

# Regional Breakdown of the UK Innovation Survey 2001

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## Introduction

This article is intended to accompany the “UK Innovation Survey 2001” report (on the UK element of the EU-wide Community Innovation Survey) published by DTI, providing greater depth in the form of regional analyses.

Business innovation is a vital ingredient in raising the productivity, competitiveness and growth potential of modern economies. Providing the right economic conditions for, and using appropriate policy instruments to encourage innovation in the UK is a central objective for the Department of Trade and Industry (DTI). Measuring the level of innovation activity in the UK and identifying where policy might be best targeted contributes to the pursuit of that objective.

The Community Innovation Survey complements other indicators of innovativeness by providing a regular snapshot of innovation inputs and outputs and the constraints faced by UK businesses in their innovation efforts, across the range of UK industries and business enterprises. It has the additional benefit of providing the basis for some comparisons with other EU countries.

## Innovation Activity by Region

Innovation takes place through a wide variety of business practices and a range of indicators can be used to measure its level within the enterprise or in the economy as a whole. These include the levels of effort employed (measured through resources allocated to innovation) and of achievement (the introduction of new or improved products and processes). This section reports on the types and levels of innovation activity over the three-year (1998-2000) sample period.

We define innovation activity here as whether enterprises:

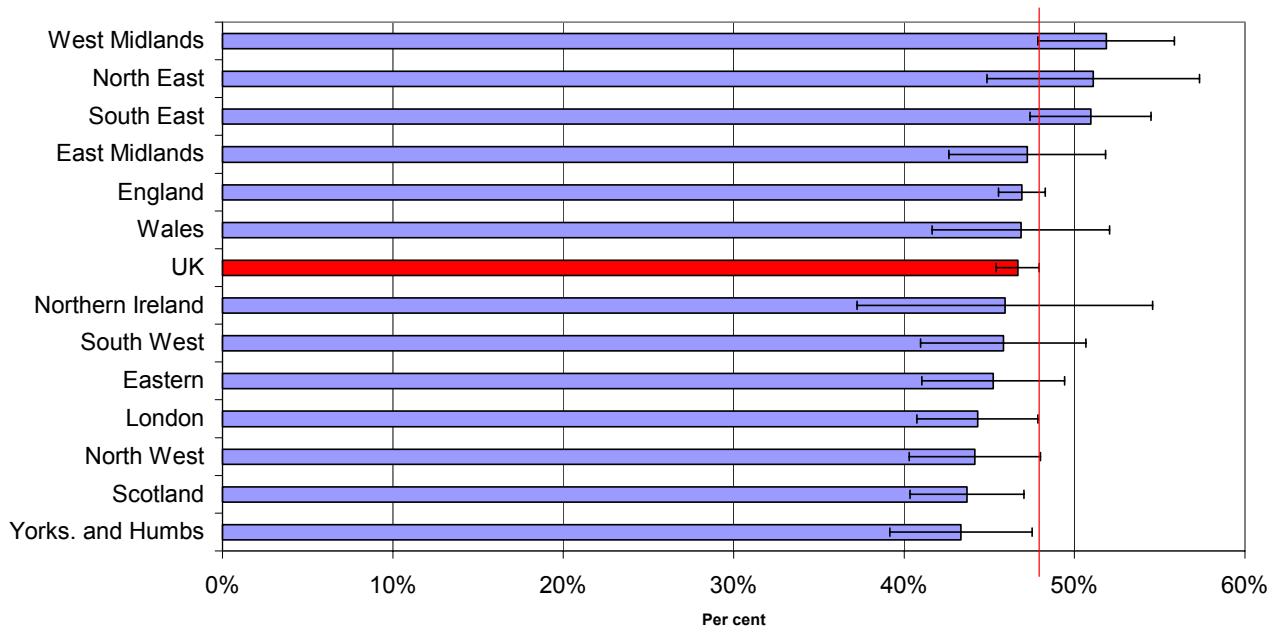
- have introduced a new or significantly improved good, service or process;
- were engaged in innovation projects not yet complete or abandoned;
- engaged in longer-term innovation activity such as basic R&D or technology watch;

- had expenditure in areas such as internal research and development, training, acquisition of external knowledge or machinery and equipment linked to innovation activities;
- formally co-operated on innovation activities with other enterprises or institutions.

