

# 5

## Regional and National Accounts

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5.1 There is a basic requirement for timely and accurate regional Gross Value Added (GVA) figures both in nominal terms and in real terms. This need cannot be met within existing systems and requires major changes to systems and extensions of surveys at both the national and regional level.

5.2 Chapter 6 sets out the recommendations that we see as likely to be necessary to meet the requirement for the production of GVA figures relevant to user demand. This chapter first sets out the background of the basic methodological and survey processes underpinning the present production of both Regional and National Accounts. The discussion is necessarily technical and quite detailed. The possible ways forward can only be discussed and assessed in the context of a wider examination of existing methodologies. In turn, this allows us to make recommendations at a similarly detailed and technical level in order to facilitate the appropriate discussion of the issues.

5.3 At present, systems for the production of National and Regional Accounts are largely distinct processes. Regional Accounts are based on an *ex post* allocation of national totals to regions. This allocation mainly depends on systems and techniques that are not particularly important in the construction of national totals. Similarly, National Accounts are underpinned by surveys that are aimed at national totals and, in both method and scale, are not adequate for regional figures. In essence, our recommendations involve bringing the two closer together. On the one hand, the Regional Accounts system should be moved towards that of the National Accounts. On the other hand, National Accounts surveys should be developed and extended to give greater emphasis to Regional Accounts requirements. Theoretically, it is possible to bring the two fully together. We judge that the complexity and cost of going this far is likely to exceed the present user requirement.

5.4 Fundamental methodological and survey differences revealed in the course of our discussions, mean that estimates of regional data will not necessarily be up to the standards of accuracy, nor give as full a picture of activity, as national data. Actual systems for the production of the data are likely to require the introduction of a number of *ad hoc* techniques, particularly for deflation. A further difficulty is that the baseline system is likely to deliver regional data to the ONS *Blue Book* timetable, which may not be timely enough for many users. We therefore see the development of a more timely indicator for regional GVA, using the systems underpinning quarterly measures of national Gross Domestic Product (GDP), as a high priority.

5.5 Despite these considerations, with sufficient resources, a significant improvement in the measurement of regional activity should be possible. Furthermore, the changes proposed are seen as essential. The widely recognised problems with the production of Regional Accounts over the past years have primarily reflected difficulties arising due to major changes to annual business survey processes and a temporary deterioration of a second key source (Inland Revenue data). If the ONS is to produce Regional Accounts at all, then existing systems are simply not up to the task.

## REGIONAL ACCOUNTS AND NATIONAL SYSTEMS

**Administrative boundaries** 5.6 The essential difficulty with estimating Regional Accounts is that the basic data, classified by regions, are much more difficult to obtain than national data. There are two main reasons. First, administrative boundaries (including tax domains, Customs, etc) exist at national level but mostly do not exist at regional or sub-regional level. These administrative systems are an important source of data. Second, partly as a consequence of the first, accounting systems in companies are generally oriented towards providing information according to national rather than regional definitions.

5.7 In the UK, the NUTS geographical structure has evolved through EU requirements (NUTS is discussed in more detail in annex A1) with an associated requirement for data according to this regional structure. However, these developments were not accompanied by any significant extension of regional administrative systems that would facilitate the provision of these data.<sup>1</sup> In this way, companies have remained orientated towards providing national data. The provision of economic statistics according to these geographical dimensions is therefore a major undertaking.

**'Regional multiple' businesses** 5.8 For smaller businesses that operate only within a single region, this obviously presents few problems. The 'reporting unit' information can be classified by the region in which the activity takes place. For businesses whose activities are distributed over more than one region (known as regional multiples), the problem is that information relating to the company as a whole (the reporting unit) does not allow the regional breakdown that is required. This means that Regional Accounts cannot be produced unless either the company is asked to provide the relevant information on a 'local-unit' basis or some other method of assigning or 'apportioning' the aggregate data between regions is adopted.

