Overview

This article introduces the ONS Business Data Linking project. It describes the project and summarises the key data sets that are used in this work. Economic Trends will update readers regularly with recent findings from the project. This issue presents some initial findings about the relative performance of domestic and foreign businesses in the UK.

Introduction

Raising UK productivity is a major government objective: separate chapters on productivity have appeared in every Budget and pre-Budget report since 1997.

Research has been conducted for many years on UK productivity. However, because of data availability, almost all of this UK work has been aggregate in nature, either looking at whole-economy productivity or at industry-level productivity. This work has rightly been very influential in, for example, documenting the UK productivity gap with other countries and suggesting some of the productivity drivers that policy might act upon.

Such analyses cannot tell the whole story however. For example, aggregate data provides no information on how much entry of new firms and exit of older ones contributes to productivity growth.

Recent work for the US at the plant level has shown that aggregate measures hide a huge amount of heterogeneity within even very narrowly defined industries and that entry and exit are important drivers of productivity growth (Foster, Haltiwanger, and Krizan, 1998). This supports the value of such micro-level work for the UK.

Contracting out legislation from 1994 allows the Office for National Statistics (ONS) to give researchers on government contracts limited access to confidential business data. This has allowed new lines of research using disaggregated data, and this research has gained recognition in numerous recent policy documents. Work analysing productivity using these data has been drawn upon recently as follows:


- productivity and skills: see HM Treasury (2000a, Chart 3.3), refers to Barnes and Haskel, (2000b).

- the distribution of productivity: see HM Treasury (2000a, Chart 3.1), refers to Barnes and Haskel (2000b).

In the light of the topic’s importance and interest, the ONS has established the Business Data Linking (BDL) branch to take this work forward. This article describes the work of BDL, the data and gives some examples of results using the data.

BDL aims to bring together users of ONS business micro data within ONS, the wider government and in the academic community to
ensure that best practice can be shared. It also aims to ensure business micro data continue to be developed and made available for research. A further goal is to make use of other business data that are collected by ONS and others to create linked data that may be used to answer a broader array of questions.

In addition to the work cited above, such data have already been used to study a variety of issues including an analysis of DTI industrial support policies, commissioned by DTI (Harris and Robinson 2001), the impact of management buyouts on economic efficiency (Harris, Siegel and Wright 2002) and returns to scale and foreign acquisitions (Girma and Görg 2002). Other work commissioned by the OECD Economics Department has worked towards comparable data on firm demography and productivity in a number of countries (Barnes, Haskel and Maliranta 2001).

This work has gained considerable additional momentum in recent months, following a successful bid to the Treasury’s Evidence Based Policy Fund, jointly sponsored by DTI and ONS. The award has provided financial support for work by academics from the Centre for Research into Business Activity (CeRiBA) at Queen Mary College, University of London, and others, to enable them to carry out data linking and policy relevant analytical work.

**Data: The Annual Respondents Database**

The Annual Respondents Database (ARD) is constructed using the results of annual business surveys conducted by the Office for National Statistics. The database links reporting units over time and is therefore longitudinal. Its setting up and some initial descriptive statistics are given in Oulton (1997).1

**ARD sources**

The Annual Respondents Database (ARD) stores the data collected by the Office for National Statistics (formerly the Central Statistical Office) from the Annual Census of Production (ACOP) and the Annual Census of Construction (ACOC).2 From 1998 these surveys have been incorporated into and replaced by the Annual Business Inquiry3 (ABI) and hence the ABI data are now added to the ARD each year. The data prior to 1998 cover the vast majority of production and construction activities, but from 1998 the ABI also incorporates six other previous surveys covering distribution and other service activities. This increased coverage is reflected in the number of individual business contributors to the ARD rising from approximately 15,000 for 1970 to 1996 to approximately 50,000 for 1998 and to over 60,000 for 1999. The Business Data Linking Branch has recently instigated inclusion of archive data from past service surveys into the ARD from 1994 to 1997. This work is presently at an early stage but it is hoped will provide a useful resource for future research into the non-production sector of the economy.

At the time of writing, final data are available up to 1999. In addition provisional data for 2000 have been made available, though a number of responses are yet to be included in the data.