### Innovation Activity by Region

|                          | Per cent of all enterprises |       |     |                         |
|--------------------------|-----------------------------|-------|-----|-------------------------|
|                          | Size of enterprises         |       |     | 90% confidence interval |
|                          | SME                         | Large | All |                         |
| England                  | 46                          | 66    | 47  | ±1                      |
| East Midlands            | 47                          | 66    | 47  | ±5                      |
| Eastern                  | 44                          | 71    | 45  | ±4                      |
| London                   | 44                          | 49    | 44  | ±4                      |
| North East               | 49                          | 89    | 51  | ±6                      |
| North West               | 43                          | 62    | 44  | ±4                      |
| South East               | 50                          | 67    | 51  | ±4                      |
| South West               | 45                          | 68    | 46  | ±5                      |
| West Midlands            | 51                          | 78    | 52  | ±4                      |
| Yorkshire and the Humber | 42                          | 70    | 43  | ±4                      |
| Northern Ireland         | 45                          | 76    | 46  | ±9                      |
| Wales                    | 45                          | 82    | 47  | ±5                      |
| Scotland                 | 42                          | 73    | 44  | ±3                      |
| UK                       | 46                          | 67    | 47  | ±1                      |

Innovation Activity by Region with 95% Confidence Interval



Enterprises in the West Midlands had the most innovation activity, followed closely by those in the North East and South East. Enterprises in Yorkshire and the Humber,

along with London, the North West and Scotland had the lowest levels of innovation activity.

Across the whole of the UK large firms were more likely to engage in some form of innovation activity than their small and medium counterparts. This difference was by far the least in London, which had one of the lowest innovation activity rates, with large firms only 5 per cent more likely to be innovation active than SME's. The greatest difference was seen in the North East which displayed strong innovation activity.

Note however, that since this is a sample survey the results are subject to sampling errors. The table and chart above show a 95% confidence interval for innovation activity by region. Only where the confidence intervals do not overlap can we say that the results are statistically significantly different. There are then, few substantial differences between regions on this broad measure of innovation.

Innovation active is a composite measure taking into account five different factors which we shall now look at individually (these results are tabulated in Annexe A.)

- The South East leads product innovation in the UK with 22 per cent of its firms introducing a new product compared to a national average of 18 per cent and Northern Ireland trailing with 13 per cent.
- Eighteen per cent of enterprises in Wales introduced a new process compared to the national average of 15 per cent and Yorkshire and Humberside at 12 per cent.
- Firms in the South East and South West were the most likely to have co-operation agreements regarding innovation at 10 per cent compared to the UK at 8 per cent and London, the least likely area for co-operation at only 6 per cent.
- Nineteen per cent of enterprises in Northern Ireland reported innovation activities not yet completed or abandoned compared to 16 per cent per the UK and 14 per cent for the North West and Yorkshire and Humberside.
- Forty-three per of enterprises in the North East reported innovation related expenditure with the UK at 36 per cent and Northern Ireland at 32 per cent.

### Innovation Activity by size, type and region of firm

Per cent of all enterprises

|                 | Size and sector of firm |               |     |               |               |     |               |               |     |
|-----------------|-------------------------|---------------|-----|---------------|---------------|-----|---------------|---------------|-----|
|                 | SME                     |               |     | Large         |               |     | All           |               |     |
|                 | Prod. & Cons.           | Dist. & Serv. | All | Prod. & Cons. | Dist. & Serv. | All | Prod. & Cons. | Dist. & Serv. | All |
| England         | 47                      | 45            | 46  | 74            | 55            | 66  | 49            | 45            | 47  |
| East Midlands   | 49                      | 43            | 47  | 70            | 55            | 66  | 50            | 43            | 47  |
| Eastern         | 42                      | 46            | 44  | 79            | 58            | 71  | 44            | 47            | 45  |
| London          | 47                      | 43            | 44  | 67            | 44            | 49  | 47            | 43            | 44  |
| North East      | 53                      | 43            | 49  | 94            | 67            | 89  | 56            | 44            | 51  |
| North West      | 44                      | 43            | 43  | 65            | 55            | 62  | 45            | 43            | 44  |
| South East      | 52                      | 49            | 50  | 71            | 63            | 67  | 53            | 50            | 51  |
| South West      | 47                      | 43            | 45  | 70            | 63            | 68  | 48            | 43            | 46  |
| West Midlands   | 50                      | 52            | 51  | 85            | 60            | 78  | 52            | 52            | 52  |
| Yorks and Humbs | 46                      | 38            | 42  | 74            | 59            | 70  | 47            | 38            | 43  |