5.9 Seeking 'local-unit' information (as an addition to or as a substitute for reporting-unit information) is not necessarily easy or desirable. It may not be easy since the accounting systems used by the firm, even if they do produce data for the different units and branches, may not produce data classified in the right way for the statisticians. (And some information, for example relating to profits, may not be broken down geographically at all.) It may not be desirable if the production of the required information is very costly to the firm. An increased compliance cost is not only undesirable in itself but, at worst, could lead to more casual and less-timely responses to official surveys, threatening the quality of national data.

5.10 If local-unit reporting is not adopted, then official statisticians have to model the required regional breakdown using proxy indicators. The ONS has always adopted this technique; it requires both a model and relevant proxy variables. The simplest approach is to make the allocation according to employment data supplied by businesses, with the 'model' that labour productivity is the same in different regions. This technique, therefore, requires maintaining a country-wide employment profile for firms. As a consequence, annual reporting arrangements are split into two: 'accounting' variables are reported at the reporting-unit level, but employment information is reported at local-unit level. Though the arrangement still involves asking regional multiples for some local-unit information, this is significantly easier than asking for accounting information at local-unit level.

**User views** 5.11 In fact, we have heard that most data users and compilers found it hard to envisage wider local-unit reporting of accounting variables. The broad discussion below therefore takes this position as a prior, although Recommendation 8 asks for wider opinions.

<sup>1</sup> *Although the national administrative systems due to VAT continue to offer alternative ways forward.*

## REGIONAL AND NATIONAL ACCOUNTS: CURRENT METHOD

### National Accounts

5.12 National Accounts processes are aimed at the accurate measurement of UK GDP levels and growth:

- via coherent measures of output, income and expenditure;
- in both current prices and volume terms; and
- with supporting industrial, demand and income disaggregations of the three measures.

### Quarterly and annual estimates of GDP

5.13 National GDP data are estimated for calendar quarters. The estimates are first based on a quarterly process and then benchmarked (brought into line with fuller and more robust data) through an annual process. A first estimate of quarterly GDP is published one month after the close of the quarter to which it relates. In successive months, the estimate is refined and greater disaggregated detail released; three months after the close of the quarter, a set of Quarterly National Accounts are released (as *UK Economic Accounts*). The annual benchmark estimate is released between 18 and 21 months after the end of a calendar year – so that, for example, the first publication of benchmarked figures for 2001 was in September 2003. Fuller analyses are then released in the publication *UK National Accounts*, known as the *Blue Book* (the 2003 edition was published on the ONS website in October 2003).<sup>2</sup> The annual and quarterly systems balance the need for timely early estimates of GDP with a requirement for a fuller, more considered and coherent view in the medium term.

5.14 In the UK, the production processes for the quarterly and annual estimates are, in large parts, distinct.<sup>3</sup> They are based on different surveys, processed through different systems (largely by different people) and constructed according to different methodologies that are based on different underlying assumptions. Ultimately, however, figures arising from the annual processes – based on more comprehensive data sources, fewer and more realistic assumptions and a more comprehensive and detailed analytical framework – are the figures that become the ‘official’ measure of economic history. Following annual benchmarking, the quarterly estimates are used only to provide the path throughout the year. In the same way, the allocation of national data to regions is ultimately underpinned by national figures derived from the annual processes.

<sup>2</sup> A notation commonly used references years or months from the current year or month at “t”. Data for the latest fully balanced year in the 2003 Blue Book can then be referred to as data for (t–2).

<sup>3</sup> There is a further technical distinction. While the aim of both processes is ultimately to measure the same thing, surveys are organised so that annual processes are presently aimed at measuring the level of GDP and quarterly processes are aimed at measuring growth. There is some debate about whether this arrangement is sensible.

### Quarterly process

**Assumptions** 5.15 ONS estimates of quarterly GDP are underpinned by two essential ‘high level’ assumptions. First, that the best guide to quarterly GDP growth is the output measure of GDP and, second, that movements in the production measure of GDP are adequately approximated, in the short term, by turnover. Both assumptions are based on practical considerations. The first reflects a judgement over the reliability of the signals sent by the various surveys that underpin each of the three measures. The second is adopted for reasons of practical simplification, with monthly measurement and deflation of gross output more feasible than the estimation of value added involving high-frequency measurement of intermediate goods output.