The businesses selected for the surveys are currently drawn from the ONS Inter-departmental Business Register (IDBR).4 The IDBR covers about 98% of business activity (by turnover) in Great Britain. Each year a stratified sample is drawn for the ABI and thus the data stored on the ARD is from business respondents returning the questionnaires that are sent out by the ONS. Under the 1947 Statistics of Trade Act it is a legal requirement that businesses complete them. The register also records data from the administrative sources of VAT and PAYE records for all the 3.7m or so businesses. These data relate to the name, location, birth, turnover and employment of the business. For the sectors covered by ACOP/ACOC/ABI most of these administrative data are also stored on the ARD in a supplementary file. This allows the whole population to be taken into account when using the data.

**Access, Confidentiality and Disclosure**

The data contained in the ARD are collected under the 1947 Statistics of Trade Act. Under this Act all data collected from businesses are confidential and remain confidential forever. Access for external researchers is possible under the 1994 Deregulation and Contracting Out Act. Researchers are contracted to ONS to conduct a specified task, and only they are permitted to use the data.

At present access to the complete data set is only permitted at ONS premises at Drummond Gate in London and Newport in South Wales. For information on gaining access to the data see Box A. In order to comply with the terms of the 1947 Act it is necessary for all work for circulation outside of ONS and contracted researchers to be cleared by the data custodians at ONS to ensure it is not disclosive of data about an individual business. The rules for determining what can or cannot be disclosed have two elements.5 First is the threshold rule, which ensures there are at least 3 enterprise groups in a cell. Second, the dominance rule states that the sum of all but the largest two values in a cell must be greater than 10 percent of the largest observation.6 Only if both of these rules are passed can work be cleared for release. It is important to note that clearance must be sought for all forms of release, including presentations and draft papers as well as final publications.
Northern Ireland data

The Statistics of Trade Act only covers data for Great Britain. In Northern Ireland, data are collected under local legislation. To date, ONS has continued to design the business surveys for Northern Ireland, but the sample has often been larger than it would be using the rules for Great Britain. In addition the survey process is managed by the Department of Enterprise, Trade and Industry for Northern Ireland (DETI) and they own the data. Therefore, all work using NI data must be cleared by DETI and it is their decision to allow access.

The range of variables

The range of variables collected since 1970 (unfortunately most of the data before 1968 was destroyed) on the ARD has varied over the years and the same variable names can sometimes hide changing definitions or elements included in questionnaires and derived variables. Records of most of these changes were kept. The central variables collected are measures of employment, turnover/output, capital expenditure and intermediate consumption. The data from these direct responses are used to calculate derived variables such as per head measures and Gross Value Added. Postcodes and industrial classification (Standard Industrial Classification codes) are included from the business register along with the nationality of the ‘ultimate owner’ of the enterprise (as supplied by Dunn and Bradstreet). Although the register lists business names the ARD does not. However, the ARD data can be linked to the register by using the unique business contributor codes. Acquisitions and disposals of capital goods are recorded but there is no information on the scrapping of capital stock.

Table 1: Sampling in ARD source data, 1970–2000

<table>
<thead>
<tr>
<th>Census year</th>
<th>Employment size band</th>
<th>Sampling fraction</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970–1971</td>
<td>&lt;25 25 or more</td>
<td>0 (exempt) All</td>
<td>In some industries, &lt;11 was lower limit.</td>
</tr>
<tr>
<td>1972–1977</td>
<td>&lt;20 20 or more</td>
<td>0 (exempt) All</td>
<td>All industries</td>
</tr>
<tr>
<td>1978–1979</td>
<td>&lt;20 20 or more</td>
<td>0 (exempt)* All</td>
<td>All industries</td>
</tr>
<tr>
<td>1980–1983</td>
<td>&lt;20 20–49 50 or more</td>
<td>0 (exempt) All</td>
<td>All industries</td>
</tr>
<tr>
<td>1984</td>
<td>&lt;20 20–49 50 or more</td>
<td>0 (exempt) All</td>
<td>All industries</td>
</tr>
<tr>
<td>1985–1988</td>
<td>&lt;20 20–49 50 or more</td>
<td>0 (exempt) All</td>
<td>All industries</td>
</tr>
<tr>
<td>1989</td>
<td>&lt;20 20–49 50 or more</td>
<td>0 (exempt) All</td>
<td>All industries</td>
</tr>
<tr>
<td>1990–1994</td>
<td>&lt;20 20–49 50 or more</td>
<td>0 (exempt) All</td>
<td>All industries</td>
</tr>
<tr>
<td>1995–1997</td>
<td>&lt;10 10–99 100–199</td>
<td>0.2 0.25 0.75</td>
<td>50% of industries, others with smaller thresholds</td>
</tr>
<tr>
<td>1998 onwards</td>
<td>&lt;10 10–99 100–249</td>
<td>0.25 0.5 Varies by industry</td>
<td></td>
</tr>
<tr>
<td></td>
<td>250 or more</td>
<td>0.25 0.5</td>
<td>Varies by industry</td>
</tr>
</tbody>
</table>

