# National Spatial Strategy

## Irish Spatial Perspectives - Paper 6 "Enterprise Employment and Productivity Trends"

# Table of Contents

# 1 Introduction and Background

This paper forms a key part of a body of research commissioned as part of the National Spatial Strategy and which forms the second of four stages in its preparation. Together with 21 other research areas being pursued at this time, this stage is intended to provide a strong analytical basis for understanding the spatial functioning of Ireland and in turn to provide a basis for developing strategic choices and policies in the pursuit of the goal of "Balanced Regional Development". These policies will be developed in the third stage of preparing the NSS through the development of policy papers based on the spatial research.

The full extent of the research areas and the overall timescale for preparing the NSS, are set out in the document "Report on the Scope and Delivery of the National Spatial Strategy".

At the heart of the National Spatial Strategy is an acceptance of the strong relationship between the spatial pattern of development of Ireland and the underlying economic and employment structure as one of the key determinants of this.

Furthermore, understanding the dynamics behind this economic structure by way of analysis of recent trends and patterns, in terms of where manufacturing and traded firms are locating, their activities, productivity and performance, is expected to provide clear pointers as to future spatial patterns and the factors that may be available to alter this.

As such, this paper seeks to answer four basic questions as follows:

**Question 1: What is the sectoral structure of the regions at present?**

By way of analysing the sectoral distribution of firms by various areas, it is intended to establish where particular sectors may be concentrated. In particular, the performance of the more "advanced" sectors such as Information Technology/Internationally Traded Services and the Chemical/Pharmaceutical sectors will be analysed to establish where the "new economy sectors" are locating.

Also of interest will be the size and ownership structure, in terms of firms employing over 50 people and whether of "Irish" or foreign ownership. This latter parameter gives us an interesting insight into locational preferences for inward investment.

This stage two analysis will permit the integration of parallel areas of research in the transportation, and education fields in stage three in order to explore the nature of any cyclical relationship between the spatial structure of Ireland and the drivers of this structure in terms of economic, physical and social infrastructure.

**Question 2: What trends have been evident in recent times and particularly in the last 3-5 years**

The dynamism of the Irish economy is well established at this time, however as the National Development Plan indicates, the distribution of a strong overall performance has not been even on the ground.

By addressing this question, temporal aspects to all of the data fields collected as part of this research have been established which adds an invaluable three dimensional aspect to the two dimensional static data available.

**Question 3: What do production and productivity indicators tell us about future patterns of enterprise?**

The National Spatial Strategy must have at its core, a clear vision as to the potential future spatial structure of Ireland, bearing in mind certain assumptions and the implementation of key actions. Likewise, in the field of enterprise, analysis of production and productivity indicators such as gross output per person, wages and salaries, gross value added and investment in research and development (R+D) gives another perspective as to the future strength of various areas in terms of the robustness of present day structures. In answering this question, this paper will try to identify such areas.

**Question 4: What is the nature of the interrelationship between sectoral structure and productivity**

In this area, the paper will seek to explore the cyclical relationship between sectoral composition and productivity as a prelude to the consideration of inter-linkages between spatial aspects to sectoral composition and various levels of infrastructural availability. In turn, this area in stage three will reveal what areas of employment structure are amenable to change through key investment decisions.

## Structure of this Paper

This paper has been structured to respond to these basic questions in terms of tabular, textual and graphic means highlighting the key trends in terms of each of the variables examined.

The variables have been grouped for analysis purposes into successive sections as follows:

**Section Two: Contextual information at Regional Level**

**Variables Discussed**

Population, Labour Force, Employment and Gross Value Added data from the most recent set of regional accounts are presented in order to set the context and present the apparent productivity disparities which will be explored in greater detail in the main body of the paper.

**Section Three: Spatial Patterns in Enterprise at County Level**

**Variables Discussed**

Size Structure, Ownership, Sectoral Structure, "Advanced Sector" composition.

**Section Four: Dynamics of the Enterprise Base at County Level**

**Variables Discussed (over the period 1995-1998)**

Change in ownership structure, Employment Change, Change in composition of "advanced sectors"

**Section Five: Productivity Trends in Manufacturing at County Level**

**Variables Discussed**

Gross Output/Gross Value Added/Wages & Salaries per Person Employed, Investment in Research and Development

**Section Six: Sectoral Structure and Productivity Inter-Linkages**

In this section, the groundwork for the Policy Paper on enterprise and its spatial needs in Stage Three in terms of expressing a clear understanding of the spatial structure of Irelands employment and enterprise patterns will be laid in terms of the interrelationships between sectoral structure and productivity allied to what may be the drivers of this.

# 2 Context - Socio-Economic Indicators at Regional Level

This section sets out some basic demographic and economic indicators for the eight planning (or NUTS 3) regions in the country. Other analytical papers produced for the National Spatial Strategy will explore these socio-economic trends and patterns in more detail. However, it is considered appropriate to present some of this basic information so that the data presented on trends and patterns within manufacturing and internationally traded services can be placed in context.

One of the main aims of this paper is to try to explain (in part) the productivity differences that exist between different regions. Before we examine the degree to which productivity differences can be explained by activity in manufacturing and internationally-traded services, it is worth reviewing the apparent productivity differentials between the regions in 1997, the most recent year for which regional accounts have been produced by the CSO.

## Table 2.1: Population Change at Regional Level

| | Population 1991 | Population 1997 | Population Change 1991-1997 | Share of Population | Proportion Urban Population |
|---|---|---|---|---|---|
| | 000s | 000s | % | % | % |
| **State** | **3,526** | **3,661** | **3.8%** | **100%** | **58%** |
| **S&E Region** | **2,577** | **2,690** | **4.4%** | **73%** | **68%** |
| Dublin & Mid-East | 1,350 | 1,434 | 6.2% | 39% | 86% |
| *Dublin* | 1,025 | 1,074 | 4.7% | 29% | 98% |
| *Mid-East* | 325 | 360 | 10.7% | 10% | 52% |
| South-East | 383 | 392 | 2.3% | 11% | 41% |
| South-West | 532 | 547 | 2.8% | 15% | 54% |
| Mid-West | 311 | 317 | 2.0% | 9% | 42% |
| **BMW Region** | **949** | **970** | **2.2%** | **26%** | **32%** |
| Border | 403 | 406 | 0.7% | 11% | 32% |
| Midlands | 202 | 207 | 2.7% | 6% | 35% |
| West | 344 | 357 | 3.7% | 10% | 30% |

Source: CSF Evaluation Unit

The table above shows the distribution of the population in 1991 and 1997 and highlights a number of points:

- The Southern & Eastern region accounts for approximately three-quarters of the population while the BMW region accounts for one quarter.
- Population growth in the Southern & Eastern region was twice that of the BMW region with the Mid-East (Meath, Kildare and Wicklow) showing the largest increase. Dublin and the Mid-East combined accounts for approximately 40% of the population.
- The proportion of the population living in urban areas in the Southern & Eastern region is twice that of the BMW region. Even with the exclusion of Dublin, all other regions in the Southern & Eastern region have a higher proportion of urban dwellers compared to the BMW region.

## Table 2.2: Labour Force and Dependency Ratios

| | Labour Force 1997 | Labour Force as Share of Population | Share of Labour Force | Dependency Ratio |
|---|---|---|---|---|
| | 000s | % | % | % |
| **State** | **1,539** | **42%** | **100%** | **54%** |
| **S&E Region** | **1,147** | **43%** | **74%** | **52%** |
| Dublin & Mid-East | 640 | 45% | 42% | 49% |
| *Dublin* | 485 | 45% | 31% | 47% |
| *Mid-East* | 156 | 43% | 10% | 53% |
| South-East | 157 | 40% | 10% | 57% |
| South-West | 221 | 40% | 14% | 55% |
| Mid-West | 128 | 40% | 8% | 56% |
| **BMW Region** | **393** | **40%** | **26%** | **61%** |
| Border | 160 | 39% | 10% | 61% |
| Midlands | 86 | 41% | 6% | 60% |
| West | 147 | 41% | 10% | 61% |

Source: CSF Evaluation Unit

- The labour force equates to 45% of the population in Dublin and the Mid-East combined which is somewhat higher than it is in all other regions - where it averages approximately 40%. As with the population generally, the Southern and Eastern region accounts for three quarters of the labour force with one quarter residing in the BMW region.
- Looking at the inverse of this picture, the dependency ratio (the population aged less than 15 and 65 or more as a proportion of the population aged 15 to 64 years) in Dublin and the Mid-East combined at 49% is lower than in any other NUTS 3 region. The highest dependency ratios are in the BMW region

## Table 2.3: Employment Patterns Across the Regions

| | Total Employed 1997 | Employed as Share of Population | Sectoral Composition of Employment | | |
|---|---|---|---|---|---|
| | | | Agriculture | Industry* | Services |
| | 000s | % | % | % | % |
| **State** | **1,380** | **38%** | **10.3** | **28.3** | **61.4** |
| **S&E Region** | **1,029** | **38%** | **7.8** | **27.1** | **65.2** |
| Dublin & Mid-East | 573 | 40% | 2.5 | 24.2 | 73.4 |
| *Dublin* | 431 | 40% | 0.8 | 21.8 | 77.5 |
| *Mid-East* | 143 | 40% | 8.0 | 31.5 | 60.5 |
| South-East | 140 | 36% | 17.6 | 31.5 | 50.9 |
| South-West | 201 | 37% | 12.0 | 29.5 | 58.5 |
| Mid-West | 115 | 36% | 14.2 | 32.1 | 53.7 |
| **BMW Region** | **351** | **36%** | **17.6** | **31.9** | **50.6** |
| Border | 141 | 35% | 14.6 | 35.3 | 50.1 |
| Midlands | 77 | 37% | 13.8 | 31.5 | 54.7 |
| West | 133 | 37% | 22.9 | 28.3 | 48.8 |

Source: CSF Evaluation Unit

- Mirroring the dependency ratio, the table above provides details on the number of people in employment in each region and shows Dublin and the Mid-East combined at 40% to be higher than the range of 35%-37% in the other NUTS 3 regions
- In terms of setting the context for this paper on trends in the enterprise base, the figures providing the sectoral composition of employment in the regions are of particular relevance. At a national level, agriculture accounts for 1 in 10 workers, 3 in 10 work in industry and the other six in 10 work in the services sector - both private (tourism, professional services etc.) and public (health, education etc.).
- The different employment structure across the regions is one of the first keys to understanding the output and per capita value added of the regions. Leaving Dublin aside, agriculture accounts for a low of 8% of employment in the Mid-East region and this ranges up to 23% in the West (Galway, Mayo and Roscommon). The proportion of the population working in industry is actually lowest in Dublin (22%) and is highest in the Border region (35%). Not surprisingly, Dublin has the highest proportion of its workforce in the services sector (public and private) at 78% while the South-East, the Border and the West regions have the lowest proportions with 1 in 2 workers being employed in the services economy.

*. "Industry" relates to Manufacturing, Building and Construction.

## Table 2.4: Gross Value Added and the Composition of GVA

| | Total Gross Value Added | Share of Gross Value Added | Composition of GVA | | |
|---|---|---|---|---|---|
| | | | Agriculture | Industry* | Services |
| | IR£000s | % | % | % | % |
| **State** | **47,821** | **100%** | **4.0%** | **42.7%** | **53.3%** |
| **S&E Region** | **38,770** | **81%** | **3.2%** | **43.6%** | **53.3%** |
| Dublin & Mid-East | 23,082 | 48% | 0.9% | 39.6% | 59.6% |
| *Dublin* | 18,985 | 40% | 0.3% | 35.5% | 64.3% |
| *Mid-East* | 4,097 | 9% | 3.5% | 58.7% | 37.8% |
| South-East | 4,307 | 9% | 7.7% | 50.5% | 41.9% |
| South-West | 7,629 | 16% | 6.0% | 49.6% | 44.4% |
| Mid-West | 3,751 | 8% | 6.3% | 48.2% | 45.5% |
| **BMW Region** | **9,052** | **19%** | **7.7%** | **39.0%** | **53.4%** |
| Border | 4,062 | 8% | 8.0% | 43.6% | 48.4% |
| Midlands | 1,743 | 4% | 7.5% | 33.7% | 58.8% |
| West | 3,247 | 7% | 7.3% | 36.0% | 56.7% |

Source: CSO Regional Accounts 1997

- The examination of employment differences leads us to examine the contribution of each region to Gross Value Added, which added together is the total output (or GDP) of the country.
- The Southern & Eastern region accounted for 81% of GVA in 1997 which is somewhat disproportionate to its share of total employed in the economy (75%).
- There are some interesting comparisons between the sectoral composition of employment (Table 2.3) and the sectoral composition of GVA (Table 2.4). At a national level, agriculture accounts for 10% of total employment but only 4% of GVA while industry accounts for 28% of total employed but 43% of GVA.

While these kinds of conclusions are not so surprising, they do provide useful contextual information for exploring productivity differences within the economy. The data above draw attention to the fact that the contribution of different regions to Gross Value Added is determined in large part by the spatial distribution and location decisions of industry and the kind of industry that is present in each region. The aim of this paper is to explore this spread of activity and recent changes in greater detail so that we can better interpret the aggregate data for each region and understand better the spatial dimension of industry in Ireland.

*. "Industry" relates to Manufacturing, Building and Construction.

## Table 2.5: Gross Value Added Per Person Employed at Regional Level

| | GVA per Person Employed | GVA per Person - Agriculture | GVA per Person - Industry* | GVA per Person - Services |
|---|---|---|---|---|
| **State** | **£34,653** | **£13,339** | **£51,695** | **£29,718** |
| Index (State=100) | (100) | (100) | (100) | (100) |
| **S&E Region** | **109** | **113** | **116** | **102** |
| Dublin & Mid-East | 116 | 102 | 126 | 109 |
| *Dublin* | 127 | 115 | 137 | 121 |
| *Mid-East* | 83 | 93 | 102 | 60 |
| South-East | 89 | 99 | 94 | 84 |
| South-West | 110 | 141 | 122 | 96 |
| Mid-West | 94 | 107 | 94 | 92 |
| **BMW Region** | 74 | 83 | 60 | 90 |
| Border | 83 | 118 | 68 | 93 |
| Midlands | 65 | 91 | 46 | 81 |
| West | 70 | 58 | 59 | 94 |

Source: CSO Regional Accounts 1997

Finally, before examining the detailed information on enterprise structure in each county, the table above brings together the GVA and employment data to provide an index of GVA per Person Employed in each region. At a national level, GVA per person employed was £13,400 in agriculture, £51,700 in industry and £29,700 in the services sector highlighting once again the importance of industry in terms of national output. For all sectors combined, GVA per person employed was £34,650 in 1997.

Setting each of these figures to an index 100, it is clear that there are significant differences in labour productivity across the planning regions. Labour productivity in the Southern & Eastern region compares favourably with that of the BMW region in all sectors. In agriculture, there is a wide range apparent with an index of 58 in the West compared to a high of 141 in the South-West (Cork and Kerry). In industry, labour productivity ranges from 46 in the Midlands to 137 in Dublin while in services, the range is from 81 in the Midlands to 109 in Dublin and the Mid-East combined. It may be possible to throw greater light on these productivity differences, especially within industry, with the analysis that follows.

*. "Industry" relates to Manufacturing, Building and Construction.

# 3 Spatial Patterns in Enterprise at County Level

In this section, a number of indicators are presented that provide an overview of the location of manufacturing and internationally traded services enterprise as at the end of 1999.

Firstly, we examine the actual number of establishments (or plants) in each of the eight regions and in each county within that. A distinction is made between Irish-owned and foreign-owned establishments. While there is no suggestion that foreign-owned establishments are more or less desirable than Irish-owned establishments, the choices made by foreign-owned multinationals in the past about where to locate their plants within Ireland may reveal messages of importance to this exercise.

An examination is then presented of the structure of the enterprise base in terms of numbers employed and the size breakdown of firms. Particular attention is paid to the number of establishments with 50 or more employees within each region and county.

The aggregate employment across all manufacturing and traded services firms is assessed in Section 3.3. This analysis complements the analysis based on the number of establishments and actually reveals some different patterns about concentrations of employment not revealed by looking at numbers of establishments alone. Again, these data are presented separately for Irish-owned and foreign-owned companies.

Finally, the section ends with an examination of the sectoral breakdown of employment in each region and county. This reveals a number of cases where counties are highly dependent on one or two sectors and this may raise issues of vulnerability. Attention is focused on the presence/absence of the relatively more "advanced" sectors of chemicals/ pharmaceuticals, electronics and internationally traded services in each county.

## Table 3.1: Number of Irish-owned and Foreign -owned Establishments (5+ employees)

| | Number of plants in 1999 | Number of Irish-owned plants | Number of foreign-owned plants | Foreign-owned as a share of total | National composition of all plants | National composition of foreign-owned plants | National composition of population |
|---|---|---|---|---|---|---|---|
| **National Total** | **5,474** | **4,180** | **1,294** | **24%** | **100.0%** | **100.0%** | **100.0%** |
| **S&E Region** | **3,860** | **2,830** | **1,030** | **27%** | **70.5%** | **79.6%** | **73.4%** |
| **Dublin** | **1,716** | **1,180** | **536** | **31%** | **31.3%** | **41.4%** | **29.2%** |
| **Mid East** | **414** | **340** | **74** | **18%** | **7.6%** | **5.7%** | **9.6%** |
| Kildare | 141 | 110 | 31 | 22% | 2.6% | 2.4% | 3.7% |
| Meath | 138 | 122 | 16 | 12% | 2.5% | 1.2% | 3.0% |
| Wicklow | 135 | 108 | 27 | 20% | 2.5% | 2.1% | 2.8% |
| **South East** | **524** | **433** | **91** | **17%** | **9.6%** | **7.0%** | **10.8%** |
| Carlow | 68 | 61 | 7 | 10% | 1.2% | 0.5% | 1.1% |
| Kilkenny | 102 | 92 | 10 | 10% | 1.9% | 0.8% | 2.1% |
| Tipperary South Riding | 75 | 62 | 13 | 17% | 1.4% | 1.0% | 2.1% |
| Waterford | 160 | 125 | 35 | 22% | 2.9% | 2.7% | 2.6% |
| Wexford | 119 | 93 | 26 | 22% | 2.2% | 2.0% | 2.9% |
| **Mid West** | **480** | **336** | **144** | **30%** | **8.8%** | **11.1%** | **8.7%** |
| Clare | 197 | 111 | 86 | 44% | 3.6% | 6.6% | 2.6% |
| Limerick | 226 | 177 | 49 | 22% | 4.1% | 3.8% | 4.6% |
| Tipperary North Riding | 57 | 48 | 9 | 16% | 1.0% | 0.7% | 1.6% |
| **South West** | **726** | **541** | **185** | **25%** | **13.3%** | **14.3%** | **15.1%** |
| Cork | 579 | 427 | 152 | 26% | 10.6% | 11.7% | 11.6% |
| Kerry | 147 | 114 | 33 | 22% | 2.7% | 2.6% | 3.5% |
| **BMW Region** | **1,614** | **1,350** | **264** | **16%** | **29.5%** | **20.4%** | **26.6%** |
| **Border** | **747** | **641** | **106** | **14%** | **13.6%** | **8.2%** | **11.2%** |
| Cavan | 90 | 79 | 11 | 12% | 1.6% | 0.9% | 1.5% |
| Donegal | 225 | 200 | 25 | 11% | 4.1% | 1.9% | 3.6% |
| Leitrim | 38 | 31 | 7 | 18% | 0.7% | 0.5% | 0.7% |
| Louth | 187 | 154 | 33 | 18% | 3.4% | 2.6% | 2.5% |
| Monaghan | 120 | 112 | 8 | 7% | 2.2% | 0.6% | 1.4% |
| Sligo | 87 | 65 | 22 | 25% | 1.6% | 1.7% | 1.5% |
| Midlands | 283 | 230 | 53 | 19% | 5.2% | 4.1% | 5.7% |
| Laois | 44 | 37 | 7 | 16% | 0.8% | 0.5% | 1.5% |
| Longford | 61 | 50 | 11 | 18% | 1.1% | 0.9% | 0.8% |
| Offaly | 97 | 82 | 15 | 15% | 1.8% | 1.2% | 1.6% |
| Westmeath | 81 | 61 | 20 | 25% | 1.5% | 1.5% | 1.7% |
| West | 584 | 479 | 105 | 18% | 10.7% | 8.1% | 9.7% |
| Galway | 376 | 309 | 67 | 18% | 6.9% | 5.2% | 5.2% |
| Mayo | 146 | 122 | 24 | 16% | 2.7% | 1.9% | 3.1% |
| Roscommon | 62 | 48 | 14 | 23% | 1.1% | 1.1% | 1.4% |

Source:Based on data contained on Forfás Business Information System relating to plants under the remit of IDA Ireland, Enterprise Ireland, Shannon Development and Udaras na Gaeltachta

## 3.1 Distribution of Manufacturing and Traded Services Establishments

Table 3.1 provides a simple count of the number of manufacturing and internationally traded services establishments (employing 5 or more persons) in the country. The data are broken down by region/county and also by nationality of ownership (Irish-owned versus foreign-owned). This is our first indicator of the spatial distribution of establishments, albeit a very crude measure.