**Monthly survey sources** 5.16 Measurement of much of turnover is carried out through two monthly surveys of the manufacturing and service sectors. The ‘Monthly Production Inquiry’ (MPI) surveys 9,000 manufacturing firms each month, and the ‘Monthly Inquiry into the Distribution and Service Sectors’ (MIDSS) surveys 28,000 service sector business. The main information recorded is turnover, but other information is also collected – in particular, employment (see Chapter 6). The data are then deflated using independently collected and calculated producer and corporate service price indices (see below). To obtain production for the economy as a whole, this information is supplemented by estimates of activities for the agriculture, energy, government and construction sectors. These estimates are generally based on government data that have often been designed for specific policy purposes, rather than as a part of the coherent infrastructure to measure GDP (recent difficulties with construction data are briefly addressed in Chapter 9).

**Evolution of quarterly estimates** 5.17 As noted above, the release of quarterly data is a three-stage process, based on both increasing published detail and progressively more comprehensive and robust survey data. The first stage comes between three and four weeks after the period to which it relates and contains only production-based information with a very limited industrial breakdown. At this stage, between 50 and 60 per cent of the measure is based on responses to surveys, the rest is based on various estimation techniques (see Reed (2000)). From a presentational point of view, subsequent releases include not only more output detail, but also expenditure and income perspectives with their associated demand and income component breakdown. While expenditure and income data are based on a variety of survey sources, the aggregate figures are constrained to the movement of output data by the use of ‘alignment adjustments’.<sup>4</sup> A wider set of sector accounts is released with the third issue of the GDP data. At this point, about 95 per cent of the GDP production measure is based on responses to surveys. The GDP data remain based on these methods until the benchmarking processes described next are completed. The timing is such that the initial estimates of (t-1) calendar year figures are based on the short-term methods.

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<sup>4</sup> Because alignment adjustments must add to zero across a calendar year, a further ‘statistical discrepancy’ is sometimes used to reflect wider differences between the sources.

## Annual process

**Input-Output Supply and Use technique** 5.18 The annual process does not involve the same high-level assumptions, but depends on the reconciliation between production, expenditure and income data in the ‘Input-Output Supply and Use’ framework.

5.19 The UK has used this approach to annual benchmark estimates of current price GDP since 1991. The framework sets estimates of production against estimates of expenditure and income in a way that allows the key aggregates to fall out and ensures consistency between the three measures of GDP via reconciliation at a fine level of product detail.

5.20 Input-Output Supply and Use Tables form part of a wider Input-Output framework, which includes the Input-Output Analytical Tables that are used for modelling purposes. The latter can help to help understand how changes in the output or demand for products of one industry impact on the output of other industries. In the past, the analysis was used to estimate the consequences of specific demand management policies; more recently, it has been used to interpret the consequences of various ‘shocks’ to the economy on both the supply and demand sides (for example, the adverse effects of foot and mouth disease, or the positive effects of an increase in tourism).

5.21 The modern application of Input-Output Supply and Use Tables brings the framework to bear on the *construction* of the accounts as well as the *interpretation* of the economy. This technique is regarded as best practice by international guidelines as covered in the European System of Accounts (ESA95) and the System of National Accounts (SNA93). For these purposes the industry-by-industry supply matrix that underpins analytical work is not required. The key tables for construction of accounts are the Supply and Use Tables, which identify the producers and users of ‘products’. In the context of GDP balancing, the Supply and Use tables permit:

- detailed comparisons of supply and demand for products by the various sectors (intermediate demand by industry, household and government final demand, business gross capital formation and overseas demand); and
- comparisons of total inputs and outputs by industry.

5.22 ‘Balanced’ National Accounts delivering a single estimate of GDP are achieved when the following identities are achieved:

- for each industry: total inputs equals total outputs; and
- for each product: total supply equals total demand.

