipment, and Professional Goods (Medical Devices and Instrument Engineering). Traditional sectors include Textiles and Leather, Wood and Wood Products, Printing and Publishing, Rubber and Plastics, Non-metallic Minerals, Basic Metals, Machinery n.e.c., Transport Equipment, and Manufacturing n.e.c.

remained relatively stable over this period, while expenditure by 'Modern Manufacturing' in 2004 is about the same level as 1999 at €2.8 billion, after a slight decline over 2000-2002.

Agency-assisted manufacturing firms account for a substantial proportion of corporation tax yield

In 2004, manufacturing corporation tax yield from agency-assisted firms amounted to €1.48 billion, representing 27.8 percent of total corporation tax in 2004; however, there has been a decrease of €124 million from 2003 to 2004. Looking at the contribution of manufacturing by sector and by ownership reveals the following trends (Table 3.3):

Table 3.3 Corporation Tax from Manufacturing by Sector and Ownership - 2003/2004

	2003	2004	2003	2004	2003	2004
	Irish Owned	Irish Owned	Foreign Owned	Foreign Owned	Irish + Foreign Owned	Irish + Foreign Owned
	€k	€k	€k	€k	€k	€k
Total Corporation Tax Manufacturing	102,743	125,882	1,502,668	1,354,623	1,605,410	1,480,506
Total Corporation Tax Yield	5,161,000	5,332,000	5,161,000	5,332,000	5,161,000	5,332,000
Manufacturing as % Total Yield	2.0%	2.4%	29.1%	25.4%	31.10%	27.80%

Source: Forfás Agency Data

3.4 Outward Direct Investment and Offshoring

Irish outward direct investment has grown strongly in recent years

A reality of modern global manufacturing is the outsourcing of activities to their most economical location. Ireland has benefited enormously in the past from foreign direct investment (FDI) inflows and continues to perform relatively well in attracting inward investment. Irish outward direct investment (ODI) has also been increasing. Irish ODI flows were estimated at €12.7 billion in 2004.[16] This is the largest total ever recorded and would suggest that for the first time Ireland is a net exporter of investment as outflows exceeded inflows.

Offshoring of operations, or even entire firms, is increasing. This can occur because of increasing cost competitiveness in other locations or because companies need to gain more efficient access to vital markets. Some multinationals have achieved entire reorientation of operations without

[16] Direct investment is a category of international investment that, based on an equity ownership of at least 10%, reflects a lasting interest by a resident in one economy (the direct investor) in an enterprise resident in another economy (the direct investment enterprise).

significantly impacting on employment in some host countries.[17] Using available data, it is not possible to establish empirically how much of the decline in manufacturing employment is due to relocation of operations. As mentioned previously, productivity gains have also impacted on labour input requirements. In this context, shifts in manufacturing employment are not simply a case of displacement or relocation of jobs abroad, but also of increased productivity, by which no employment gains are made.

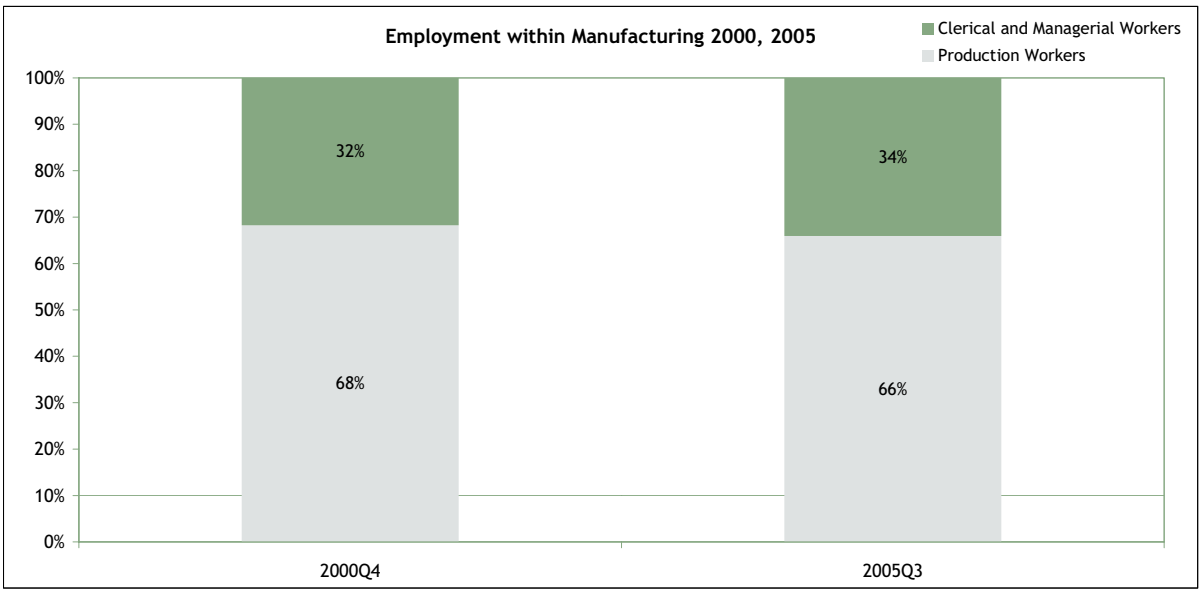
As indigenous exports grow, offshoring of some operations may be inevitable for market access or cost reasons in the pursuit of greater efficiencies. Productivity gains achieved by relocation of activities abroad present an opportunity to develop higher end manufacturing and related activities domestically, such as R&D, marketing, sales, technical support, order management and product management.

3.5 The Blurring of Manufacturing and Services

The distinction between manufacturing and services is blurring. Interactions between services and manufacturing now take on many forms and this complicates empirical analysis of the manufacturing sector. Examples include: outsourcing of services activities from manufacturing firms to services firms; the increasing tendency of manufacturing firms to provide solutions tailored to customer requirements; as well as the use of intermediate inputs from independent service providers. To illustrate, an estimated two-thirds of IBM's global operating profits are now derived from consultancy and supply services as opposed to hardware.[18] In Ireland, over 30 percent workers in the manufacturing sector are engaged in services-related activities and this percentage is increasing over time: between 2000 and 2005 this grew from 32 percent to 34 percent (Figure 3.4).

[17] Grimes, S., Forthcoming, Ireland's Emergence as a Centre for Internationally Traded Services.
[18] Grimes, S., Forthcoming, Ireland's emergence as a Centre for Internationally Traded Services.

Figure 3.4 Share of production and services (clerical and managerial) workers in Irish manufacturing sector, 2000 and 2005



Source: CSO: Database Direct

3.6 Indigenous and Foreign-Owned Manufacturing in Ireland

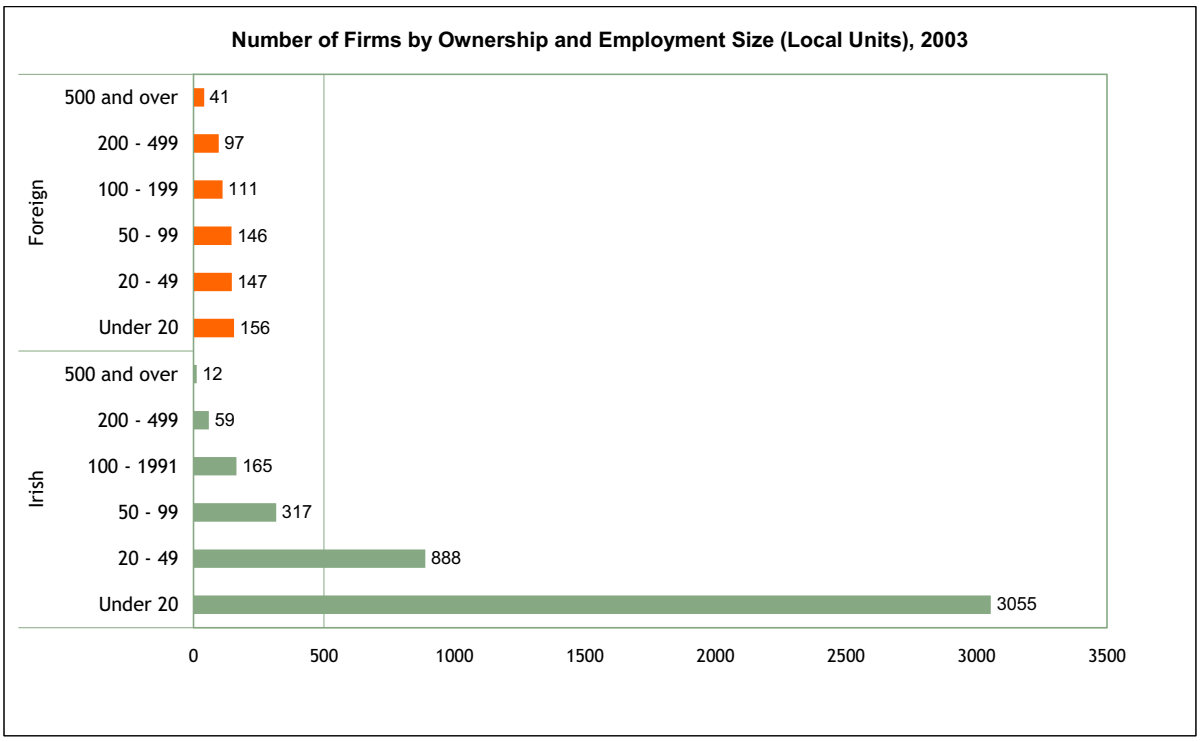
There is a base of indigenous manufacturing firms with potential to develop considerable scale

The large majority (87 percent) of manufacturing units in Ireland is Irish owned[19]. However, the bulk of these indigenous manufacturing units (60 percent) employ less than 20 workers (Figure 3.5). In contrast, in the category of enterprises that employ more than 200 workers, foreign-owned companies account for 66 percent.

Nonetheless, there is a significant base of indigenous manufacturing firms with potential to develop considerable scale. In the category of firms employing between 100-199 workers, the number of indigenous firms outweighs the number of foreign-owned firms.

[19] There is no Irish/foreign-owned breakdown provided in the Census of Industrial Production for ownership of local units in the Transport Equipment sector, which have been excluded from the calculations.

Figure 3.5 Ownership of Manufacturing Firms by Size



Source: CSO Census of Industrial Production 2003

US and UK owned firms dominate ownership of foreign-based firms in Ireland

In terms of origin of ownership of foreign-owned firms (see Appendices 3.5 & 3.6):

- The manufacturing sector is Ireland is particularly exposed to currency shocks. The United States (41 percent) and the UK (20 percent) are the main origin of ownership of foreign-owned firms in Ireland;
- Germany is the main origin of ownership of foreign-owned firms from the euro area;
- Foreign-owned Chemicals firms represent 47 percent of all chemicals firms in Ireland;
- 39 percent of all firms engaged in manufacture of Electronic Equipment are foreign-owned, of which 24 percent of firms are owned by US manufacturers;
- Food, Beverage & Tobacco and Paper and Printing products account for 16 percent of all Irish owned firms.

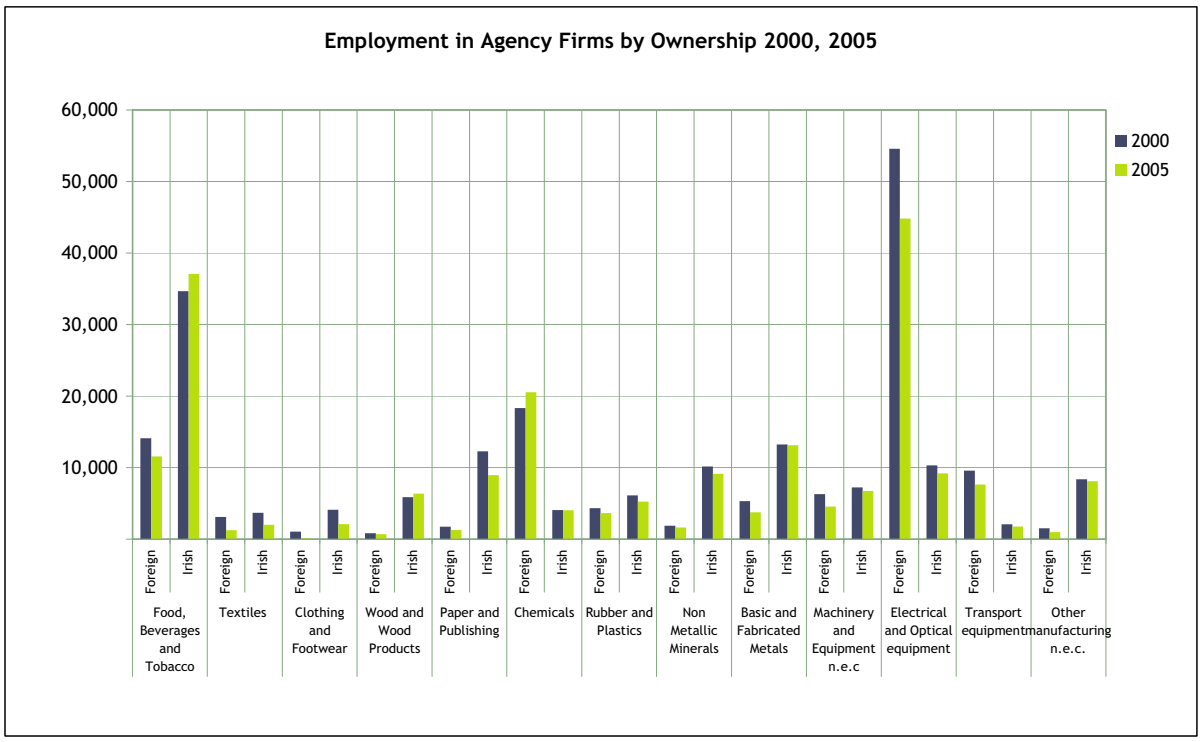
Numbers employed in manufacturing are almost evenly split between foreign and indigenous owned firms

Differentiating manufacturing employment figures of firms in Ireland (agency-assisted) according to whether they are foreign-owned or indigenous reveals the following (Figure 3.6):

- Employment in indigenously owned manufacturing firms accounts for 53 percent of total manufacturing employment in agency-assisted firms.

- Food and Beverages accounts for 33 percent of total indigenous manufacturing employment.
- Chemicals, Food and Beverages, Electrical and Optical Equipment account for:
  - 75 percent of total employment within foreign-owned manufacturing; and
  - 35 percent of all manufacturing employment (foreign-owned + indigenous).

Figure 3.6 Employment in Agency Firms by Ownership, 2000, 2005



Source: Forfás Agency data

Export performance

Over the past decade, the overall value of manufacturing exports from Ireland has grown substantially (Figure 3.7). Differentiating Irish exports according to ownership reveals that the majority of the manufacturing export growth is due to foreign-owned companies, which accounted for 87.5 percent of total exports of agency-assisted firms in 2004.

However, the performance of foreign-owned manufacturing needs to be considered in the context that:

- Not unexpectedly, foreign-owned firms are more export oriented than Irish-owned firms given that the primary reason to locate to Ireland is to establish an export base;
- Transfer pricing inflates the export performance of foreign-owned firms;
- Indigenous companies act to a significant extent as subsuppliers to MNCs, who in turn export.

Figure 3.7 Exports of Agency Firms by Ownership, 1995-2004

Source: Forfás Agency data

Appendix 3.7 and 3.8 provide information respectively on the size distribution of manufacturing firms in Ireland and on regional employment patterns in the manufacturing sector in Ireland. Appendix 3.9 provides information on the regional employment by ownership (indigenous or foreign owned companies).

4 Services – International Trends

Chapter 4 analyses the changing nature of services from an international perspective. Chapter 4 reviews international trends in production, employment and trade in services. It also addresses the main challenges facing the services sector.

Chapter 5 details the Irish perspective. It analyses recent trends in production, employment, and export performance of the services sector in Ireland. Special consideration is given to the role of 'internationally tradable services' (ITS) in Ireland since many of these sectors offer high growth potential as services trade rises globally. There are four ways of trading services internationally:[20]

1. Cross-border supply (services supplied from one country to another, e.g. customer technical support services);
2. Movement of natural persons (individuals travelling from their own country to supply services in another, e.g. engineers working in other countries);
3. Consumption abroad (movement of consumers from one country making use of a service in another country, e.g. tourism, health services);
4. Commercial presence (setting up subsidiaries or branches to provide services in another country, e.g. banking, retail outlets).

The WTO estimates trade flows in services through these modes as follows:

- Cross Border Supply 35%
- Movement of Natural Persons 1-2%
- Consumption Abroad 10-15%
- Commercial Presence 50%

A Note on Classification of Services

It is important to highlight upfront that data on services does not have continuity in classification across employment, production and trade trends. It is therefore difficult to make direct comparisons, especially in the context of different classifications used internationally. The data contained in the following sections should be interpreted in the context of these limitations.

[20] Annex 1B –General Agreement on Trade in Services of the General Agreement on Tariffs and Trade 1994. http://www.wto.int/english/tratop_e/serv_e/gatsqa_e.htm

Summary

Production and Trade in Services:

- Services account for an increasing proportion of total value added in developed economies, now accounting for 68 percent of gross value added in the OECD.
- This increase is driven by a limited number of sectors – finance, insurance and other business services (including computer services).
- Services exports are an increasing determinant of trade performance globally. Between 1980-2005 world services exports grew from 15 to 19 percent of total merchandise and services exports.

Employment:

- Services activities have become the primary source of employment growth in developed economies. In G7 countries the number employed in services is about 60 percent higher in 2000 relative to 1960 and has risen by 6 percent from 2000 to 2004.
- Since 2000 growth in services employment has been more pronounced in Ireland than in G7 economies, rising by 21 percent from 2000 to 2005.

Challenges Facing the Services Sector:

- Globalisation and offshoring of services is accelerating, especially internationally tradable sectors, which are ICT intensive and require low levels of face-to-face interaction. Both low and high skilled jobs are affected. To date, most relocation of services has occurred between developed countries and is not necessarily driven by cost. In many instances, companies are relocating services as much to improve the quality of the service produced as to consolidate activities in search of economies of scale and to access certain skills or markets.[21]
- Due to the high degree of labour intensity in most service sectors, productivity growth is more difficult to achieve, especially in locally traded services. Sectors such as Finance and Telecommunications have achieved high productivity growth rates.
- Current innovation policies are not well adapted to the unique characteristics of services, as they tend to focus on product and process innovation more relevant to manufacturing.

[21] UNCTAD, 2004, The Shift Towards Services – World Investment Report.