One of the first points to note is the variation between counties in the number of foreign-owned establishments as a proportion of the total number of establishments. This shows marked differences between counties in terms of the composition of indigenous and foreign-owned plants.

The counties which have a low proportion of foreign-owned plants relative to their total base include **Meath**, **Carlow**, **Kilkenny**, **Tipperary North**, **Cavan**, **Donegal**, **Monaghan**, **Laois**, **Offaly** and **Mayo**. The counties with a relatively high proportion of foreign-owned plants within their enterprise base include **Dublin** (31%), **Clare** (44%) and **Cork** (26%).

While the presence of a high proportion of foreign-owned plants within the enterprise base does not make one county "better" or "worse" than another, this report will show that there is a rather consistent grouping of counties across many of the indicators used and even this first crude indicators adheres to this pattern.

The national composition of all plants is presented in the table (i.e. where the total number of plants in the country equates to 100%). In a similar way, the national composition of all foreign-owned plants is also presented. These data can be examined with reference to a "normalising" variable such as the spread of the population. From Table 3.1, for example, we see that the South-East accounts for 9.6% of all manufacturing and traded services establishments, 7.0% of foreign-owned establishments and 10.8% of the population.

No suggestion is being made here that there should be a completely uniform distribution of all plants, foreign-owned plants and population (i.e. everything in complete balance). Regions and counties are not homogenous entities; for some, manufacturing and traded services will be a more important component of their local economy than for others and this paper sets out to explore these differences. The reason these measures are placed side by side is that it should reveal areas where there is a concentration of activity that "stands out" in some way and which might reveal nuances about the spatial distribution of manufacturing and internationally traded services in the country.

FIGURE 1

**Number of establishments with 5 or more employees relative to population**

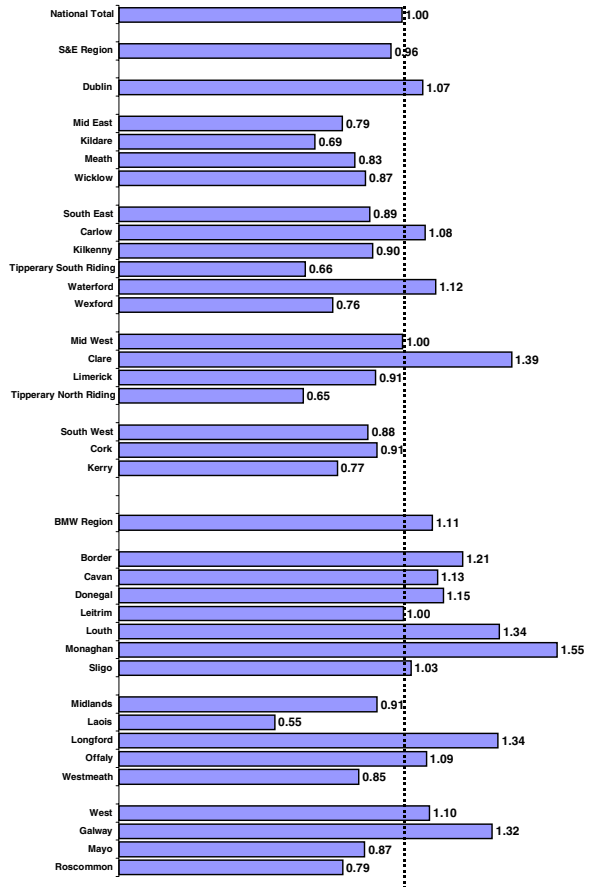
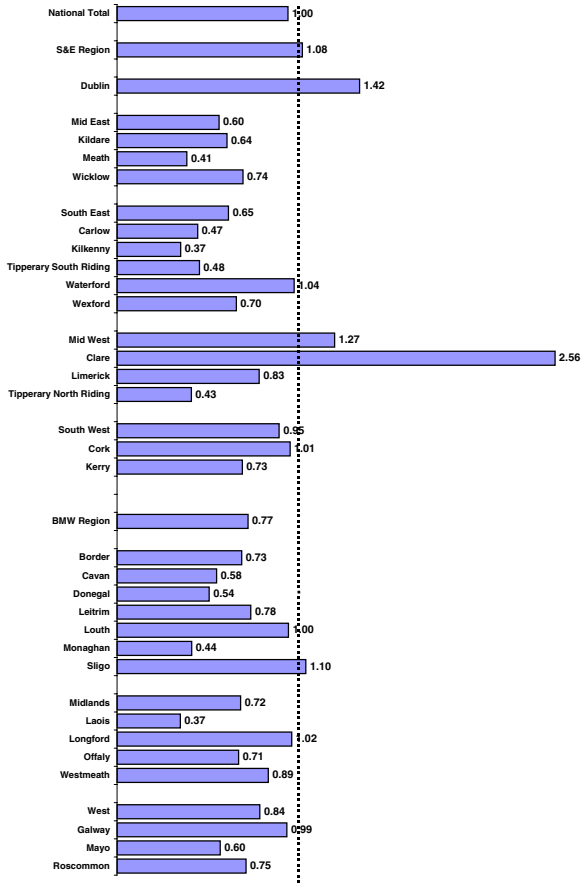



FIGURE 2

**Number of foreign establishments with 5+ employees relative to population**




Source: Based on data contained on Forfás Business Information System

These indicators are presented graphically in Figures 1 and 2 above. Figure 1 shows the composition of all establishments relative to the composition of the population. Where an area accounts for the same proportion of plants as it does of the population, the index will have a value of 1 (e.g. Leitrim). Significant departures from 1 may indicate areas where there is a particular concentration of firms or lack thereof. **Kildare**, **Tipperary** (North & South), and **Laois** are counties which account for a base of establishments which is less than their population base. The counties with a base of establishments which exceeds their population base include **Clare**, **Louth**, **Monaghan**, **Longford** and **Galway**.

There is a more marked variation between regions/counties when the analysis is concentrated on foreign-owned establishments in the country. **Clare** stands out as having a disproportionately high base of establishments relative to its population. Dublin is the only other county that stands out in this respect but to a much lesser extent. Almost all other counties, as a consequence, have a base of foreign-owned establishments which is below their population base but the counties which stand out most are **Meath**, **Carlow**, **Kilkenny**, **Tipperary** (North & South), **Cavan**, **Donegal**, **Monaghan** and **Laois**.

## Table 3.2: Scale of Establishments by Region and County

| | Number of plants in 1999 | Employment Size Band | | | | | |
|---|---|---|---|---|---|---|---|
| | | 5 - 9 | 10 - 19 | 20 - 49 | 50 - 99 | 100 - 249 | 250+ |
| **National Total** | **5,474** | **26%** | **25%** | **25%** | **12%** | **8%** | **4%** |
| **S&E Region** | **3,860** | **24%** | **25%** | **26%** | **13%** | **9%** | **4%** |
| **Dublin** | **1,716** | **24%** | **25%** | **27%** | **12%** | **8%** | **3%** |
| **Mid East** | **414** | **23%** | **25%** | **26%** | **14%** | **8%** | **4%** |
| Kildare | 141 | 23% | 22% | 28% | 15% | 6% | 6% |
| Meath | 138 | 21% | 28% | 28% | 14% | 8% | 1% |
| Wicklow | 135 | 26% | 26% | 21% | 13% | 10% | 4% |
| **South East** | **524** | **25%** | **26%** | **24%** | **13%** | **8%** | **4%** |
| Carlow | 68 | 28% | 24% | 24% | 13% | 7% | 4% |
| Kilkenny | 102 | 22% | 27% | 26% | 20% | 4% | 1% |
| Tipperary South | 75 | 24% | 23% | 25% | 13% | 9% | 5% |
| Waterford | 160 | 29% | 24% | 24% | 7% | 8% | 7% |
| Wexford | 119 | 22% | 29% | 20% | 15% | 11% | 3% |
| **Mid West** | **480** | **20%** | **26%** | **25%** | **13%** | **12%** | **4%** |
| Clare | 197 | 18% | 27% | 25% | 14% | 12% | 4% |
| Limerick | 226 | 22% | 25% | 25% | 13% | 11% | 4% |
| Tipperary North | 57 | 18% | 28% | 19% | 12% | 16% | 7% |
| **South West** | **726** | **25%** | **24%** | **25%** | **11%** | **10%** | **4%** |
| Cork | 579 | 23% | 25% | 25% | 12% | 10% | 5% |
| Kerry | 147 | 33% | 21% | 25% | 7% | 10% | 3% |
| **BMW Region** | **1,614** | **30%** | **25%** | **25%** | **10%** | **7%** | **3%** |
| **Border** | **747** | **29%** | **25%** | **27%** | **9%** | **7%** | **3%** |
| Cavan | 90 | 28% | 27% | 27% | 9% | 4% | 6% |
| Donegal | 225 | 32% | 27% | 27% | 7% | 6% | 1% |
| Leitrim | 38 | 32% | 29% | 26% | 5% | 5% | 3% |
| Louth | 187 | 30% | 21% | 26% | 10% | 9% | 4% |
| Monaghan | 120 | 23% | 26% | 31% | 9% | 9% | 2% |
| Sligo | 87 | 28% | 25% | 23% | 15% | 5% | 5% |
| **Midlands** | **283** | **28%** | **24%** | **24%** | **11%** | **9%** | **3%** |
| Laois | 44 | 25% | 18% | 36% | 11% | 7% | 2% |
| Longford | 61 | 25% | 26% | 30% | 8% | 8% | 3% |
| Offaly | 97 | 30% | 26% | 16% | 18% | 8% | 2% |
| Westmeath | 81 | 31% | 23% | 22% | 6% | 12% | 5% |
| **West** | **584** | **32%** | **27%** | **22%** | **11%** | **6%** | **3%** |
| Galway | 376 | 33% | 27% | 20% | 12% | 5% | 2% |
| Mayo | 146 | 30% | 25% | 27% | 6% | 8% | 4% |
| Roscommon | 62 | 27% | 24% | 27% | 13% | 5% | 3% |

Source:Based on data contained on Forfás Business Information System relating to plants under the remit of IDA Ireland, Enterprise Ireland, Shannon Development and Udaras na Gaeltachta

## 3.2 Examination of Establishment Scale by County

Table 3.2 examines the size structure of establishments in each region/county. Looking at the smallest size class, we see that at a national level, 26% of all manufacturing and internationally traded services plants (with 5+ employees) are in the size band "5-9 employees". A higher proportion of plants in the BMW region are in this size class (30%) compared to the Southern & Eastern region (24%).

The counties with an above average level of plants in the smallest size category are **Kerry**, **Donegal**, **Leitrim**, **Louth**, **Offaly**, **Westmeath**, **Galway** and **Mayo** suggesting that the average scale of enterprises will be smaller in these counties than elsewhere in the country.

Looking across the distribution at a national level, there is a rather even pattern in the data with one quarter of plants being found in each of the categories 5-9, 10-19, 20-49 and the other one quarter being spread across the bands with 50 or more employees. In general, there is a lot of similarity between counties in terms of this structure. The exceptions include **Wexford**, **Tipperary North**, **Kerry**, **Laois**, **Offaly**, **Westmeath** and **Galway** which in general tend towards having more plants in the smaller size bands.

Figures 3 and 4 present details on the number of establishments with at least 50 employees in each county. Figure 3 shows the base of establishments with 50+ employees expressed relative to each region/county's population base. This paints a slightly different picture to that suggested by Figure 1 and points to **Clare**, **Louth** and **Monaghan** each having a base of medium-large enterprises which is noticeably higher than their population base.

The same figure highlights **Kerry**, **Donegal**, **Leitrim**, **Laois**, **Mayo** and **Roscommon** having a base of larger establishments that is noticeably less than their population base. Of this group, only Laois showed up in Figure 1 as having a base of establishments noticeably below its population base. While the other counties do not appear out of line in terms of overall number of establishments, the below average scale of these establishments causes the counties to appear "out of line" when we look only at the larger firms (50+ employees).

FIGURE 3

**Number of establishments with 50 or more employees relative to population**

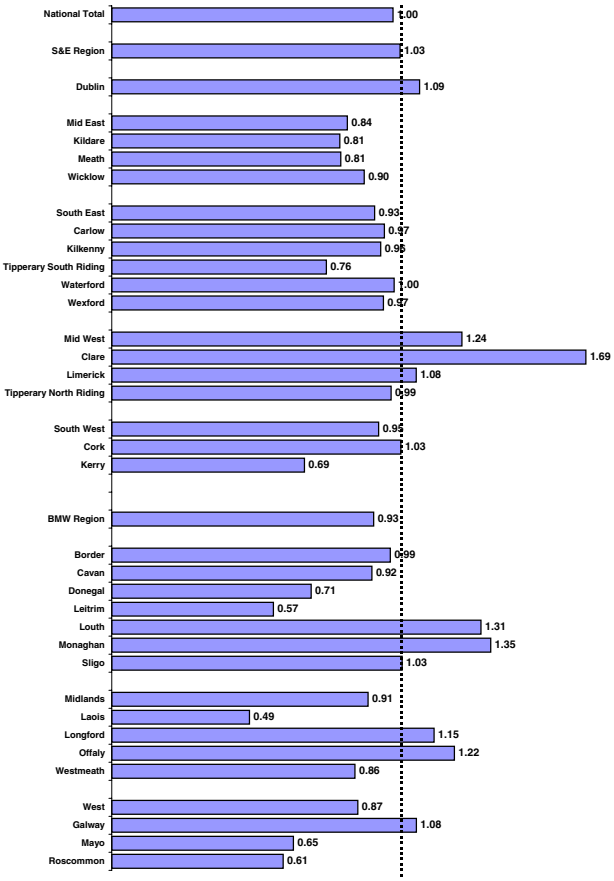
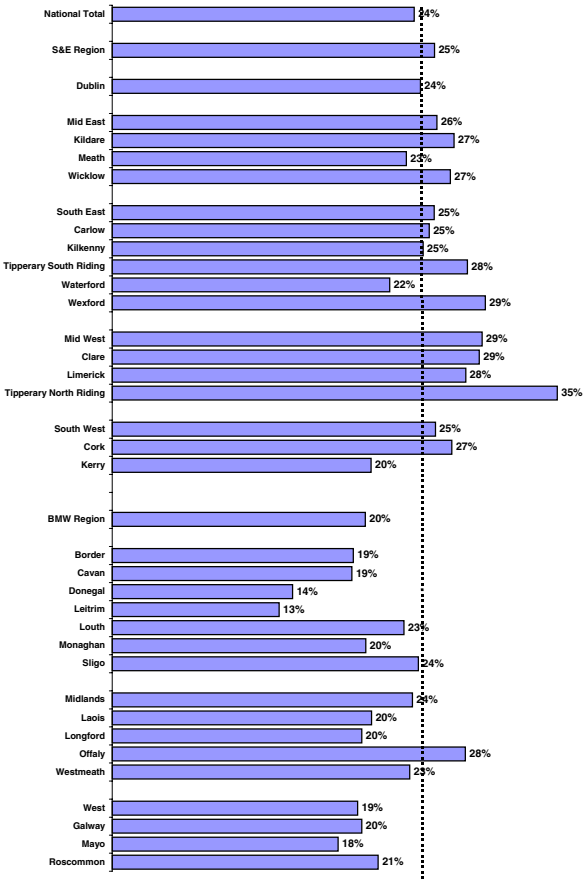



FIGURE 4

**Establishments with 50 or more employees as a share of all establishments > 5 employees**




Source: Based on data contained on Forfás Business Information System

Figure 4 also brings out this point by expressing the number of plants with 50 or more employees as a percentage of all plants (with 5+ employees). The scale of establishments in Tipperary North appears to be above average - the base data in Table 3.2 show that 35% of its 57 establishments have 50 or more employees. In **Cavan**, **Donegal**, **Leitrim** and **Mayo** on the other hand, the level of plants with 50 or more employees is below average. Other than these exceptions, however, there is not that much variation between regions/counties in terms of the size composition of their manufacturing and internationally traded services base.