Source: Oulton (1997) and Author’s updates
Note: For 1997 and earlier years these are sampling frames for ACOP. From 1998 onwards they refer to ABI.
* In 1978 a small sample of establishments employing less than 20 was also drawn.
** 0.2 in 1993.
Sample stratification

The Annual Census of Production/Construction was not in fact a census other than for the highest size-band businesses. For smaller size-bands a sample was selected each year. For most years of the ARD the census size was 100, but this was raised to 200 for more recent years preceding the ABI. For the ABI this has been increased to 250. The sample of businesses for the other employment size-bands is drawn from the business register (i.e. the CSO Business Register and then since 1994 the IDBR) and has changed from year to year. Table 1 below summarises how the sampling proportions have changed over time. Prior to 1995, the very smallest businesses (generally those employing less than 20 people) were not sampled at all. To limit the impact of ONS surveys on small businesses, they do not receive another survey for three years after they have completed one. Note also that these rules mean the register data on smaller companies is more dependent on administrative sources than for larger companies where responses to other surveys are also a source of revision. Note finally that stratification is also based on industry and region.

The data for each year are essentially a snap shot of those businesses selected for that year from the register. While the data were not collected or compiled with the intention of creating a longitudinal database, this possibility is created thanks to the unique ONS reference number assigned to the reporting units. It is worth noting that prior to the IDBR the CSO Business Register was subject to substantial improvements in the 1980s and in the run up to the creation of the IDBR. These improvements present an additional challenge for researchers using the data.

The business reporting units

The nature of the business units from which the data are collected can be confusing. Changes and overlaps in terminology in 1993/4 exacerbated this problem when the labels for the various levels of business units were brought in to line with the European System of Accounts (ESA). As such it is useful to be aware of the terms used before and after this change. Fortunately the reporting levels are broadly the same.

1970 – 1993

In descending level of aggregation:

- ‘Enterprise Reference’ - the group of all legal units under common control.
- ‘Establishment’ - the smallest group of legal units which could provide the full range of data required for the survey
- ‘Local unit’ - the individual site or workplace (factory, shop etc) at which activity takes place

1994 onwards

In descending level of aggregation:

- ‘Enterprise Group’ - the group of all legal units under common control.
- ‘Enterprise’ - the smallest group of legal units within an enterprise group with a relative degree of autonomy.
- ‘Local unit’ - the individual site or workplace (factory, shop etc) at which activity takes place.

Although there have been changes in reporting arrangements over time, essentially the former ‘Enterprise Reference’ label now corresponds to the ‘Enterprise Group’, and the former ‘Establishment’ with the ‘Enterprise’ term now used. The use of the term ‘Local Unit’ is unchanged but since 1992 data have not been collected directly for this level of business unit although administrative data at this level are still available on the register.

The data in the ARD are recorded under CSO/IDBR Reporting Unit References. The business contributor level is currently at the Enterprise or ‘Local Unit List Level’. Where an Enterprise reports as a complete unit this is known as the ‘Enterprise Reporting Unit’. Where an Enterprise is broken up by regions or activities these sub units are called ‘Local Unit List Reporting Units’. Both types of reporting units may report for several local units. Until 1992 limited data was also collected on local units.

Problems arising in using the data

Some researchers are concerned that changes in the composition of the Enterprise through Local Units closing or changing ownership may distort the data from Enterprises. Hence they apportion the Enterprise data across the Local Units recorded on the business register for that Enterprise. This is done using employment recorded for that unit on the IDBR as provided by VAT or PAYE returns or from other ONS surveys. These IDBR size data are not considered to be as reliable as directly returned data partly because there can be a delay in its updating.