**Industry detail 5.23** The UK annual current price Supply and Use Tables are based on 123 industry groups (used here to mean all sectors of the economy, services, agriculture, manufacturing etc.) and 123 product groups. Hence, in the table, products correspond to industries. This structure reflects history and convenience; it is not necessary nor is it obviously desirable – particularly given changes in industrial structure (see Chapter 9). The level of detail in this industrial classification is itself due to both producer and user considerations. From the producer perspective, a higher level of detail theoretically allows more accurate balancing. From the user perspective, the framework should allow the specific identification and analysis of relevant industries/products. In practice, the classification used is also underpinned by wider international and national industrial classifications – these are discussed in Box 5.1.

### Box 5.1: Industrial classification

The type and level of industrial detail used for both the construction and publication of official data depends on a classification of economic activity. The ONS operates according to the Standard Industrial Classification (SIC), which is consistent with the EU standard, the ‘General Industrial Classification of Economic Activities within the European Communities’ (known by its French acronym, NACE). Both classifications allow groups of industries to be collected together according to a logical hierarchical structure that is updated periodically to keep pace with economic evolution. They have a long history and are based on a great deal of international co-operation. The difference between the two is that that the SIC involves additional detail, splitting ‘classes’ further into ‘sub-classes’. The classifications have the same notation which is best illustrated by means of an example:

#### Example of industrial classification

Classification level	Codes		Description of industry
Section	D		Manufacturing
Sub-section	DA	15	Manufacturing of food, beverages and tobacco
Group		15.1	Production, processing and preserving of meat and meat processes
Class		15.11	Production and preserving of meat
Sub-class		15.11/1	Slaughtering of animals other than poultry and rabbits

European National Statistical Institutions are obliged to supply Eurostat with data down to the ‘four-digit’/class level of SIC/NACE. The present version of NACE defines 517 different classes of industry.

Operationally, it is obvious that many companies will produce a range of products that cuts across more than one class of NACE. Under these circumstances, industries are classified according to their ‘primary’ product. From a regional perspective, national reporting units may have different primary products to its individual local units.

5.24 Table 5.1 below sets out the full Supply and Use framework. The table is made manageable with artificially compressed industry detail as ‘production’ (referring to agriculture, fishing, manufacturing, energy, utilities, and construction) and ‘services’ (including financial intermediation services indirectly measured, FISIM). As noted, the main Supply and Use Tables have 123 industries; although a summary table with 10 industries is published in the *Blue Book*.

**Table 5.1: Simplified Supply and Use Table for 2001**

<b>Supply Matrix</b>								
	Domestic output by industry:			Imports of goods and services	Margins	Taxes less subsidies on products		Total supply
	Production	Services	Total					
Products:								
Production	472		472	242	203	68		985
Services	41	1403	1443	57	-203	45		1343
<b>Totals</b>	<b>513</b>	<b>1403</b>	<b>1915</b>	<b>C</b>	<b>299</b>	<b>-</b>	<b>113</b>	<b>2328</b>
<b>Use Matrix</b>								
	Intermediate consumption by industry:			Households' final expenditure	Government final expenditure	Gross fixed capital formation	Exports of goods and services	Total demand
	Production	Services	Total					
Products:								
Production	247	165	411	306		76	192	985
Services	66	557	623	355	191	94	80	1343
<b>Totals</b>	<b>312</b>	<b>722</b>	<b>1034</b>	<b>E</b>	<b>660</b>	<b>191</b>	<b>272</b>	<b>2328</b>
Taxes less subsidies on production	4	13	17					
Compensation of employees	121	443	564					
Gross operating surplus	75	225	300					
<b>Gross Value Added at basic prices</b>	<b>200</b>	<b>681</b>	<b>881</b>	<b>F</b>				
<b>Total inputs</b>	<b>513</b>	<b>1403</b>	<b>1915</b>	<b>D</b>				

Source: Mahajan and Penneck (1999); updated for 2001 by ONS.