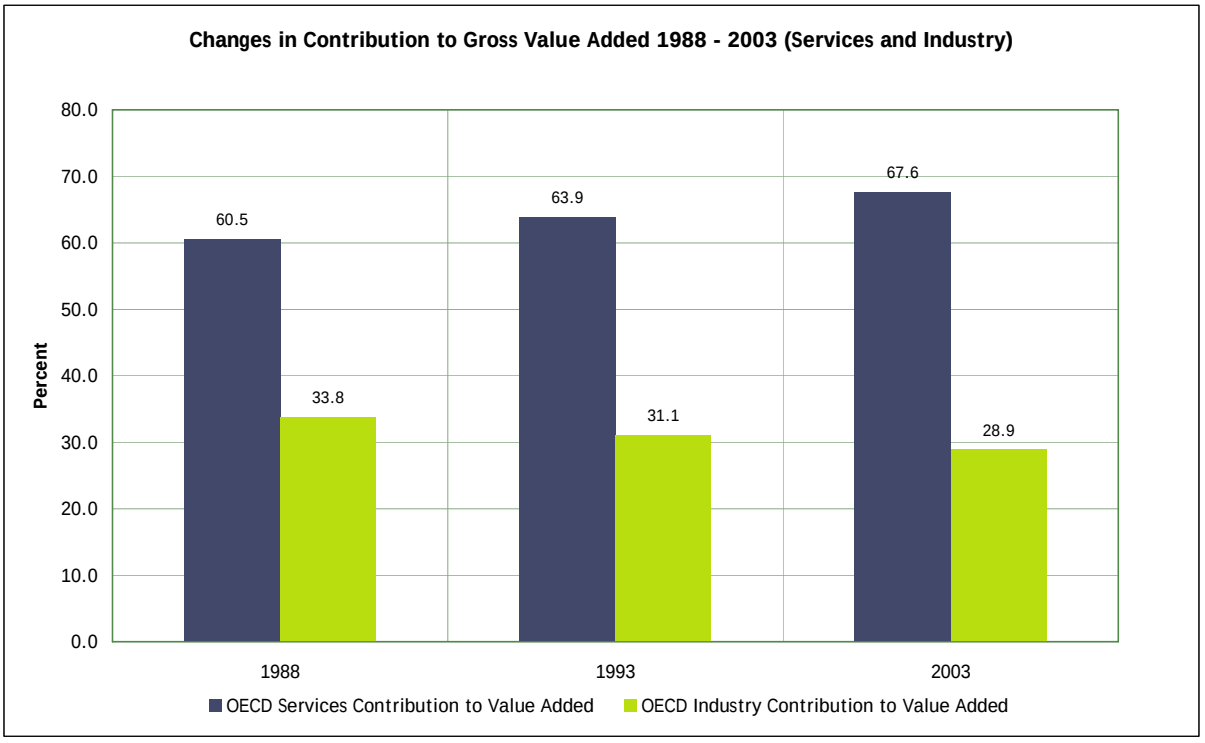
4.1 Global Production Trends

Services value added continues to grow, but driven by a limited number of sectors

The contribution of services to total value added is increasing across most OECD countries. Appendix 4.1 provides a breakdown of value added by broad sector, which reveals the following trends in the OECD:

- On average, from 1988-2003, services grew from 60 to 68 percent of contribution to total value added (Figure 4.1). The declining share in industrial contribution to value added in most OECD countries highlights the falling relative prices for manufacturing products.[22]

Figure 4.1 Change in Contribution of Services and Industry to Gross Value Added (OECD) 1988-2003



Source: OECD in Figures 2005 and 2000

- Services contribution to value added is over 70 percent in 11 OECD countries, including 5 of the G7 economies (with the exception of Canada and Japan).
- The increased share of the services sector in total value added is mainly due to the growth of business related services, in particular, Finance, Insurance and Other Business Services such as Computer-related activities, R&D, Advertising, Marketing, Accounting and Consultancy

[22] The fact that consumers are more likely to spend additional income on services rather than manufacturing goods (marginal propensity to consume) helps to explain falling relative prices for manufacturing products.

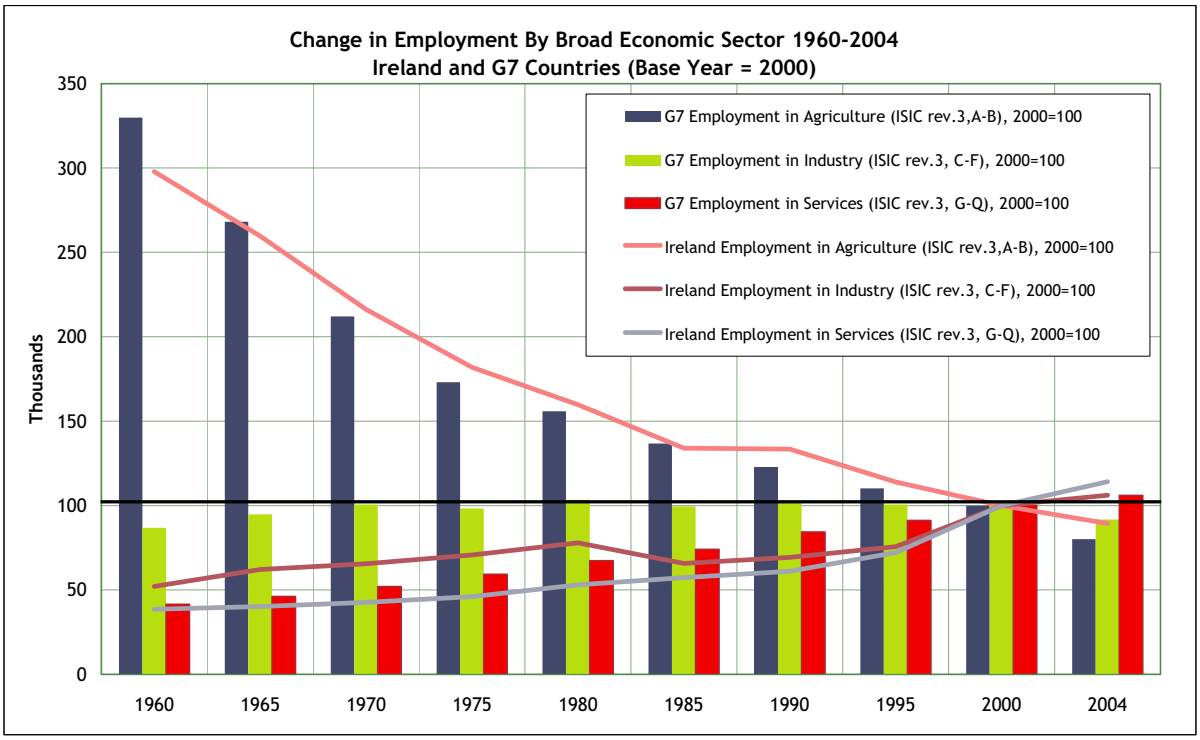
(Appendix 4.2). These sectors now account for about 20-30 percent of value added in the total economy, while their respective shares were between 10 percent and 20 percent in 1980.[23]

4.2 Global Employment Trends

Services employment is rising steadily in most OECD countries

As discussed in previous chapters, in the past number of decades, there has been a marked shift in the economic structure of developed economies. Agricultural and industrial employment has declined while services have become the dominant source of employment growth in most OECD economies. Figure 4.2 shows employment trends by broad economic sector (agriculture, industry, services) in G7 and Ireland relative to 2000.

Figure 4.2 Employment by Broad Economic Sectors (ISIC Rev.3), 1960-2004



Source: OECD Labour Force Statistics (Online Database), Updated March 2006

Figure 4.2 illustrates the structural change occurring in G7 economies (represented by columns, and Ireland (represented by lines) (with 2000 as base year):

- Since 1960, agricultural employment declined by about two thirds to 2000 and continued to decline thereafter.

[23] OECD, 2005, Enhancing the Performance of the Services Sector.

- The number employed in industry remained relatively stable from the mid-1960s until 2000, but has since entered a period of decline in G7 countries, decreasing by 10 percent. In Ireland, industrial employment grew by 6 percent from 2000-2004 (almost all of this growth is due to employment growth in the construction sector and does not reflect the decline in manufacturing employment).
- Looking at services, in G7 countries the number employed is about 60 percent higher in 2000 than in 1960 and has risen by 6 percent from 2000 to 2004. In Ireland, the trend largely followed that of G7 countries to 2000, though is more pronounced thereafter, rising by 21 percent to 2005.[24]

4.3 International Trade in Services

Services trade increasingly drives overall trade performance

Trade in services is rising. Together with increased deregulation and liberalisation, advances in ICT facilitate trade in services as they make it unnecessary for providers and users to be geographically close. New technology is making it easier to digitise information and send it across the world at negligible cost. As more and more services become tradable, they play an increasing role in determining overall trade performance. This is recognised at European level, where the proposed Directive on Services in the Internal Market aims to reduce administrative barriers to trade in services within the EU.

WTO trade statistics reveal the following trends in relation to world services trade[25]:

- Between 1980-2005 services exports grew from 15 to 19 percent of total merchandise and services exports and from $365 billion to $2,414.7 billion in absolute numbers.
- Looking at services trade by broad economic sector (Transport, Tourism & Travel, and Other Commercial Services[26]):
  - Other Commercial services trade has increased from 35 to 48 percent share of total services exports in the 1980-2005 period, reflecting that many business services have become more tradable internationally;
  - Transport accounts for 24 percent share of total services exports; and
  - Tourism and Travel accounts for a 29 percent share.

[24] CSO: Database Direct 2005 (OECD data for G7 Economies is only available to 2004)
[25] WTO, 2005, Online Statistics Database
[26] Other Commercial Services include Communications, Insurance, Financial Services, Computer Services, Royalties and Licences, Other Business Services, and Other Services n.e.c

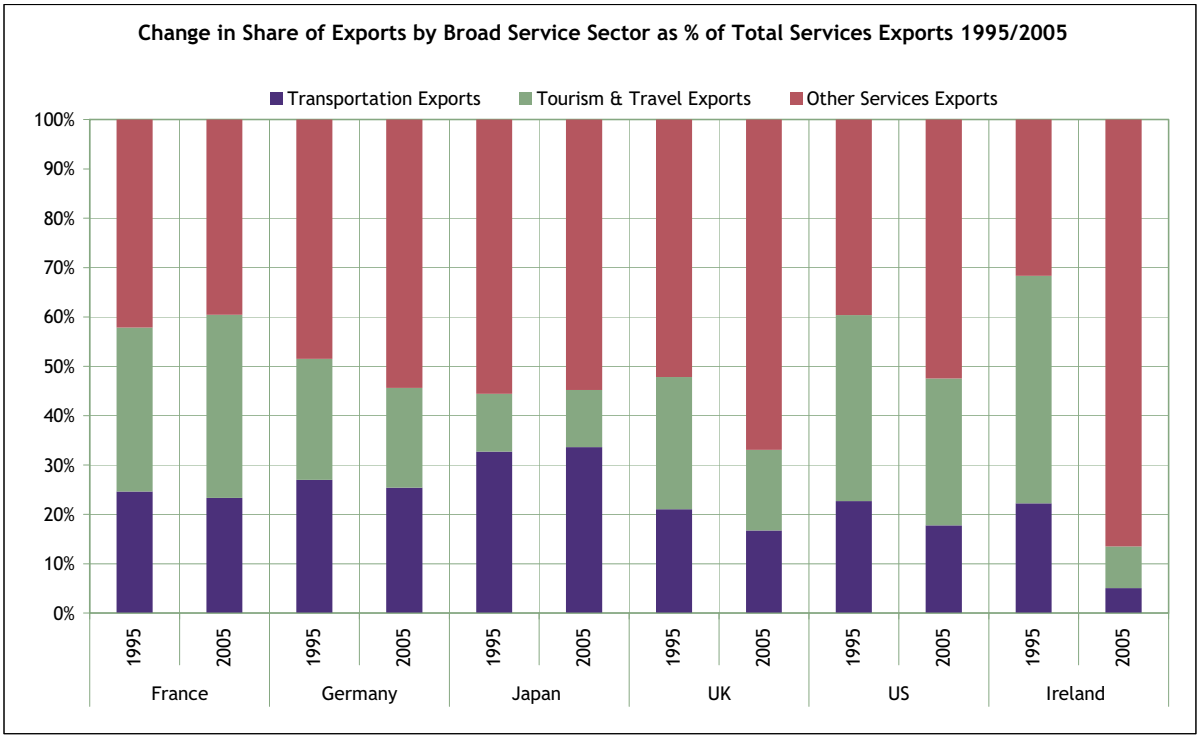
There are marked differences in export performance between countries

Countries differ significantly in terms of services trade performance. Appendix 4.3 shows that 20 countries account for 75 percent of total world exports, with the top five countries accounting for 39 percent of total world services exports in 2004. The US alone accounts for 15 percent of world services exports, well ahead of the UK in second place with 8.1 percent. In 2004, Ireland ranked as the 13th highest services exporter, accounting for 2.2 percent of world exports, ahead of Canada, Korea, India, Sweden, Switzerland, Singapore and Denmark.

Measuring Ireland's performance relative to the top five leading services exporters reveals the following trends (Figure 4.3 and Appendix 4.4):

- The nature of services exports from Ireland has changed radically in the past decade, both in terms of value and sectoral make-up.
- Services exports from Ireland increased from $4,799 million to $54,672 million from 1995 to 2005.
- Other Commercial Services account for 87 percent of total Irish exports in 2005 compared to 32 percent in 1995. While Tourism and Travel, and Transportation exports have both grown in absolute terms, these sectors have fallen significantly with respect to contribution to total services exports.
- In the US and UK, Other Commercial Services are also the main drivers of services exports growth. In the US this sector accounts for 52 percent of total services exports in 2005 compared to 40 percent in 1995, while in the UK Other Commercial Services account for 67 percent in 2005 compared to 52 percent in 1995.
- In France and Japan, there is little change in the distribution of services exports by sector, though there has been export growth in absolute terms in all sectors relative to 1995.

Figure 4.3 Change in Share of Exports by Broad Services Exports, 1995/2005 - Ireland and Top 5 World Exporters



Source: WTO Online Statistical Database

There are marked differences in export performance between sectors

OECD services trade statistics estimate that between 1998 and 2003 service exports grew annually by 5.6 percent (Appendix 4.5):[27]

- The fastest growing service exports were in Computer and Information Services with an average annual growth rate of 20 percent.
- Insurance exports grew by 17 percent annually and Financial Services by 9.7 percent.
- Export growth in Transport, Tourism and Travel, Government Services and Construction all performed below the average annual growth rate.

See appendix 4.6 for additional graphs describing the composition of 'Other Commercial Services' in North America and Europe. Of particular interest is the fact that in North America Royalties and Licenses Fees contributes 28 percent to exports of Other Commercial Services compared with 9 percent in Europe.

[27] OECD, 2005, Statistics on International Trade Vol. 1 1994-2003

4.4 Challenges Facing the Services Sector

Globalisation of Services

Among the main drivers of the rising importance of services in recent years is the growing globalisation of many services as evidenced by increased practice of sourcing service inputs from abroad. It has been triggered mainly by technological advances, such as the development of broadband services, and supported by regulatory reform and trade liberalisation. OECD estimates suggest that this trend will accelerate in coming years. The globalisation of services generally concerns services that are internationally tradable and easy to purchase from outside. This includes work by clerks and computer operators, data handlers and claim processors as well as programmers and certain types of scientists and engineers, i.e. both high and low skilled white-collar jobs. OECD estimates place the total number of jobs that could potentially be affected by domestic or global outsourcing at close to 20 percent of employment in some countries.[28]

To date, most relocation of services has occurred between developed countries and is not necessarily driven by cost. According to the UN World Investment Report 2004, Canada, Ireland and various Western European countries captured the majority of call centre FDI projects in 2004. In many instances, companies are relocating services as much to improve the quality of the service produced as to consolidate activities in search of economies of scale and to access certain skills or markets.[29] Factors such as ICT infrastructure, language skills, IT clusters, relevant time zone and the host country regulatory and business environment are key location determinants for services offshoring. Developing countries are also capitalising on the increased tradability of services. India, endowed with relatively cheap labour, a strong domestic IT market, and wide availability of English language and ICT skills, captured 19 percent of the worldwide total of FDI IT services projects services in 2003.[30]

Productivity Challenges

Many services sectors have experienced rapid growth in employment, though only some have experienced rapid productivity growth.

Many domestically traded services are characterised by low productivity growth. The structural nature of local activities such as social, health and public services, education, hotel and catering or retail trade demand a personal service be provided to the final user, thus requiring high labour intensity. Furthermore, these industries primarily produce for the domestic or regional market and are only to a small degree involved in international markets. Yet the nature of some locally traded services sectors is changing. For example, the arrival of international chains in local markets has

---

[28] OECD Growth in Services – Fostering Employment, Productivity and Innovation 2005
[29] UNCTAD The Shift Towards Services – World Investment Report 2004
[30] Ibid

helped to improve the level of competition in local services such as retail and pharmacies and the WTO estimate that 50 percent of global services sales are generated through the commercial presence of foreign-owned subsidiaries in local markets.

On the other hand, business-related services such as financial intermediation, transport and storage, as well as post and telecommunications services are characterised by strong productivity growth. Over the past decade, annual average productivity growth amounted to about 4.5 percent in financial intermediation services and about 10 percent in telecommunications, rates comparable to high productivity growth in modern manufacturing sectors.[31] Typically, these sectors are more exposed to international competition, which implies increased pressures to improve productivity. Factors commonly identified as influencing the productivity of services can be both internal and external to the firm – innovation, market liberalisation, and investment in ICT and human capital.

Fostering services innovation and diffusion of ICTs

Most services firms spend little on research and development, but innovate through deployment of new technology, noticeably ICT, training and investment in intangible assets, such as design, marketing or organisational change.[32] A range of factors tend to inhibit service sector innovation:[33]

- Market related obstacles, such as rigid industry specific structures (e.g. healthcare sector), lack of competition or overcapacity in certain industry sectors;
- Service development deficiencies, such as lack of R&D funding and service concept development, a lack of specialised development facilities;
- The intangibility of services: personnel and customers often lack awareness or understanding of new types of services.

[31] OECD Enhancing the Performance of the Services Sector 2005
[32] OECD Growth in Services – Fostering Employment, Productivity and Innovation 2005
[33] Insights into Services and Innovation in the Knowledge Intensive Economy Tekes, Helsinki Jan 2003

5 Services – Trends in Ireland

This chapter is structured as follows: Sections 5.1 to 5.3 outline overall trends in the services sector in Ireland in terms of employment, production and trade. Sections 5.4 to 5.8 present a more in-depth discussion of internationally tradable services and their economic contribution in light of the global trend towards increased trade in services and Ireland's nature as a small open economy. The role of locally traded services is discussed in Section 5.9.