Obviously directly returned data are only available for contributors that are selected in the ACOP/ACOC/ABI surveys and that returned a form. This returned data held in the ARD is sometimes called the raw data, but it is more accurate to call it ‘contributor’ data as the returned data may have been adjusted or used to impute some variables where contributors have not been asked for a full range of data. For example, when businesses fail to return the questionnaires the contributor data for that unit may be constructed if ONS has sufficient information from other sources. Thus constructed data may use returned data such as turnover, stocks and capex from other inquiry sources and will generally be based on what ONS already knows about that particular company and its history (e.g. from follow-up or other current and past surveys). Also constructed data are
usually used only for the 1:1 cells i.e. where a census has taken place. This is therefore more accurate than straight pro-rata allocations based on measures of size from the register. Therefore for many purposes the ‘processed’ data can be treated as real returned data even when constructed or imputed, but researchers should be aware of these constructed, imputed or outlier adjusted contributor data where this could affect results.

The main need for imputation arises from the use of ‘short-forms’. These are used to reduce business compliance costs. A percentage of firms, other than in 100% sampled cells, are sent shorter forms than the full survey questionnaire. These forms ask for the full range of data, including sectoral specific questions. However they generally ask for totals only for a number of sections where the long form asks for a breakdown, e.g. breakdown of intermediate consumption. These short form values are expanded to give the full breakdowns on a cell by cell basis using ratios derived from long form returns in the cell.

ONS regards a response as an outlier if it is outside certain limits of what to expect for that Enterprise i.e. when compared with previous surveys or administrative data. Where this cannot be reconciled through follow-up enquiries, smoothed outliers are added to the original and constructed respondent data to produce a set of variable sets prefaced by ‘WQ’. The ‘W’ refers to the method of smoothing outliers known as ‘Winsorisation’. This was the method of dealing with outliers used between 1993 and 1997 on the ‘new’ ACOP Results system. In the ABI Results system alternative outlier correction methods are used. The view of ONS is that the processed data are for most purposes a reliable measure of the individual business variables. In the ARD data files, winsorised data are not supplied but imputations have been done.

As all the contributors in the ARD are identified by their unique business register reference number, it might seem straightforward to link the data for individual businesses through time. In practice there are many problems that arise. For example, apart from the size-bands where there is a yearly census, the firms selected for surveys change year to year. Thus longitudinal linking may return missing values for the smaller businesses across the years where they were not included in the ACOP/ABI surveys. Changes in SIC structures, e.g. from SIC 80 to SIC 92, also complicate longitudinal linking of industries. In addition changes in the register due to both gradual improvements and complete revisions (e.g. the move to the IDBR) present extra problems. When this happened it can be unclear where previous contributors ended up on the new register. The problems of allowing for changes in local units associated with an enterprise and changes in ownership have already been mentioned.

### Demographic data

In Table 3 below, we summarise the data according to the definitions given in Table 2 below.

#### Table 2 Definitions of demographic status

<table>
<thead>
<tr>
<th>Status</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuer</td>
<td>Present in t-1, t and t+1</td>
</tr>
<tr>
<td>Entrant</td>
<td>Present in t and t+1, not present in t-1</td>
</tr>
<tr>
<td>Exitor</td>
<td>Present in t-1 and t, not present in t+1</td>
</tr>
<tr>
<td>One-Year</td>
<td>Present in t only</td>
</tr>
</tbody>
</table>