## Table 3.3: Employment in manufacturing and International Traded Services

| | Total employment in all plants in 1999 | Employment in all Irish-owned plants | Employment in all foreign-owned plants | Share of employment in foreign-owned firms | National composition of total employment | National composition of foreign-owned employment | National composition of population |
|---|---|---|---|---|---|---|---|
| **National Total** | **324,422** | **158,690** | **165,732** | **51%** | **100.0%** | **100.0%** | **100.0%** |
| **S&E Region** | **242,033** | **112,753** | **129,280** | **53%** | **74.6%** | **78.0%** | **73.4%** |
| **Dublin** | **102,558** | **45,960** | **56,598** | **55%** | **31.6%** | **34.2%** | **29.2%** |
| **Mid East** | **28,415** | **13,674** | **14,741** | **52%** | **8.8%** | **8.9%** | **9.6%** |
| Kildare | 14,393 | 4,403 | 9,990 | 69% | 4.4% | 6.0% | 3.7% |
| Meath | 5,931 | 4,474 | 1,457 | 25% | 1.8% | 0.9% | 3.0% |
| Wicklow | 8,091 | 4,797 | 3,294 | 41% | 2.5% | 2.0% | 2.8% |
| **South East** | **31,888** | **18,808** | **13,080** | **41%** | **9.8%** | **7.9%** | **10.8%** |
| Carlow | 3,929 | 2,622 | 1,307 | 33% | 1.2% | 0.8% | 1.1% |
| Kilkenny | 4,288 | 3,715 | 573 | 13% | 1.3% | 0.3% | 2.1% |
| Tipperary South | 4,839 | 2,434 | 2,405 | 50% | 1.5% | 1.5% | 2.1% |
| Waterford | 12,068 | 5,960 | 6,108 | 51% | 3.7% | 3.7% | 2.6% |
| Wexford | 6,764 | 4,077 | 2,687 | 40% | 2.1% | 1.6% | 2.9% |
| **Mid West** | **32,725** | **11,505** | **21,220** | **65%** | **10.1%** | **12.8%** | **8.7%** |
| Clare | 11,104 | 2,833 | 8,271 | 74% | 3.4% | 5.0% | 2.6% |
| Limerick | 17,448 | 5,756 | 11,692 | 67% | 5.4% | 7.1% | 4.6% |
| Tipperary North | 4,173 | 2,916 | 1,257 | 30% | 1.3% | 0.8% | 1.6% |
| **South West** | **46,447** | **22,806** | **23,641** | **51%** | **14.3%** | **14.3%** | **15.1%** |
| Cork | 38,386 | 18,101 | 20,285 | 53% | 11.8% | 12.2% | 11.6% |
| Kerry | 8,061 | 4,705 | 3,356 | 42% | 2.5% | 2.0% | 3.5% |
| **BMW Region** | **82,389** | **45,937** | **36,452** | **44%** | **25.4%** | **22.0%** | **26.6%** |
| **Border** | **37,216** | **23,101** | **14,115** | **38%** | **11.5%** | **8.5%** | **11.2%** |
| Cavan | 4,410 | 3,119 | 1,291 | 29% | 1.4% | 0.8% | 1.5% |
| Donegal | 10,995 | 7,121 | 3,874 | 35% | 3.4% | 2.3% | 3.6% |
| Leitrim | 1,475 | 818 | 657 | 45% | 0.5% | 0.4% | 0.7% |
| Louth | 10,324 | 5,397 | 4,927 | 48% | 3.2% | 3.0% | 2.5% |
| Monaghan | 5,340 | 4,724 | 616 | 12% | 1.6% | 0.4% | 1.4% |
| Sligo | 4,672 | 1,922 | 2,750 | 59% | 1.4% | 1.7% | 1.5% |
| **Midlands** | **14,124** | **7,883** | **6,241** | **44%** | **4.4%** | **3.8%** | **5.7%** |
| Laois | 1,924 | 1,501 | 423 | 22% | 0.6% | 0.3% | 1.5% |
| Longford | 2,495 | 1,915 | 580 | 23% | 0.8% | 0.3% | 0.8% |
| Offaly | 4,957 | 2,563 | 2,394 | 48% | 1.5% | 1.4% | 1.6% |
| Westmeath | 4,748 | 1,904 | 2,844 | 60% | 1.5% | 1.7% | 1.7% |
| **West** | **31,049** | **14,953** | **16,096** | **52%** | **9.6%** | **9.7%** | **9.7%** |
| Galway | 19,856 | 9,083 | 10,773 | 54% | 6.1% | 6.5% | 5.2% |
| Mayo | 7,817 | 3,824 | 3,993 | 51% | 2.4% | 2.4% | 3.1% |
| Roscommon | 3,376 | 2,046 | 1,330 | 39% | 1.0% | 0.8% | 1.4% |

Source:Based on data contained on Forfás Business Information System relating to plants under the remit of IDA Ireland, Enterprise Ireland, Shannon Development and Udaras na Gaeltachta

## 3.3 Aggregate Employment in Manufacturing and Traded Services

Moving away from the numbers of plants to aggregate employment levels in manufacturing and internationally traded services, we see that there was total employment of more than 325,000 in 1999. There is an equal divide between employment in Irish-owned and foreign-owned establishments at a national level. While foreign-owned industry accounts for 25% of establishments (with 5+ employees), it accounts for 50% of jobs.

The counties with a proportion of manufacturing and traded services employment coming from foreign-owned companies which is noticeably above average are **Kildare**, **Clare**, **Limerick**, **Sligo**, and **Westmeath**. The counties with a foreign-owned component that is noticeably below average include **Meath**, **Carlow**, **Kilkenny**, **Tipperary North**, **Cavan**, **Donegal**, **Monaghan**, **Laois**, **Longford** and **Roscommon**. This is broadly consistent with the picture that emerges when looking at the number of establishment (Section 3.1).

As with most of the data presented in this report, this indicator shows that there is considerable variation within in each of the eight regional groups (Mid-East, South-East etc.). Very often, this variation gets masked as data are typically presented only at the regional level. The level of manufacturing and traded services employment coming from foreign-owned companies in the Mid-East for example (52%) is in line with the national average. However, this varies between 69% in Kildare and 25% in the case of Meath. The BMW region in aggregate has a below average level of its manufacturing and traded services employment coming from foreign-owned companies (44%). However, within the region, Sligo, Westmeath and Galway each have an above average proportion of employment coming from foreign-owned companies.

In a similar fashion to Section 3.1, each region/county's base of manufacturing and traded services employment and its base of foreign-owned employment is presented alongside its population base. These data are examined graphically in Figures 5 and 6. It is interesting to note that some counties which appear as "outliers" using this measure do not stand out when we focus only on numbers of establishments. Again, it must be restated that there is no particular reason why a county would be expected to have a base of employment that corresponds precisely with its population base. These graphics are merely used to examine where there might be a concentration of activity that "stands out" when assessed against a normalising variable, which in this case is taken to be population.

FIGURE 5

**Employment in manufacturing and internationally traded services relative to share of population**

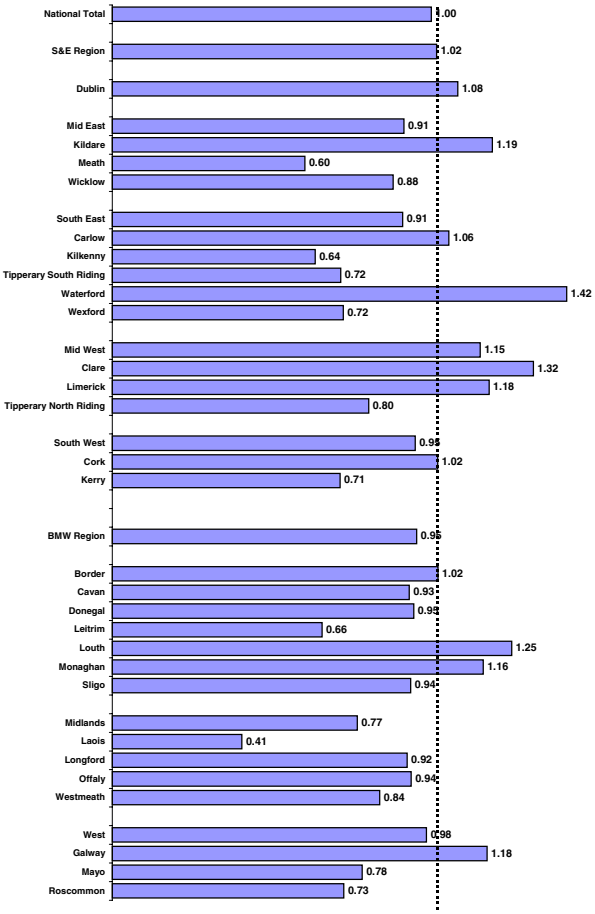
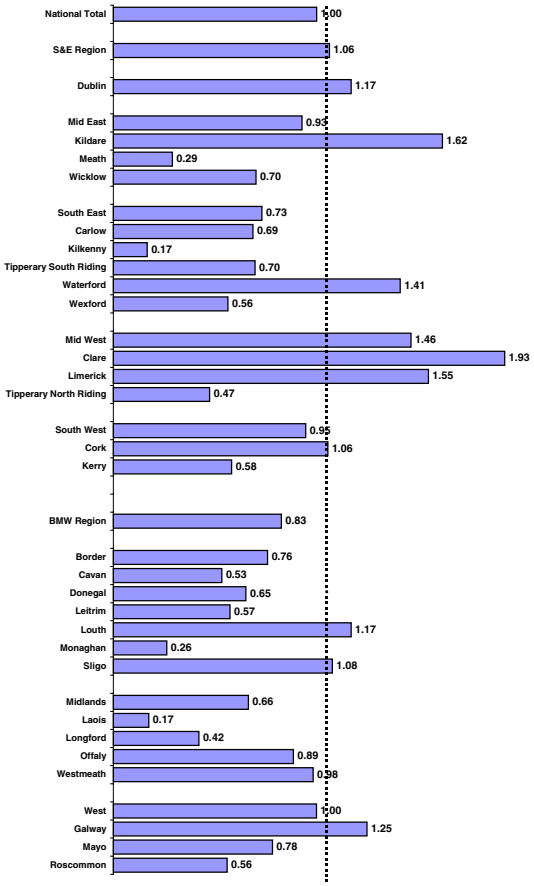



FIGURE 6

**Employment in foreign-owned manufacturing and int. traded services relative to share of population**




Source: Based on data contained on Forfás Business Information System

Waterford, Clare and Louth are the counties which stand out most in terms of having a base of manufacturing and traded services employment which is above their population base. Meath, Kilkenny, Leitrim and Laois each appear to have a disproportionately low base. Of these counties, it is only Laois that stands out when we look at number of establishments (Section 3.1). From this, it could be argued that the raw number of firms is an inadequate indicator of enterprise activity. At a minimum, one needs to look also at the numbers employed in that set of firms.

Looking at employment in foreign-owned manufacturing and traded services, Kildare, Waterford, Clare and Limerick are the counties that stand out most (whereas only Clare appears as an outlier in our analysis of the number of foreign-owned establishments). This suggests that Kildare, Waterford and Limerick have a number of foreign-owned establishments with large numbers employed that cause them to "stand out" on the aggregate employment measure but not in terms of their number of establishments.

In general, Figure 6 shows a large degree of variation between regions and counties in the spread of foreign-owned employment. The counties which appear to have a base of foreign-owned employment significantly below their population base are Meath, Kilkenny, Wexford, Tipperary North and Kerry in the Southern & Eastern region and Cavan, Leitrim, Monaghan, Laois, Longford and Roscommon in the BMW region. It is interesting that there are a similar number of counties in both regions that appear to have a base of foreign-owned manufacturing and traded services employment noticeably below their population base.

The comparison between the number of establishments (Section 3.1) and the employment in these plants as reported in this section raises the issue of the distribution of employment and whether particular areas are highly dependent on a small number of large establishments. The table below shows the proportion of manufacturing and traded services employment that is accounted for by the five largest firms in each county.

**FIGURE 7 PROPORTION OF EMPLOYMENT ACCOUNTED FOR BY 5 LARGEST FIRMS**

| High Concentration | | Medium Concentration | | Low Concentration | |
|---|---|---|---|---|---|
| Roscommon | 51% | Longford | 35% | Donegal | 25% |
| Leitrim | 49% | Tipperary South | 34% | Kerry | 24% |
| Kildare | 49% | Cavan | 34% | Kilkenny | 23% |
| Sligo | 44% | Offaly | 33% | Clare | 23% |
| Tipperary North | 43% | Waterford | 31% | Meath | 21% |
| Carlow | 41% | Wicklow | 29% | Galway | 21% |
| Laois | 38% | Mayo | 29% | Louth | 17% |
| Limerick | 37% | Wexford | 27% | Cork | 10% |
| Westmeath | 36% | Monaghan | 26% | Dublin | 7% |

Source: Based on data contained on Forfás Business Information System

The general pattern in this table is that the larger, more established urban areas are less likely to have a high concentration of employment in their top five firms (e.g. Dublin, Cork, Galway). At the other extreme, some counties are recognised as having one or two very large employers which may or may not make them vulnerable (e.g. Kildare, Leitrim). The counties with a particularly high concentration of activity include some counties with a low base of manufacturing and traded services activity in the first place (e.g. Laois, Carlow) so the data do not suggest one clear pattern. Instead, this measure should be assessed in the context of the other indicators presented in this report.

## Table 3.4:Distribution of Manufacturing of Manufacturing and Trade Services Employment by Sector

| | Total Jobs | Food and Drink | Text. and Cloth. | Wood | Print and Chem. | Chem. and Pharm | Rubber and Plastic | Non-met minerals | Metal prod. | Mach. and equip n.e.c. | Electronic equip. | Transport equip. | Intn'l traded serv. | Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **National Total** | **324,422** | **16.8** | **4.5** | **2.1** | **4.9** | **7.7** | **3.3** | **3.7** | **6.6** | **4.2** | **20.2** | **3.8** | **17.0** | **5.3** |
| **S&E Region** | **242,033** | **15.6** | **3.3** | **1.7** | **5.8** | **8.3** | **2.8** | **3.8** | **6.0** | **4.1** | **19.8** | **3.8** | **21.0** | **4.1** |
| **Dublin** | **102,558** | **11.2** | **2.9** | **0.5** | **9.4** | **5.6** | **1.8** | **1.9** | **4.4** | **2.8** | **14.7** | **3.2** | **38.9** | **2.7** |
| **Mid East** | **28,415** | **17.3** | **4.1** | **1.6** | **4.8** | **10.3** | **5.1** | **6.0** | **4.0** | **2.5** | **26.5** | **3.3** | **8.5** | **5.9** |
| Kildare | 14,393 | 18.1 | 3.0 | 1.0 | 1.8 | 12.2 | 3.4 | 2.8 | 2.7 | 1.0 | 39.9 | 5.4 | 6.5 | 2.4 |
| Meath | 5,931 | 16.6 | 8.5 | 2.3 | 5.5 | 0.7 | 4.3 | 13.9 | 7.2 | 6.1 | 12.6 | 1.8 | 2.5 | 18.0 |
| Wicklow | 8,091 | 16.5 | 2.9 | 2.4 | 9.7 | 14.0 | 8.7 | 5.9 | 4.2 | 2.5 | 12.8 | 0.5 | 16.6 | 3.3 |
| **South East** | **31,888** | **23.9** | **3.7** | **2.3** | **2.6** | **9.4** | **2.5** | **10.1** | **11.1** | **8.6** | **12.1** | **6.5** | **2.4** | **4.8** |
| Carlow | 3,929 | 17.6 | 0.3 | 3.0 | 1.4 | 1.4 | 1.6 | 10.2 | 19.5 | 36.6 | 2.5 | 1.8 | 2.2 | 1.9 |
| Kilkenny | 4,288 | 40.3 | 11.5 | 2.2 | 4.1 | 1.5 | 3.3 | 7.9 | 13.5 | 3.4 | 0.3 | 1.6 | 2.9 | 7.4 |
| Tipperary South | 4,839 | 35.9 | 2.8 | 4.4 | 1.6 | 31.4 | 0.6 | 3.7 | 8.3 | 2.9 | 2.6 | 2.4 | 1.9 | 1.4 |
| Waterford | 12,068 | 11.7 | 1.8 | 2.2 | 2.9 | 9.1 | 2.5 | 17.9 | 11.0 | 1.1 | 19.9 | 9.9 | 2.6 | 7.4 |
| Wexford | 6,764 | 30.2 | 4.9 | 0.8 | 2.4 | 3.6 | 3.8 | 2.0 | 6.8 | 13.2 | 18.0 | 9.4 | 2.3 | 2.7 |
| **Mid West** | **32,725** | **10.8** | **1.2** | **1.6** | **2.4** | **6.5** | **3.2** | **3.5** | **7.8** | **5.4** | **36.8** | **6.4** | **8.7** | **5.6** |
| Clare | 11,104 | 1.5 | 0.9 | 2.4 | 2.0 | 7.7 | 4.9 | 4.9 | 5.8 | 9.2 | 30.5 | 8.7 | 11.6 | 10.0 |
| Limerick | 17,448 | 10.2 | 1.1 | 1.4 | 2.9 | 3.4 | 2.9 | 1.0 | 9.4 | 2.8 | 46.0 | 6.1 | 9.0 | 3.9 |
| Tipperary North | 4,173 | 37.8 | 2.8 | 0.5 | 1.7 | 16.2 | 0.1 | 10.1 | 6.5 | 6.2 | 15.0 | 1.7 | 0.0 | 1.3 |
| **South West** | **46,447** | **21.9** | **5.0** | **3.9** | **2.8** | **13.9** | **3.5** | **2.8** | **5.9** | **3.7** | **20.1** | **1.8** | **10.2** | **4.2** |
| Cork | 38,386 | 21.8 | 3.7 | 4.7 | 3.1 | 15.8 | 3.4 | 2.9 | 5.8 | 2.6 | 23.2 | 0.7 | 9.4 | 3.1 |
| Kerry | 8,061 | 22.3 | 11.4 | 0.5 | 1.6 | 5.1 | 4.4 | 2.6 | 6.6 | 9.3 | 5.6 | 7.1 | 13.9 | 9.5 |

## Table 3.4:Distribution of Manufacturing of Manufacturing and Trade Services Employment by Sector *(continued)*

| | Total Jobs | Food and Drink | Text. and Cloth. | Wood | Print and Chem. | Chem. and Pharm | Rubber and Plastic | Non-met minerals | Metal prod. | Mach. and equip n.e.c. | Electronic equip. | Transport equip. | Intn'l traded serv. | Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **BMW Region** | **82,389** | **20.3** | **8.0** | **3.3** | **2.3** | **5.7** | **4.7** | **3.2** | **8.4** | **4.5** | **21.5** | **3.8** | **5.3** | **9.0** |
| **Border** | **37,216** | **26.1** | **12.8** | **3.3** | **2.0** | **6.2** | **4.9** | **2.5** | **7.7** | **4.4** | **14.7** | **4.8** | **2.9** | **7.8** |
| Cavan | 4,410 | 34.4 | 3.2 | 0.8 | 3.1 | 12.8 | 12.7 | 2.6 | 13.9 | 1.5 | 7.9 | 0.4 | 0.4 | 6.2 |
| Donegal | 10,995 | 23.5 | 30.2 | 1.5 | 0.5 | 7.4 | 2.2 | 3.7 | 2.8 | 0.2 | 13.1 | 1.9 | 3.8 | 9.1 |
| Leitrim | 1,475 | 5.3 | 3.3 | 33.0 | 1.6 | 0.5 | 10.8 | 0.0 | 14.2 | 2.4 | 2.2 | 17.8 | 0.7 | 8.1 |
| Louth | 10,324 | 22.9 | 9.5 | 0.7 | 3.5 | 3.8 | 3.1 | 1.3 | 5.8 | 13.6 | 19.7 | 7.2 | 4.4 | 4.5 |
| Monaghan | 5,340 | 46.9 | 4.6 | 7.4 | 1.1 | 3.1 | 5.0 | 2.7 | 7.1 | 0.5 | 3.6 | 0.5 | 1.3 | 16.2 |
| Sligo | 4,672 | 14.0 | 0.4 | 1.4 | 2.1 | 7.3 | 5.7 | 3.0 | 16.0 | 2.1 | 30.4 | 11.2 | 2.2 | 4.0 |
| **Midlands** | **14,124** | **17.8** | **5.3** | **5.6** | **2.5** | **1.4** | **10.5** | **5.9** | **11.4** | **4.0** | **19.9** | **5.0** | **3.9** | **6.7** |
| Laois | 1,924 | 21.6 | 2.7 | 7.7 | 2.3 | 2.9 | 11.9 | 9.1 | 10.0 | 3.8 | 4.6 | 9.7 | 1.7 | 12.1 |
| Longford | 2,495 | 37.8 | 8.4 | 6.9 | 3.5 | 0.3 | 5.7 | 2.2 | 11.4 | 7.1 | 11.2 | 1.4 | 1.1 | 3.0 |
| Offaly | 4,957 | 15.9 | 8.5 | 3.9 | 1.0 | 1.4 | 6.0 | 10.3 | 14.8 | 2.7 | 25.7 | 2.4 | 0.4 | 7.0 |
| Westmeath | 4,748 | 7.8 | 1.3 | 6.0 | 3.6 | 1.2 | 17.4 | 1.8 | 8.6 | 3.8 | 24.6 | 7.8 | 10.0 | 6.2 |
| **West** | **31,049** | **14.4** | **3.6** | **2.2** | **2.5** | **7.0** | **1.9** | **2.8** | **7.9** | **4.9** | **30.4** | **2.0** | **9.0** | **11.6** |
| Galway | 19,856 | 8.5 | 2.9 | 2.0 | 1.9 | 1.5 | 2.4 | 2.6 | 6.5 | 5.6 | 39.3 | 1.2 | 11.5 | 14.2 |
| Mayo | 7,817 | 16.4 | 6.0 | 3.3 | 3.5 | 12.0 | 1.3 | 2.3 | 12.1 | 5.0 | 18.9 | 4.8 | 5.3 | 9.1 |
| Roscommon | 3,376 | 44.6 | 1.7 | 0.2 | 3.3 | 28.4 | 0.0 | 5.0 | 6.5 | 1.0 | 4.8 | 0.0 | 2.6 | 1.6 |

Source:Based on data contained on Forfás Business Information System relating to plants under the remit of IDA Ireland, Enterprise Ireland, Shannon Development and Udaras na Gaeltachta

## 3.4 Sectoral Specialisation Within Manufacturing and Traded Services

The analysis presented so far has referred to numbers of establishments and employment in manufacturing and traded services but has made no reference to the industry sectors involved. Table 3.4 provides a detailed sectoral examination of manufacturing and traded services employment in each region and county. The sectoral "specialisation" of each region/county can be assessed as the data are presented as the share of employment accounted for by each sector in that region/county - each row totals to 100%. Among the most striking points from the table are:

- The dominance of "internationally traded services" (incl. financial services) in Dublin where it accounts for 39% of total manufacturing and traded services employment - the only other counties where internationally traded services accounts for more than 10% of total employment are Wicklow, Clare, Kerry, Westmeath and Galway;
- The significant proportion of employment accounted for by "food and drink" in Kilkenny, Tipperary North & South, Wexford, Cavan, Monaghan, Longford and Roscommon;
- The importance of "textiles and clothing" in Donegal where it accounts for 30% of the 11,000 manufacturing and traded services jobs - no other county has the same dependence on the sector;
- Similarly, the role of the wood sector in Leitrim where it accounts for one third of manufacturing and traded services jobs (with a high concentration of activity within a small number of plants - as per Figure 7);
- The role of "chemicals and pharmaceuticals" in Tipperary South (31% of jobs) and in Roscommon (28% of jobs) - while this is recognised as a particularly important sector in Cork, there is less dependence on the sector there (16% of jobs) than there is in these other counties;
- The role of the electronics sector within industry generally (accounting for 1 in 5 jobs overall) and particularly for Limerick (46%) Kildare (40%), Galway (39%) Clare (31%) and Sligo (30%).