Summary

In light of the international context described in Chapter 4, the following statements can be made about the services sector in Ireland:

- Ireland has become one of the leading world exporters of services. Ireland increased its share of world services exports from 0.36 percent in 1980 to 2.2 percent in 2004, ranking Ireland the 13th highest exporter of services in the world.[34] Between 2000 and 2005, the contribution of services to total Irish exports of goods and services increased from 22 percent to 35 percent.
- Since 2000, the employment growth in services has been more pronounced in Ireland than in G7 countries, with services employment rising by 21 percent from 2000 to 2005 (compared to services employment growth of 6 percent in G7 between 2000 and 2004).
- Services employment in Ireland increased by 411,000 from 1997 to 2005, and now represents 68 percent of total employment compared to 62 percent in 1997.
- Employment in Internationally Tradable Services (ITS) has increased substantially in the past decade, rising from 24,500 in 1996 to 71,300 in 2005. (Data on ITS is based on agency-assisted firms.)
- Within ITS, foreign-owned agency-assisted firms account for 65 percent of employment and 93 percent of exports. Indigenous Software and Other Computer Related services are the most export intensive indigenous sectors, exporting around 60 percent of output.
- Employment in ITS is concentrated in the Dublin region, which accounts for 67 percent of total employment. Only the Border and Southwest regions have made substantial relative increases in employment numbers since 2000.
- International competition in locally traded services is increasing. The WTO estimates that 50 percent of global services sales are generated by the commercial presence of foreign subsidiaries in domestic markets.[35]

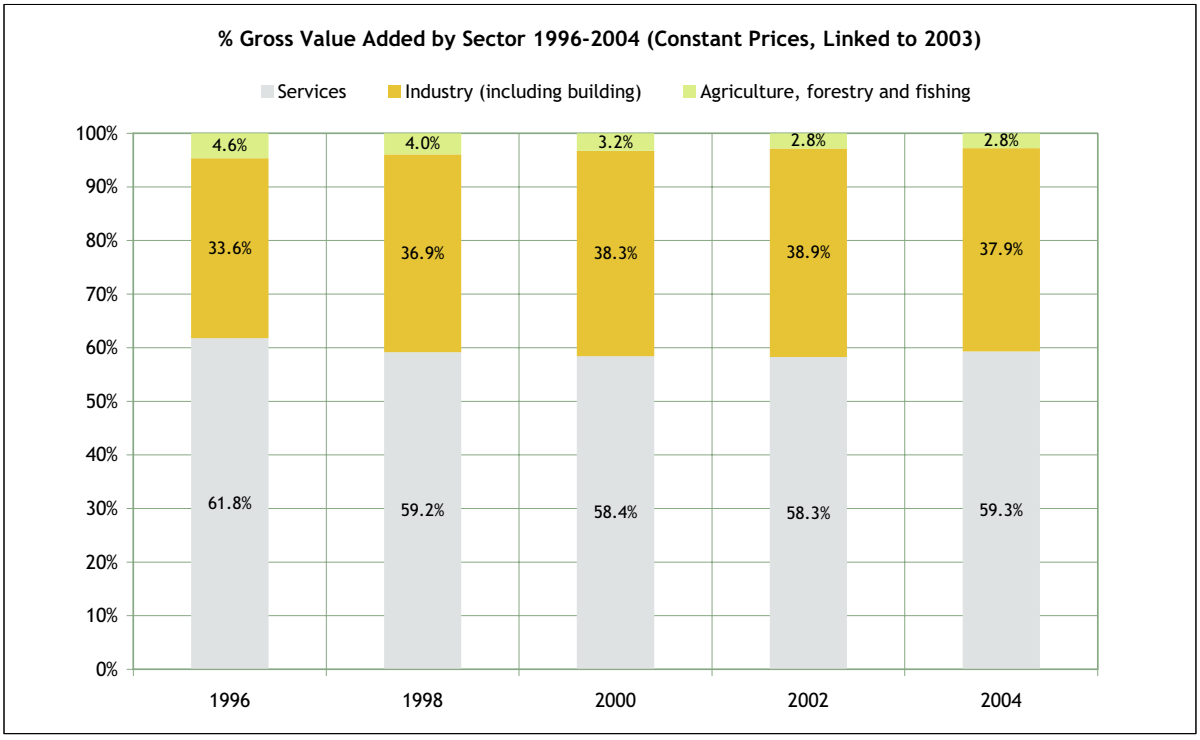
[34] WTO International Trade Statistics 2004
[35] WTO World Trade Statistics 2005 2006

5.1 Production Trends in Ireland

Services contribution to value added remains relatively stable

The contribution of services to value added in Ireland has remained relatively stable in recent years. Figure 5.1 shows the shift in contribution of agriculture, industry and services to Gross Value Added 1996-2004.[36]

Figure 5.1 Ireland – Gross Value Added by Sector of Origin, 1996-2004



Source: CSO National Income and Expenditure

The contribution of services to value added in Ireland has remained largely stable since 2000 and currently stands at around 59 percent, while it is around 70 percent in many OECD countries. In other words, the contribution of industry to total value added in Ireland is relatively high and this is largely due to the fact that industry gross value added figures also include building and construction, which have experienced strong growth in terms of both employment and output.

[36] To some extent, the strength of manufacturing in value added in Ireland should be attributed to the phenomenon of transfer pricing. This is discussed later on.

5.2 Employment Trends in Ireland

Employment in services continues to rise

The employment shift towards services in Ireland follows that of most OECD economies. CSO labour market data indicates the following trends:

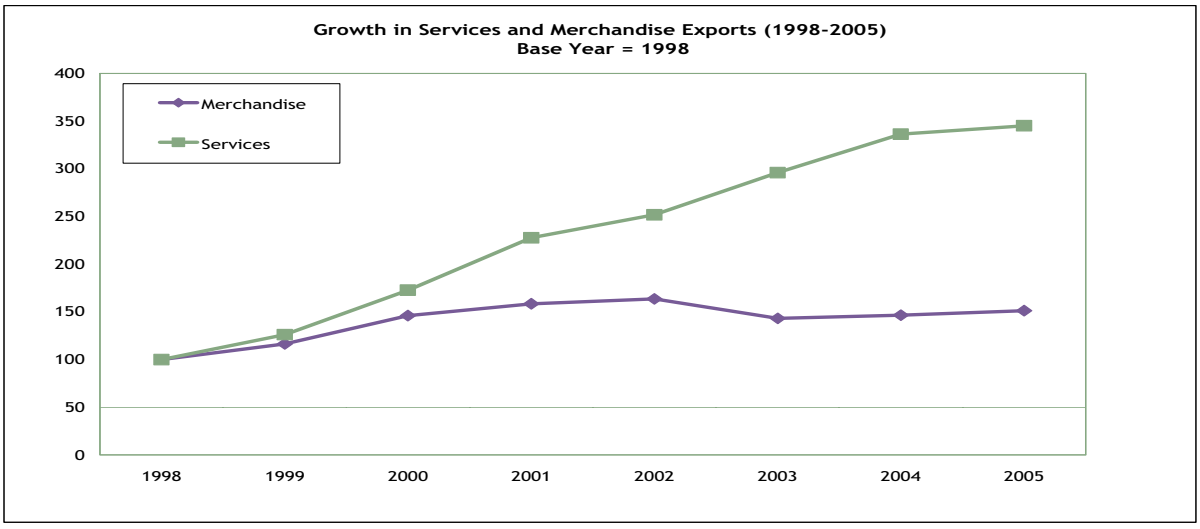
- There has been a sharp increase in total employment – over 520,000 people entered employment between 1997 and 2005;
- The increase in employment numbers is driven almost entirely by services and construction. Services employment increased by 411,000 from 1997 to 2005, while construction increased by 130,000;
- Within services, the most pronounced relative increases occurred in public sector services and other services (Appendix 5.1);
- Services now represent 67 percent of total employment in Ireland compared to 62 percent in 1997.

5.3 Export Performance of Irish Services Sector

Services represent increasing proportion of exports from Ireland but Ireland is also major importer of services

Services exports have grown rapidly in recent years, and the value of service exports in 2005 is estimated at €43.3 billion euro. [37] Figure 5.2 illustrates relative growth in services and merchandise exports from 1998 onwards.

Figure 5.2 Services and Merchandise Exports 1998-2005 (1998 = 100)



Source: CSO International Balance of Payments.

[37] WTO Online Database

- Ireland increased its share of world services exports from 0.36 percent in 1980 to 2.2 percent in 2004, ranking Ireland the 13th highest exporter of services in the world;[38]
- Between 2000 and 2005, the contribution of services increased from 21 percent to 34 percent of total exports;[39]
- Nevertheless, Ireland's trade surplus continues to be driven by merchandise trade and Ireland remains a net importer of services. In 2005, the trade surplus for merchandise trade was €30,276 million, while the deficit for services trade is estimated at €9,969 million (Table 5.2).

Table 5.2 Merchandise and Services Trade Balance 2000-2005

	2000 €m	2001 €m	2002 €m	2003 €m	2004 €m	2005 €m
Merchandise Trade Balance[40]	27,266	30,493	35,443	32,605	31,812	30,276
Services Trade Balance	-13,889	-13,260	-13,781	-11,090	-9,720	-9,969
Overall Trade Balance	13,377	17,233	21,662	21,515	22,092	20,307

Source: CSO International Balance of Payments Data: Database Direct

Looking at the determinants of services trade in Ireland by sector (Table 5.3):

- Computer Services is the most significant export sector, accounting for 35 percent of total exports. This sector also has the largest trade surplus;
- Ireland has a strong export base of Insurance and Finance services, and together they account for 25 percent of total services exports. However, these sectors are also quite import dependent;
- Ireland has become a net importer of Travel and Tourism. In 2000, Ireland had a trade surplus of €101m in this sector. While Travel and Tourism exports have grown in absolute terms from €2,851million in 2000 to €3,674million in 2005, imports (Irish spend on holidays abroad) have grown at a much faster rate over the same period, from €2,750million in 2000 to €4,671million in 2005, returning a trade deficit of €997 million.[41]

[38] WTO International Trade Statistics 2004
[39] CSO Database Direct International Balance of Payments
[40] Adjusted for balance of payments purposes
[41] CSO Database Direct

Table 5.3 Exports and Imports of Services by Sector 2005

2005	Exports €m	Imports €m	Balance €m
Merchandise	82,798	52,522	30,276
Services	43,303	53,270	-9,967
Transport	2,136	1,921	215
Tourism and travel	3,674	4,671	-997
Communications	738	873	-135
Insurance	6,606	5,494	1,112
Financial services	4,298	2,291	2,007
Computer services	15,142	324	14,818
Royalties/licences	239	14,312	-14,073
Other business services[42]	9,762	23,219	-13,457
Other services not elsewhere stated	708	165	543

Source: CSO International Balance of Payments Data: Database Direct

Ireland's trade deficit in services is mainly driven by two sectors

- Ireland's trade deficit in services is driven by two sectors - Royalties and Licences (deficit of €14,073 million) and Other Business Services (deficit of €13,457 million) (Table 5.3);
- The high deficit in Royalties and Licences reflects the strong presence of foreign multinationals in Ireland and the payments made for use of foreign-owned technologies, patents and products throughout the economy;
- Within Other Business Services (Table 5.4),[43] other trade related services accounted for 44 percent of the trade deficit in 2004. Other trade related services consist of commissions paid to non-resident entities acting as agents for residents in connection with exports of goods or services. It is unsurprising that Ireland has a high deficit in this sub-sector, given the export nature of the Irish economy;
- Ireland is also a high net importer of Research and Development services, with a trade deficit of €2,386 million.

[42] Other Business services include Legal, accounting and professional services, research and development, advertising and market research, architectural, engineering and other technical services, management services between affiliates, and other services.

[43] This relates to recent services data made available by the CSO, which details for the first time a more detailed breakdown of services activity by sector and destination. Note data is not available for every sub-sector.

Table 5.4 Ireland - Breakdown of Other Business Services Exports by Sub-sector, 2003-2004

	2003 €million			2004 €million		
	Exports	Imports	Net	Exports	Imports	Net
Total Other Business Services	6,957	19,472	-12,515	8,141	21,303	-13,162
Merchanting	n.a[44]	n.a	n.a	1,040	*[45]	*
Other Trade Related Services[46]	2,483	10,382	-7,899	2,196	7,925	-5,729
Operational Leasing	1,752	161	1,591	2,083	126	1,957
Legal, Accounting and Other Professional	275	225	50	310	350	-40
Advertising and Market Research	*	2,528	*	*	3,072	*
Research and Development	323	2,296	-1,973	346	2,732	-2,386
Architectural, Engineering and Other Technical Services	*	106	*	*	*	85
Management Services between Affiliates	335	1,167	-832	409	1,161	-752
Other Business Services not classified	1,382	2,605	-1,223	1,360	3,046	-1,686

Source: CSO Service Exports and Imports 2003 and 2004 – Statistical Release 2006

5.4 Internationally Tradable Services in Ireland

Ireland capitalised on the increased tradability of services

The increased tradability of services allows companies to reconfigure their production of services across borders, sometimes involving an international intra-firm division of labour to enhance their overall competitiveness. [47] To date, Ireland has benefited enormously from the growth in tradable services, which is reflected in the rising contribution of services to the overall export base. In 2003, Ireland accounted for 33 percent of total EU Computer and Information services trade. [48] In 2004, with a 25 percent share, Ireland led the global market for offshored IT and IT-enabled services, and was ranked as the 13th highest exporter of services in the world.

[44] Not available – included in Other Trade Related Services
[45] Suppressed for confidentiality reasons but included in Other Business Services
[46] *Other trade related services* consist of commissions paid to non-resident entities acting as agents for residents in connection with exports of goods or services
[47] UNCTAD The Shift Towards Services – World Investment Report 2004
[48] Grimes, S. Ireland's emergence as a Centre for Internationally Traded Services Forthcoming

5.5 Trends in Internationally Tradable Services (Agency-Assisted Firms)

Sections 5.5 to 5.8 are based on data from state agency-assisted firms in Ireland engaged in ITS.[49]

Employment in ITS has grown substantially

Agency employment data for ITS is classified by the following sectors:

- Computer and Related Activities,
- Financial Intermediation,
- R&D,
- Education, and
- Other Business Services.[50]

Employment in ITS has increased substantially in recent years (Figure 5.3) rising from around 24,500 to almost 71,300 from 1996-2005.

Figure 5.3 Growth in Employment in ITS (Agency-Assisted Firms) 1996-2005

Source: Forfás Agency Data

[49] Employment data is derived from a Forfás Annual Employment Survey which captures around 90 percent of agency-supported firms in Ireland. The broad sectors covering employment are Computer Activities, Financial Intermediation, R&D, Education and Other Business Services. Output and Export data is based on the results of the Forfás Annual Business Survey of Economic Impact which is sample-based and does not include output/export figures for Financial Intermediation Services.

[50] A further breakdown of these broad sectors is contained in Appendix VII (b).

Looking at employment trends within ITS reveals (See Appendix 5.2(a) and 5.2(b)):

- Employment is dominated by Computer and Related activities. In 2005, this sector accounted for 70 percent of total employment. However, there has been little employment growth in this sector since 2001.
- Software Consultancy and Supply is by far the largest subsector of Computer and Related Activities, employing almost 35,000, while over 13,000 are employed in Data Processing.
- The number employed in Financial Services has risen by 10,385 from 3,356 in 1996 to 13,741 in 2005.
- The number employed in Education more than doubled from 431 to 945 in the past decade, indicating increasing globalisation of this sector.
- Employment in Other Business Activities[51] tradable internationally rose by 160 percent from 2,193 in 1996 to 5,784 in 2005, reflecting increased diversity in the number of tradable services.
- Looking at employment within Other Business Activities in 2005, the highest number of employees is in Architectural and Engineering services (53 percent), while Legal Accounting, Book Keeping and Auditing is also significant (16 percent).

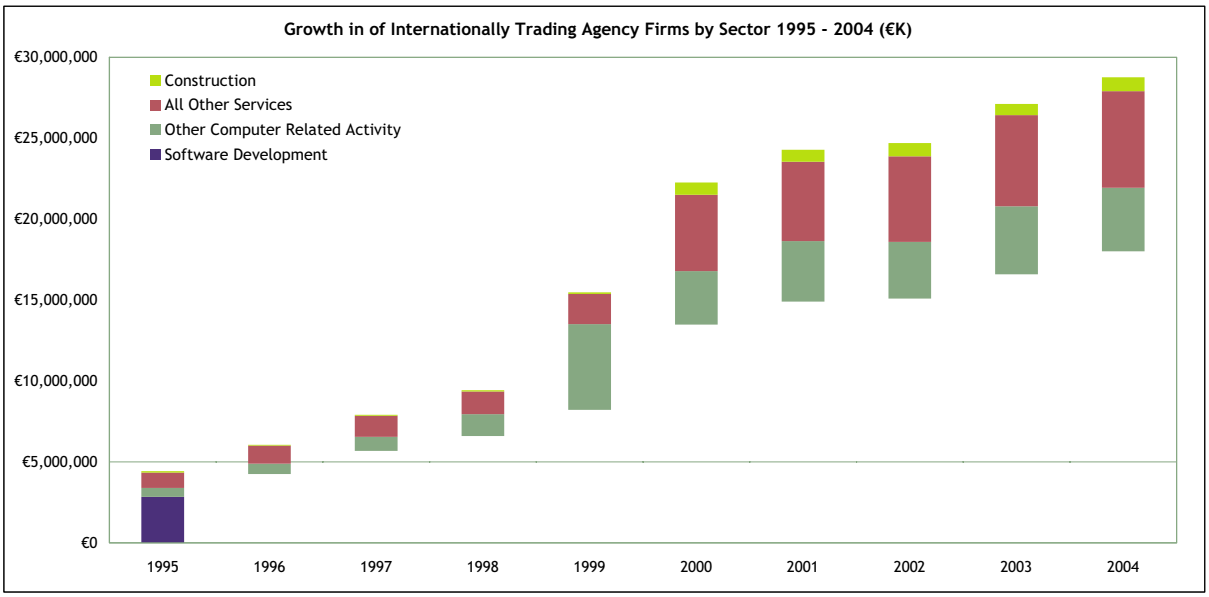
Output in ITS dominated by Computer Related Activities

While agency employment data is relatively comprehensive, agency data on output and exports is more limited in terms of availability by sector. The data should be interpreted with some caution as it does not directly compare with CSO data (See appendix 5.3 for a brief discussion). Also, data is not available for Finance and Insurance Services. Agency data relating to Software Development is classified as a service and therefore includes both employment and output figures for some large multinationals such as Microsoft and Oracle.

Output in ITS (using agency classification for output data explained above - thus excluding Finance and Insurance) has grown rapidly in recent years, rising from €4.4 billion in 1995 to €28.7 billion in 2004.