**Interpreting the table** 5.25 Reading across the rows of the ‘supply matrix’, domestic output in each of the industries is allocated to a specific ‘product’ and summed to give total domestic output of that product; adding imports (with an adjustment for ‘distributors trading margins’ that nets out across products) and an adjustment for ‘taxes less subsidies on products’ gives total supply of that product (A). This can be compared with total demand or expenditure for that product (B), obtained by adding the total intermediate consumption across all industries, household and government expenditure, gross fixed capital formation and exports. When the table is balanced, A=B for each product. Reading down the columns of the table (ignoring the value added row for the present), allows the outputs and inputs of each industry to be compared. ‘Total outputs’ (C) reflect the sales of each industry across all products. ‘Total inputs’ reflect the costs of producing this output (including profits), broken down as intermediate consumption, taxes paid on production, compensation of employees (CoE) and gross operating surplus (GOS) paid or earned by each industry. When the table is balanced, C=D for each industry. Thus the table simultaneously compares output and expenditure data for each product and output, intermediate consumption and income data for each industry.

5.26 As an ‘industrial’ rather than ‘product’ concept, Gross Value Added (F) emerges from the industry perspective. It can either be derived as the difference between total outputs (C) and total intermediate consumption (E), or equivalently as the total of the income components. As noted, when the table balances, it gives the definitive benchmark measure of the level of current price GVA (and hence GDP) such that output, expenditure and income are all equal.

5.27 This annual process involves completing the framework in two main ways, firstly with survey data and secondly with so-called National Accounts adjustments that reflect judgements on the part of ONS National Accountants. Each of these processes is discussed after a brief overview of Regional Accounts processes.

### Regional Accounts processes

**Regional GVA** 5.28 Regional Accounts for the United Kingdom were developed on joining the European Union in 1973. Since then, their production has always been a by-product of national processes, with national totals allocated to the regions. The Regional Accounts do not constitute a full and coherent set of income, production and expenditure accounts for regions. In addition, all regional data are, at present, only produced in current prices. The key measure, regional GVA, is disaggregated according to the components of income and by industry (Box 5.2 examines why regional economic activity is measured as GVA, whereas measures of national economic activity tend to emphasise GDP).

#### Box 5.2: Gross Domestic Product and Gross Value Added

The distinction between GDP and GVA is related to the treatment of certain taxes, which is in turn related to whether activity is being examined from the producer or purchaser perspective. When using the production or income approach, the contribution to the economy of each business is more naturally measured excluding taxes on products (that is, those on goods or services – mainly VAT, but also for example alcohol and tobacco duties) and subsidies on products. The aggregate measures are referred to as ‘Gross Value Added at basic prices’ (GVA). On the other hand, the expenditure approach is measured at ‘market prices’ (that is, inclusive of any taxes). ‘Gross Domestic Product’ (GDP) is then explicitly defined as referring to the aggregate expenditure measure at market prices. The link between GVA and GDP is shown below:

- Gross Value Added at basic prices;
- *plus* taxes on products;
- *less* subsidies on products;
- *equals* Gross Domestic Product at market prices.

So, in line with ESA95, the UK publishes two aggregate measures: GVA at basic prices and GDP at market prices. At the same time, the ESA95 stresses that GDP is the most important measure of national economic activity.

Because Regional Accounts are based on the income and production approach, the aggregate measure used is Gross Value Added at basic prices.

5.29 In addition, the routine production of these figures is accompanied by releases of expenditure data, for example for consumer expenditure (in principle each year) and government accounts (as a one-off exercise).