#### Table 3 Number of reporting units and employment by status

<table>
<thead>
<tr>
<th>Year</th>
<th>Continuers</th>
<th>Entrants</th>
<th>Exitors</th>
<th>One-Year</th>
<th>Continuers</th>
<th>Entrants</th>
<th>Exitors</th>
<th>One-Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>102,667</td>
<td>3,476</td>
<td>6,179,728</td>
<td>256,103</td>
<td>6,179,728</td>
<td>256,103</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1981</td>
<td>93,262</td>
<td>3,579</td>
<td>9,405</td>
<td>213</td>
<td>5,436,345</td>
<td>125,065</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1982</td>
<td>95,000</td>
<td>4,253</td>
<td>1,841</td>
<td>114</td>
<td>5,179,953</td>
<td>113,430</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1983</td>
<td>42,881</td>
<td>1,506</td>
<td>56,372</td>
<td>710</td>
<td>4,605,933</td>
<td>116,557</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984</td>
<td>39,428</td>
<td>9,549</td>
<td>4,959</td>
<td>82,991</td>
<td>4,420,175</td>
<td>264,085</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1985</td>
<td>46,476</td>
<td>78,217</td>
<td>2,501</td>
<td>15,294</td>
<td>4,466,777</td>
<td>412,294</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1986</td>
<td>106,994</td>
<td>19,535</td>
<td>17,899</td>
<td>4,260</td>
<td>4,585,082</td>
<td>186,175</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1987</td>
<td>107,365</td>
<td>20,106</td>
<td>19,164</td>
<td>3,878</td>
<td>4,580,044</td>
<td>176,725</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1989</td>
<td>103,480</td>
<td>27,665</td>
<td>15,891</td>
<td>10,917</td>
<td>4,586,500</td>
<td>183,170</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td>96,081</td>
<td>4,094</td>
<td>37,029</td>
<td>10,856</td>
<td>4,182,156</td>
<td>119,665</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1992</td>
<td>88,550</td>
<td>8,795</td>
<td>11,625</td>
<td>51,403</td>
<td>3,913,568</td>
<td>150,563</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1993</td>
<td>85,062</td>
<td>41,437</td>
<td>12,283</td>
<td>9,282</td>
<td>3,628,195</td>
<td>197,864</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1994</td>
<td>104,938</td>
<td>22,699</td>
<td>21,560</td>
<td>8,813</td>
<td>3,555,510</td>
<td>267,890</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1995</td>
<td>112,477</td>
<td>33,735</td>
<td>15,178</td>
<td>14,122</td>
<td>3,692,887</td>
<td>344,143</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td>131,427</td>
<td>17,740</td>
<td>14,785</td>
<td>3,832</td>
<td>3,692,887</td>
<td>188,032</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>133,773</td>
<td>17,128</td>
<td>15,394</td>
<td>4,442</td>
<td>3,744,431</td>
<td>280,922</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td>150,901</td>
<td>18,455</td>
<td></td>
<td></td>
<td>4,044,728</td>
<td>273,649</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s calculations using the ARD

Note: Data for manufacturing on ISIC rev.3 (UK SIC 1992) definition only.
We begin in 1980 since that is the earliest year we can calculate entry, exit and representative employment. Unfortunately the universe files\textsuperscript{13} in the 1970s do not contain any employment data making it difficult to move from the sample to the population. The number of reporting units jumps in the second half of the 1990s with the introduction of the IDBR. A register improvement in 1984 is also very evident in the large number of one-year observations that year.

**Business Data Linking in action**

Previous work using the ARD is summarised in Barnes, Haskel and Ross (2001). Here recent work undertaken by the Business Data Linking Branch is summarised. In future issues of *Economic Trends* this work will be explored in more detail.

Work under way at present is focussing on two main approaches to using the data. First, linking over time and comparing, for example, changes in the distribution of businesses over time. A key focus being to look at what makes successful businesses different from less successful ones. Second, work is taking place to link other surveys to the ARD in one or more years. At present this work includes bringing in the Community Innovation Survey from the DTI, the New Earnings Survey and E-Commerce Survey from ONS. To introduce this work, Box B presents early results from linking the ONS Annual Inquiry into Foreign Direct Investment.

**Box B: Minding the right gap**

*Business Data Linking research shows UK owned firms are better than they seem relative to foreign owned ones*

A recurrent issue on the UK government’s economic policy agenda is the productivity gap between the manufacturing sector of the UK and other industrialised countries.\textsuperscript{14} In their quest for an explanation and a cure for Britain’s weaker performance economists researching this issue using the ARD have come across a striking fact: the pattern found in the international comparisons of aggregate data is replicated at the business level. The labour productivity of foreign-owned enterprises in the UK is on average 40% higher than the productivity of domestically-owned enterprises.\textsuperscript{16} As both groups of firms operate in the same institutional environment and are supplied from the same pool of labour, this raises issues about managerial performance and inefficient control rather than poor skills or inadequate institutions in explaining the international productivity gap. Moreover, one may conclude that a policy to raise productivity would include the government attracting as much foreign direct investment as possible. The problem with this line of argument can be seen in Figure 1.

**Figure 1**

Foreign owned establishments are by definition all part of multinational enterprises. The same is true only for a small subset of the population of UK establishments. To find out if the superiority of foreign owned firms is a consequence of their multinational nature\textsuperscript{17} rather than a result of poor British managerial abilities we have to compare foreign-owned firms’ performance with that of multinational enterprises which are owned by UK institutions or residents. Although this seems straightforward this has not been possible so far because the ARD data does not contain any marker of UK multinational establishments. It was only after linking the ARD data with information from the Annual Inquiry into Foreign Direct Investment (AFDI) that such a differentiation could be made. Results\textsuperscript{18} - reported in columns 3 and 4 of Table 4 - suggest that the foreign effect is indeed a multinational effect. The productivity of UK multinationals in 1998, approximately £40,000 per employee, is only slightly below the average figure for foreign owned firms.