[51] Agency sub-classification of Other Business Activities includes Advertising, Architectural and Engineering activities, Investigation and Security services, Labour and Personnel Recruitment, Legal, Accounting, Auditing, Tax Consultancy, and Market Research, Technical Testing and Analysis, and Other Businesses n.e.c

Figure 5.4 Growth in Output in ITS 1995-2004



Source: Forfás Agency Data

Looking at output by sector (Figure 5.4) illustrates:

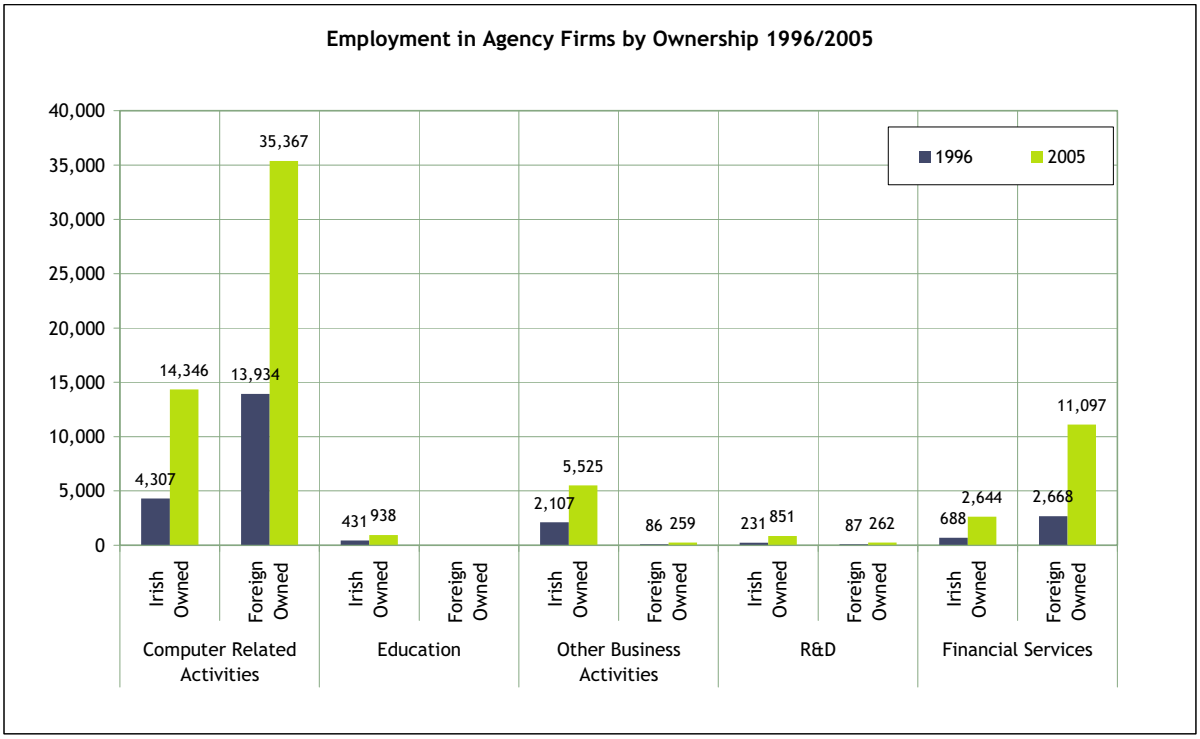
- Software Development and Other Computer Related activity represent 76 percent of all output. Rapid growth in Software output reflects the change in medium for software with technological advancements now enabling software to be delivered electronically.
- Output of Other Services (e.g. Architectural and Engineering, Legal accounting, book-keeping and auditing activities) has grown significantly since 2000, representing about 21 percent of total output in 2004.

5.6 Indigenous and Foreign-Owned Internationally Tradable Services in Ireland (Agency-Assisted Firms)

Employment in ITS by Ownership

Differentiating employment according to ownership reveals that foreign-owned enterprises account for 66 percent of total employment (Figure 5.5).

Figure 5.5 Employment in Agency-Assisted ITS Firms by Ownership 1996/2005



Source: Forfás Agency Data

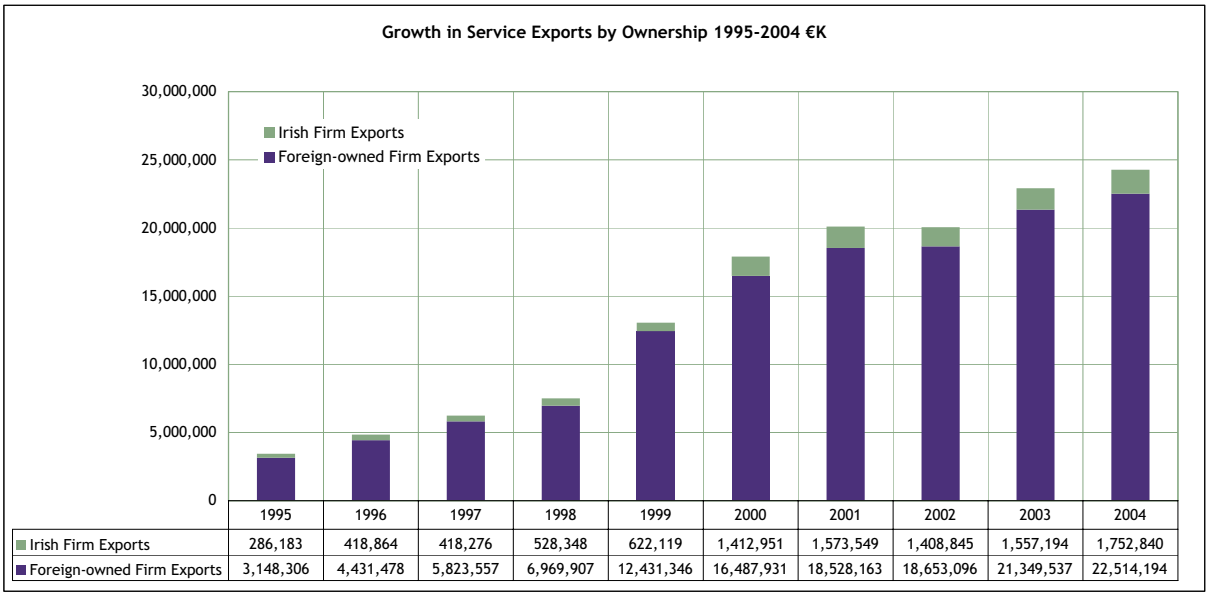
Differentiating by sector:

- Foreign-owned enterprises account for the majority of employment in every sector apart from Education and Other Business Activities.
- Employment in foreign-owned firms in Computer Related activities increased by 21,400 from 1996-2005 and represents 71 percent of total employment in this sector.
- Employment in indigenous Computer Related Activities also increased substantially since 1996 by over 10,000, indicating that Ireland has developed a significant indigenous base in a high tech tradable sector.
- The Financial services sector is heavily dominated by foreign-owned enterprises, accounting for 81 percent of total employment in this sector.
- Indigenous firms account for almost all employment in Education and Other Business.

Export Performance – Indigenous and Foreign-owned ITS firms in Ireland

Over the past decade the overall value of services exports (note - excludes Financial Services and Insurance) from agency firms in ITS has grown substantially. Differentiating according to ownership reveals 93 percent of total exports originate from foreign-owned firms (Figure 5.6). [52]

Figure 5.6 Growth in Agency Services Exports by Ownership



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Irish Firm Exports	286,183	418,864	418,276	528,348	622,119	1,412,951	1,573,549	1,408,845	1,557,194	1,752,840
Foreign-owned Firm Exports	3,148,306	4,431,478	5,823,557	6,969,907	12,431,346	16,487,931	18,528,163	18,653,096	21,349,537	22,514,194

Source: Forfás Agency Data

Foreign-owned agency-assisted firms are more export intensive (Appendix 5.4):

- In 2004, Foreign-owned firms exported 95 percent of output, while indigenous firms exported on average 35 percent of output. This is not unexpected, given that the primary reason for foreign-owned firms to locate in Ireland is to establish an export base.
- Looking at indigenous agency firms by sector, the most export intensive indigenous firms are in the software development and computer sectors, exporting about 60 percent of output.

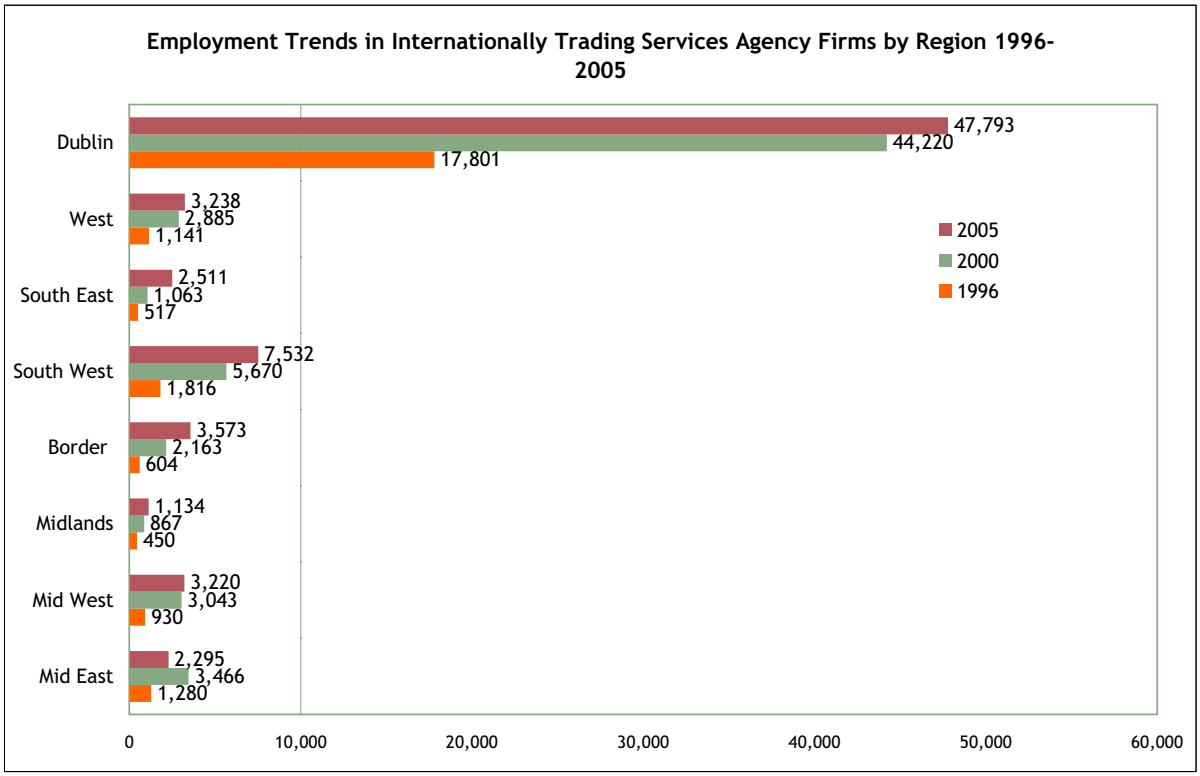
[52] Note, as almost all foreign-owned firms in Ireland are agency-assisted, the data will bias towards foreign-owned firms and the performance of many indigenous non-agency-assisted exporting firms may not be reflected. For example, tourism exports, dominated by Irish-owned enterprise are not reflected in this data.

5.7 Regional Employment Trends in Internationally Tradable Services (Agency-Assisted Firms)

Employment in ITS is concentrated in the Dublin region

The Dublin region accounts for 67 percent of total employment in ITS. The Border and Southwest regions have experienced substantial relative increases in employment since 2000 (Figure 5.7).

Figure 5.7 Employment in ITS by Region 1996/2005



Source: Forfás Agency Data

5.8 Economic Contribution of Internationally Tradable Services in Ireland (Agency-Assisted Firms)

Services expenditure has increased significantly over the period 1995 to 2000

The combined spend of services firms on wages, Irish-sourced materials and Irish-sourced services amounted to €9.2 billion in 2004. Expenditure by agency-assisted ITS firms on wages, materials and services increased rapidly between 1995 and 2000 but growth has levelled off since (Table 5.5).

Table 5.5 ITS Expenditure in Ireland - Wages, Irish-Sourced Materials, Irish-Sourced Services 1995-2004

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	€m	€m	€m	€m	€m	€m	€m	€m	€m	€m
Services Wages	587	779	947	1,222	1,573	2,472	3,160	3,050	2,909	3,067
Irish-sourced Materials	639	788	926	1,246	1,356	2,112	2,343	2,668	2,302	2,192
Irish-sourced Services	1,091	1,684	1,443	1,587	1,807	3,830	3,626	3,279	3,920	3,950

Source: Forfás Agency Data

- Expenditure on wages has increased from €587 million in 1995 to €3,067million in 2004. There has been little change in expenditure on wages since a peak of €3,160million in 2001.
- Expenditure on Irish sourced materials has declined by €476 million since a peak of €2,668 million in 2002.
- Internationally tradable services expenditure on Irish-sourced services declined significantly by €551 million from 2000 to 2002. However, expenditure has since risen by €671 to reach €3,950 in 2004.

Table 5.6 Corporation Tax from ITS by Sector and Ownership 2003/2004

	2003	2004	2003	2004	2003	2004
	Irish Owned	Irish Owned	Foreign Owned	Foreign Owned	Irish + Foreign Owned	Irish + Foreign Owned
	€k	€k	€k	€k	€k	€k
Total Corporation Tax Yield (ITS Agency Firms)	40,400	41,410	409,714	437,605	450,114	479,015
Total Corporation Tax Yield	5,161,000	5,332,000	5,161,000	5,332,000	5,161,000	5,332,000
As % of Total Corporation Tax	0.8%	0.8%	7.9%	8.2%	8.7%	9.0%

Source: Forfás Agency Data

- Total corporation tax paid by agency-supported ITS firms amounted to €479 million in 2004, representing 9 percent of total corporation tax take in Ireland that year.

5.9 International Competition in Locally Traded Services

Many domestically traded services are characterised by low productivity growth. The structural nature of local activities such as social, health and public services, education, hotel and catering or retail trade demand a personal service be provided to the final user, thus requiring high labour intensity. Furthermore, these industries primarily produce for the domestic or regional market. Yet the nature of some locally traded services sectors is changing. The arrival of international chains in local markets has helped to improve the level of competition in local services such as retail and

pharmacies and the WTO estimate that 50 percent of global services sales are generated through the commercial presence of foreign-owned subsidiaries in local markets.[53]

Irish towns and cities increasingly see the arrival of international chains in retailing (food, clothing, hardware, music, books, stationery, furniture, etc.), in personal and professional services, in restaurants (particularly fast food), in hotels, and in entertainment. (Appendices 5.5 and 5.6 show Services Productivity in Ireland and Other Countries, and Eurostat data /International Comparisons).

Benefits of trading in international markets

The Irish economy will benefit in a number of ways if Irish companies that currently trade locally in Ireland expand to establish and trade locally in overseas markets, including:

- Profit repatriation;
- Headquarters operations;
- Sub-supply opportunities; and
- Management development through exposure to international trading best practice.

While these benefits are not as substantial as those accruing from manufacturing or internationally traded services (because most of the employment created by this activity will be employment in other economies), they are nevertheless significant. Further, at Ireland's stage of economic development, the services sector is increasingly important, and so the productivity and profitability of the services sector is a key element in overall economic health and wealth generation.

[53] WTO International Trade Statistics 2005

6 Policy Implications

The trends and developments described in the previous chapters point to Ireland's overall success in developing its enterprise base and in maximising trade potential. Manufacturing, driven by technology intensive sectors, is highly productive, while manufacturing output and exports have continued to increase. Ireland has become a leading world exporter of services, gaining early advantage in the increased tradability of services.

These factors indicate that a favourable enterprise environment has been developed to date, and that the fundamental policy approaches have been appropriate. Yet, a range of challenges remain. There are already a number of documented policy recommendations deemed necessary to further enhance the business environment in Ireland and address market failures. These recommendations come from a range of advisory bodies, agencies and international organisations. The following section provides an overview of these recommendations and the priority initiatives required to guide the development of the enterprise environment going forward.

6.1 Productivity Growth and Cost Competitiveness

Productivity improvements result in increased competitiveness and can assist in protecting the enterprise base that has developed. Productivity gains also provide opportunities for resources to be redirected to higher end activities. Productivity enhancing policies include:

- Market liberalisation: Increasing competition and making markets more responsive to change tends to increase the speed of diffusion of new productivity enhancing innovation. The OECD recently observed that there are many sectors in Ireland such as electricity, telecoms, law, pharmacies and pub trade where producers are shielded from competition.[54]
- ICT: ICT can help firms to introduce new business models, develop new applications, improve and re-invent business processes, enhance customer services and raise efficiency throughout the value chain. Despite increased ICT use, the uptake and integration of more sophisticated electronic business applications in Ireland remains relatively limited.
- Human Capital: In the further development of the knowledge economy, investment in human capital (knowledge, skills and educational development) is continually important to maximise the benefits of new technologies and to improve methods of developing customer relations.

A focus on moderation of business cost increases is important to ensure that our costs remain in line with those of other high cost locations and that cost increases do not negate the competitiveness effect of productivity growth.

---

[54] OECD Economic Survey of Ireland 2006

6.2 Innovation and Technology Policies

As Ireland moves towards becoming a knowledge-based economy, policies that support innovation and technology diffusion and absorption become increasingly relevant.

- Absorption, diffusion and development of new technologies: Policies that aim to increase technology intensity of enterprise will facilitate a continuing shift away from products and services where cost is the key competitive differentiation, to more complex higher value added products and services. Irish policy in assisting firms to invest in research and development is well established and currently supports in this regard fall into three broad categories:
  - R&D performed in firms;
  - Strengthening the research system;
  - Promoting industry-higher education collaboration.
- Intellectual Property Rights: Innovation may not be sufficient to ensure a strong manufacturing sector unless the IPR is sufficiently protected. A balance needs to be struck between providing incentives for innovation and promoting diffusion of technology.
- Services Innovation: Focused measures that drive innovation in services are required.[55] An effective services innovation policy acknowledges the unique characteristics of services. Key policy areas of focus for services innovation include:
  - A distinct business support framework for services innovation;
  - Encouraging competition by promoting high value specialisation, collaboration and competitiveness between companies and individuals;
  - Identifying and promoting opportunities for new combinations of services, and the convergence of skills and technologies.

6.3 Labour Market and Skills Policies

As Ireland moves towards becoming a higher cost location for business, many lower skilled and lower value added activities, both within manufacturing and services may not be sustainable. Labour market policies have been recommended focusing on the need to manage a smooth transition process to higher skilled activities, by promoting lifelong learning and adult education. A more innovative and productive manufacturing sector will require more highly skilled workers. Furthermore, as the distinction between manufacturing and services becomes increasingly blurred, it is important that the skills base can successfully capture higher value added activities, particularly front line production and services functions such as sales and marketing, R&D, or technical support, and develop core competencies outside of traditional production functions.