- Income-based method** 5.30 The present approach to the estimation of regional GVA is through the income perspective. The motivation has been primarily practical, with regional disaggregation or methods of disaggregation previously more readily available through sources of the main component of income – wages and salaries (representing over half of GVA) – as well as use of a local-unit based employment proxy for gross trading profits. Partly as a consequence of the sources used for this income approach, the ONS’ headline figures have tended to be calculated according to what is known as the ‘residence’ definition: allocating income to where people live rather than where they work.<sup>5</sup> Workplace figures are provided at the aggregate level (that is, for GVA; this is an EU requirement) and for some disaggregations. However, at present, the two sets of figures differ only in three regions (London, the South East and the East of England) because net commuting between other regions is assumed not to be significant.<sup>6</sup> The sources of the underlying data for each of these measures are discussed below.
- Timeliness** 5.31 The timeliness of the data is not necessarily determined according to the benchmark annual process, but according to when reasonable proxies for the components of the income measure have become available. In practice this has tended to mean first releases of regional data for any specific year to be at t+15 months (except in recent years where there have been larger delays due to data problems).
- Scotland, Wales and Northern Ireland** 5.32 While the ONS is the official source for UK Regional Accounts, statistical institutions in the devolved administrations produce a wide range of additional data for Scotland, Northern Ireland and Wales. Furthermore, statisticians in these countries are increasingly involved in the production of the official UK Regional Accounts.
- 5.33 The Scottish Executive has a well-established series of economic statistics that present a fairly detailed picture of the Scottish economy. More recently, they have pioneered the technique of ‘boosting’ surveys. This involves paying the ONS to increase the sample sizes for Scotland relative to the original sample allocation. The technique is quite expensive (for example around £70,000 + VAT a year and compliance costs for the Annual Business Inquiry), but is regarded as providing a substantial quality improvement in the raw data. In terms of GDP-related products, the Scottish Executive calculates an annual Supply and Use Table and its own estimate of quarterly GVA growth. The latter figure is based on the returns from Scottish units for the ONS short-term surveys (MPI and MIDSS), supplemented by local indicators of activity. The ONS provides returns from the surveys to the Scottish Executive which processes the data and produces final estimates of GVA growth. An estimate of quarterly GVA growth is available with approximately a five-month lag.<sup>7</sup> These estimates are inevitably compared with national figures when they become available.
- 5.34 In comparison with the Scottish Executive, the National Assembly for Wales does not have such extensive established experience in economic statistics. However, a range of economic statistics for Wales have been produced for some time and new developments are underway. In particular, Wales has a quarterly Index of Production and Construction and is currently developing an Index of Distribution – both are produced in partnership with the ONS. The figures are based partly on Welsh returns to UK short-term enquiries but also make use of directly-collected information. The National Assembly for Wales has also funded boosts to the ABI and is looking at the possibility of developing output indicators for further sectors of the Welsh economy.

<sup>5</sup> The ONS acknowledge that ‘workplace’ is the ‘correct’ basis (e.g. at the ODPM Select Committee).

<sup>6</sup> This conclusion was based on the 1991 census; others have questioned its ongoing validity.

<sup>7</sup> However, reflecting the uncertainty in quarterly figures, growth is estimated comparing the latest four quarters with the previous four quarters.

**5.35** The Northern Ireland position is different again, in that it is the Department of Enterprise Trade and Industry (DETI) that has responsibility for producing economic statistics. The actual work is, however, undertaken by professional statisticians seconded by the Northern Ireland Statistics and Research Agency (NISRA) of the Department of Finance and Personnel (DFP). NISRA statisticians work closely with the ONS but have also a degree of autonomy, with the ability, where appropriate, to adopt their own techniques and produce their own products. In practice, many of the surveys and products of the two organisations are co-ordinated, often with NISRA (or DETI) conducting the Northern Ireland element of national surveys according to ONS guidelines (this is the case with the ABI). Nevertheless, the arrangements allow a more tailored approach to sample selection, which is often necessary given the small size of Northern Ireland compared to many English regions (it is the smallest NUTS 1 region with a population of 1.7 million (2001) compared with 8.0 million in the South East). Similarly, DETI chose not to terminate the Annual Census of Employment, despite the introduction of the ABI. More specifically, as things stand at present, Northern Ireland does not produce an estimate of quarterly GVA. However, it already has a quarterly Index of Manufacturing output that reports some 3½ months after the end of the reference quarter and is developing a quarterly Index of Services. These, along with ABI information available nine months after the end of the survey reference year, provide the most up-to-date information on the output of the economy.