**FIGURE 8**

**Share of establishments with 50 or more employees which are in "advanced" sectors**

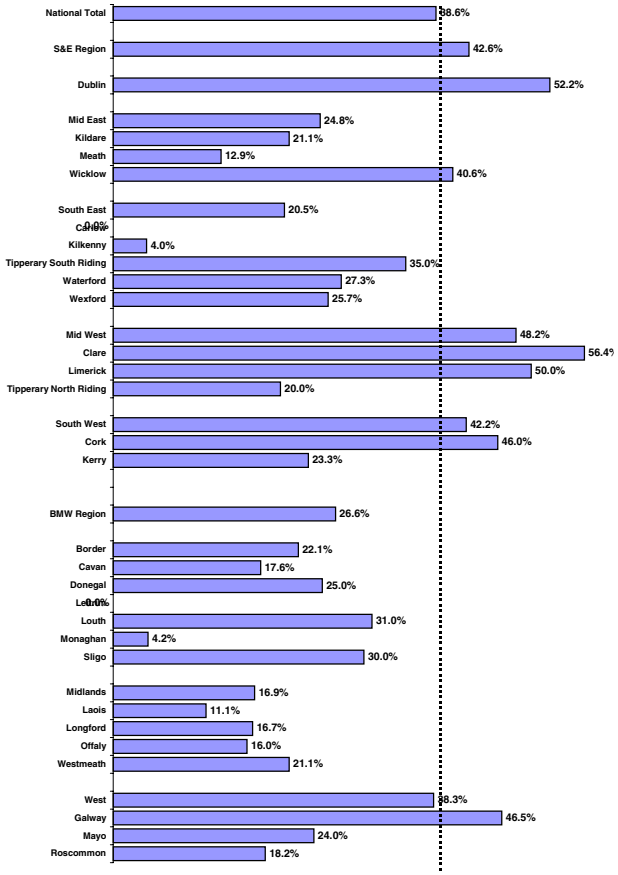
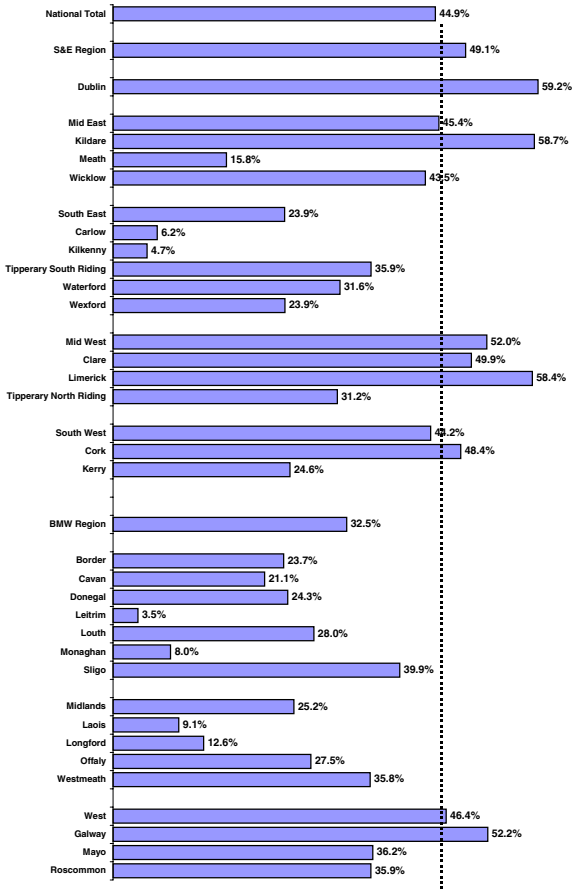



**FIGURE 9**

**Share of total employment accounted for by "advanced" sectors**




Source: Based on data contained on Forfás Business Information System

- A distinction is often made between "traditional" sectors within industry and more "advanced" sectors. While this distinction tends to mask a multitude, and strong profitable firms exist within traditional sectors, the graphics above are presented in order to try to provide a summary picture of the more complex sectoral "specialisation" or concentration of each region and county.
- Figures 8 and 9 paint a very similar picture - Figure 8 shows the proportion of establishments (with 50+ employees) which are in "advanced" sectors (where "advanced" is taken to comprise chemicals, electronics and optical equipment plus internationally traded services). Figure 9 uses the same sectoral classification but is based on the share of employment accounted for by these sectors.
- In the case of both, it is Dublin, Clare, Limerick, Cork and Galway which feature as being above the national average. Kildare is above average on the employment measure only, highlighting once again the strong concentration of its "advanced" employment within a small number of establishments. It is interesting, if not so surprising, that it is these main urban areas which stand out on the indicators of "advanced" employment. The dynamics of the enterprise base will be examined in the next section to throw further light on the spatial distribution of activity and how it is that we have arrived at this current position.

# 4 Dynamics of the Enterprise Base at County Level 1995-1999

This section builds on the snapshot picture painted in Section 3 to show how the manufacturing and internationally traded services sectors have performed in each region/ county since the mid-1990s. The period from 1995 to 1999 represents one of the periods of strongest economic growth in the country so it will be instructive to examine the dynamics within manufacturing and internationally traded services on a county-by-county basis during this period.

In the first instance, we examine the cumulative job gains over the period 1995 to 1999 and thus focus on the job creation that has taken place within manufacturing and internationally traded services.

The analysis is then extended to incorporate job losses during the same period in order to arrive at the "net change" in employment.

The final part of this section looks in particular at the dynamics within the more "advanced" elements of manufacturing and internationally traded services to determine how uniform or otherwise is the evolution towards the more modern sectors within manufacturing and traded services.

## Table 4.5: Gross Job Gains in Manufacturing and Internationally Traded Services

| | Cumulative job gains between 1995 and 1999 | Job gains in Irish-owned companies | Job gains in foreign-owned companies | Foreign-owned as a share of total | National composition of all job gains | National composition of foreign-owned job gains | National composition of population |
|---|---|---|---|---|---|---|---|
| **National Total** | **167,544** | **75,858** | **91,686** | **55%** | **100.0%** | **100.0%** | **100.0%** |
| **S&E Region** | **128,190** | **52,764** | **75,426** | **59%** | **76.5%** | **82.3%** | **73.4%** |
| **Dublin** | **62,232** | **25,309** | **36,923** | **59%** | **37.1%** | **40.3%** | **29.2%** |
| **Mid East** | **14,295** | **6,328** | **7,967** | **56%** | **8.5%** | **8.7%** | **9.6%** |
| Kildare | 7,749 | 2,158 | 5,591 | 72% | 4.6% | 6.1% | 3.7% |
| Meath | 2,385 | 1,925 | 460 | 19% | 1.4% | 0.5% | 3.0% |
| Wicklow | 4,161 | 2,245 | 1,916 | 46% | 2.5% | 2.1% | 2.8% |
| **South East** | **14,344** | **7,447** | **6,897** | **48%** | **8.6%** | **7.5%** | **10.8%** |
| Carlow | 1,200 | 957 | 243 | 20% | 0.7% | 0.3% | 1.1% |
| Kilkenny | 1,663 | 1,486 | 177 | 11% | 1.0% | 0.2% | 2.1% |
| Tipperary South | 3,424 | 1,020 | 2,404 | 70% | 2.0% | 2.6% | 2.1% |
| Waterford | 5,793 | 2,634 | 3,159 | 55% | 3.5% | 3.4% | 2.6% |
| Wexford | 2,264 | 1,350 | 914 | 40% | 1.4% | 1.0% | 2.9% |
| **Mid West** | **15,027** | **4,486** | **10,541** | **70%** | **9.0%** | **11.5%** | **8.7%** |
| Clare | 4,450 | 1,190 | 3,260 | 73% | 2.7% | 3.6% | 2.6% |
| Limerick | 9,181 | 2,465 | 6,716 | 73% | 5.5% | 7.3% | 4.6% |
| Tipperary North | 1,396 | 831 | 565 | 40% | 0.8% | 0.6% | 1.6% |
| **South West** | **22,292** | **9,194** | **13,098** | **59%** | **13.3%** | **14.3%** | **15.1%** |
| Cork | 18,038 | 6,766 | 11,272 | 62% | 10.8% | 12.3% | 11.6% |
| Kerry | 4,254 | 2,428 | 1,826 | 43% | 2.5% | 2.0% | 3.5% |
| **BMW Region** | **39,354** | **23,094** | **16,260** | **41%** | **23.5%** | **17.7%** | **26.6%** |
| **Border** | **15,548** | **10,727** | **4,821** | **31%** | **9.3%** | **5.3%** | **11.2%** |
| Cavan | 1,645 | 1,248 | 397 | 24% | 1.0% | 0.4% | 1.5% |
| Donegal | 4,696 | 3,872 | 824 | 18% | 2.8% | 0.9% | 3.6% |
| Leitrim | 971 | 421 | 550 | 57% | 0.6% | 0.6% | 0.7% |
| Louth | 4,437 | 2,403 | 2,034 | 46% | 2.6% | 2.2% | 2.5% |
| Monaghan | 2,210 | 2,031 | 179 | 8% | 1.3% | 0.2% | 1.4% |
| Sligo | 1,589 | 752 | 837 | 53% | 0.9% | 0.9% | 1.5% |
| **Midlands** | **6,748** | **3,744** | **3,004** | **45%** | **4.0%** | **3.3%** | **5.7%** |
| Laois | 831 | 690 | 141 | 17% | 0.5% | 0.2% | 1.5% |
| Longford | 1,311 | 1,026 | 285 | 22% | 0.8% | 0.3% | 0.8% |
| Offaly | 2,183 | 1,112 | 1,071 | 49% | 1.3% | 1.2% | 1.6% |
| Westmeath | 2,423 | 916 | 1,507 | 62% | 1.4% | 1.6% | 1.7% |
| **West** | **17,058** | **8,623** | **8,435** | **49%** | **10.2%** | **9.2%** | **9.7%** |
| Galway | 12,013 | 5,782 | 6,231 | 52% | 7.2% | 6.8% | 5.2% |
| Mayo | 3,720 | 2,097 | 1,623 | 44% | 2.2% | 1.8% | 3.1% |
| Roscommon | 1,325 | 744 | 581 | 44% | 0.8% | 0.6% | 1.4% |

Source:Based on data contained on Forfás Business Information System relating to plants under the remit of IDA Ireland, Enterprise Ireland, Shannon Development and Udaras na Gaeltachta

## 4.1 Job Gains in Irish-owned and Foreign-owned Establishments

The first indicator used to examine change within manufacturing and internationally traded services is to count the cumulative number of "gross job gains" between 1995 and 1999. The gross job gains in a particular year relate to the number of persons employed in a firm above the total in the previous year. Job losses are ignored as this is just a measure of job creation. The net change discussed in the next section will take account of job destruction.

The total number of "gross job gains" for 1996, 1997, 1998 and 1999 are summed together to arrive at the figure of 167,544 across the whole country. The distribution of these gross job gains should inform us about the dynamics of manufacturing and internationally traded services in the State.

The proportion of gross job gains accounted for by foreign-owned companies (at 55% is somewhat higher than its share of total employment in Table 3.3 (51%) indicating that the rate of employment creation in foreign-owned industry has been higher than that of indigenous industry. The counties where the proportion of gross job gains coming from foreign-owned firms is noticeably above average include Dublin, Kildare, Tipperary South, Clare, Limerick, Cork and Westmeath.

In broad terms, the distribution of gross job gains between the Southern & Eastern region and the BMW region is in line with the employment pattern examined previously and with the population divide. Approximately three-quarters of gross job gains are in the Southern and Eastern region and one-quarter in the BMW region.

The distribution of gross job gains within foreign-owned industry is more pronounced. 82% of gross job gains in foreign-owned industry were in the Southern & Eastern region and 18% in the BMW region. Dublin and the Mid-East combined accounted for 49% of the gross job gains in foreign-owned companies over the period.

FIGURE 10

**Percentage change in employment in manufacturing and int. services 1995 -1999**

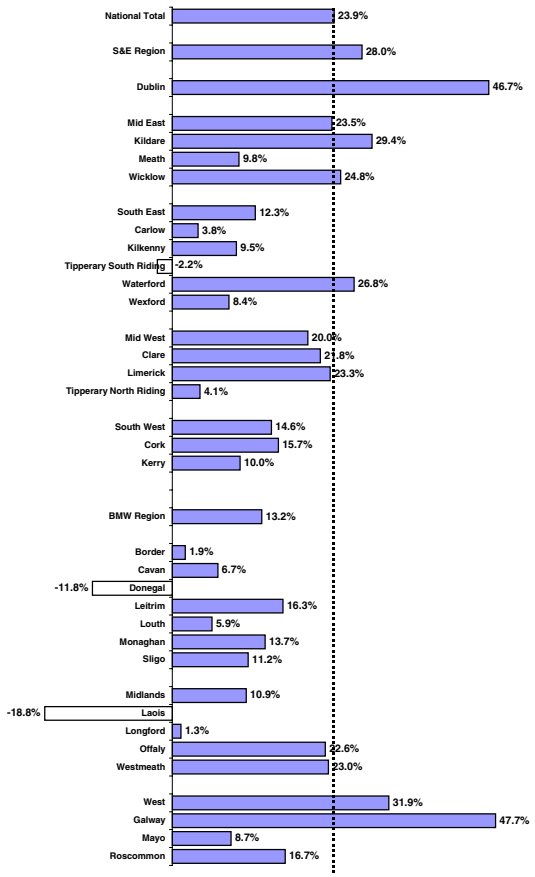
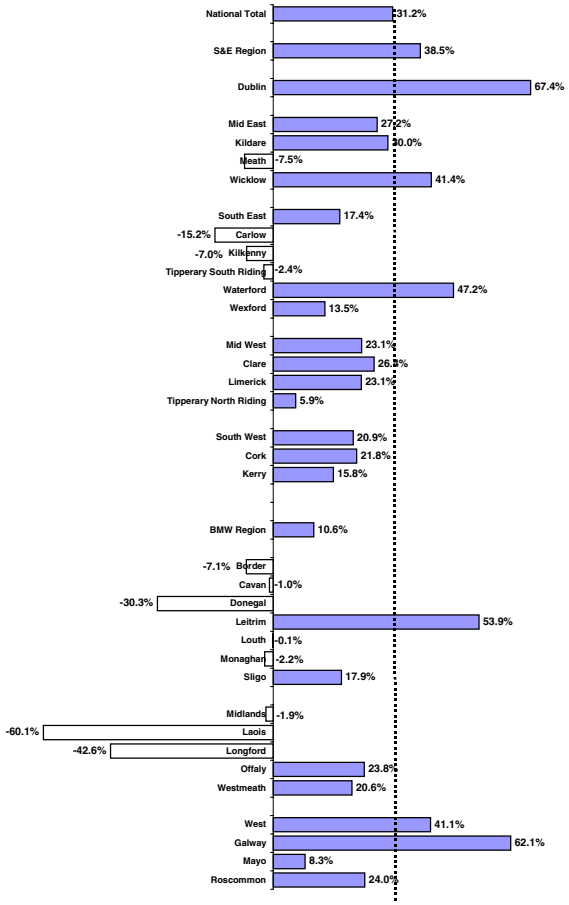



FIGURE 11

**Percentage change in employment in foreign manufacturing and int. services 1995-'99**




Source: Based on data contained on Forfás Business Information System

Figures 10 and 11 above highlight some of the variations between counties by relating the base of gross job gains to the population base. For manufacturing and internationally traded services generally, Meath, Carlow, Kilkenny, Wexford, Tipperary North, Cavan, Sligo, Laois and Roscommon each have a level of gross job gains which is noticeably out of line with its population base. The more urban areas of Dublin, Kildare, Waterford, Limerick and Galway on the other hand have a level of gross job gains which is disproportionately high compared to their population base.

The pattern of gross job gains within foreign-owned manufacturing and internationally traded services is even more pronounced. Dublin, Kildare, Tipperary South, Waterford, Clare, Limerick and Galway each have a level of job gains in excess of their population base whereas counties such as Meath, Carlow, Kilkenny, Cavan, Donegal, Monaghan and Laois appear noticeably out of line in the opposite direction.