|                  |    |    |    |    |    |    |    |    |    |
|------------------|----|----|----|----|----|----|----|----|----|
| Northern Ireland | 52 | 37 | 45 | 77 | 73 | 76 | 52 | 37 | 46 |
| Wales            | 45 | 45 | 45 | 85 | 57 | 81 | 48 | 45 | 47 |
| Scotland         | 42 | 42 | 42 | 76 | 62 | 73 | 45 | 43 | 44 |
| UK               | 47 | 44 | 46 | 75 | 55 | 67 | 48 | 45 | 47 |

Enterprises in production and construction sectors are more likely to be innovation active than distribution and service sector firms in all regions of the UK except the Eastern and West Midland regions.

## Novel Innovation

The most potentially lucrative types of innovation are those which are not only new to the firm in question, but also new to the firms market thus giving the enterprise an advantage over its competitors.

The South East leads the way in novel product innovation along with the East Midlands, both at 10 per cent. Wales and the West Midlands build on their strong process innovation with 6 per cent of their firms introducing novel processes. Northern Ireland has the least novel innovation with only 4 per cent of firms introducing a novel product and 3 per cent introducing a novel process.

| Novel product innovation by region | Size of enterprises |       |     |
|------------------------------------|---------------------|-------|-----|
|                                    | SME                 | Large | All |
| England                            | 7                   | 18    | 8   |
| East Midlands                      | 10                  | 14    | 10  |
| Eastern                            | 7                   | 25    | 8   |
| London                             | 7                   | 11    | 7   |
| North East                         | 6                   | 12    | 6   |
| North West                         | 5                   | 13    | 6   |
| South East                         | 9                   | 20    | 10  |
| South West                         | 7                   | 17    | 8   |
| West Midlands                      | 7                   | 28    | 8   |
| Yorks and Humbs                    | 5                   | 21    | 6   |
| Northern Ireland                   | 3                   | 10    | 4   |
| Wales                              | 8                   | 24    | 8   |
| Scotland                           | 8                   | 24    | 9   |
| UK                                 | 7                   | 18    | 8   |

| Novel process innovation by region | Size of enterprises |       |     |
|------------------------------------|---------------------|-------|-----|
|                                    | SME                 | Large | All |
| England                            | 4                   | 12    | 5   |
| East Midlands                      | 5                   | 7     | 5   |
| Eastern                            | 4                   | 11    | 4   |
| London                             | 4                   | 12    | 5   |
| North East                         | 3                   | 8     | 4   |
| North West                         | 4                   | 10    | 4   |
| South East                         | 4                   | 13    | 5   |
| South West                         | 4                   | 15    | 4   |
| West Midlands                      | 5                   | 14    | 6   |
| Yorks and Humbs                    | 4                   | 16    | 4   |
| Northern Ireland                   | 3                   | 27    | 3   |
| Wales                              | 6                   | 9     | 6   |
| Scotland                           | 5                   | 12    | 5   |
| UK                                 | 4                   | 12    | 5   |

## ANNEX A – Breakdown of innovation activity

| Product Innovation by Region |                     |       |     | Process Innovation by region |                     |       |     |
|------------------------------|---------------------|-------|-----|------------------------------|---------------------|-------|-----|
|                              | Size of enterprises |       |     |                              | Size of enterprises |       |     |
|                              | SME                 | Large | All |                              | SME                 | Large | All |
| England                      | 18                  | 37    | 18  | England                      | 14                  | 33    | 15  |
| East Midlands                | 18                  | 32    | 19  | East Midlands                | 16                  | 27    | 16  |
| Eastern                      | 17                  | 42    | 18  | Eastern                      | 13                  | 34    | 13  |
| London                       | 17                  | 28    | 18  | London                       | 13                  | 24    | 14  |
| North East                   | 16                  | 37    | 17  | North East                   | 13                  | 36    | 14  |
| North West                   | 15                  | 36    | 16  | North West                   | 14                  | 26    | 15  |
| South East                   | 22                  | 39    | 22  | South East                   | 15                  | 35    | 16  |
| South West                   | 19                  | 37    | 20  | South West                   | 14                  | 41    | 15  |
| West Midlands                | 16                  | 48    | 17  | West Midlands                | 15                  | 47    | 16  |
| Yorks and Humbs              | 15                  | 41    | 16  | Yorks and Humbs              | 11                  | 37    | 12  |
| Northern Ireland             | 12                  | 39    | 13  | Northern Ireland             | 13                  | 49    | 14  |
| Wales                        | 18                  | 45    | 19  | Wales                        | 17                  | 44    | 18  |
| Scotland                     | 16                  | 38    | 17  | Scotland                     | 15                  | 43    | 16  |
| UK                           | 17                  | 38    | 18  | UK                           | 14                  | 35    | 15  |