[55] Forfás Innovation in the Services Sector Forthcoming

Within services, there are many generic 'soft' skills that are transferable across sectors. These include ICT literacy, communication, team building, language, process, organisational and management skills. Wide availability of such skills across the economy will enhance labour market flexibility and enable increased mobility between services sectors according to market demands. These generic skills need to be developed throughout the education system, particularly at third and fourth levels.

6.4 Management Capabilities

As Ireland repositions itself towards high value added manufacturing and as the distinction between manufacturing activities and service activities becomes increasingly blurred, management skills become increasingly important. The Enterprise Strategy Group report Ahead of the Curve (2004) stated that indigenous firms in particular require external assistance in developing their management expertise.

6.5 Expertise in Markets and Customer Needs

The Enterprise Strategy Group report (2004) identified low levels of market intelligence and lack of scale as key barriers to more effective development of all export oriented sectors in Ireland. To achieve the levels of innovation and internationalisation necessary to secure a strong position in the global competitive environment, Irish businesses need to focus on building a deeper understanding of customers, markets and the wider influences driving product life cycles. The Irish enterprise community has to develop (and be supported in growing), its capabilities in market intelligence, international sales promotion, sales and strategic management. Capability building in international sales and sales management is considered to hold the greatest development potential in this respect. There is a need to ensure that business management, including IP awareness, and International sales and marketing education become embedded as part of all technology, design, and creative courses. The value of on-going management training needs to be promoted, and relevant course provision be delivered in a way that facilitates ease of access (e.g. through blended learning, regional centres, etc.).

6.6 Support for Internationally Competitive Locally Traded Services

The Small Business Forum (2006) observed that the locally traded sector already receives supports through a variety of agencies and programmes, including City and County Enterprise Boards, LEADER, FÁS and Skillnets. The challenge is to re-direct some of the support to a much smaller number of companies who have the ambition, capabilities and potential to achieve significant growth that will lead to them expanding into international markets. Strategies for dynamic growth are entirely different from the strategies for incremental growth, and the potential dynamic growers – who will be self-selecting by virtue of investing their own funds – will need to be given support and encouragement.

In light of international competition it is now appropriate to give consideration to allowing this same logic to accelerate the growth of a cohort of locally trading companies capable of achieving significant growth that culminates in them establishing and trading locally in overseas markets. Given that the benefits to the State from this cohort will not be as significant as those from manufacturing or internationally traded services, State intervention needs to consist primarily of intensive use of soft supports such as[56]:

- Management capability development, specifically dealing with running a growth-oriented business;
- Access to professional mentors with sectoral knowledge in domestic and international markets;
- Access to innovation supports;
- Access to Enterprise Ireland's overseas network; and
- Introductions to private/public venture capital funds.

[56] Report of the Small Business Forum *Small Business is Big Business* 2006

Bibliography

Boulhol, H. and Fontagné, L., 2005, Deindustrialisation and the Fear of Relocations in the Industry.

Cassidy, M. and O'Brien, D., 2005, Export Performance and Competitiveness of the Irish Economy.

Conference Board, 2004, Can Manufacturing Survive in Advanced Countries?

Department of Enterprise, Trade and Employment, 2003, Review of Industrial Performance and Policy.

Enterprise Strategy Group, 2004, Ahead of the Curve: Ireland's Place in the Global Economy.

ESRI, 2006, Medium Term Review 2005-2012.

Forfás, 2006, International Trade and Investment Report 2005.

Forfás, Forthcoming, Innovation in the Services Sector.

Gleeson, A. and Ruane, F., 2006, Public policy, Sectoral Specialisation and Spatial Concentration: Irish manufacturing 1985-2002.

Grimes, S. Forthcoming, Ireland's Emergence as a Centre for Internationally Traded Services.

Irish Congress of Trade Unions, 2006, Offshore Outsourcing: the Implications for Ireland.

Konings, J. and Murphy, A., 2005, Do Multinational Enterprises Relocate Employment to Low Wage Regions? Evidence from European Multinationals.

National Competitiveness Council, 2005, Annual Competitiveness Report 2005.

National Competitiveness Council, 2005, The Competitiveness Challenge 2005.

OECD, 2005, Enhancing the Performance of the Services Sector.

OECD, 2005, Growth in Services – Fostering Employment, Productivity and Innovation.

OECD, 2005, Labour Force Statistics 1984-2004.

OECD, 2005, Main Economic Indicators.

OECD, 2005, OECD Employment Outlook.

OECD, 2005, Statistics on International Trade Vol.1 1994-2003.

OECD, 2006, Economic Survey of Ireland.

OECD, 2006, Productivity Impacts of Offshoring and Outsourcing: A Review.

OECD, 2006, The Changing Nature of Manufacturing in OECD Economies.

Report of the Small Business Forum, 2006, Small Business Means Big Business.

Rowthorn, R. and Ramaswamy, R., 1997, Deindustrialisation – Causes and Implications.

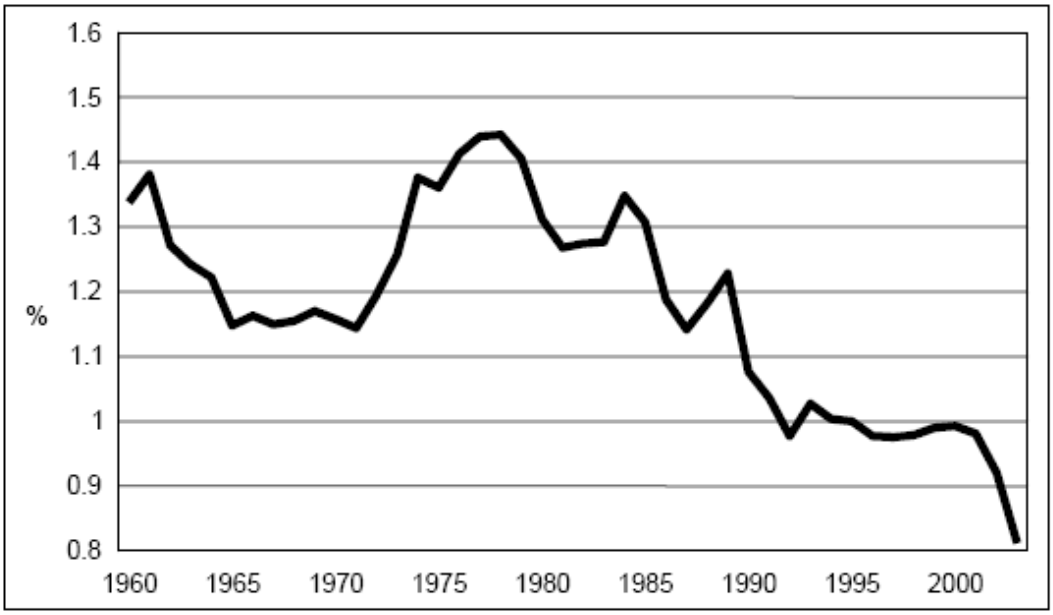
Tekes, 2003, Insights in Services and Innovation in the Knowledge Economy.

UNCTAD, 2004, World Investment Report – The Shift Towards Services.

WTO, 2005, International Trade Statistics 2004.

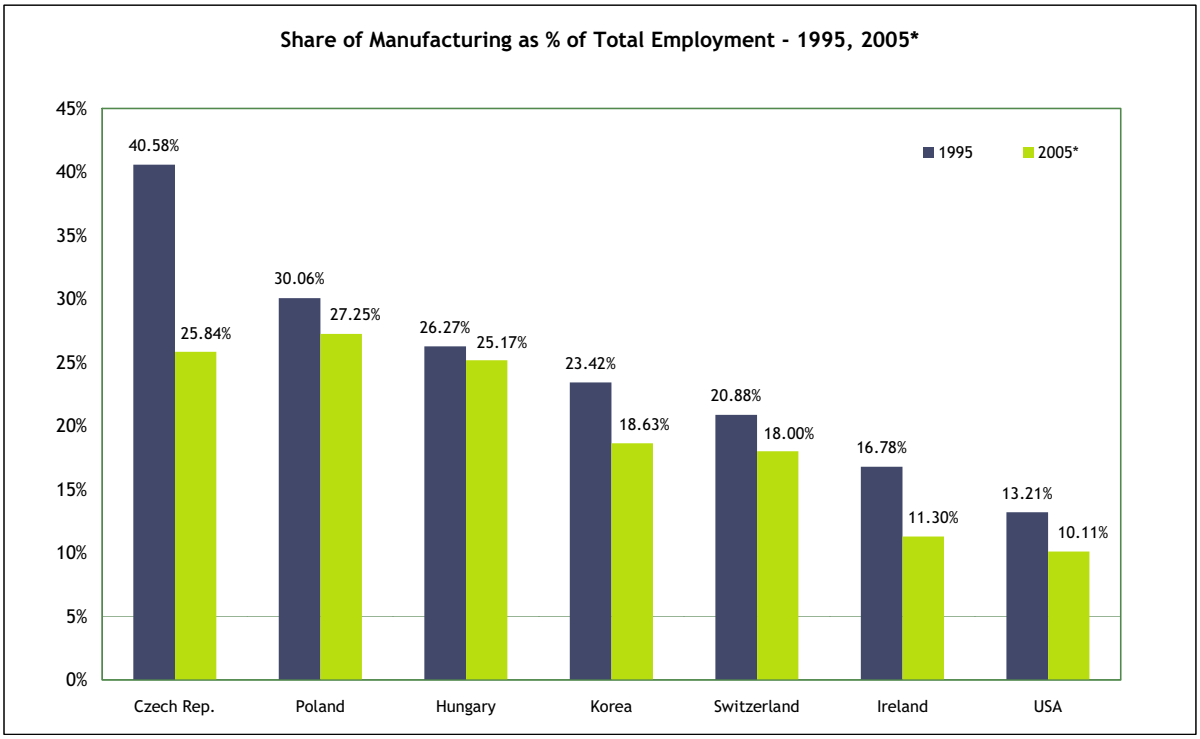
Appendix to Chapter 2

Appendix 2.1 - Relative Price of Industrial to Service Exports in Ireland



Source: ESRI, Mid Term Review, 2006

Appendix 2.2 - Percentage share of manufacturing in total employment in OECD, 1995, 2005



Source: OECD Main Economic Indicators 1999, 2006.

*2005 figures are provisional based on average of Quarters 1-3, 2005

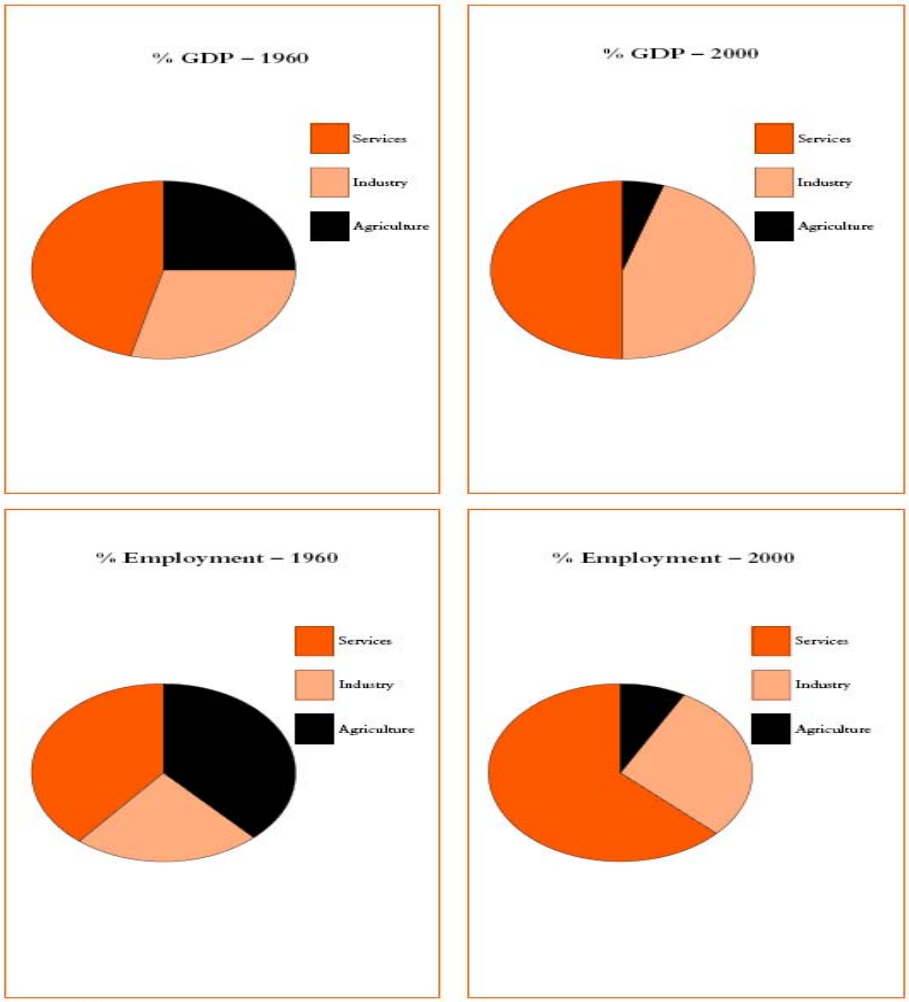
Appendix 2.3 – Change in Share of Manufacturing Employment by Sector 1980-2003 (G7)

	1980	1985	1990	1995	2003
Food, Drink & Tobacco	9.86%	10.02%	10.15%	11.11%	11.88%
Textiles & Leather	13.25%	12.16%	11.10%	9.77%	7.57%
Wood	3.09%	2.80%	2.85%	3.06%	3.20%
Paper and Publishing	8.45%	9.17%	9.88%	10.38%	11.31%
Chemicals	9.02%	9.18%	9.48%	9.72%	9.60%
Non Metallic Minerals	4.18%	3.90%	3.76%	3.79%	3.87%
Metals	14.49%	13.17%	12.96%	13.06%	12.97%
Machinery	9.72%	9.36%	9.78%	9.70%	9.15%
Electrical Equipment	12.39%	14.09%	13.71%	13.16%	12.53%
Transport	9.69%	9.94%	9.80%	9.37%	9.79%
Other Manufacturing	5.84%	6.21%	6.54%	6.88%	8.13%

Source: OECD STAN Industrial Database 2004

Appendix to Chapter 3

Appendix 3.1 - Sectoral Composition of GDP and Employment in Ireland, 1960 and 2000



Source: DETE, Review of Industrial Performance, 2003

Appendix 3.2 - Gross Value Added at Constant Factor Cost by Sector of Origin in Ireland

	€million							
Chain-linked and referenced to year 2003	1997	1998	1999	2000	2001	2002	2003	2004
Agriculture	**3,591**	**3,526**	**3,445**	**3,424**	**3,436**	**3,390**	**3,499**	**3,561**
Manufacturing	**21,965**	**25,185**	**28,463**	**31,340**	**33,404**	**36,797**	**36,757**	**37,914**
Of which								
Reproduction of Recorded Media	1,986	2,704	3,155	2,069	2,415	3,271	2,327	4,081
Chemicals	4,233	5,492	7,296	8,087	9,453	12,178	12,824	11,012
Computer Instrument Engineering	2,302	2,200	2,272	3,370	3,753	3,456	3,620	4,247
Electrical Machinery and Equipment	2,187	2,803	2,896	3,615	3,162	3,049	2,573	2,777
Total High Tech Manufacturing	10,708	13,199	15,619	17,141	18,783	21,954	21,344	22,117
All Other Manufacturing	11,257	11,986	12,844	14,199	14,621	14,843	15,413	15,797
Building and Construction	7,228	7,838	8,748	9,193	9,578	9,833	10,250	10,914
Total Industry (Manufacturing + Construction)	**28,818**	**32,783**	**36,982**	**40,426**	**42,910**	**46,675**	**47,007**	**48,829**
Distribution, Transport and Communication	13,442	14,574	15,735	17,831	19,377	20,042	200,337	20,905
Public Administration and Defence	3,779	3,877	3,933	4,048	4,166	4,285	4,415	4,467
Other Services	32,479	34,148	36,955	39,708	43,170	45,598	48,325	50,948
Statistical Discrepancy	-1,645	-1,843	-1,035	-1,149	-1,062	-998	602	494
Gross Value Added at Constant Factor Cost	**80,464**	**87,065**	**96,015**	**104,288**	**111,997**	**118,992**	**124,158**	**129,204**

Source: CSO National Accounts

Appendix 3.3 - Employment by Economic Sector in Ireland

'000	1997Q4	2000Q4	2005Q3
All Economic Sectors	1467.7	1712.6	1989.8
Agriculture, Forestry and Fishing	134.7	125.3	119.6
Other Production Industries[57]	298.2	320.9	294.6
- *Of which Manufacturing*	*241.0*	*251.7*	*220.3*
Construction	122.2	178.1	252.1
Wholesale and Retail Trade	207.2	241.9	286.6
Hotels and Restaurants	93.3	108.6	120.4
Transport, Storage and Communication	82.9	106	118.5
Financial and Other Business Services	165.4	214.7	263.3
Public Administration and Defence	69.1	79.5	101
Education	92.6	103.6	119.8
Health	114.6	140.1	191.5
O-Q Other Services	87.5	94.1	122.4

Source: CSO: Database Direct

Appendix 3.4 (a) - Manufacturing Expenditure on Wages by Broad Sector

Wages	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Economic Impact on Manufacturing Sector	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**
Total Manufacturing	4,548	4,863	5,501	5,901	6,472	7,306	7,595	7,529	7,537	7,815
Food/Drink/Tobacco	1,041	1,082	1,207	1,205	1,305	1,608	1,672	1,771	1,738	1,742
Other Traditional Sectors	2,019	2,076	2,292	2,364	2,514	2,477	2,605	2,569	2,506	2,537
Modern Manufacturing	1,488	1,704	2,002	2,331	2,653	3,220	3,318	3,189	3,293	3,536

Source: Forfás Agency Data

Appendix 3.4 (b) - Manufacturing Expenditure on Irish-sourced Materials by Broad Sector

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Irish Materials	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**
Total Manufacturing	8,547	8,940	9,900	10,855	11,871	11,757	12,822	12,177	11,325	11,292
Food/Drink/Tobacco	5,801	5,926	6,270	6,481	6,763	6,214	6,692	6,534	5,977	6,248
Other Traditional Sectors	1,223	1,445	1,570	1,690	1,818	2,386	2,581	2,599	2,592	2,633
Modern Manufacturing	1,523	1,569	2,060	2,684	3,290	3,157	3,548	3,044	2,757	2,411