## Table 4.6: Net Change in Employment in Manufacturing and Traded Services

| | ALL FIRMS | | | | FOREIGN-OWNED FIRMS | | | |
|---|---|---|---|---|---|---|---|---|
| | Total job gains 1995-1999 | Total job lossses 1995-1999 | Net Change 1995-1999 | Percent. change 1995-1999 | Job gains in foreign firms 1995-1999 | Job losses in foreign firms 1995-1999 | Net Change 1995-1999 | Percent. change 1995-1999 |
| **National Total** | **167,544** | **105,020** | **62,524** | **23.9%** | **91,686** | **52,233** | **39,453** | **31.2%** |
| **S&E Region** | **128,190** | **75,277** | **52,913** | **28.0%** | **75,426** | **39,472** | **35,954** | **38.5%** |
| **Dublin** | **62,232** | **29595** | **32,637** | **46.7%** | **36,923** | **14142** | **22,781** | **67.4%** |
| **Mid East** | **14,295** | **8,881** | **5,414** | **23.5%** | **7,967** | **4,814** | **3,153** | **27.2%** |
| Kildare | 7,749 | 4475 | 3,274 | 29.4% | 5,591 | 3284 | 2,307 | 30.0% |
| Meath | 2,385 | 1854 | 531 | 9.8% | 460 | 578 | -118 | -7.5% |
| Wicklow | 4,161 | 2552 | 1,609 | 24.8% | 1,916 | 952 | 964 | 41.4% |
| **South East** | **14,344** | **10,863** | **3,481** | **12.3%** | **6,897** | **4,957** | **1,940** | **17.4%** |
| Carlow | 1,200 | 1056 | 144 | 3.8% | 243 | 478 | -235 | -15.2% |
| Kilkenny | 1,663 | 1292 | 371 | 9.5% | 177 | 220 | -43 | -7.0% |
| Tipperary South | 3,424 | 3532 | -108 | -2.2% | 2,404 | 2464 | -60 | -2.4% |
| Waterford | 5,793 | 3241 | 2,552 | 26.8% | 3,159 | 1201 | 1,958 | 47.2% |
| Wexford | 2,264 | 1742 | 522 | 8.4% | 914 | 594 | 320 | 13.5% |
| **Mid West** | **15,027** | **9,576** | **5,451** | **20.0%** | **10,541** | **6,553** | **3,988** | **23.1%** |
| Clare | 4,450 | 2459 | 1,991 | 21.8% | 3,260 | 1533 | 1,727 | 26.4% |
| Limerick | 9,181 | 5885 | 3,296 | 23.3% | 6,716 | 4525 | 2,191 | 23.1% |
| Tipperary North | 1,396 | 1232 | 164 | 4.1% | 565 | 495 | 70 | 5.9% |
| **South West** | **22,292** | **16,362** | **5,930** | **14.6%** | **13,098** | **9,006** | **4,092** | **20.9%** |
| Cork | 18,038 | 12841 | 5,197 | 15.7% | 11,272 | 7637 | 3,635 | 21.8% |
| Kerry | 4,254 | 3521 | 733 | 10.0% | 1,826 | 1369 | 457 | 15.8% |
| **BMW Region** | **39,354** | **29,743** | **9,611** | **13.2%** | **16,260** | **12,761** | **3,499** | **10.6%** |
| **Border** | **15,548** | **14,842** | **706** | **1.9%** | **4,821** | **5,893** | **-1,072** | **-7.1%** |
| Cavan | 1,645 | 1367 | 278 | 6.7% | 397 | 410 | -13 | -1.0% |
| Donegal | 4,696 | 6161 | -1,465 | -11.8% | 824 | 2509 | -1,685 | -30.3% |
| Leitrim | 971 | 764 | 207 | 16.3% | 550 | 320 | 230 | 53.9% |
| Louth | 4,437 | 3864 | 573 | 5.9% | 2,034 | 2041 | -7 | -0.1% |
| Monaghan | 2,210 | 1567 | 643 | 13.7% | 179 | 193 | -14 | -2.2% |
| Sligo | 1,589 | 1119 | 470 | 11.2% | 837 | 420 | 417 | 17.9% |
| **Midlands** | **6,748** | **5,359** | **1,389** | **10.9%** | **3,004** | **3,125** | **-121** | **-1.9%** |
| Laois | 831 | 1276 | -445 | -18.8% | 141 | 779 | -638 | -60.1% |
| Longford | 1,311 | 1279 | 32 | 1.3% | 285 | 715 | -430 | -42.6% |
| Offaly | 2,183 | 1270 | 913 | 22.6% | 1,071 | 610 | 461 | 23.8% |
| Westmeath | 2,423 | 1534 | 889 | 23.0% | 1,507 | 1021 | 486 | 20.6% |
| **West** | **17,058** | **9,542** | **7,516** | **31.9%** | **8,435** | **3,743** | **4,692** | **41.1%** |
| Galway | 12,013 | 5603 | 6,410 | 47.7% | 6,231 | 2103 | 4,128 | 62.1% |
| Mayo | 3,720 | 3096 | 624 | 8.7% | 1,623 | 1316 | 307 | 8.3% |
| Roscommon | 1,325 | 843 | 482 | 16.7% | 581 | 324 | 257 | 24.0% |

Source:Based on data contained on Forfás Business Information System relating to plants under the remit of IDA Ireland, Enterprise Ireland, Shannon Development and Udaras na Gaeltachta

## 4.2 Net Change in Employment in Manufacturing and Traded Services

Table 4.2 brings together the gross job gains and gross job losses over the period 1995-1999 in order to arrive at the net change in employment in manufacturing and internationally traded services during the period. The aim here is to build on the picture which emerges from looking only at the job creation side of the equation.

The cumulative total for gross job losses over the period 1995 to 1999 was 105,000 so fewer jobs were lost in manufacturing and internationally traded services than were gained. This pattern does not hold throughout the country - some regions/counties have increased substantially their employment in manufacturing and internationally traded services while in other counties, such employment has actually declined.

The counties with the largest number of job losses in absolute terms include the large predominately urban areas that also have the largest gains (Dublin, Cork, Galway, Limerick and Kildare). However, in addition to these counties, the table also shows a high level of job losses in absolute terms in counties such as Donegal (6,161), Louth (3,864) and Mayo (3,096).

When we examine the net effect (combining gains and losses) we see the total employment in manufacturing and internationally traded services increased by 62,500 over the period. Dublin accounts for over half of this net increase (32,600 jobs) as its level of job losses was far below its level of job gains. After Dublin, the counties with the highest net increase in employment are Galway (6,400), Cork (5,200), Limerick (3,300) and Kildare (3,300).

At the other extreme, employment levels in manufacturing and internationally traded services actually declined in some counties: Donegal (-1,500), Laois (-450) Tipperary South (-100) or were relatively stable (e.g. Laois +32 jobs).

Looking at the dynamics within foreign-owned manufacturing and internationally traded services, we see that the net change in employment was +39,500 jobs with almost 36,000 (91%) of these being located in the Southern and Eastern region. Outside of Dublin, it is only Kildare, Waterford, Clare, Limerick, Cork and Galway which register net increases of more than 1,000 jobs over the period. The counties with the largest absolute decline in foreign-owned manufacturing and internationally traded services are Donegal (-1,685), Laois (-638), Longford (-430) and Carlow (-235).

While it is informative to examine these data in absolute terms, it is also important to show the percentage change in employment in manufacturing and internationally traded services from its 1995 base. Figure 12 shows the percentage change in employment for all manufacturing and internationally traded services while Figure 13 focuses on employment in foreign-owned firms only. In Figure 12, we see that the percentage increase in employment in the Southern & Eastern region is twice that of the BMW region (28.0% Vs 13.2%).

FIGURE 12

**Percentage change in employment in manufacturing and int. services 1995 -1999**

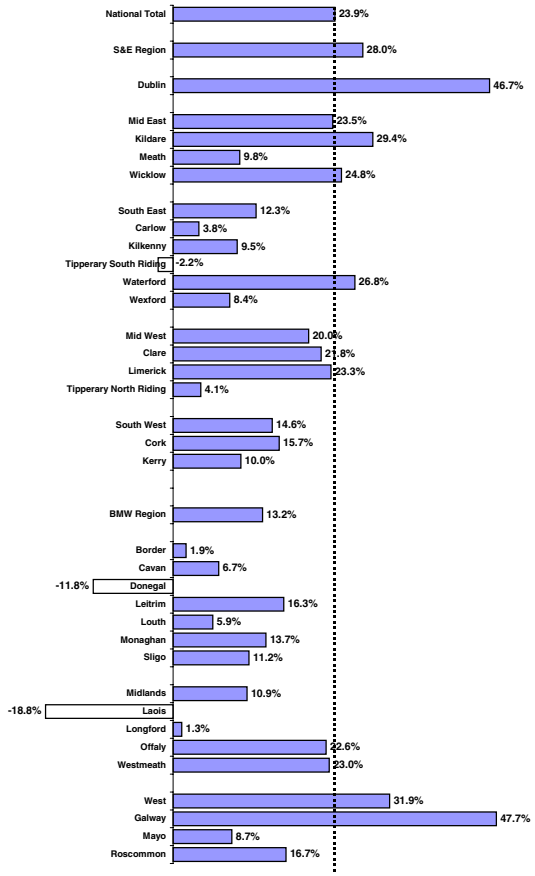
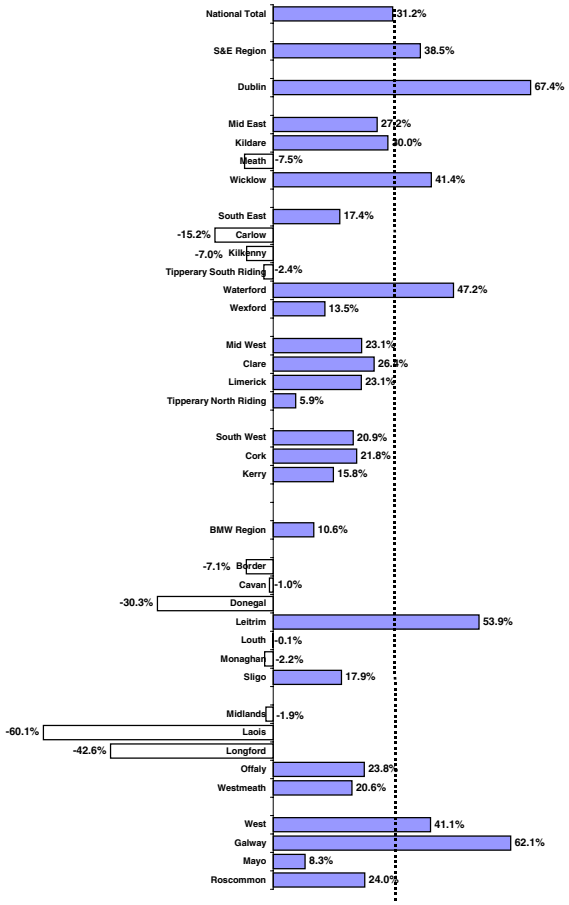



FIGURE 13

**Percentage change in employment in foreign manufacturing and int. services 1995-'99**




Source: Based on data contained on Forfás Business Information System

Within the BMW region, Galway is the driving force but it is noticeable that Offaly and Westmeath have an increase in employment, which matches the national average. Within the Southern & Eastern region, employment has increased most in Dublin, Kildare, Wicklow, Waterford, Clare and Limerick. The counties within the Southern & Eastern region with weak or negative growth in manufacturing and internationally traded services employment include Carlow, and Tipperary (North and South).

Focusing specifically on the change in employment in foreign-owned manufacturing and internationally traded services, the differences between counties become more marked. Dublin and Galway have particularly high rates of growth and they are joined by counties such as Wicklow, Waterford and Leitrim. The latter are coming from a low base, however, so the percentage increases need to be treated with caution. A large number of counties appear to have weak or negative growth in their foreign-owned manufacturing and internationally traded services employment. The counties which stand out most are Meath, Carlow, Kilkenny, Tipperary (North & South), Cavan, Donegal, Louth, Monaghan, Laois and Longford.

## Table 4.7: Dynamics within Advanced Sectors of Manufacturing and Traded Services

| | Number of plants with 50+ emp in "advanced" sectors in 1995 | Number of plants with 50+ emp in "advanced" sectors in 1999 | Change 1995-1999 | Proportion of employment in advanced sectors 1995 | Proportion of employment in advanced sectors 1999 | Percentage Point Change in "advanced" employment 1995-1999 |
|---|---|---|---|---|---|---|
| | No. | No. | No. | % | % | % |
| **National Total** | **333** | **495** | **162** | **34.2%** | **44.9%** | **10.7%** |
| **S&E Region** | **266** | **410** | **144** | **36.9%** | **49.1%** | **12.2%** |
| **Dublin** | **115** | **215** | **100** | **41.9%** | **59.2%** | **17.3%** |
| **Mid East** | **21** | **26** | **5** | **39.7%** | **45.4%** | **5.7%** |
| Kildare | 7 | 8 | 1 | 52.5% | 58.7% | 6.2% |
| Meath | 2 | 4 | 2 | 16.6% | 15.8% | -0.9% |
| Wicklow | 12 | 14 | 2 | 37.1% | 43.5% | 6.4% |
| **South East** | **21** | **26** | **5** | **17.4%** | **23.9%** | **6.5%** |
| Carlow | 0 | 0 | 0 | 2.4% | 6.2% | 3.8% |
| Kilkenny | 1 | 1 | 0 | 5.2% | 4.7% | -0.4% |
| Tipperary South | 7 | 7 | 0 | 24.3% | 35.9% | 11.6% |
| Waterford | 7 | 9 | 2 | 23.6% | 31.6% | 8.0% |
| Wexford | 6 | 9 | 3 | 19.3% | 23.9% | 4.7% |
| **Mid West** | **53** | **66** | **13** | **40.9%** | **52.0%** | **11.1%** |
| Clare | 25 | 31 | 6 | 39.4% | 49.9% | 10.5% |
| Limerick | 24 | 31 | 7 | 46.7% | 58.4% | 11.7% |
| Tipperary North | 4 | 4 | 0 | 24.0% | 31.2% | 7.2% |
| **South West** | **56** | **77** | **21** | **37.6%** | **44.2%** | **6.6%** |
| Cork | 49 | 70 | 21 | 42.2% | 48.4% | 6.2% |
| Kerry | 7 | 7 | 0 | 17.0% | 24.6% | 7.7% |
| **BMW Region** | **67** | **85** | **18** | **27.2%** | **32.5%** | **5.3%** |
| **Border** | **27** | **31** | **4** | **20.8%** | **23.7%** | **2.9%** |
| Cavan | 3 | 3 | 0 | 23.0% | 21.1% | -1.9% |
| Donegal | 7 | 8 | 1 | 17.4% | 24.3% | 7.0% |
| Leitrim | 0 | 0 | 0 | 2.1% | 3.5% | 1.4% |
| Louth | 11 | 13 | 2 | 25.3% | 28.0% | 2.7% |
| Monaghan | 1 | 1 | 0 | 8.7% | 8.0% | -0.7% |
| Sligo | 5 | 6 | 1 | 37.9% | 39.9% | 2.0% |
| **Midlands** | **13** | **11** | **-2** | **28.9%** | **25.2%** | **-3.7%** |
| Laois | 2 | 1 | -1 | 30.9% | 9.1% | -21.8% |
| Longford | 3 | 2 | -1 | 15.8% | 12.6% | -3.1% |
| Offaly | 3 | 4 | 1 | 29.2% | 27.5% | -1.6% |
| Westmeath | 5 | 4 | -1 | 35.7% | 35.8% | 0.1% |
| **West** | **27** | **43** | **16** | **36.1%** | **46.4%** | **10.3%** |
| Galway | 20 | 34 | 14 | 38.7% | 52.2% | 13.5% |
| Mayo | 6 | 6 | 0 | 33.3% | 36.2% | 2.8% |
| Roscommon | 1 | 3 | 2 | 31.1% | 35.9% | 4.8% |

Source:Based on data contained on Forfás Business Information System relating to plants under the remit of IDA Ireland, Enterprise Ireland, Shannon Development and Udaras na Gaeltachta

## 4.3 Changes in Sectoral Orientation

The different pattern of job creation and job destruction in particular regions and counties can probably be explained in large part by the sectoral mix that was examined in detail in Section 3.4. Job destruction is very much a feature of (but not exclusive to) "traditional" sectors such as clothing and textiles and those counties with a higher dependence on such sectors are probably more likely to see job losses equate to or even surpass job gains.

The indicators in Table 4.3 add a sectoral dimension to the employment change data examined in the previous section. Two indicators in particular are examined - the change in the number of establishments with 50 or more employees in "advanced" sectors and the change in the share of employment accounted for by "advanced" sectors. In both cases, advanced is taken as the sum of chemicals/pharmaceuticals, electronic and optical equipment and internationally traded services.

In the case of the first indicator, there are 162 more plants in the country which meet the criteria of having 50 or more employees and operating in "advanced" sectors (495 in 1999 compared to 333 in 1995). The table shows that 100 of the 162 plants are located in Dublin. The only other counties with a noticeable increase in the number of plants of this type are Cork (21), Galway (14), Limerick (7) and Clare (6). The changes, if any, in other counties are more marginal (plus or minus one or two). This indicator may focus narrowly on a particular type of establishment but it does provide an interesting perspective. It suggests a rather weak, static picture in terms of the presence of establishments of reasonable scale in the "newer" sectors outside of the main cities.

The other indicator, based on employment rather than establishments, shows the percentage point change in the share of employment in "advanced" sectors comparing 1999 with a base period of 1995. For the country as a whole, the proportion of manufacturing and internationally traded services employment in the more "advanced" sectors rose from 34.2% to 44.9%, a 10.7 percentage point increase.

FIGURE 14

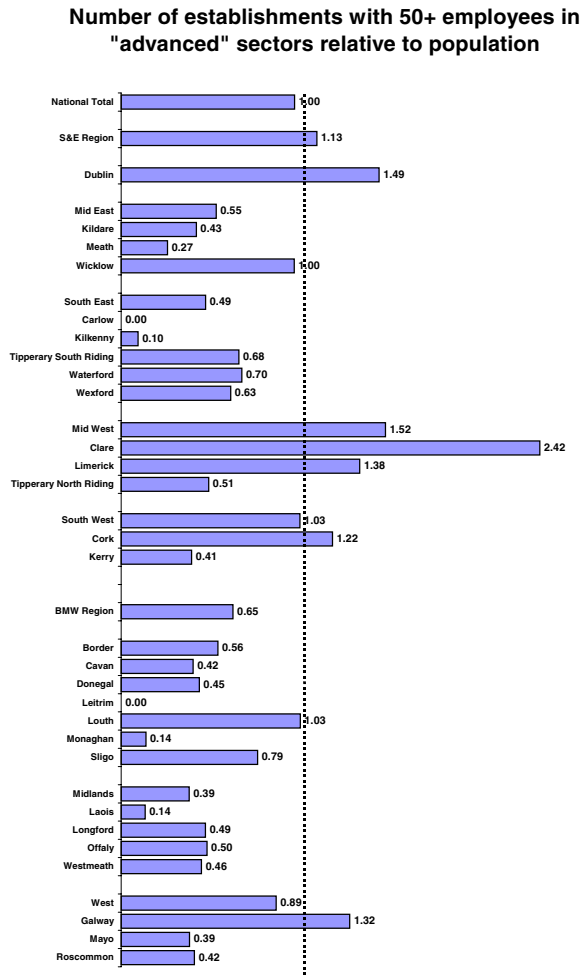
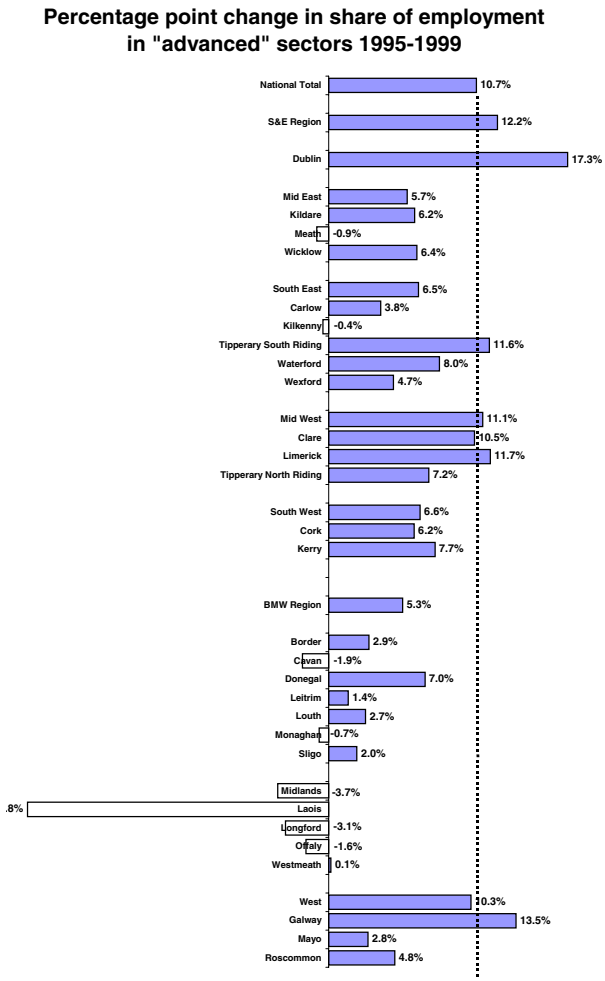



FIGURE 15




Source: Based on data contained on Forfás Business Information System

In the Southern & Eastern region, there was an increase of 12.2 percentage points compared to 5.3 percentage points in the BMW region. The counties which have witnessed an increase of over ten percentage points in their share of "advanced" employment are **Dublin**, **Tipperary South**, **Clare** and **Limerick** in the Southern & Eastern region and **Galway** in the BMW region.