| Co-operation agreements by region |                     |       |     | Innovation abandoned or not yet complete by region |                     |       |     |
|-----------------------------------|---------------------|-------|-----|--|---------------------|-------|-----|
|                                   | Size of enterprises |       |     |  | Size of enterprises |       |     |
|                                   | SME                 | Large | All |  | SME                 | Large | All |
| England                           | 9                   | 25    | 9   | England  | 15                  | 30    | 16  |
| East Midlands                     | 7                   | 27    | 8   | East Midlands                                      | 15                  | 30    | 16  |
| Eastern                           | 8                   | 26    | 9   | Eastern  | 15                  | 35    | 16  |
| London                            | 6                   | 20    | 6   | London   | 14                  | 20    | 15  |
| North East                        | 6                   | 23    | 7   | North East   | 16                  | 45    | 18  |
| North West                        | 7                   | 19    | 7   | North West   | 14                  | 25    | 14  |
| South East                        | 9                   | 26    | 10  | South East   | 18                  | 32    | 18  |
| South West                        | 9                   | 28    | 10  | South West   | 14                  | 37    | 15  |
| West Midlands                     | 9                   | 29    | 9   | West Midlands                                      | 17                  | 36    | 18  |
| Yorks and Humbs                   | 6                   | 21    | 7   | Yorks and Humbs                                    | 14                  | 27    | 14  |
| Northern Ireland                  | 8                   | 31    | 9   | Northern Ireland                                   | 18                  | 43    | 19  |
| Wales                             | 7                   | 34    | 8   | Wales  | 15                  | 27    | 15  |
| Scotland                          | 7                   | 23    | 7   | Scotland   | 14                  | 38    | 16  |
| UK                                | 8                   | 24    | 8   | UK   | 15                  | 31    | 16  |

| Innovation related expenditure by region |                     |       |     |
|--|---------------------|-------|-----|
|  | Size of enterprises |       |     |
|  | SME                 | Large | All |
| England                                  | 36                  | 51    | 37  |
| East Midlands                            | 35                  | 54    | 36  |
| Eastern                                  | 34                  | 52    | 34  |
| London                                   | 34                  | 36    | 34  |
| North East                               | 41                  | 71    | 43  |
| North West                               | 35                  | 52    | 35  |
| South East                               | 39                  | 53    | 39  |
| South West                               | 37                  | 53    | 38  |
| West Midlands                            | 11                  | 54    | 41  |
| Yorks and Humbs                          | 34                  | 54    | 35  |

|                  |    |    |    |
|------------------|----|----|----|
| Northern Ireland | 32 | 56 | 32 |
| Wales            | 35 | 70 | 37 |
| Scotland         | 33 | 49 | 34 |
| UK               | 36 | 51 | 36 |

## **ANNEX B – Methodology**

The UK Innovation Survey is funded by the Department of Trade and Industry (DTI). The survey was conducted on behalf of the DTI by the Office for National Statistics (ONS), with assistance from the Northern Ireland Department of Enterprise, Trade and Investment (DETI).

The UK Innovation Survey is part of a wider Community Innovation Survey (CIS) covering the EU. The survey is based on a core questionnaire developed by the European Commission (Eurostat) and Member States. This is the third iteration of the survey – CIS 2 was carried out in 1997 and the results form part of various EU benchmarking exercises (see [www.cordis.lu/innovation-smes/scoreboard/home.htm](http://www.cordis.lu/innovation-smes/scoreboard/home.htm)).