**Table 4  Characteristics of domestic and multinational enterprises in the UK**

<table>
<thead>
<tr>
<th>All UK</th>
<th>All Foreign</th>
<th>UK MNE</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations</td>
<td>7,275</td>
<td>1,370</td>
<td>6,398</td>
</tr>
<tr>
<td>Share of value added (%)</td>
<td>64.6</td>
<td>35.4</td>
<td>42.8</td>
</tr>
<tr>
<td>Share of employment (%)</td>
<td>71.2</td>
<td>28.8</td>
<td>52.0</td>
</tr>
<tr>
<td>Average value added per employee (£)</td>
<td>29,967</td>
<td>41,465</td>
<td>28,580</td>
</tr>
</tbody>
</table>

Note: Calculations based on unweighted sample of 1998 ARD and 1998 AFDI.
Acknowledgements

Thanks for useful comments, help and guidance to Prabhat Vaze, Tony Clayton, Jonathan Haskel, Amanda Rowlatt, Marilyn Needs, Andrew Walton, Simon Harrington, Martyn Vaughan Andrew Ross, Helen Spyrou and Wendy Fader. This document is based in part on Barnes, Haskel and Ross (2001).

CeRiBA, the Centre for Research into Business Activity, is based at the Office for National Statistics and is supported by a grant from the HM Treasury Evidence-Based Policy Fund, the DTI and the ONS. Website: www.ceriba.org.uk. The authors are also doctoral students at Queen Mary, University of London and London School of Economics respectively.

References


Notes

1. References to specific survey names have been removed from the name of the database to reflect linking of multiple surveys.
2. Note that despite their names, ACOP and ACOC were in reality only a census for larger businesses, and were a stratified random sample for smaller observations. In addition in many years the very smallest businesses were exempt to reduce their administrative burden.
3. Published results from the ABI are available from the National Statistics web site at www.statistics.gov.uk/abi
4. Prior to 1994 the surveys were drawn from the CSO Business Register.
5. For a background to disclosure issues see GSS (1995).
6. For example, if presenting employment numbers and the largest observation in a cell has employment of 1,000, then the sum of the employment of all the observations in the cell except the next largest must be greater than 100 to pass the dominance rule.
8. The employment numbers on the register for local units are likely to be imputed. From 1994 the IDBR also contains turnover data.
9. In addition it is likely that recent changes in the composition of enterprise local units which may be included in the returned survey data may be absent from the local units on the register. This is almost certain when looking at the snapshot of the register from which the sample was drawn (known as the ‘non-selected’ file).
10. These data have also been termed the ‘selected’ data.
11. In 2001 and beyond some completely enumerated cells do contain short forms for compliance control reasons.
13. Universe files contain register data on all reporting units available to be selected that were not sampled or that were excluded from sampling for compliance control or sample design reasons.
16. Compare the last row of columns 1 and 2 of Table 1.
17. A large literature starting with Dunning (1981) suggests that multinationals should have a superior productivity performance.
18. For more in-depth analysis see Criscuolo and Martin (2002).
As in other Introduction to Business books, this text uses a wide variety of company-specific examples. However, I improve on the traditional approach by adding an optional case study of a dynamic organization that can easily be integrated into the text. The company chosen for this purpose is Nike. The case is broken down into 26 individual case notes, which are linked to the appropriate sections of the text. Each provides a real-world example to help students master a particular business topic. Those teaching Introduction to Business come from varied backgrounds but share common goals of exciting students about business and sparking their interest in future business courses. The Introduction to Business Data Analytics: An Organizational View introduces business analysis concepts, activities, tools, techniques, skills and how they're applied when establishing business data analytics capabilities for the organization. Become an IIBA member to access this resource. Purchase both resources: Practitioners/Organizational View. Join Now. Webinar: An Introduction to Business Data Analytics. Organizations are investing millions of dollars into business data analytics, but many organizations are finding their investments are not always returning the value they expected. Register to Watch Webinar. Keywords: Business data linking, microdata linking. Business data in the UK. Collection of business data. The Office for National Statistics (ONS), like most NSIs, holds a register of businesses, which is used to create the sampling frame for surveys. The UK version, the Inter Business Data Linking: an introduction, Economic Trends no. 581 (April) pp34-41; London: Office for National Statistics. http://www.statistics.gov.uk/cci/article.asp?id=135.