**Country and ONS dialogue** **5.36** In addition to domestic developments, all the countries have been involved in the ONS' process of regional GVA estimation. Centrally calculated figures are shared with statistical agencies in countries prior to publication and a degree of input has been permitted as part of a peer review process, which also includes DTI statisticians in respect of the English regions. In previous production rounds, the countries had considered that their input had been too late in the process. While major progress was made for the latest release of regional GVA (NUTS 1) figures, countries consider that there is still some way to go.<sup>8</sup>

### CENTRAL BUSINESS SURVEY PROCESSES

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**5.37** Over the 1990s, there was a major consolidation and centralisation of business survey processes and management. Of particular relevance to the discussion here are the introduction of:

- the Inter-Departmental Business Register (IDBR) – a single comprehensive business register;
- the Annual Business Inquiry (ABI) – a consolidated annual survey of business activity and employment; and
- the Monthly Inquiry into the Distribution and Service Sectors (MIDSS) – higher-frequency service turnover measurement.

These initiatives have been crucial to the production of National Accounts and to ONS survey processes more generally.

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<sup>8</sup> From July 2004, the Northern Ireland estimates published as part of the Regional ABI results will not be constrained to UK totals and instead GB regional estimates will be constrained to GB totals.

**5.38** For present purposes, the introduction of these arrangements – no matter how desirable from the perspective of national figures – have made the production of regional data more difficult. The main issue is the change of reporting arrangements for businesses’ annual employment information. Under the previous annual ONS survey of employment (the Annual Employment Survey, AES), businesses were obliged to make returns for each of their individual units; under the employment part of the ABI, firms are only required to report for the reporting unit as a whole.<sup>9</sup> Under the new arrangements, local unit employment information is instead collected from processes due to the IDBR. These have not fully compensated for the loss of the AES.

**5.39** Accurate local employment data are critical for the production of Regional Accounts. As noted, business accounting information is collected at the national or reporting-unit level. The production of regional estimates of economic activity therefore requires a method of allocating these national totals to the regions. These techniques, which are termed ‘apportionment’, are underpinned by estimates of regional employment. Previously, the accounting variables were allocated according to employment as measured via the AES. At present, accounting variables are allocated according to a more complicated estimate of employment based on the IDBR, ABI and a more complex apportionment model. If local-unit reporting is ruled out, the way to more robust regional data is via improving these processes.

### The IDBR

**Business registers** **5.40** There is no single register of all businesses in the United Kingdom, but a number of registers are held by different organisations for different purposes. The ONS IDBR is based on the main three of these administrative sources:

- traders registered for Value Added Tax (VAT) purposes with HM Customs and Excise;
- employers operating a Pay As You Earn (PAYE) scheme, registered with the Inland Revenue; and
- incorporated businesses registered at Companies House.

It was established in 1993 and is maintained and held on computer systems in the ONS’ Newport Offices.

**5.41** The IDBR not only provides a sampling frame for virtually all surveys of business carried out by the ONS (employment, production, prices and earnings) and by other government departments, but it is also a key data source for analysis of business activity in its own right.<sup>10</sup>

**Coverage of IDBR** **5.42** The IDBR covers businesses in all parts of the economy, other than some very small businesses (the self-employed without employees and turnover that falls below the ‘VAT threshold’) and some non-profit making organisations. With 2.1 million businesses listed, it provides more than 99 per cent coverage of relevant UK economic activity.

<sup>9</sup> About 20 per cent of UK employment takes place in the region other than that of the main region of the enterprise. Companies that are regional multiples are often ‘multinationals’, that is, enterprises in the UK that have links with foreign enterprises. There are 33,000 such multinationals in the UK.

<sup>10</sup> An annual publication providing a size analysis of UK businesses is available on the National Statistics website for years from 1995 to 2003. Other analyses of IDBR data are available on the Neighbourhood Statistics and Department of Trade & Industry websites. The IDBR Analysis Section of the ONS also provides a bespoke analysis service tailored to users’ needs.