The counties with an actual decline in their share of employment from "advanced" sectors are **Meath**, **Kilkenny**, **Cavan**, **Monaghan**, **Laois**, **Longford** and Offaly. The Midlands is the only full region which has witnessed a decline in its share of employment from "advanced" sectors.

# 5 Productivity Trends in Manufacturing at County Level

·Having examined the spread of manufacturing and internationally traded services activity in terms of employment and numbers of companies, this section sets out to examine the "output" side of the equation. Data from the Central Statistics Office on gross output and gross value added are presented to show the share of manufacturing output accounted for by different regions/counties and to examine changes in recent years.

By presenting these output statistics, it should be possible to work our way back to one of the starting points of this paper, that is to explain the apparent productivity differences presented in Table 2.5 (Page 9). These data showed Dublin & Mid-East and the South-West to have gross value added in Industry in excess of the national average and all other regions to be below this point - including all of the BMW region.

This section explores these apparent productivity differences in more detail by bringing the data down to the county level revealing some interesting intra-regional variations.

The section closes with an examination of research and development activity in industry which is considered in the economics literature to be an important factor in explaining productivity differences between regions.

## Table 5.1: Manufacturing Gross Output 1995-1998

| | Manufacturing Gross output 1995 | Manufacturing Gross output 1998 | Percentage change 1995-1998 | National composition of gross output in 1995 | National composition of gross output in 1998 | National composition of population |
|---|---|---|---|---|---|---|
| **National Total** | **33,564,372** | **48,427,286** | **44.3%** | **100.0%** | **100.0%** | **100.0%** |
| **S&E Region** | **25,815,488** | **39,320,552** | **52.3%** | **76.9%** | **81.2%** | **73.4%** |
| **Dublin** | **7,863,926** | **11,736,616** | **49.2%** | **23.4%** | **24.2%** | **29.2%** |
| **Mid East** | **3,870,326** | **4,219,101** | **9.0%** | **11.5%** | **8.7%** | **9.6%** |
| Kildare | 2,289,830 | 2,497,997 | 9.1% | 6.8% | 5.2% | 3.7% |
| Meath | 851,089 | 624,648 | -26.6% | 2.5% | 1.3% | 3.0% |
| Wicklow | 729,407 | 1,096,456 | 50.3% | 2.2% | 2.3% | 2.8% |
| **South East** | **3,448,704** | **4,590,991** | **33.1%** | **10.3%** | **9.5%** | **10.8%** |
| Carlow | 326,107 | 336,327 | 3.1% | 1.0% | 0.7% | 1.1% |
| Kilkenny | 507,329 | 535,371 | 5.5% | 1.5% | 1.1% | 2.1% |
| Tipperary South | 1,137,676 | 1,991,093 | 75.0% | 3.4% | 4.1% | 2.1% |
| Waterford | 1,029,185 | 1,205,806 | 17.2% | 3.1% | 2.5% | 2.6% |
| Wexford | 448,407 | 522,394 | 16.5% | 1.3% | 1.1% | 2.9% |
| **Mid West** | **3,626,890** | **6,221,467** | **71.5%** | **10.8%** | **12.8%** | **8.7%** |
| Clare | 729,341 | 920,987 | 26.3% | 2.2% | 1.9% | 2.6% |
| Limerick | 2,448,173 | 4,803,064 | 96.2% | 7.3% | 9.9% | 4.6% |
| Tipperary North | 449,376 | 497,416 | 10.7% | 1.3% | 1.0% | 1.6% |
| **South West** | **7,005,642** | **12,552,377** | **79.2%** | **20.9%** | **25.9%** | **15.1%** |
| Cork | 6,411,254 | 11,909,359 | 85.8% | 19.1% | 24.6% | 11.6% |
| Kerry | 594,388 | 643,018 | 8.2% | 1.8% | 1.3% | 3.5% |
| **BMW Region** | **7,748,884** | **9,106,734** | **17.5%** | **23.1%** | **18.8%** | **26.6%** |
| **Border** | **4,542,819** | **5,150,755** | **13.4%** | **13.5%** | **10.6%** | **11.2%** |
| Cavan | 581,306 | 565,994 | -2.6% | 1.7% | 1.2% | 1.5% |
| Donegal | 551,076 | 652,164 | 18.3% | 1.6% | 1.3% | 3.6% |
| Leitrim | 61,296 | 71,047 | 15.9% | 0.2% | 0.1% | 0.7% |
| Louth | 2,608,266 | 3,021,173 | 15.8% | 7.8% | 6.2% | 2.5% |
| Monaghan | 469,693 | 528,937 | 12.6% | 1.4% | 1.1% | 1.4% |
| Sligo | 271,182 | 311,440 | 14.8% | 0.8% | 0.6% | 1.5% |
| **Midlands** | **1,087,749** | **1,193,103** | **9.7%** | **3.2%** | **2.5%** | **5.7%** |
| Laois | 205,766 | 159,161 | -22.6% | 0.6% | 0.3% | 1.5% |
| Longford | 279,750 | 277,969 | -0.6% | 0.8% | 0.6% | 0.8% |
| Offaly | 235,049 | 267,302 | 13.7% | 0.7% | 0.6% | 1.6% |
| Westmeath | 367,184 | 488,671 | 33.1% | 1.1% | 1.0% | 1.7% |
| **West** | **2,118,316** | **2,762,876** | **30.4%** | **6.3%** | **5.7%** | **9.7%** |
| Galway | 1,212,862 | 1,736,399 | 43.2% | 3.6% | 3.6% | 5.2% |
| Mayo | 571,575 | 726,634 | 27.1% | 1.7% | 1.5% | 3.1% |
| Roscommon | 333,879 | 299,843 | -10.2% | 1.0% | 0.6% | 1.4% |

Source: CSO Census of Industrial Production 1995, 1998

## 5.1 Spatial Distribution of Manufacturing Gross Output

Manufacturing gross output is the net selling value of all goods manufactured in a particular year as recorded in the CSO Census of Industrial Production. Table 5.1 shows that manufacturing gross output rose from £33.6bn in 1995 to £48.4bn in 1998, an increase of 44.3%. The Southern & Eastern region as a whole saw an increase of 52.3% whereas the increase in the BMW region was 17.5%.

The counties with particularly large increases in manufacturing gross output were Dublin, Wicklow, Tipperary South, Limerick and Cork in the Southern & Eastern region and Galway and Westmeath in the BMW region.

A number of counties actually witnessed a decline in manufacturing gross output (Meath, Cavan, Laois, Longford and Roscommon). The data are presented without factoring in price changes over the period so those counties with very modest increases in manufacturing gross output (in current prices) have probably also witnessed an actual decline in real terms (e.g. Carlow and Kilkenny).

Looking at the share of manufacturing gross output accounted for by different regions/ counties in 1998, we see that this is one of the first indicators where Dublin and Mid-East combined has a share of output (32.9%) which is actually lower than its share of the population (38.8%). This reflects the fact that this output measure is confined to manufacturing only. Internationally traded services is now a significant component of Dublin's enterprise base and this would explain the apparent inconsistency between the indicators in the first two sections of this report and the data reported in this section.

Subject to this caveat, the data in Table 5.1 do provide an interesting perspective on the concentration of gross output and the change in the share of output accounted for by different regions/counties even when examined over the narrow timeframe of 1995-1998. The data show that four counties combined (Dublin, Cork, Limerick and Louth) account for two thirds of manufacturing gross output.

FIGURE 16

**Gross output of manufacturing 1998 relative to share of population**

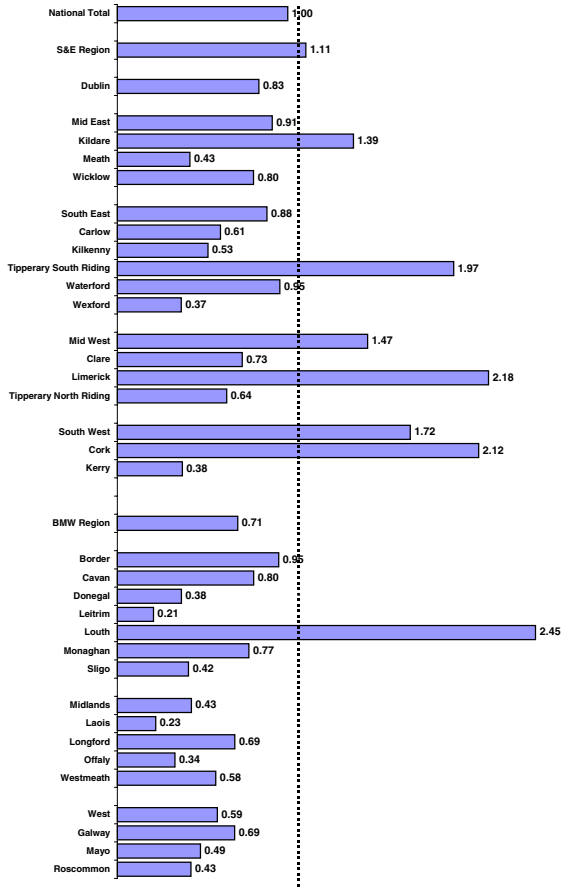
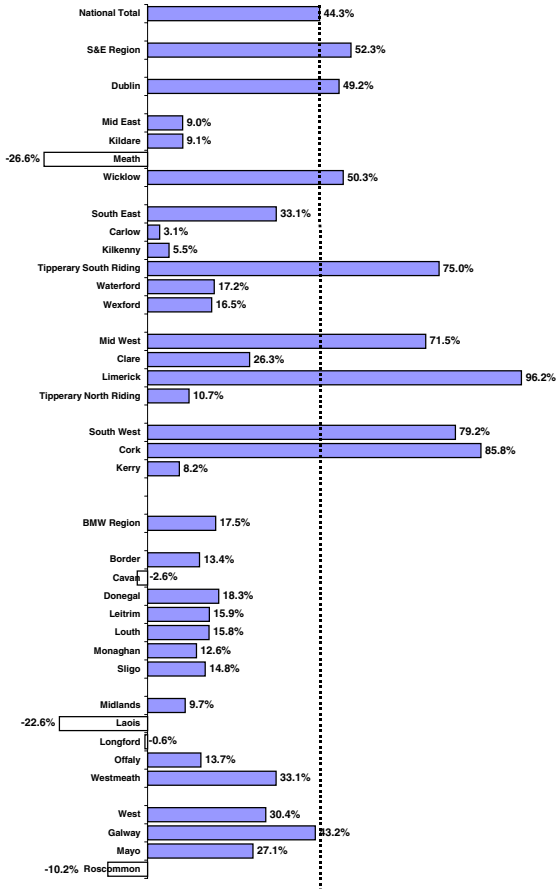



FIGURE 17

**Percentage change in gross output of manufacturing 1995-1998**




Source: Based on CSO Census of Industrial Production 1995, 1998

Figure 16 above provides a graphical representation of the counties that dominate gross output statistics for manufacturing. These are counties which are host to certain multinational enterprises especially in the chemicals and electronics sectors (e.g. **Kildare**, **Tipperary South**, **Limerick**, **Cork** and **Louth**). The data are worth presenting even if only to highlight the impact of the trading activity of multinationals on production and productivity statistics for Ireland.

Figure 17 presents the percentage change in manufacturing gross output. To some degree, this should remove the problem about speaking of apparent levels of activity - the percentage change in output should be a better guide to manufacturing activity as it should reduce the dominant effect of multinational trading activity.

While this perspective does paint a slightly different picture, it is still the same counties which dominate here also - **Tipperary South**, **Limerick** and **Cork** have each witnessed increases in manufacturing gross output in excess of 75% over the period 1995-1998. A number of counties have witnessed more modest yet positive increases in manufacturing gross output (**Dublin**, **Waterford**, **Wexford**, **Clare**, **Westmeath**, **Galway** and **Mayo**). The graphic highlights the fact that a number of regions/counties have witnessed little or no growth in manufacturing gross output or in some cases have seen an actual decline (**Meath**, **Carlow**, **Kilkenny**, **Cavan**, **Laois**, **Longford**, **Roscommon**).

## Table 5.2: Manufacturing Gross Value 1995-1998

| | Gross value added in Manufacturing 1995 | Gross value added in Manufacturing 1998 | Percentage change 1995-1998 | National composition of GVA in 1995 | National composition of GVA in 1998 | National composition of population |
|---|---|---|---|---|---|---|
| **National Total** | **12,359,617** | **17,457,053** | **41.2%** | **100.0%** | **100.0%** | **100.0%** |
| **S&E Region** | **10,079,997** | **14,851,690** | **47.3%** | **81.6%** | **85.1%** | **73.4%** |
| **Dublin** | **3,960,173** | **6,050,018** | **52.8%** | **32.0%** | **34.7%** | **29.2%** |
| **Mid East** | **1,403,561** | **1,685,074** | **20.1%** | **11.4%** | **9.7%** | **9.6%** |
| Kildare | 897,725 | 929,978 | 3.6% | 7.3% | 5.3% | 3.7% |
| Meath | 168,060 | 179,015 | 6.5% | 1.4% | 1.0% | 3.0% |
| Wicklow | 337,776 | 576,081 | 70.6% | 2.7% | 3.3% | 2.8% |
| **South East** | **1,320,526** | **1,495,222** | **13.2%** | **10.7%** | **8.6%** | **10.8%** |
| Carlow | 163,448 | 140,985 | -13.7% | 1.3% | 0.8% | 1.1% |
| Kilkenny | 189,982 | 211,603 | 11.4% | 1.5% | 1.2% | 2.1% |
| Tipperary South | 519,010 | 534,438 | 3.0% | 4.2% | 3.1% | 2.1% |
| Waterford | 353,029 | 433,182 | 22.7% | 2.9% | 2.5% | 2.6% |
| Wexford | 95,057 | 175,014 | 84.1% | 0.8% | 1.0% | 2.9% |
| **Mid West** | **1,123,360** | **1,320,767** | **17.6%** | **9.1%** | **7.6%** | **8.7%** |
| Clare | 345,798 | 423,544 | 22.5% | 2.8% | 2.4% | 2.6% |
| Limerick | 625,040 | 757,151 | 21.1% | 5.1% | 4.3% | 4.6% |
| Tipperary North | 152,522 | 140,072 | -8.2% | 1.2% | 0.8% | 1.6% |
| **South West** | **2,272,377** | **4,300,609** | **89.3%** | **18.4%** | **24.6%** | **15.1%** |
| Cork | 2,146,506 | 4,156,282 | 93.6% | 17.4% | 23.8% | 11.6% |
| Kerry | 125,871 | 144,327 | 14.7% | 1.0% | 0.8% | 3.5% |
| **BMW Region** | **2,279,620** | **2,605,363** | **14.3%** | **18.4%** | **14.9%** | **26.6%** |
| **Border** | **1,258,671** | **1,302,873** | **3.5%** | **10.2%** | **7.5%** | **11.2%** |
| Cavan | 102,656 | 97,344 | -5.2% | 0.8% | 0.6% | 1.5% |
| Donegal | 154,613 | 210,936 | 36.4% | 1.3% | 1.2% | 3.6% |
| Leitrim | 16,688 | 19,295 | 15.6% | 0.1% | 0.1% | 0.7% |
| Louth | 768,621 | 736,853 | -4.1% | 6.2% | 4.2% | 2.5% |
| Monaghan | 95,579 | 115,548 | 20.9% | 0.8% | 0.7% | 1.4% |
| Sligo | 120,514 | 122,897 | 2.0% | 1.0% | 0.7% | 1.5% |
| **Midlands** | **320,283** | **441,623** | **37.9%** | **2.6%** | **2.5%** | **5.7%** |
| Laois | 31,809 | 38,299 | 20.4% | 0.3% | 0.2% | 1.5% |
| Longford | 48,480 | 60,152 | 24.1% | 0.4% | 0.3% | 0.8% |
| Offaly | 84,410 | 91,657 | 8.6% | 0.7% | 0.5% | 1.6% |
| Westmeath | 155,584 | 251,515 | 61.7% | 1.3% | 1.4% | 1.7% |
| **West** | **700,666** | **860,867** | **22.9%** | **5.7%** | **4.9%** | **9.7%** |
| Galway | 468,301 | 550,307 | 17.5% | 3.8% | 3.2% | 5.2% |
| Mayo | 198,523 | 291,188 | 46.7% | 1.6% | 1.7% | 3.1% |
| Roscommon | 33,842 | 19,372 | -42.8% | 0.3% | 0.1% | 1.4% |

Source: CSO Census of Industrial Production 1995, 1998

## 5.2 Contribution Towards Manufacturing Gross Value Added

Gross value added in manufacturing is essentially production value less intermediate consumption - value added reflects the contribution made by the enterprise to the value of the final goods produced. As such, it should reflect more closely the real output of enterprises as it strips out the value of goods and services purchased from other parties for use in the production of the goods.

The gross value added of manufacturing in 1998 was £17.5bn up from £12.4bn in 1995, an increase of 41%. Once again, most of this increase is attributed to the Southern and Eastern region where manufacturing GVA rose by £4.8bn to £14.9bn - an increase of 47.3%. The manufacturing GVA of the BMW region rose by just £0.3bn between 1995 and 1998, an increase of 14.3%.

The counties which witnessed particularly large increases in manufacturing GVA during the period were Dublin, Wicklow, Wexford, Cork, Westmeath and Mayo. It is interesting that it is not necessarily the counties which witnessed an increase in gross output which have witnessed an increase in gross value added. It is somewhat surprising that counties such as Wicklow, Waterford and Mayo show up strongly on this indicator, as they do not appear to be as dynamic based on the employment data examined previously. However, it is important to look at the base which these counties are coming from in interpreting these statistics. In some cases, the increase may not be as significant as it might appear looking at the percentage figure alone (e.g. the 47% increase in Mayo is from £200 million in 1995 to less than £300 million in 1998).