Source: Forfás Agency Data

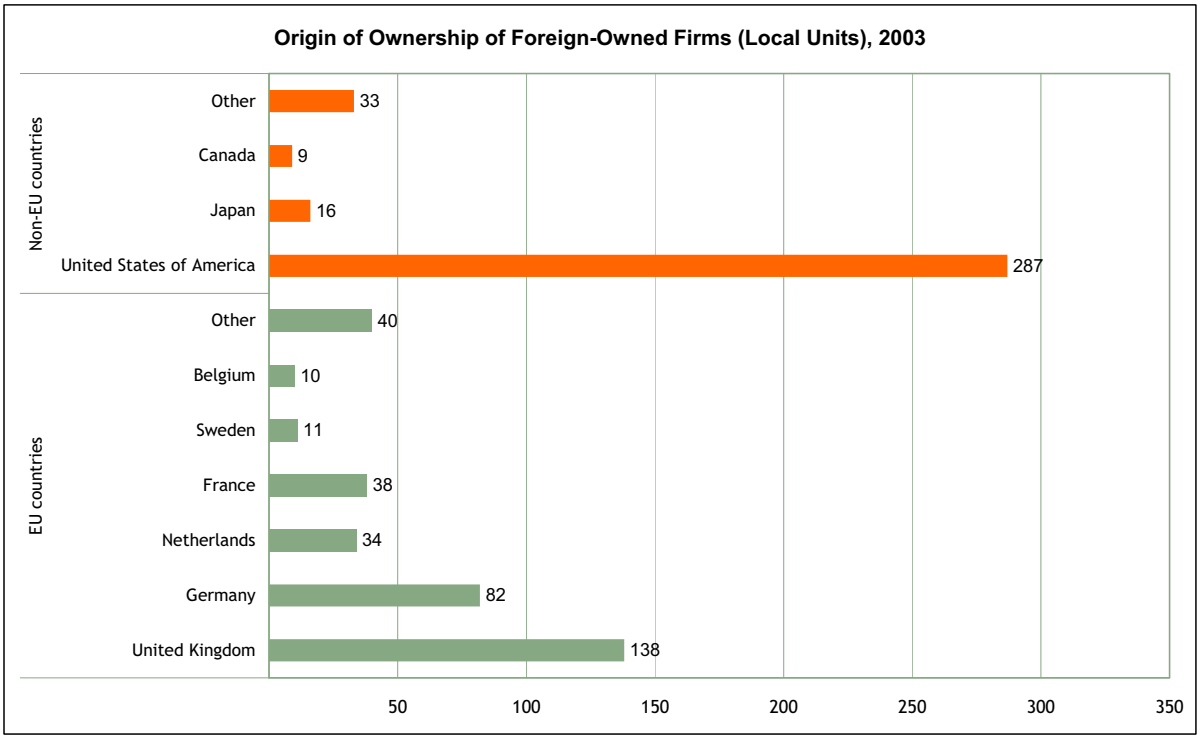
[57] Other Production Industries is composed of Manufacturing, Mining and Quarrying, and Electricity, Gas and Water Supply

Appendix 3.4 (c) - Manufacturing Expenditure on Irish-sourced Services by Broad Sector

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Irish Services	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**	**€m**
Total Manufacturing	4,427	5,077	5,810	6,351	6,447	5,433	5,585	5,534	5,906	5,851
Food/Drink/Tobacco	1,363	1,474	1,602	1,572	1,740	1,621	1,781	1,724	1,734	1,773
Other Traditional Sectors	1,218	1,418	1,677	1,662	1,713	1,465	1,567	1,343	1,259	1,238
Modern Manufacturing	1,846	2,185	2,530	3,116	2,995	2,347	2,237	2,468	2,912	2,840

Source: Forfás Agency Data

Appendix 3.5 - Origin of Ownership of Foreign-owned Firms in Ireland



Source: CSO Census of Industrial Production 2003

Appendix 3.6 - Origin of Ownership of Manufacturing firms by Sector in Ireland

Sector	Ownership	No. of Local Units
Food, Beverages and Tobacco	Irish	711
	Foreign	70
Textiles and Leather	Irish	284
	Foreign	29
Wood and Wood Products	Irish	307
	Foreign	10
Pulp, paper and paper products	Irish	639
	Foreign	58
Chemicals	Irish	124
	Other EU countries	52
	United States of America	42
	Other Non-EU countries	17
Rubber and Plastics	Irish	233
	Other EU countries	27
	Non-EU countries	19
Non-Metallic Minerals	Irish	330
	Foreign	49
Metals	Irish	651
	United Kingdom	7
	Germany	11
	Other EU countries	6
	Non-EU countries	19
Machinery and Equipment	Irish	271
	United Kingdom	5
	Other EU countries	23
	Non-EU countries	26
Electrical and Optical Equipment	Irish	264
	United Kingdom	6
	Germany	20
	Other EU countries	22
	United States of America	105
	Other Non-EU countries	18
Transport Equipment*	Total	133
Manufacturing n.e.c	Irish	580
	Foreign	25

*There is no Irish/foreign owned breakdown provided in the Census of Industrial Production for ownership of local units in the Transport Equipment sector.

Appendix 3.7 (a)- Size Distribution of Manufacturing Firms by Sector in Ireland

Sector	Number of Persons Engaged	Number of Local Units
Food, Beverages and Tobacco	Under 10	232
	10 - 19	153
	20 - 49	167
	50 - 99	96
	100 - 199	79
	200 - 249	11
	250 and over	43
Textiles	Under 10	136
	10 - 19	68
	20 - 49	48
	50 - 99	20
	100 - 199	12
	200 and over	4
Clothing and Leather	Under 20	18
	20 and over	7
Wood and Wood Products	Under 10	154
	10 - 19	70
	20 - 49	65
	50 - 99	13
	100 - 499	15
Pulp, paper and paper products	Under 10	295
	10 - 19	158
	20 - 49	148
	50 - 99	58
	100 - 199	26
	200 and over	12
Chemicals	Under 10	60
	10 - 19	32
	20 - 49	53
	50 - 99	35
	100 - 199	19
	200 - 499	27
	500 and over	9
Other Man. n.e.c	Under 10	345
	10 - 19	130
Rubber and Plastics	Under 10	80
	10 - 19	71
	20 - 49	75
	50 - 99	32
	100 - 199	14
	200 and over	7
Non-Metallic Minerals	Under 10	184
	10 - 19	70
	20 - 49	78
	50 - 99	35
	100 - 199	7
	200 and over	5
Metals	Under 10	321
	10 - 19	178
	20 - 49	131
	50 - 99	39
	100 - 199	19
	200 and over	6
Machinery and Equipment	Under 10	121
	10 - 19	76
	20 - 49	71
	50 - 99	31
	100 - 199	16
	200 and over	10
Electrical and Optical Equipment	Under 10	104
	10 - 19	81
	20 - 49	81
	50 - 99	63
	100 - 199	48
	200 - 249	9
	250 - 499	30
	500 and over	20
Transport Equipment	Under 10	49
	10 - 19	25

	20 - 49	91		20 - 49	22
	50 - 99	27		50 - 99[4]	20
	100 - 199	5		100 - 199	9
	200 and over	7		200 and over	8

Appendix 3.7 (b) Manufacturing Firm Size Distribution

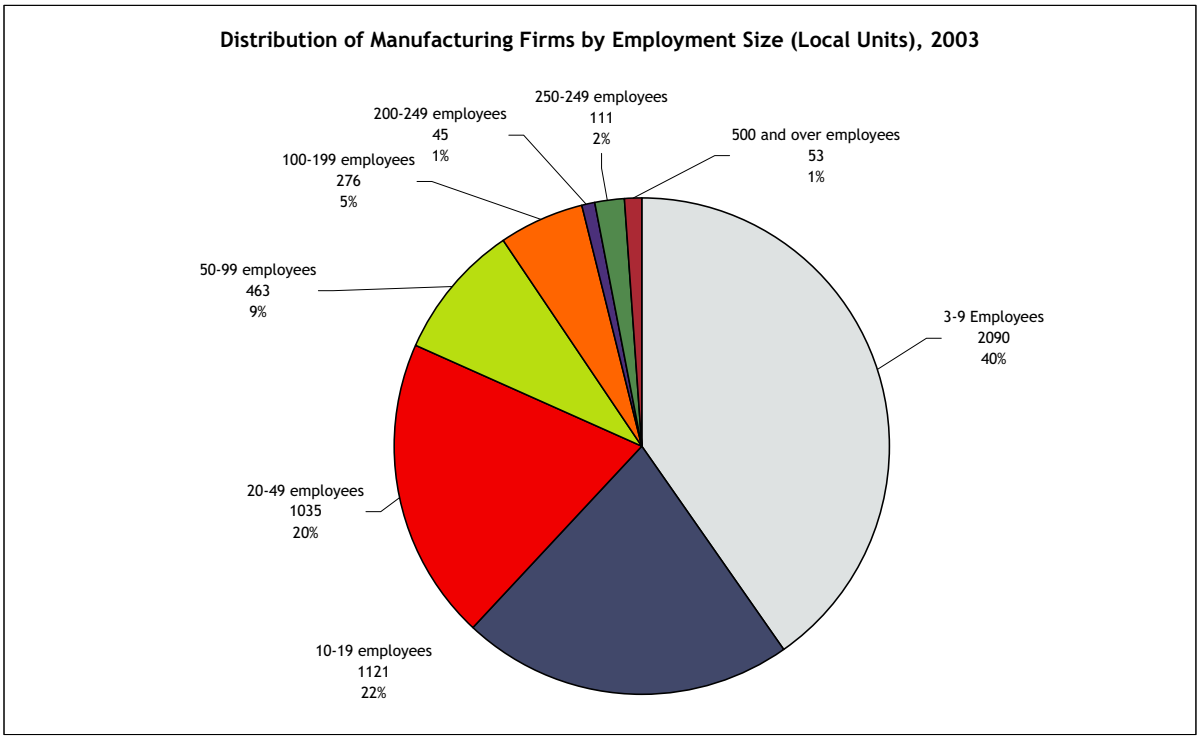
The number of manufacturing firms has remained relatively stable since 2000

According to the latest CSO Census of Industrial Production 2003:

- There were 5194 firms (or local units[58]) in the manufacturing sector in Ireland, representing growth of 14 percent since 1991. Since 2000, growth in the number of firms has been marginal (2 percent).

  Appendix 3.7 (c) reveals that in terms of firm size, 82 percent of manufacturing firms in Ireland employ under 50 workers, with 40 percent of these firms employing between 3-9 employees.

Appendix 3.7 (c) Distribution of Manufacturing Firms in Ireland by Employment Size



Source: CSO Census of Industrial Production 2003

[58] The CSO definition of a local unit is an enterprise, or part of an enterprise, situated in a geographically identified place and covers all industrial local units with three or more persons engaged.

Appendix 3.8 (a) - Employment in Manufacturing by Region and Sector - 1995, 2000, 2005

	South East				Border		
	1995	2000	2005		1995	2000	2005
No. Employed in Manufacturing	**24,564**	**27,119**	**25,290**		**32,320**	**30,512**	**26,281**
food products beverages and tobacco	6,653	6,528	5,946		7,094	7,735	8,226
Textiles and textile products	556	542	133		4,216	2,128	915
Clothing, footwear and leather	911	447	180		2,982	1,349	577
wood and wood products	523	640	677		784	1,253	1,249
pulp paper and publishing and printing	766	639	534		609	709	639
chemicals chemical products	1,631	2,224	2,982		2,035	2,196	1,420
rubber and plastic products	569	1,029	785		1,814	1,734	1,430
other non-metallic mineral products	2,290	2,682	2,443		1,668	1,976	2,027
Basic and fabricated metal products	2,408	2,892	2,863		1,692	2,136	2,230
machinery and equipment n.e.c.	2,974	2,981	2,354		1,616	1,401	1,242
electrical and optical equipment	2,998	4,172	4,364		4,423	4,511	3,841
Transport equipment	1,201	1,362	910		1,769	1,699	1,165
Other manufacturing n.e.c.	1,084	981	1,119		1,618	1,685	1,320
	South West				Dublin		
	1995	2000	2005		1995	2000	2005
No. Employed in Manufacturing	**31,402**	**38,539**	**36,801**		**48,434**	**57,877**	**41,357**
food products beverages and tobacco	8,208	8,921	8,682		9,905	12,025	9,991
Textiles and textile products	1,663	1,769	974		835	640	338
Clothing, footwear and leather	802	670	266		3,511	1,568	900
wood and wood products	1,210	1,590	1,775		431	609	578
pulp paper and publishing and printing	1,262	1,472	1,176		7,984	8,258	5,273
chemicals chemical products	3,966	5,372	6,398		3,857	5,175	6,273
rubber and plastic products	1,489	1,829	1,954		1,769	1,777	1,166
other non-metallic mineral products	1,250	1,317	940		1,615	1,606	880
Basic and fabricated metal products	2,198	2,420	2,216		2,879	3,602	2,750
machinery and equipment n.e.c.	1,240	1,488	1,413		1,096	2,699	2,093
electrical and optical equipment	6,315	9,695	8,483		8,510	14,305	6,705
Transport equipment	942	1,155	1,361		4,001	3,150	2,116
Other manufacturing n.e.c.	857	841	1,163		2,041	2,463	2,294
	Mid East				Midlands		
	1995	2000	2005		1995	2000	2005
No. Employed in Manufacturing	**18,568**	**25,230**	**26,122**		**10,768**	**11,455**	**11,951**
food products beverages and tobacco	3,422	4,184	4,957		1,852	2,279	3,016
Textiles and textile products	1,089	978	500		981	245	47
Clothing, footwear and leather	412	156	65		481	334	58
wood and wood products	328	355	488		562	739	655
pulp paper and publishing and printing	1,141	1,071	910		287	292	361
chemicals chemical products	2,188	3,005	3,692		613	186	234
rubber and plastic products	924	1,293	1,010		1,039	1,193	882
other non-metallic mineral products	1,237	1,525	1,360		576	719	973
Basic and fabricated metal products	1,057	1,146	1,160		916	1,383	1,328
machinery and equipment n.e.c.	630	859	739		381	533	589
electrical and optical equipment	4,251	8,194	9,093		2,162	2,296	2,561
Transport equipment	733	1,075	884		468	726	732
Other manufacturing n.e.c.	1,156	1,389	1,264		450	530	515

	Mid West				West		
	1995	2000	2005		1995	2000	2005
No. Employed in Manufacturing	**23,218**	**29,297**	**24,174**		**18,882**	**24,622**	**23,710**
food products beverages and tobacco	3,257	3,512	3,737		3,319	3,516	3,494
Textiles and textile products	355	108	97		481	375	264
Clothing, footwear and leather	351	243	76		1,400	395	109
wood and wood products	421	442	400		781	1,053	1,220
pulp paper and publishing and printing	710	800	602		616	781	748
chemicals chemical products	1,520	2,164	1,656		1,822	2,075	1,915
rubber and plastic products	1,051	1,005	977		354	580	708
other non-metallic mineral products	1,076	1,245	1,292		614	940	842
Basic and fabricated metal products	2,590	2,906	2,562		1,473	2,065	1,790
machinery and equipment n.e.c.	2,260	1,995	1,352		1,376	1,601	1,522
electrical and optical equipment	7,065	11,864	8,812		5,194	9,859	10,175
Transport equipment	1,737	2,156	2,029		581	329	187
Other manufacturing n.e.c.	825	857	582		871	1,053	736
Total	**23,218**	**29,297**	**24,174**		**18,882**	**24,622**	**23,710**

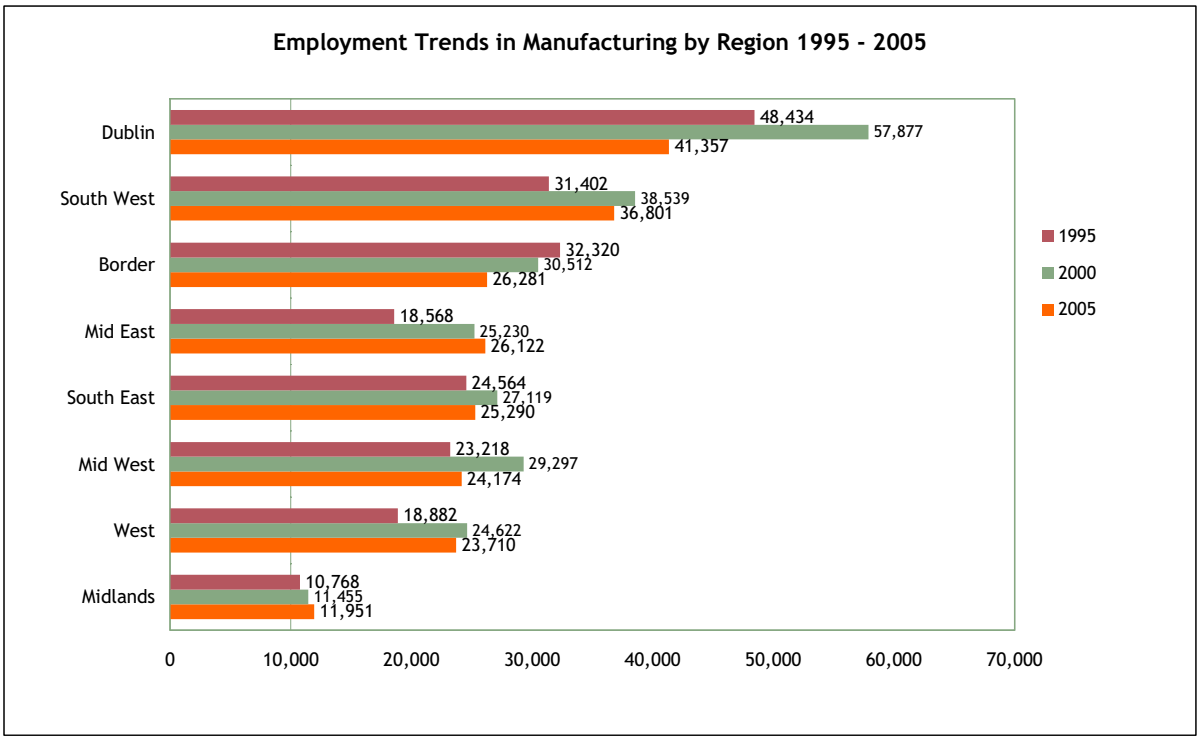
Total No. Employed in Agency Firms	**1995**	**2000**	**2005**
No. Employed in Manufacturing	**208,156**	**244,651**	**215,686**
food products beverages and tobacco	43,710	48,700	48,049
Textiles and textile products	10,176	6,785	3,268
Clothing, footwear and leather	10,850	5,162	2,231
wood and wood products	5,040	6,681	7,042
pulp paper and publishing and printing	13,375	14,022	10,243
chemicals chemical products and man-made f	17,632	22,397	24,570
rubber and plastic products	9,009	10,440	8,912
other non-metallic mineral products	10,326	12,010	10,757
Basic and fabricated metal products	15,213	18,550	16,899
machinery and equipment n.e.c.	11,573	13,557	11,304
electrical and optical equipment	40,918	64,896	54,034
Transport equipment	11,432	11,652	9,384
Other manufacturing n.e.c.	8,902	9,799	8,993
Total	**208,156**	**244,651**	**215,686**