The UK Innovation Survey 2001 was carried out in two parts. The first sampled 13,340 enterprises and covered the whole of the UK whilst the second was an England-only top up (of 6,287 enterprises) to allow the construction of regional indicators.

The survey was voluntary and conducted by means of a postal questionnaire. A copy of the questionnaire used can be found on [www.dti.gov.uk/tese/science.htm](http://www.dti.gov.uk/tese/science.htm).

### *Coverage*

The survey covered enterprises with 10 or more employees in sections C-K of the Standard Industrial Classification (SIC) 1992. All SIC production and construction divisions are included i.e. sections C (mining and quarrying), D (manufacturing), E (electricity, gas and water supply) and F (construction). In distribution and services only SIC 51 (wholesale trade except of motor vehicles) is included from section G (wholesale and retail trade; repair of motor vehicles and personal and household goods) with section H (hotels and restaurants) excluded completely. Sections I (transport, storage and communication), J (financial intermediation) and K (real estate, renting and business activities) are included in their entirety.

### *Sampling*

The first sample was drawn from the ONS Inter-Departmental Business Register (IDBR) on 16 March 2001 with the top up following on 30 October. The unit of analysis was the enterprise – for larger firms this is usually a business unit (which must be a legal entity and have a certain degree of autonomy), for smaller firms it is often the whole company.

The survey was stratified by Government Office Region in England, and by Scotland, Wales and Northern Ireland. Each of these regions contained 12 industry SIC groupings and 5 employment sizebands. The sample was drawn using optimal allocation (based on the proportion of innovators from CIS 2) with a minimum cell

size (which varied by the population in each region). Almost 16 per cent of the targeted 126,775 enterprises in the population were sampled.

### *Response and weighting*

The questionnaires from the initial survey were distributed on 2 April 2001. Enterprises not responding received written reminders in mid-May and mid-June with the second reminder also including a copy of the questionnaire. Finally, around 1,000 non-responding enterprises were contacted by telephone in an effort to further boost response rates.

The top up survey was distributed on 9 November with only one reminder sent. The data collection was closed at the end of February.

Of the 19,602 enterprises selected, 8,172 valid responses were received (along with a small number of returned questionnaires from enterprises which had ceased trading) to give a response rate of 42 per cent. The population and achieved sample are summarised below.

### Summary of Sample Frame

|                  | Population                |       |                    | Achieved sample           |       |                    |
|------------------|---------------------------|-------|--------------------|---------------------------|-------|--------------------|
|                  | SME or larger firm<br>SME | Large | Group Total<br>All | SME or larger firm<br>SME | Large | Group Total<br>All |
| England          | 106050                    | 4258  | 110308             | 5624                      | 1202  | 6826               |
| East Midlands    | 9,587                     | 365   | 9,952              | 579                       | 120   | 699                |
| Eastern          | 12,044                    | 400   | 12,444             | 632                       | 118   | 750                |
| London           | 18,044                    | 760   | 18,804             | 778                       | 196   | 974                |
| North East       | 3,657                     | 189   | 3,846              | 386                       | 58    | 444                |
| North West       | 13,263                    | 550   | 13,813             | 691                       | 150   | 841                |
| South East       | 17,512                    | 702   | 18,214             | 805                       | 207   | 1,012              |
| South West       | 9,307                     | 352   | 9,659              | 509                       | 112   | 621                |
| West Midlands    | 12,363                    | 502   | 12,865             | 636                       | 96    | 732                |
| Yorks and Humbs  | 10,272                    | 438   | 10,710             | 608                       | 145   | 753                |
| Northern Ireland | 3,787                     | 103   | 3,890              | 137                       | 25    | 162                |
| Wales            | 3,990                     | 205   | 4,195              | 322                       | 57    | 379                |
| Scotland         | 7,985                     | 397   | 8,382              | 701                       | 104   | 805                |
| UK               | 121,812                   | 4,963 | 126,775            | 6,784                     | 1,388 | 8,172              |

The results in this article are based on weighted data in order to be representative of the population of firms. The responses were weighted back to the population using the inverse sampling proportion in each stratum i.e. the weight attributed to each enterprises was the number of enterprises in the population divided by the number of responses in that stratum. On average each respondent represents 23 enterprises in the population.