FIGURE 18

**Gross value added in manufacturing 1998 relative to share of population**

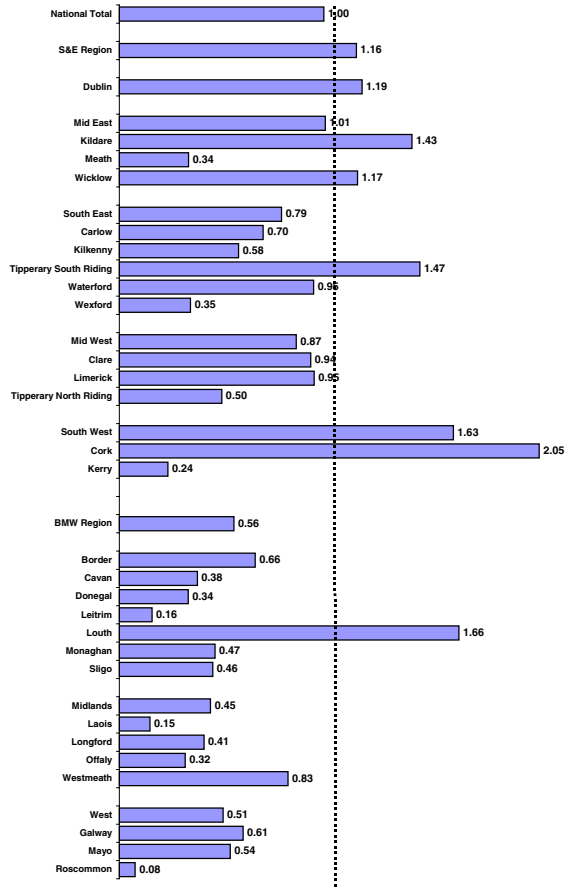
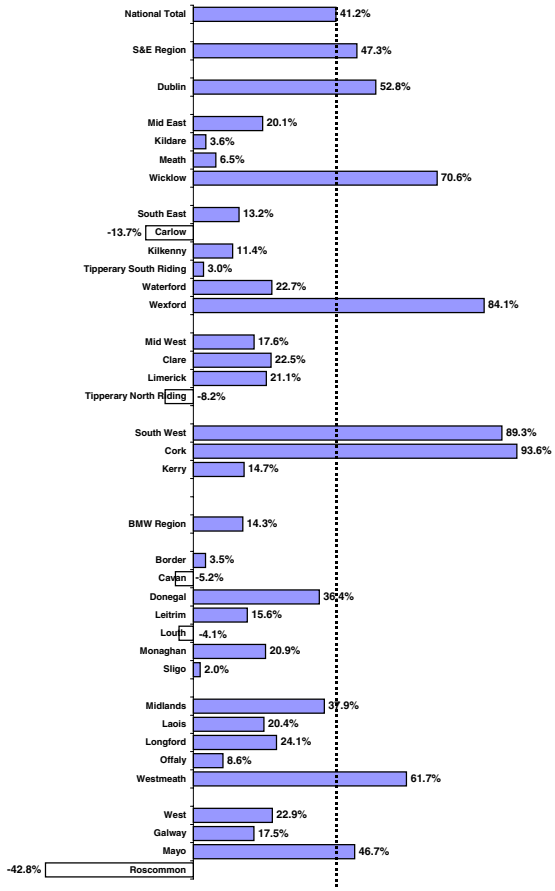



FIGURE 19

**Percentage change in gross value added in manufacturing 1995-1998**




Source: Based on CSO Census of Industrial Production 1995, 1998

Figure 18 which presents the level of GVA relative to population in each county paints a similar picture to that of gross output. In the graphic, **Kildare**, **Tipperary South**, **Cork** and **Louth** all stand out and again, this can probably be attributed to the presence in these areas of some well recognised foreign-owned multinationals.

The issue which cannot be determined from the data as they stand is the extent to which differentials in the apparent GVA of manufacturing translate into real differences in wealth between counties. To some degree, these large differentials may not be as significant as they appear. In terms of describing the enterprise base, however, it is not so surprising that the counties at the opposite extreme, with levels of manufacturing GVA significantly less than their share of the population include **Meath**, **Wexford**, **Kerry**, **Leitrim**, **Laois** and **Roscommon**.

The percentage change in GVA highlights the regions and counties with large increases in GVA - many of these counties do not show up strongly in our previous analysis (Wicklow, Wexford, Mayo etc.) so the results are somewhat surprising and may reflect problems with county level GVA measurement. Less surprising given the trends in employment described earlier are the counties with little or no growth in manufacturing GVA or in some cases, actual decline. These include **Carlow**, **Tipperary North**, **Cavan**, **Louth** and **Roscommon**.

## Table 5.3: Gross Value Added and Wages and Salaries per Person Employed in Manufacturing

| | GVA per person in manufacturing in 1995 | GVA per person in manufacturing in 1998 | Percentage change 1995-1998 | Wages and salaries per person in 1995 | Wages and salaries per person in 1998 | Percentage change |
|---|---|---|---|---|---|---|
| | IR£000 | IR£000 | % | IR£000 | IR£000 | % |
| **National Total** | **56.3** | **72.1** | **28.0%** | **15.1** | **17.5** | **15.8%** |
| **S&E Region** | **63.1** | **84.0** | **33.2%** | **16.1** | **18.6** | **15.4%** |
| **Dublin** | **68.1** | **96.2** | **41.2%** | **17.4** | **19.8** | **13.4%** |
| **Mid East** | **72.3** | **72.4** | **0.1%** | **14.4** | **17.0** | **18.3%** |
| Kildare | 99.9 | 78.9 | -21.1% | 14.6 | 18.0 | 23.7% |
| Meath | 31.4 | 30.9 | -1.8% | 14.2 | 15.5 | 9.2% |
| Wicklow | 66.7 | 101.3 | 51.9% | 14.2 | 16.3 | 15.1% |
| **South East** | **51.4** | **55.0** | **7.1%** | **15.0** | **17.6** | **17.6%** |
| Carlow | 42.2 | 38.5 | -8.7% | 13.2 | 16.0 | 21.6% |
| Kilkenny | 50.7 | 65.5 | 29.0% | 16.1 | 16.4 | 2.1% |
| Tipperary South | 139.9 | 141.7 | 1.3% | 15.4 | 22.4 | 45.9% |
| Waterford | 37.0 | 38.9 | 5.1% | 16.1 | 18.3 | 13.7% |
| Wexford | 19.7 | 32.7 | 65.7% | 13.2 | 14.6 | 10.7% |
| **Mid West** | **48.0** | **47.5** | **-1.0%** | **15.6** | **18.4** | **18.4%** |
| Clare | 46.2 | 50.6 | 9.5% | 16.8 | 19.3 | 15.0% |
| Limerick | 51.1 | 49.3 | -3.5% | 15.4 | 18.7 | 21.7% |
| Tipperary North | 41.2 | 34.2 | -17.1% | 13.7 | 15.5 | 13.2% |
| **South West** | **68.8** | **121.0** | **76.0%** | **16.0** | **18.3** | **14.2%** |
| Cork | 75.9 | 134.5 | 77.2% | 16.3 | 18.9 | 16.4% |
| Kerry | 26.4 | 31.1 | 17.9% | 14.7 | 14.6 | -1.1% |
| **BMW Region** | **38.1** | **39.8** | **4.4%** | **12.6** | **14.7** | **16.5%** |
| **Border** | **42.4** | **42.3** | **-0.3%** | **12.5** | **14.2** | **13.4%** |
| Cavan | 34.3 | 37.0 | 8.0% | 14.5 | 15.9 | 9.5% |
| Donegal | 16.4 | 24.6 | 50.0% | 10.9 | 12.6 | 15.0% |
| Leitrim | 16.0 | 18.5 | 15.3% | 10.1 | 12.8 | 26.7% |
| Louth | 94.6 | 76.9 | -18.8% | 14.3 | 16.4 | 15.3% |
| Monaghan | 24.0 | 26.2 | 8.9% | 11.8 | 12.8 | 8.5% |
| Sligo | 29.4 | 27.1 | -8.0% | 12.6 | 13.6 | 8.0% |
| **Midlands** | **26.8** | **35.2** | **31.2%** | **12.1** | **14.7** | **21.4%** |
| Laois | 15.4 | 20.4 | 32.6% | 11.4 | 14.1 | 23.2% |
| Longford | 19.0 | 27.3 | 43.8% | 11.4 | 14.8 | 30.5% |
| Offaly | 23.3 | 24.5 | 5.1% | 10.5 | 12.7 | 21.1% |
| Westmeath | 42.0 | 53.2 | 26.7% | 14.6 | 16.5 | 13.6% |
| **West** | **38.6** | **38.9** | **0.9%** | **13.1** | **15.4** | **17.3%** |
| Galway | 44.6 | 41.1 | -7.9% | 14.1 | 16.5 | 16.7% |
| Mayo | 33.6 | 42.4 | 26.4% | 11.7 | 13.7 | 16.8% |
| Roscommon | 19.1 | 10.3 | -46.0% | 11.6 | 13.7 | 18.1% |

Source: CSO Census of Industrial Production 1995, 1998

## 5.3 Disparities in Gross Value Added and Wages & Salaries Per Person Employed

The aggregate levels of gross output and gross value added provide one perspective on the spatial distribution of manufacturing activity. In general, they paint a picture which suggests that activity is highly concentrated in a small number of counties. Most commentators recognise that this picture is somewhat distorted by a small number of foreign-owned multinationals with a high volume of recorded output (associated in some cases with rather modest levels of employment). This issue has always made it difficult to speak about productivity in manufacturing in a very meaningful way.

Bearing in mind this caveat, the data in Table 5.3 present figures on manufacturing GVA per person employed. The table shows manufacturing GVA per person employed in 1998 to be £72,100, an increase of 28% on the figure in 1995. There is a wide apparent differential between the Southern & Eastern region (£84,000) and the BMW region (£39,800).

Part of this differential is accounted for by the foreign-owned multinationals with extremely high levels of value added per employee as these plants are more likely to be located in counties in the Southern & Eastern region. Some of the differential would, however, reflect the reality that the sectoral orientation of the counties in the Southern & Eastern region is more likely to be towards the more "modern" component of manufacturing compared to that of counties in the BMW area (49% of employment in "advanced" sectors in S&E region compared to 32.5% in BMW region as per Table 3.4).

The other indicator presented in Table 5.3 is wages and salaries per employee. This is possibly an even more meaningful indicator than GVA per employee in getting at the true productivity differentials across the country. Focusing on the wages and salaries component of value added should strip out variations between regions/counties that are attributable more to the foreign-owned "outliers". Differences in wages and salaries per person employed should reflect more the value of the manufacturing activity which is being carried out in different regions/counties. These differentials must be due in part to a different skill composition in manufacturing across the country. The table shows that in 1998, wages and salaries per person employed averaged £18,600 in the Southern & Eastern region and £14,700 in the BMW region.

FIGURE 20

**Gross value added per employee in manufacturing 1998 relative to national average**

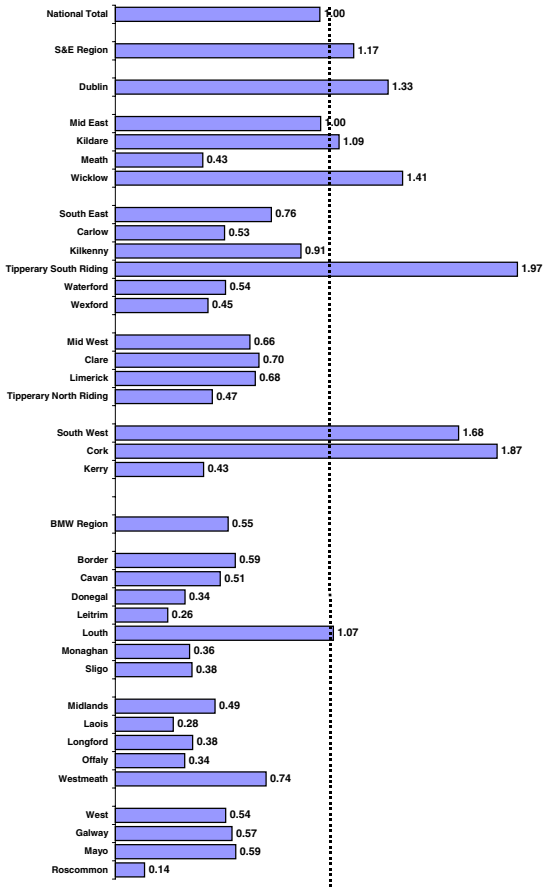
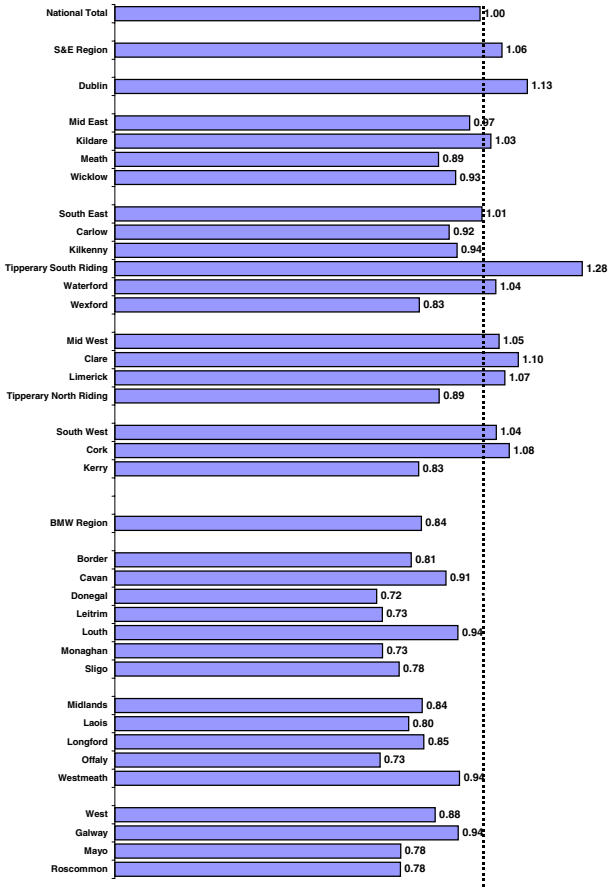



FIGURE 21

**Wages and salaries per employee in manufacturing 1998 relative to national average**




Source: Based on CSO Census of Industrial Production 1995, 1998

Figures 20 and 21 show GVA per person employed and wages and salaries per person employed across region/ counties relative to the national average in 1998. Clearly, there is much more variation in GVA per employee with outliers such as Tipperary South and Cork. This massive variation disappears when we focus on the wages and salaries component of value added. It is interesting, however, that there is still a good deal of variation. Broadly, the BMW region has average wages and salaries below that of the Southern & Eastern region.

This is not a simple "across the board" rule however. What is particularly interesting is the presence of counties in the Southern and Eastern region where average wages and salaries per person employed are more similar to the norm in the BMW region (e.g. Meath, Wexford, Tipperary North, Kerry). Similarly, it is interesting to see that wages and salaries per person employed in some parts of the BMW region (Louth, Westmeath and Galway) are close to the national average and are similar to the norm in the Southern & Eastern region.

## Table 5.4: Expenditure on In-house Research and Development 1997

| | Proportion of enterprises with R&D spend >£100k in 1997 | Business Expenditure on R&D (BERD) in 1997 (excl. outliers) | National composition of BERD in 1997 | National composition of population |
|---|---|---|---|---|
| **National Total** | **14%** | **475,687** | **100.0%** | **100.0%** |
| **S&E Region** | **15%** | **386,814** | **81.3%** | **73.4%** |
| **Dublin** | **16%** | **172,631** | **36.3%** | **29.2%** |
| **Mid East** | **13%** | **38,453** | **8.1%** | **9.6%** |
| Kildare | 15% | 21,891 | 4.6% | 3.7% |
| Meath | 13% | 6,568 | 1.4% | 3.0% |
| Wicklow | 12% | 9,994 | 2.1% | 2.8% |
| **South East** | **11%** | **33,589** | **7.1%** | **10.8%** |
| Carlow | 12% | 6,338 | 1.3% | 1.1% |
| Kilkenny | 7% | 1,895 | 0.4% | 2.1% |
| Tipperary South | 20% | 5,490 | 1.2% | 2.1% |
| Waterford | 11% | 9,378 | 2.0% | 2.6% |
| Wexford | 8% | 10,488 | 2.2% | 2.9% |
| **Mid West** | **19%** | **69,875** | **14.7%** | **8.7%** |
| Clare | 27% | 34,213 | 7.2% | 2.6% |
| Limerick | 18% | 33,209 | 7.0% | 4.6% |
| Tipperary North | 7% | 2,453 | 0.5% | 1.6% |
| **South West** | **14%** | **72,266** | **15.2%** | **15.1%** |
| Cork | 15% | 57,275 | 12.0% | 11.6% |
| Kerry | 9% | 14,991 | 3.2% | 3.5% |
| **BMW Region** | **14%** | **88,873** | **18.7%** | **26.6%** |
| **Border** | **14%** | **38,435** | **8.1%** | **11.2%** |
| Cavan | 13% | 4,201 | 0.9% | 1.5% |
| Donegal | 12% | 7,607 | 1.6% | 3.6% |
| Leitrim | 17% | 1,164 | 0.2% | 0.7% |
| Louth | 16% | 12,237 | 2.6% | 2.5% |
| Monaghan | 13% | 8,184 | 1.7% | 1.4% |
| Sligo | 14% | 5,042 | 1.1% | 1.5% |
| **Midlands** | **9%** | **9,785** | **2.1%** | **5.7%** |
| Laois | 10% | 1,692 | 0.4% | 1.5% |
| Longford | 7% | 1,429 | 0.3% | 0.8% |
| Offaly | 5% | 1,551 | 0.3% | 1.6% |
| Westmeath | 14% | 5,113 | 1.1% | 1.7% |
| **West** | **17%** | **40,653** | **8.5%** | **9.7%** |
| Galway | 23% | 35,446 | 7.5% | 5.2% |
| Mayo | 6% | 3,159 | 0.7% | 3.1% |
| Roscommon | 17% | 2,048 | 0.4% | 1.4% |

Source: Forfás Survey of Business Sector Research and Development, 1997

## 5.4 Spatial Distribution of Research and Development Investment

The final set of indicators to be examined in this section relates to performance of in-house research and development. This provides another perspective on the nature of the enterprise base across the regions as by its nature, investment in research and development can be viewed as a proxy for technological sophistication. R&D investment is considered to be a good indicator of strong, knowledge-based enterprise activity which is likely to be more sustainable than other kinds of manufacturing and traded services activity. It is documented in other studies that companies which perform research and development tend to survive longer and grow more than their non-R&D performing counterparts .

The first indicator shows that 14% of enterprises had expenditure of more than £100,000 on in-house research and development in 1997. The counties that stand out most on this measure are Clare and Galway. Clare tends to stand out on a number of measures and this is likely to be due to the concentration of firms in the Shannon region. It is quite plausible that there would be a higher concentration of R&D performers in this area compared to the national average. Other urban areas such as Dublin, Cork and Limerick have a proportion of R&D performers above the national average but not much higher than the 14% average.

Aggregate expenditure on in-house research and development (BERD) is highly impacted by a small number of very large spenders (in relative terms). These companies have been removed from the analysis contained in Table 5.4 so that regions/counties are not distorted by the presence of one large spender. The table shows that (excluding the largest spenders), £475 million was spent by industry on in-house R&D in 1997 (including those spending below £100,000). Over 80% of this expenditure took place in the Southern & Eastern region and less than 20% in the BMW region.