Appendix 3.8 (b) Regional Employment Trends in Manufacturing

Manufacturing employment declines vary across regions

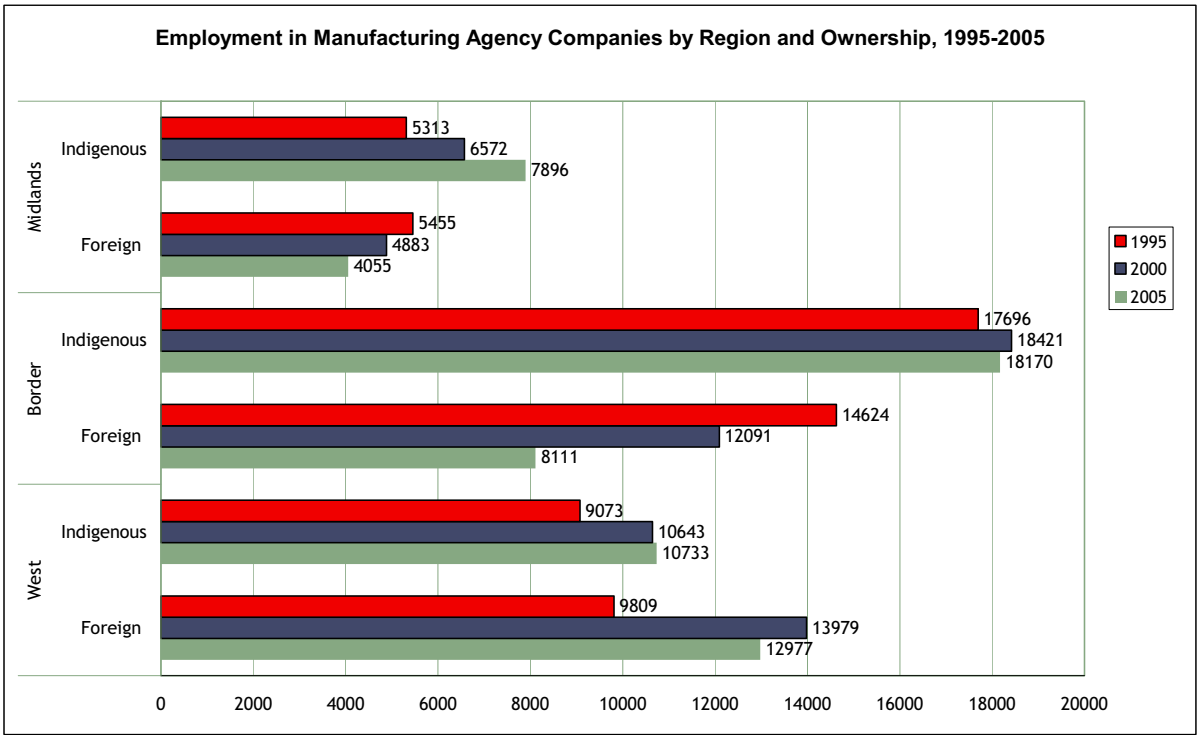
Most of the employment decrease in manufacturing has been concentrated in the Dublin, Mid West and Border Regions. These account for 89 percent of the total employment reduction in agency-assisted manufacturing firms. Employment in manufacturing increased in Midlands and Mid East Regions over the period 1995-2005.

Employment Trends in Manufacturing by Region

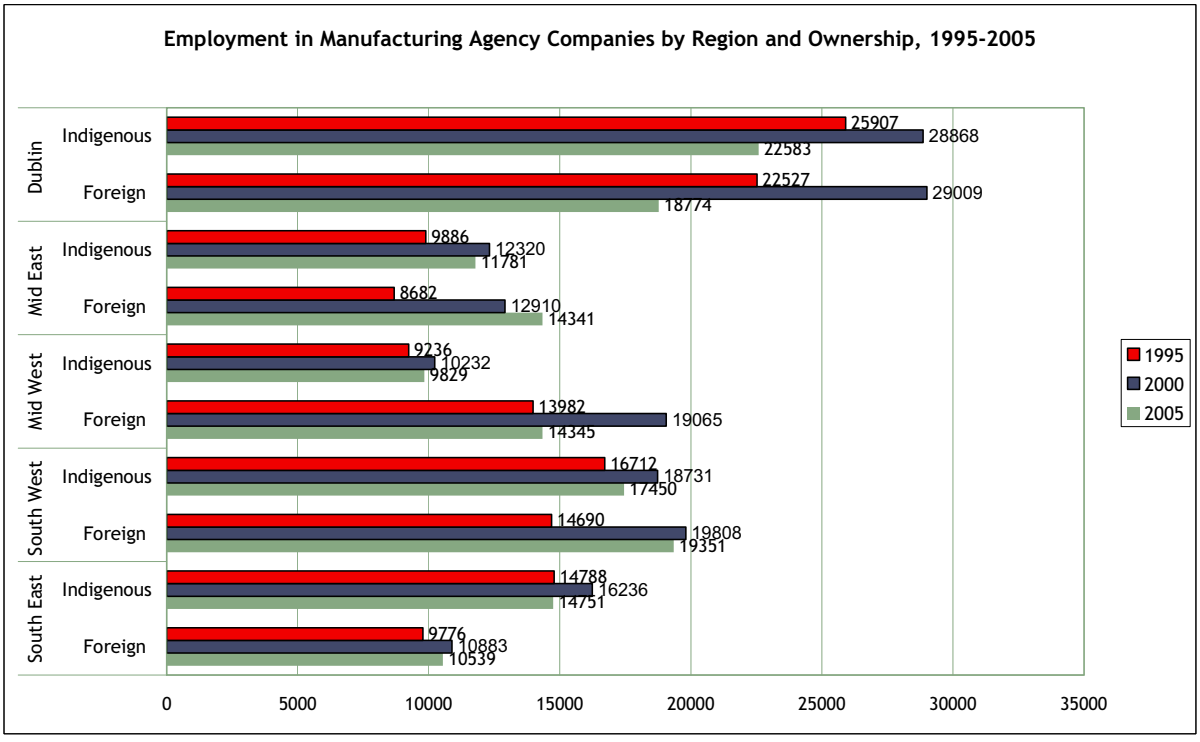


Source: Forfás Agency Data

Appendix 3.9 – Manufacturing Employment by Region and Ownership in Ireland



Employment in Manufacturing by Region and Ownership – 1995, 2000, 2005



Appendix to Chapter 4

Appendix 4.1 – Contribution to GVA by Broad Sector

	Agriculture %			Industry %						Services[2] %		
				Total			Manufacturing					
	2003	1993	1988	2003	1993	1988	2003	1993	1988	2003	1993	1988
Australia[3]	3.4	3.8	4.6	25.7	28.1	29.4	11.9	14.0		71.0	68.1	66.0
Austria[3]	2.0	2.9	2.7	30.5	30.1	32.4	19.9	19.0	20.8	67.6	67.0	64.9
Belgium	1.4	2.0	2.4	25.6	29.0	33.0	18.1	21.0	[e]	73.0	69.0	64.5
Canada	2.2 [a]	2.9	2.9	32.4	29.4	35.0	18.1 [a]	16.2	19.8	65.4 [a]	67.8	62.1
Czech Republic	2.9	5.5	8.4	38.6	41.0	48.8	26.5	24.0	27.5 [e]	58.5	53.8	42.8
Denmark	2.3	3.6	4.4	25.9	25.2	27.1	15.9	17.3		71.8	71.3	68.5
Finland	3.4	5.4	6.4	31.1	30.9	35.3	23.1	23.2	25.0	65.5	63.7	58.3
France[3]	2.6	3.1	3.8	21.5	24.9	30.7	14.0	..		75.9	72.8	65.5
Germany[3]	1.1	1.2	1.5	28.8	33.2	37.9	22.5	23.9		70.1	65.6	60.7
Greece	7.0	9.8	10.2	23.5	25.1	23.1	11.9	13.4	13.4 [e]	69.5	65.1	66.8
Hungary	3.4	6.5	7.1	31.3	32.2	32.3	22.9	23.6	23.6 [e]	65.4	61.3	60.6
Iceland	10.0 [b]	12.1	12.7	25.4	29.2	31.9	13.2 [b]	16.6	[f]	64.6 [b]	58.7	55.4
Ireland[3]	2.7	8.5	9.9	41.2	35.1	38.4	31.2	27.1		56.2	56.5	51.8
Italy	2.7	3.4	4.0	27.8	31.4	34.4	19.7	22.5	25.8	69.6	65.2	61.6
Japan[4]	1.3	2.0	2.7	30.7	36.4	40.7	21.0	24.2	28.2	68.0	61.6	56.6
Korea[3]	4.1	7.5	10.5	38.7	41.1	44.9	26.4	26.8	33.2	57.2	51.4	44.6
Luxembourg	0.6	1.3	1.2	20.6	26.3	25.4	11.8	16.6		78.8	72.5	73.7
Mexico	3.8	6.3	7.9	25.8	26.8	32.1	18.0	19.0	23.9	70.4	66.9	60.0
Netherlands	2.5	3.6	3.7	25.7	28.7	28.8	15.0	17.9		71.8	67.7	67.6
New Zealand[5]	9.5 [a]	8.5	7.8	25.0	27.1	28.6	16.7 [a]	18.7	19.6	65.5 [a]	64.5	63.5
Norway	1.5	3.1	3.8	37.7	33.8	33.8	10.0	13.1		60.8	63.1	62.5
Poland[3]	3.0	6.8	7.1	30.5	40.3	43.6	18.3	22.2	28.1 [e]	66.5	52.6	49.3
Portugal	3.8	6.2	5.5	27.1	29.6	35.4	16.9	19.4		69.1	64.2	59.1
Slovak Republic	4.0	6.3		32.4	36.4		21.3	20.4		63.5	57.3	
Spain[3]	3.7	5.8	4.6	29.1	29.8	31.0	16.9	..		67.2	64.8	64.4
Sweden	1.9	2.7	2.5	28.1	29.0	29.0	20.7 [b]	19.7		70.1	68.3	68.5
Switzerland	1.4 [b]	2.3	3.6	29.0	31.3	36.2	20.4 [b]	21.2	26.2	69.6 [b]	66.4	60.2
Turkey[5,6,7]	12.2	16.1	17.9	29.3	33.2	35.9	..	..	23.7	58.5	50.7	46.3
United Kingdom	1.0	1.8	2.0	26.2	31.3	36.4	17.4 [a]	21.1		72.0	66.9	61.7
United States[3,8]	1.2	1.9	1.8	22.3	26.0	29.7	13.9 [d]	17.2	19.9 [d]	76.5 [c,g]	72.2	68.4 [c,g]

Notes:

.. not available

1. According to the 1993 System of National Accounts (SNA) and the International Standard Industrial Classification (ISIC), Revision 3 (1990). Value added is estimated at basic prices and excludes FISIM (see note 2)
2. Excluding financial intermediation services indirectly measured (FISIM)
3. FISIM are included within industries
4. Value added is estimated approximately at market prices
5. Value added is estimated at producer's prices
6. According to 1968 SNA
7. According to ISIC Rev.2
8. Value added is estimated at factor cost

a. 2001
b. 2002
c. Sanitary and similar services are included under industry
d. Contribution to GDP instead of value added
e. 1995
f. 1997
g. Includes government enterprises

Source: *National Accounts of OECD Countries*, OECD, Paris, 2005.

Appendix 4.2 – Contribution of Services to Value Added

SERVICES: VALUE ADDED[1]

	Contribution to total economy gross value added %											
	Wholesale and retail trade, restaurants and hotels I		Transport, storage and communication II		Finance and insurance III		Real estate, renting and business services IV		Public administration and defence V		Education, health, social work and other services VI	
	2003	1993	2003	1993	2003	1993	2003	1993	2003	1993	2003	1993
Australia[2]	13.6	13.7	8.6	8.7	8.4	6.9	20.7	19.1	4.3 e	4.5 e	15.4 e, h	15.3 e, h
Austria	17.6	17.1	7.6	8.5	5.3	6.6	17.1	12.3	6.0	6.7	13.9	15.8
Belgium	13.8	14.6	6.9	6.9	5.8	6.1	22.8	19.0	8.2	7.9	16.5	16.0
Canada	13.6 a	13.5	7.0 a	7.3	7.3 a	6.6	18.1 a	17.8	5.6 a	7.2	14.0 a, h	16.3 h
Czech Republic	13.9	12.7	10.8	11.0	3.3	4.5	14.6	13.3	5.7	5.0	10.9	9.0
Denmark	13.5	14.4	7.9	7.6	5.4	5.0	19.0	18.2	6.7	7.3	20.2	19.9
Finland	11.9	11.2	10.8	9.7	3.1	4.2	18.3	15.2	5.0	5.8	17.1	18.6
France	12.4	13.3	6.2	6.7	5.0	5.1	26.1	22.8	8.5	8.4	15.5 h	14.3 h
Germany	11.8	11.7	6.2	5.8	4.1	5.3	26.4	21.4	6.0	6.8	15.7	14.6
Greece	20.9	19.9	8.5	6.4	5.2	..	15.5	..	7.2	7.1	13.5	11.5
Hungary	13.0	13.3	8.0	8.8	4.3	4.6	16.7	13.1	9.3	7.5	14.8	14.5
Iceland	12.5 b	14.2	8.2 b	7.4	7.0 b	5.9	14.4 b	11.7	6.1 b	..	18.8 b	..
Ireland	12.0	13.5	5.6	5.5	4.9	4.2	16.4	12.2	3.9	6.1	13.3	15.1
Italy	16.4	16.7	7.2	7.6	5.8	6.4	21.6	16.4	5.7	6.0	14.3	13.9
Japan[3]	12.7 c	14.0 c	6.1	6.5	6.7	5.2	21.0	17.6	4.6	4.0	17.4 c	15.0 c
Korea	10.3	12.1	7.5	6.7	8.9	6.4	12.8	10.8	6.0	5.5	11.8	9.8
Luxembourg	11.2	14.4	8.9	8.4	30.8	14.4	16.9	18.3	5.2	6.5	10.2	12.5
Mexico	20.1	21.2	10.2	9.0	3.3	4.8	16.8	14.8	4.5	3.7	15.8	14.4
Netherlands	14.2	15.3	7.1	7.2	6.7	5.4	19.9	16.6	7.8	8.8	17.2	15.4
New Zealand[4]	15.4 a	15.8	7.1 a	8.1	5.8 a	5.4	21.1 a	19.4	4.3 a	5.4	13.0 a	11.5
Norway	10.4	12.1	9.1	11.0	3.6	5.2	16.0	13.8	5.0	6.2	17.9	16.4
Poland	20.9	16.3	7.8	6.7	2.1	0.6	14.7	6.2	7.2	7.0	13.8	14.8
Portugal	17.2	17.7	6.7	6.0	6.2	6.6	13.0	12.6	9.5	9.0	17.7	13.6
Slovak Republic	15.0	20.1	10.3	8.3	5.5	4.4	14.7	10.4	7.7	6.5	11.1	9.2
Spain	18.9	18.9	8.8	7.5	5.2	6.0	14.9	12.7	6.1	6.5	14.6	14.2
Sweden	12.0 b	11.7	8.2 b	8.3	3.6 b	4.9	21.3 b	19.5	5.3 b	6.8	20.3 b	18.5
Switzerland	15.4 b	15.7	6.1 b	6.7	13.6 b	11.1	17.5 b	16.2	10.4 b, f	10.4 f	8.6 b, f	8.2 f
Turkey[3,5]	20.2	..	15.2	..	5.1	..	7.6 d	..	.. g	..	11.3 d, g	..
United Kingdom	15.4	14.1	7.4	7.8	5.1	6.6	23.8	17.3	4.9	6.6	17.4	15.5
United States[3]	15.5	15.5	6.1	6.4	8.0	6.6	23.9	22.0	8.0	8.8	15.8 h	15.6 h

Notes:

StatLink: http://dx.doi.org/10

.. not available

1. According to the 1993 System of National Accounts (SNA) and the International Standard Industrial Classification (ISIC), Revision 3 (1990). Value added is estimated at basic prices
2. Fiscal years beginning 1st July of year shown
3. Value added is estimated at producer's prices
4. Fiscal years beginning 1st April of year shown
5 ISIC Rev.2

a. 2001
b. 2002
c. Hotels and restaurants are included in VI
d. Personal services included in IV
e. Public order and safety services included in VI
f. Public education services included in V
g. Public administration and defence included in VI
h. Not including sanitary and similar services

Sources: *National Accounts of OECD Countries* , OECD; STAN Database, OECD; and national sources

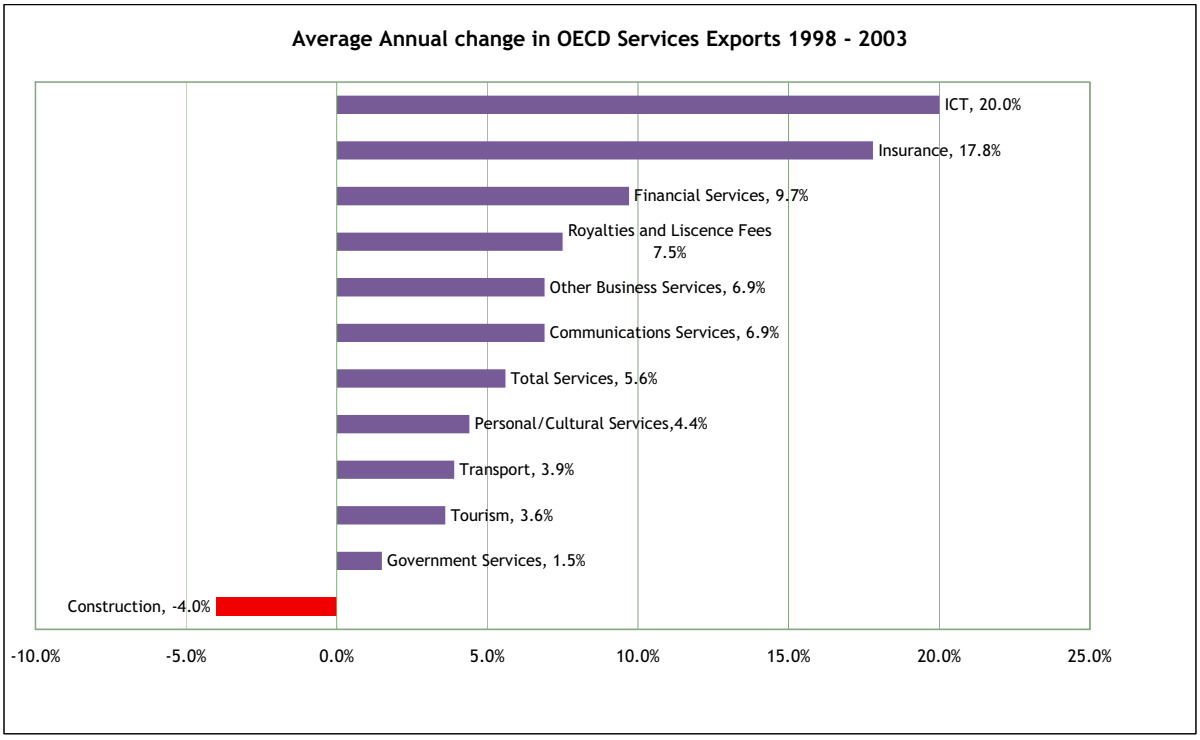
Appendix 4.3 - World Top 20 Services Exporters, 2004

Rank	Exporters	Value $bn	% Share of World Exports
1	United States	318.3	15.0
2	United Kingdom	171.8	8.1
3	Germany	133.9	6.3
4	France	109.5	5.1
5	Japan	94.9	4.5
6	Spain	84.5	4
7	Italy	82	3.9
8	Netherlands	73	3.4
9	China	62.1	2.9
10	Hong Kong	53.6	2.5
11	Belgium	49.3	2.3
12	Austria	48.3	2.3
13	Ireland	46.9	2.2
14	Canada	46.8	2.2
15	Korea	40	1.9
16	India	39.6	1.9
17	Sweden	37.8	1.8
18	Switzerland	36.8	1.7
19	Singapore	36.5	1.7
20	Denmark	36.3	1.7
	Total	**1601.9**	**75.4**
	World	**2125**	**100**
	EU-25	**1016.5**	**47.8**

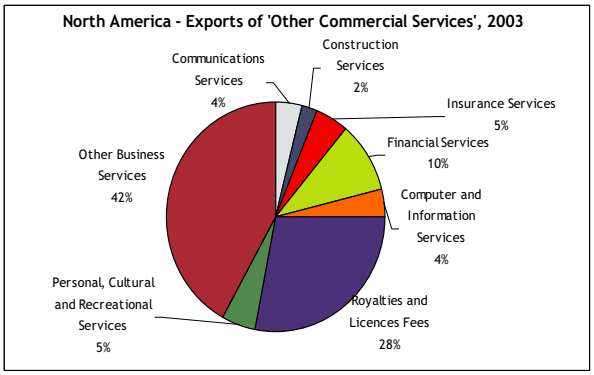
Appendix 4.4 - Services Exports by Broad Sector: World Top 5 Exporters and Ireland, 1995-2005

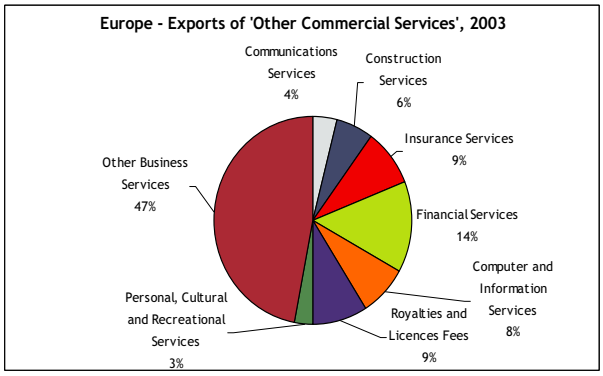
		1995	1999	2001	2003	2005
	Sector	$US m	$US m	$US m	$US m	$US m
US	Total Services Exports	198,501	259,608	268,903	289,334	353,321
	Transportation Exports	44,999	46,705	46,368	47,022	62,679
	Tourism and Travel Exports	74,791	89,401	88,779	83,254	105,224
	Other Commercial Services	78,711	123,502	133,756	159,058	185,418
UK	Total Services Exports	76,536	116,889	117,369	149,827	183,354
	Transportation Exports	16,096	18,959	18,256	22,190	30,672
	Tourism and Travel Exports	20,487	22,716	18,864	22,668	29,954
	Other Commercial Services	39,953	75,215	80,249	104,969	122,729
Germany	Total Services Exports	73,575	80,170	84,270	116,033	142,909
	Transportation Exports	19,858	20,030	20,677	26,901	36,332
	Tourism and Travel Exports	18,036	18,231	18,031	23,125	28,878
	Other Commercial Services	35,682	41,909	45,562	66,008	77,698
France	Total Services Exports	83,108	81,439	81,775	97,968	113,674
	Transportation Exports	20,466	19,312	18,094	21,585	26,516
	Tourism and Travel Exports	27,587	31,578	30,363	36,617	42,179
	Other Commercial Services	35,055	30,548	33,318	39,766	44,979
Japan	Total Services Exports	68,803	65,460	68,630	75,933	106,586
	Transportation Exports	22,506	22,927	24,006	26,502	35,849
	Tourism and Travel Exports	8,061	8,578	8,266	8,848	12,345
	Other Commercial Services	38,236	33,955	36,358	40,583	58,392
Ireland	Total Services Exports	4,799	15,526	23,266	41,785	54,672
	Transportation Exports	1,067	1,329	1,480	1,932	2,764
	Tourism and Travel Exports	2,211	2,621	2,791	3,862	4,616
	Other Commercial Services	1,520	11,576	18,995	35,992	47,292

Appendix 4.5 - Annual Change in OECD Exports 1998-2003



Appendix 4.6 Sectoral Make-up Other Commercial Services - North America & Europe





Source: WTO International Trade Statistics 2005

Appendix to Chapter 5

Appendix 5.1 Employment within Services by Sector 2000/2005, (in 1000s)

NACE Rev. 1.1	Q4 2000	Q4 2005	% Change 2000-2005
Total Services Employment	**1,088.5**	**1,324**	**21.6%**
Wholesale and Retail Trade	241.9	285	17.8%
Hotels and Restaurants	108.6	115.5	6.4%
Transport, Storage and Communication	106	118.3	11.6%
Financial and Other Business Services	214.7	263	22.5%
Public Administration and Defence	79.5	100.7	26.7%
Education	103.6	127.9	23.5%
Health	140.1	191.5	36.7%
Other Services	94.1	122.1	29.8%

Source: CSO Database Direct

Appendix 5.2(a) - Employment in Agency Firms by Sector 1996-2005

Sector	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Computer and related activities	18,241	23,304	30,228	37,526	47,592	50,617	49,093	48,223	48,192	49,713
Education	431	476	502	539	573	738	794	837	857	945
Other business activities	2,193	2,607	2,866	3,668	4,289	4,448	5,309	5,390	5,738	5,784
Research and development	318	349	514	674	968	1,045	980	1,034	1,066	1,109
Financial Services	3,356	4,313	5,735	8,120	9,955	10,043	11,066	11,289	13,002	13,741
Total	24,539	31,049	39,845	50,527	63,377	66,891	67,242	66,773	68,855	71,292

Appendix 5.2 (b) - Employment in Agency Services Firms by Subsector 1996-2005

Division name	Group name	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Computer and related activities	Computer and related activities	69	78	85	104	137	117	87	103	110	117
Computer and related activities	Database activities	222	287	277	324	374	324	327	308	289	310
Computer and related activities	Data processing	1,935	2,556	3,324	5,100	7,100	7,748	8,579	10,545	11,825	13,423
Computer and related activities	Hardware consultancy	27	51	46	57	75	76	11	8	8	8
Computer and related activities	Maintenance and repair of office accounting and computing machinery	15	13	14	13	7	7	7	6	6	8
Computer and related activities	Other computer related activities	657	876	1,324	1,814	2,131	2,346	1,940	1,537	1,453	1,301
Computer and related activities	Software consultancy and supply	15,316	19,443	25,158	30,114	37,768	39,999	38,142	35,716	34,501	34,546
Education	Adult and other education	424	467	491	524	561	726	786	829	848	908
Education	Education		1	6	6	3	3	0		1	14
Education	Higher education	7	8	5	9	9	9	8	8	8	23
Other business activities	Advertising	1	0	6	37	67	65	45	74	80	83
Other business activities	Architectural and engineering activities and related technical consultancy	720	861	1,052	1,715	2,078	2,416	2,970	2,804	2,944	3,052
Other business activities	Investigation and security activities								1	1	1
Other business activities	Labour recruitment and provision of personnel		106	119	119	119	103	146	154	234	249
Other business activities	Legal accounting book-keeping and auditing activities; tax consultancy; market research and public opinion polling; bu	343	405	431	499	589	548	744	815	944	933
Other business activities	Miscellaneous business activities n.e.c.	934	1,022	1,038	1,058	1,171	1,053	1,096	1,128	1,159	1,160
Other business activities	Technical testing and analysis	133	159	180	198	223	216	223	222	223	239
Real estate activities	Letting of own property							40	140	84	6
Real estate activities	Real estate activities on a fee or contract basis								2	5	5
Real estate activities	Real estate activities with own property	23	16	16	12	12	12	12	17	27	16
Renting of machinery and equipment	Renting of other machinery and equipment	14	13	4	5	5	5	8	8	8	12
Renting of machinery and equipment	Renting of personal and household goods n.e.c.	25	25	20	25	25	30	25	25	29	28
Research and development	Research and development	227	231	374	500	683	758	660	662	720	755
Research and development	Research and experimental development on natural sciences and engineering	91	118	139	172	283	285	316	368	342	354
Research and development	Research and experimental development on social sciences and humanities	-	-	1	2	2	2	4	4	4	
Financial intermediation	Activities auxiliary to financial intermediation	9	9	4	40	75	90	100	126	94	99
Financial intermediation	Activities auxiliary to financial intermediation except insurance and pension funding	275	352	434	701	822	769	790	790	800	813
Financial intermediation	Activities auxiliary to insurance and pension funding	15	16	21	25	26	26	29	29	49	93
Financial intermediation	Financial intermediation except insurance and pension funding	1,217	1,754	2,591	3,851	4,896	4,383	4,865	4,792	5,555	6,249
Financial intermediation	Monetary intermediation				4	4	0	28	31	108	114
Financial intermediation	Other financial intermediation	1,813	2,071	2,421	3,209	3,669	4,249	4,574	4,742	5,246	5,233
Financial intermediation	Insurance and pension funding except compulsory social security	27	111	264	290	463	526	680	779	1,150	1,140
	Total	**24,539**	**31,049**	**39,845**	**50,527**	**63,377**	**66,891**	**67,242**	**66,773**	**68,855**	**71,292**

Appendix 5.3 (a) Agency Service Data and CSO Data

Agency data captures the entire activity of large software development firms such as Microsoft and Oracle as a service. With this inclusion, the agency services data is inflated relative to the CSO services data, which classify such multinationals as part of manufacturing. Agency data also does not cover services sectors covered by CSO export data such as Transport, Tourism and Travel, Communications and Royalties and Licences. Appendix 5.5 (b) explains the gap between agency ITS export data and CSO export data.

Appendix 5.3 (b) - Differential between Agency Services Export Data and CSO Services Export Data

2004	€m
CSO Services Exports	42,203
Adjustment for Reproduction of Recorded Media (SITC 898.79)	1,679
Total CSO Services Exports	43,882
Agency Exports – Internationally Traded Services	24,267
Gap to be explained	19,615

Source: Forfás Agency Data and CSO Database Direct

- There is a gap of €19.6 billion between services exports as recorded by the CSO and services exports as recorded in the Forfás survey of agency clients in 2004. Agency services exports amounted to €24.2 billion in 2004, whereas CSO services exports amounted to €43.8 billion. This suggests that agency export data accounts for about 55 percent of total services exports.
- More than half of this gap of €19.1 billion appears related to services exports linked to the IFSC. CSO recorded exports of Financial and Insurance Services in 2004 to the amount of €12.2 billion. While IFSC companies are clients of the agencies, their export activity has not been recorded in the Forfás survey. Including these exports would bring agency firm exports close to the CSO total.
- The remainder of the gap appears to relate mostly to sectors outside the remit of the industrial development agencies, and in particular, the transport, tourism and communications service. CSO recorded combined exports of these sectors in 2004 amounted to €6.1 billion.

Appendix 5.4- Export Propensities of Indigenous and Foreign Owned Services Firms 1995-2004

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Irish-owned Export Intensity										
Total Exports as % of Output	33.7%	39.5%	33.2%	35.3%	32.5%	35.3%	36.6%	31.6%	35.4%	34.8%
Construction	28.9%	4.5%	3.5%	0.7%	0.9%	1.4%	1.2%	1.2%	1.3%	0.8%
Software Development	47.4%	46.9%	45.6%	51.9%	47.6%	66.4%	73.0%	63.7%	64.3%	62.5%
Other Computer Related Activity	84.1%	83.8%	78.1%	68.1%	65.6%	41.6%	36.8%	39.7%	48.8%	58.8%
All Other Services	26.1%	29.1%	21.7%	22.0%	18.7%	29.5%	25.3%	27.3%	32.3%	31.5%
Foreign-owned Export Intensity										
Total Exports as a % of Output	87.9%	88.8%	87.5%	87.8%	91.7%	90.3%	92.7%	92.2%	94.0%	94.9%
Construction							0.0%	0.0%	0.0%	0.0%
Software Development	92.7%	93.7%	93.7%	94.1%	93.5%	94.6%	97.2%	96.5%	97.0%	97.4%
Other Computer Related Activity	96.3%	89.4%	73.6%	74.6%	94.8%	96.7%	96.3%	96.3%	98.6%	98.4%
All Other Services	42.2%	46.2%	47.7%	51.3%	56.8%	64.2%	67.2%	66.1%	73.0%	77.5%

Source: Forfás Agency Data

Appendix 5.5 – Services Productivity in Ireland and Other Countries, 2003

a. Services – Hotels and Restaurants per employment size classes, 2003 Gross value added per person employed (apparent labour productivity)

Country	1 Empl GVA/ €000	Rank	2 - 9 Empls GVA/ €000	Rank	10 - 19 Empls GVA/ €000	Rank	20 - 49 Empls GVA/ €000	Rank	50 - 249 Empls GVA/ €000	Rank
Bel	15.7	7	18	7	17.7	7	22.7	5	43.4	1
Den	32.8	1	23.1	4	18.4	6	17.8	8	19.1	9
Ger	21.3	6	17.5	8	15.8	9	16	9	22.1	6
Fra	30.6	2	26.1	2	30.1	2	30.1	3	31.1	3
Ire	22.8	5	20.5	6	17.5	8	19.2	7	21.6	7
Ita	14.4	8	15.7	9	22.8	5	27.4	4	30.2	5
Neth	2.4	9	23.8	3	29.8	3	21.2	6	19.9	8
Aus	26.1	3	21.5	5	26.5	4	30.5	2	30.8	4
Fin	25.2	4	29.8	1	31.7	1	33.7	1	32.5	2

Source: Eurostat

b. Services – Transport, storage and communication per employment sizes 2003 Gross value added per person employed (apparent labour productivity)

Country	1 Empl GVA/ €000	Rank	2 - 9 Empls GVA/ €000	Rank	10 - 19 Empls GVA/ €000	Rank	20 - 49 Empls GVA/ €000	Rank	50 - 249 Empls GVA/ €000	Rank
Bel	57.9	3	48	3	61.1	3	56.1	2	57.1	4
Den	129.8	1	63.9	1	51	4	54.8	3	55	5
Ger	105.4	2	43.6	5	43.7	6	48.2	6	49.1	7
Fra	41.1	5	35.3	8	37.9	9	38.9	9	38.8	9
Ire	39.8	6	40.1	6	64.1	2	39.9	8	171.7	1
Ita	20.2	8	31.1	9	41.4	7	43.2	7	39.3	8
Neth	14.8	9	60.7	2	64.7	1	51.5	5	53.8	6
Aus	39	7	35.6	7	40.6	8	51.7	4	62.2	2
Fin	47.3	4	48	3	48.2	5	57.3	1	62.2	2

Source: Eurostat

c. Real Estate, Renting and Business Activities per employment sizes 2003 Gross value added per person employed (apparent labour productivity)

Country	1 Empl GVA/ €000	Rank	2 - 9 Empls GVA/ €000	Rank	10 - 19 Empls GVA/ €000	Rank	20 - 49 Empls GVA/ €000	Rank	50 - 249 Empls GVA/ €000	Rank
Bel	48.4	5	59.6	4	72.5	2	73	3	82.8	1
Den	101.7	3	84.4	1	77.2	1	77.5	1	82.4	2
Ger	148.7	1	50.4	8	57.6	4	57.7	7	49.3	8
Fra	132.2	2	50.6	7	52.5	7	54.8	8	55.6	7
Ire	46.4	6	70	2	55.3	6	76.4	2	65.7	4
Ita	29.5	8	33.6	9	39.3	9	40.5	9	41.8	9
Neth	25.4	9	51.7	6	57.3	5	59.3	6	59.6	6
Aus	45.6	7	67	3	59.5	3	65.2	4	72.5	3
Fin	64.4	4	55.3	5	51.2	8	62.5	5	61.8	5

Source: Eurostat

Appendix 5.6 - Locally traded services productivity in Ireland: international comparisons.

Eurostat data divides locally traded services into three main categories (Hotels and Restaurants; Transport, Storage and Communications; and Real Estate, Renting and Business Activities). The productivity performances businesses in each of these services sectors by firm size in Ireland and in eight other EU countries[59] are examined below. (Data relates to Appendix 5.3)

Hotels and Restaurants[60]

In terms of productivity, when compared with similar sized businesses in eight other countries, the Irish hotels and restaurants sector ranks:

- 5th for businesses with 1 employee;
- 6th for businesses with between 2 and 9 employees;
- 8th for businesses with between 10 and 19 employees;
- 7th for businesses with between 20 and 49 employees; and
- 7th for businesses with between 50 and 249 employees.

[59] UK figures for these services sectors in the same employment size classes were not available
[60] Statistical Classification of Economic Activities in the European Community (NACE), Classification H

Transport, Storage and Communications[61]

In terms of productivity, when compared with similar sized businesses in eight other countries, the Irish transport, storage and communications sector ranks:

- 6th for businesses with 1 employee;
- 6th for businesses with between 2 and 9 employees;
- 2nd for businesses with between 10 and 19 employees;
- 8th for businesses with between 20 and 49 employees;
- 1st for businesses with between 50 and 249 employees.

Real Estate, Renting and Business Activities[62]

In terms of productivity, when compared with similar sized businesses in eight other countries, the Irish real estate, renting and business activities sector ranks:

- 6th for businesses with 1 employee;
- 2nd for businesses with between 2 and 9 employees;
- 6th for businesses with between 10 and 19 employees;
- 2nd for businesses with between 20 and 49 employees; and
- 4th for businesses with between 50 and 249 employees.

[61] Statistical Classification of Economic Activities in the European Community (NACE), Classification I
[62] Statistical Classification of Economic Activities in the European Community (NACE), Classification K

Notes

The National Policy and Advisory Board for Enterprise, Trade, Science, Technology and Innovation

Wilton Park House, Wilton Place,
Dublin 2, Ireland

Tel +353 1 607 3000
Fax +353 1 607 3030

www.forfas.ie

Forfás