FIGURE 22

**Expenditure on R&D in 1997 relative to share of population**

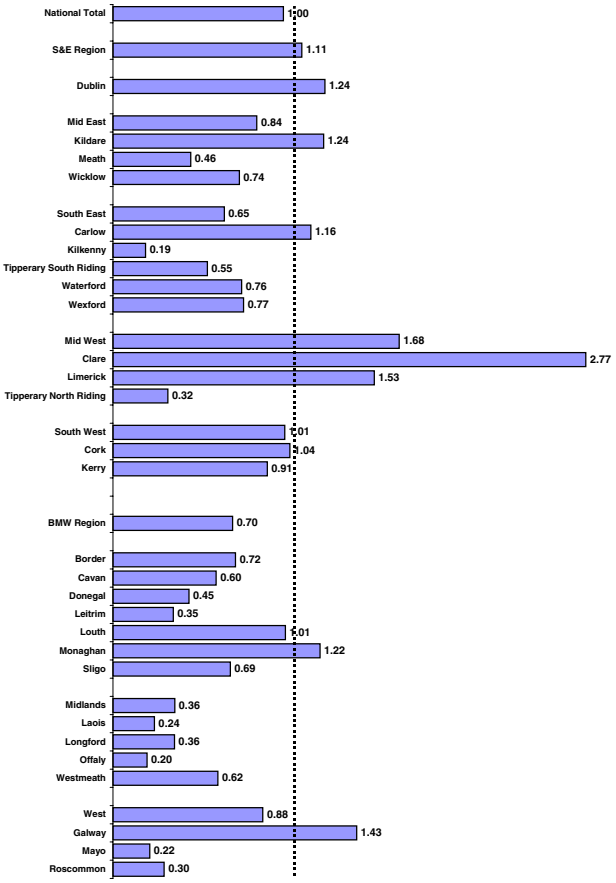
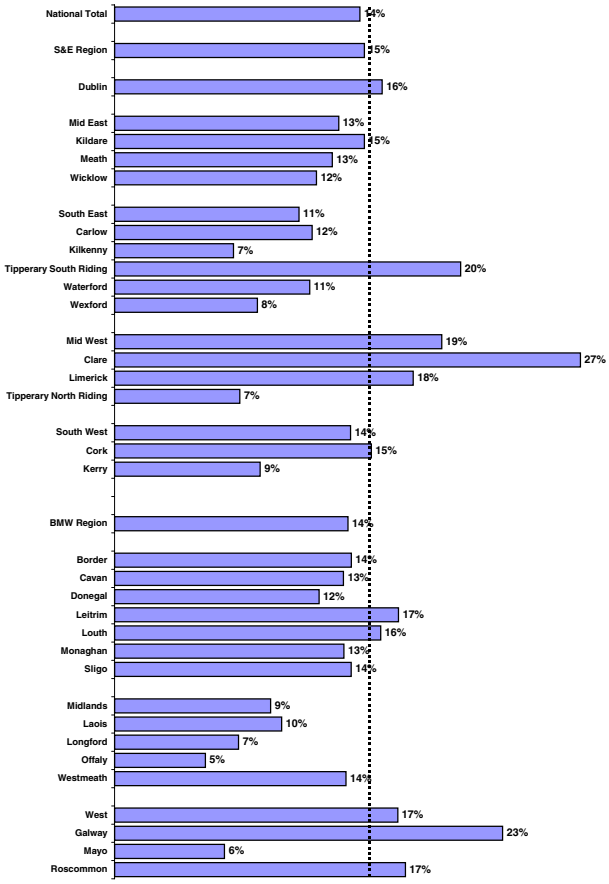



FIGURE 23

**Number of enterprises spending IR£100K or more on R&D in 1997 as a share of all enterprises**




Source: Forfás Survey of Business Sector Research and Development, 1997

Figure 22 provides a graphical representation of the expenditure data by showing the level of spend in each region/ county expressed relative to its population. Clare shows up as an outlier by having a level of expenditure which is disproportionate with its population. Limerick and Galway also appear as "outliers". The counties with a level of R&D expenditure significantly below their share of the population are Kilkenny, Tipperary North, Donegal, Leitrim, Laois, Longford, Offaly, Mayo and Roscommon.

Figure 23 provides complementary information which shows the number of companies spending more than £100,000 on in-house R&D in 1997 expressed as a percentage of the number of enterprises in each region/county. Clare and Galway are two outliers here and this is consistent with the expenditure data. Counties with a small number of R&D performers relative to their base of enterprises include Kilkenny, Tipperary North, Longford, Offaly and Mayo.

In summary, therefore, the spatial analysis of in-house research and development activity is broadly in keeping with the employment and output patterns (and in particular, those relating to more "advanced" sectors) which have been presented elsewhere in this report.

## Table 6: Overview of Sectoral Composition and Productivity Indicators

| | Food, Drink, Textiles, Wood, print, Other (34%) | Chemicals, Rubber, Plastics, Non-metallic minerals (15%) | Metal Products, Machinery (15%) | Electrical, Electronics, Optical Equipment (20%) | Intl. traded Services (17%) | Number of plants (5+ employees) relative to population | Proportion of plants with 50+ employees | Proportion of plants with 50+ employees which are in "advanced" sectors | Percentage change in total employment 1995-1999 | Share of employment in "advanced" sectors | percentage point change in share of employment in advanced sectors | Percentage change in gross output 1995-1998 | Share of man-ufacturing Gross Value Added relative to population | Wages and salaries per person employed in manufactur-ing 1998 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dublin | 27% | 9% | 10% | 15% | 39% | | | ********** | ********** | ********** | ********** | ********** | ********** | ********** |
| Kildare | 26% | 18% | 9% | 40% | 6% | ********** | ********** | | ********** | | | | ********** | ********** |
| Meath | 51% | 19% | 15% | 13% | 3% | | | ********** | ********** | ********** | ********** | ********** | ********** | |
| Wicklow | 35% | 29% | 7% | 13% | 17% | | ********** | ********** | ********** | ********** | | ********** | ********** | |
| Carlow | 24% | 13% | 58% | 3% | 2% | | | ********** | ********** | ********** | | ********** | | |
| Kilkenny | 66% | 13% | 19% | 0% | 3% | | | ********** | | ********** | ********** | ********** | | |
| Tipperary SR | 46% | 36% | 14% | 3% | 2% | ********** | ********** | ********** | ********** | | ********** | ********** | ********** | ********** |
| Waterford | 26% | 29% | 22% | 20% | 3% | | | | ********** | | ********** | | ********** | ********** |
| Wexford | 41% | 9% | 29% | 18% | 2% | ********** | ********** | | | | | | | |
| Clare | 17% | 17% | 24% | 31% | 12% | ********** | ********** | ********** | | ********** | ********** | | | ********** |
| Limerick | 19% | 7% | 18% | 46% | 9% | | ********** | ********** | ********** | ********** | ********** | ********** | ********** | ********** |
| Tipperary NR | 44% | 26% | 14% | 15% | 0% | ********** | ********** | | ********** | | | | | |
| Cork | 36% | 22% | 9% | 23% | 9% | | ********** | ********** | | ********** | | ********** | ********** | ********** |
| Kerry | 45% | 12% | 23% | 6% | 14% | ********** | ********** | | | | ********** | | ********** | |
| Cavan | 48% | 28% | 16% | 8% | 0% | ********** | | | | | ********** | ********** | | |
| Donegal | 65% | 13% | 5% | 13% | 4% | ********** | ********** | | ********** | | | | ********** | ********** |
| Leitrim | 51% | 11% | 35% | 2% | 1% | | ********** | ********** | | ********** | | | ********** | ********** |

## Table 6: Overview of Sectoral Composition and Productivity Indicators *(continued)*

| | Food, Drink, Textiles, Wood, print, Other (34%) | Chemicals, Rubber, Plastics, Non-metallic minerals (15%) | Metal Products, Machinery (15%) | Electrical, Electronics, Optical Equipment (20%) | Intl. traded Services (17%) | Number of plants (5+ employees) relative to population | Proportion of plants with 50+ employees | Proportion of plants with 50+ employees which are in "advanced" sectors | Percentage change in total employment 1995-1999 | Share of employment in "advanced" sectors | percentage point change in share of employment in advanced sectors | Percentage change in gross output 1995-1998 | Share of man-ufacturing Gross Value Added relative to population | Wages and salaries per person employed in manufactur-ing 1998 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Louth | 41% | 8% | 27% | 20% | 4% | ********** | | | ********** | | | | | |
| Monaghan | 76% | 11% | 8% | 4% | 1% | ********** | | ********** | | ********** | ********** | | | ********** |
| Sligo | 22% | 16% | 29% | 30% | 2% | | | | | | | | | ********** |
| | | | | | | | | | | | | | | |
| Laois | 46% | 24% | 23% | 5% | 2% | ********** | | ********** | ********** | ********** | ********** | ********** | ********** | |
| Longford | 60% | 8% | 20% | 11% | 1% | ********** | | | ********** | ********** | ********** | ********** | | |
| Offaly | 36% | 18% | 20% | 26% | 0% | | ********** | ********** | ********** | | ********** | | ********** | ********** |
| Westmeath | 25% | 20% | 20% | 25% | 10% | | | | ********** | | ********** | ********** | | |
| | | | | | | | | | | | | | | |
| Galway | 30% | 6% | 13% | 39% | 11% | ********** | ********** | ********** | ********** | ********** | ********** | ********** | | |
| Mayo | 38% | 16% | 22% | 19% | 5% | | ********** | | | | | | | ********** |
| Roscommon | 52% | 33% | 8% | 5% | 3% | ********** | ********** | | | | | ********** | ********** | ********** |

# 6 Sectoral Structure and Productivity Inter-linkages

## 6.1 Introduction

From the review of data in the previous sections, it is now intended to explore any cyclical or other relationship between sectoral composition and productivity. This will act as a prelude to examining any consequent relationship between sectoral structure and various stores of infrastructure that might be sustaining a particular structure, enhancing it or indeed restraining it.

Turning to the issue of sectoral composition and productivity linkages generally, Table 6 was devised to indicate the relative strengths of each county in terms of sectoral structure compared to a limited number of indicators as to the internal dynamics of each county.

## 6.2 Nature of the Analysis

In each case, the variables under columns 1-14 have been statistically analysed. For columns 1-6, the objective was to determine the three largest sectors of employment. In columns 7-14 the objective was to determine values in quartiles. With these columns the table illustrates counties that are represented in the uppermost quartile in blue and the lowest quartile in red. This approach to the analysis is in no way intended to attribute merit or otherwise, but to determine broad headings under which useful spatial comparisons may be made.

## 6.3 What the Columns Describe

- Columns 1-5 indicate for each county, above national average contents of various employment categories derived from an amalgamation of the 11 sectors in Table 3.4 into five groupings. (Grouping 1: Food+Drink/ Textiles+ Cloth/ Wood/ Publishing+Other) (Grouping 2: Chemicals+ Pharmaceuticals/ Rubber+Plastics / Non Metallic Minerals) (Grouping 3: Metal Products/Machinery/Transport Equipment) (Grouping 4: Electronic Equipment) (Grouping 5: Internationally Traded Services) This displays visually, the strongest sectors for each county derived from the data in Section 3.4.
- Columns 6-8 indicate in broad terms, plant structure in terms of emphasis in size and in "advanced sectors".
- Columns 9-11 indicate employment dynamics in terms of recent percentages of employment change and in advanced sectors.
- Columns 12-14 indicate productivity values such as % change in gross output 1995-1998, GVA relative to population levels and wages/salaries

In terms of the primary data itself and the simple method of comparison described above and depicted in Table 6, overall and specific comments are outlined below.

## 6.4 Sectoral Structure and Productivity: Overall Trends Apparent

The data referred to in this figure have been considered in the context of establishing any relationship between the fixed characteristics of sectoral structure in a county at a given point and the dynamic performance of counties over a confined time period.

In this approach there are many limitations, including the fact that no account is being taken of sectoral dynamics within a county in the time horizon under study. Notwithstanding such limitations, this analysis is considered to offer some useful insights.

### 6.4.1 Spatial Trends

The counties containing major cities or urban areas, namely Dublin, Cork, Limerick, Galway and Waterford seem to have a robust performance in terms of productivity, gains in output etc that persists regardless of their sectoral architecture. Nonetheless, these areas seem to be more broadly based in sectoral terms and are particularly strong in "new economy" areas such as chemicals, electronics, internationally traded services etc.

This raises the consequent issue in terms of whether other factors are at play in terms of clustering, economies of scale and so on. This goes beyond the scope of this study to analyse but it remains an intriguing question nonetheless.

The overwhelmingly dominant position of Dublin in terms of its productivity scores, its share of national output and so on is striking. This confirms the relative importance of the health of the "Dublin" economy to the national picture.

Groups of counties tend to display co-relations in terms of sectoral architecture and productivity indicators. Stronger areas include principally the main urban areas of the state as described above. Areas where weaker performances include the midlands and particularly more southerly midlands counties, the south-east and the border counties.

### 6.4.2 Sectoral Trends

The continuing significance of the food, drink sectors to virtually all sectors is also striking. However, it appears that a relative position of dominance of this sector in a given county, unbalanced by other sectors, is usually accompanied by a sluggish productivity performance over time. Many Midlands counties and especially Roscommon, display this.

In reverse to the above, counties that are not dependent on the food and drink sector and have diversified away from this, appear to perform well on productivity indicators, e.g. Clare, Westmeath and Galway. Proximity to a major urban area may be a factor here also.

Though not represented in Figure 24, from the data in Section 5, Research and Development (R+D) activity appears to be relatively homogenous, however, of interest is the trend whereby border, midlands and south-eastern counties are weaker than others.

## 6.5 Sectoral Structure and Productivity: Specific County Level Comments

The contrast within the Southwest between Kerry and Cork is notable. This is probably not surprising since the comparison here is between an area that contains effectively a city-region and one that is predominantly rural.

The performance of Wicklow is notable also in terms of diversification and strong performances in productivity indicators. This may be linked with the establishment of information technology type activities in the parts of Wicklow that are part of or adjacent to the Dublin city area. This contrasts with Meath, which exhibits less dynamic characteristics.

The relevance of "other factors" to temporal performance of productivity is exemplified by the part similarities between Longford and Sligo in terms of sectoral emphasis yet very different productivity outcomes.

The recurrent positions of Meath, Laois and Wexford as counties with a weaker base and poor productivity gains (with the part exception to this latter element for Wexford) is notable. Meath continually stands in stark contrast to its nearest neighbour Kildare. To what extent Kildare's stronger performance reflects the dominant presence of two major IT plants (Intel and Hewlett-Packard) is open to speculation.

Clare exhibits a more broadly based sectoral structure with top quartile results across virtually all indicators. However, it is to be anticipated that virtually all of this is bound up in the Ennis-Limerick corridor and especially Shannon Industrial Estate.

The results also indicate Galway having a more broadly based sectoral structure and strong gains in jobs and productivity.

Louth appears to "buck" the trends of its border neighbours in terms of a more broadly based sectoral structure, stronger output growth but curiously, lower job gains. In terms of the positives here, presence on the Dublin-Belfast corridor and educational facilities may be factors here.

Some of the border (and midland) counties seem to contain a larger number of small firms and record lower quartile productivity indicators. This might suggest a presence of a strong small to medium enterprise culture (SME) albeit one that is not demonstrating the type of productivity and employment gains experienced in other areas.

## 6.6 Towards a Typology of Spatial Trends

From the above data and broad conclusions, it is possible to perhaps intuitively derive a typology or classification of counties on the basis of:

- The extent to which the employment base has diversified and is well represented in "knowledge based economy" areas,
- The presence of local specialities in sectoral structure,
- The level of performance in terms of productivity gains,
- The presence of "other factors" such as urban multipliers, economies of scale etc that appear to be possibly underscoring relative strength.

The county level data has been considered against these "benchmarks" to develop the "typology" of county level groupings below. It is accepted that this is somewhat a crude mechanism but one that nonetheless gives an overall impression of spatial trends.

Considering the data in depth indicates that in spatial terms, counties can probably be grouped into four categories:

1. A category including urban counties that comprise of, or contain city-regions. In these areas, sectoral composition is more evenly distributed and broadly based, productivity growth is strong and other factors (such as multipliers), perhaps from strong stores of infrastructure, might be present.
2. A category of diversifying coastal rural or "adjacent to urban" counties, exhibiting an employment base that is broadening. This includes Kerry, Clare, Westmeath and to some extent, Mayo and Donegal.
3. A category of rural and "adjacent to urban" traditionally stronger counties that have yet to fully diversify their employment base and which are not as yet, experiencing marked productivity gains as a result. This includes areas such as Meath and Wexford, Carlow, Kilkenny and to some extent Laois.
4. A category of counties where a strong small-medium enterprise culture is extant but where diversification, economies of scale and reliance on traditional sectors is extant. This includes much of the Border area, with the exception of Louth, parts of the west and south midlands and counties such as Longford, Roscommon, Tipperary North Riding.

These categories confirm the overall purpose of this study in identifying clear spatial patterns in enterprise location as well as the store of future potential from productivity indicators. It will be critical to build on this analysis in the next stage of the NSS to:

- Unearth any parallels with the outputs from other studies and
- Build towards the Policy Paper on Enterprise.

# Research Task 6: Enterprise Employment and Productivity Trends

## Implications for Spatial Policy

This paper sets out to explore spatial trends in enterprise in Ireland and confirms the merit in its purpose by establishing clear patterns.

### A Typology of Spatial Trends

From the data analysed in research task 6 and broad conclusions developed from this, it is possible to perhaps intuitively derive a typology or classification of counties on the basis of:

- The extent to which the employment base has diversified and is well represented in "knowledge based economy" areas,
- The presence of local specialities in sectoral structure,
- The level of performance in terms of productivity gains,
- The presence of "other factors" such as urban multipliers, economies of scale etc that appear to be possibly underscoring relative strength.

The county level data has been considered against these "benchmarks" to develop the "typology" of county level groupings below. It is accepted that this is somewhat a crude mechanism but one that nonetheless gives an overall impression of spatial trends.

Considering the data in depth indicates that in spatial terms, counties can probably be grouped into four categories:

1. A category including urban counties that comprise of, or contain city-regions. In these areas, sectoral composition is more evenly distributed and broadly based, productivity growth is strong and other factors (such as multipliers), perhaps from strong stores of infrastructure, might be present.
2. A category of diversifying coastal rural or "adjacent to urban" counties, exhibiting an employment base that is broadening. This includes Kerry, Clare, Westmeath and to some extent, Mayo and Donegal.
3. A category of rural and "adjacent to urban" traditionally stronger counties that have yet to fully diversify their employment base and which are not as yet, experiencing marked productivity gains as a result. This includes areas such as Meath and Wexford, Carlow, Kilkenny and to some extent Laois.
4. A category of counties where a strong small-medium enterprise culture is extant but where diversification, economies of scale and reliance on traditional sectors is extant. This includes much of the Border area, with the exception of Louth, parts of the west and south midlands and counties such as Longford, Roscommon, Tipperary North Riding.

It is beyond the scope of this study to establish authoritatively any causality between these groupings and any obvious differences in stores of infrastructure, whether physical, economic, social and so on. Indeed it is difficult to establish the direction of any possible causality i.e. whether infrastructure is provided in response to spatial patterns or spatial patterns being influenced by the provision of infrastructure.

Nonetheless, the identification of spatial patterns in enterprise does offer an interesting perspective on the development of policies in the NSS, in particular, how relative strengths may be capitalised on and weaknesses addressed.

## Implications for Spatial Policy

In this section it is intended to explore what might be taken out of the above analysis in Stage Three of the process of preparing the NSS, under broad headings. If we ask the question, "what does the above analysis say of relevance to the framing of future policy?" the following areas of interest arise.

- First of all, it appears that there are clear patterns of economic activity going on, not only geographically, in terms of differences between both urban and rural areas, but also sectorally.
- There also seem to be clear patterns in terms of where foreign industry seems to be located - near urban areas. As these types of activity are free in location option terms when entering the country, this raises issues as to what drives this process. For example, to what degree is this led by enterprise promotion policies or are there clear preferences going on here?
- There is perhaps a cyclical and iterative relationship between stores of different types of infrastructure and enterprise activity. The direction (if any) of causality and the proper establishment of causality itself, is something that should be addressed in Stage Three of the process - in the policy paper on "Development Dynamics" perhaps.
- Outside of the dominant position of Dublin in enterprise terms, the vitality of the economies of the Cork, Limerick and Galway areas is a resource that could be built upon. Considering the substantial academic and other work on "agglomeration economies" an interesting question is raised in terms of the capacity for binding these centres closer, by upgrading of transport and communications links.
- There seems to be an emergence of potential in counties "adjacent to urban areas" that might be demonstrating a willingness to build upon proximity to the Dublin area particularly.
- Mirroring findings in other research tasks in the NSS, such as rural and urban structure, there seems to be a tier of counties such as Roscommon, Tipperary North Riding, Laois and to some extent Offaly, where what might be termed the "tide of reinvention and diversification" has yet to penetrate. It might be that in such areas, a process of confidence building is required.

- There are also traditionally stronger counties that may need restructuring in the future bearing in mind losses of on-farm employment.
- Finally, the western coastal fringe counties that appear to be diversifying, must address the identification of those areas that deliver perhaps a "quality of life" advantage in terms of attracting investment, and ensure that such factors are conserved and enhanced.