5.43 Nevertheless, the Review has heard a number of concerns that the omission of these small businesses might distort aggregate results, in particular from the regional perspective. It is unlikely, however, that existing systems can be manipulated simply to improve coverage below the VAT threshold. The main alternative is to make far wider-ranging changes involving the creation of a ‘Comprehensive Business Directory’ (see Chapter 8).

5.44 The IDBR holds a wide range of information on business units including:

- name;
- address;
- standard industrial classification;
- employment and employees;
- turnover;
- legal status (company, sole proprietor, partnership, public corporation/nationalised body, local authority or non-profit body);
- country of ownership
- company number; and
- data on the value of goods and services that are traded (imports & exports) between the EU Member States and the UK.

5.45 The ‘sampling unit’ structure of the IDBR is based on ‘enterprises’. Businesses are asked to provide returns for their GB activity as a whole, rather than for activity according to the location of individual distinct local units of that business. There are special reporting arrangements for Northern Ireland (see below) and also for large and complex enterprises.

**IDBR and local-unit information** 5.46 However, the introduction of the IDBR incorporated a number of facilities to enable both the provision of statistical samples at local-unit level and the wider disaggregation of activity into the regional and small-area dimensions. This is mainly achieved through the Annual Register Inquiry (ARI), which asks firms to identify and maintain the local-unit structure of their business. This local-unit information is generally updated annually, although smaller enterprises are approached only once every two, or sometimes four, years. However, as part of the Neighbourhood Statistics programme, the coverage has been increased for two years to provide updated local-unit information annually for most businesses. Similarly the National Assembly for Wales has funded a further extension to the sample for businesses with local units in Wales. On present plans, once this funding ceases, updating will revert to the previous cycle.

**Northern Ireland arrangements** 5.47 Different statistical legislation relates to business surveys that operate in Northern Ireland. Due to this, the Great Britain and Northern Ireland parts of an enterprise are separated for survey purposes. Within Northern Ireland, data on local units are maintained through a full census every two years and the results are loaded onto the IDBR. In the ‘inter-censal’ period, Northern Ireland business structures are maintained through a statutory IDBR proving inquiry. The ONS notifies DETI of all new VAT traders in Northern Ireland on a monthly basis and all new PAYE schemes in Northern Ireland on a quarterly basis. DETI issues proving forms to these businesses and updates the IDBR appropriately when forms are returned. In addition, new local units are recorded on the register using information collected from other surveys, such as the Quarterly Employment Survey and the Northern Ireland Annual Business Inquiry throughout the survey year. As a consequence, employment data for all local units in Northern Ireland are no more than three years old.

## The Annual Business Inquiry

5.48 The ABI is an integrated survey of employment and accounting information from businesses across most industrial sectors of the economy.<sup>11</sup> It was first conducted in respect of activity in 1998, with results becoming available for the first time in 2000 (and published via the September 2000 *Blue Book*). The survey was designed to provide a single source replacement for a number of surveys (the AES, Annual Censuses of Production and Construction and six Distribution and Services Inquiries). At the same time, the survey provided a lesser burden on business as well as increased coherence to economic statistics and, in particular, a less unbalanced coverage of the service and manufacturing sectors. Important to the Review is that much of the gain on burden on business was due to a shift from reporting at local level to enterprise level for the employment survey.

**Component surveys** 5.49 The survey is run in two stages in GB: employment data is collected first (known as ABI1), because it is more readily available, and accounting data second (ABI2). Northern Ireland uses a separate Quarterly Employment Survey for employee jobs estimates and can therefore collect ABI1 and ABI2 data together. The Purchases Inquiry is a supplementary survey, carried out in GB only since 2002, that asks for detailed product breakdowns of ABI2 purchases totals. Table 5.2 compares the key variable estimates from the survey with the associated variables in the Supply and Use framework (if not obvious).

**Table 5.2: Key ABI variables**

ABI variable	Supply and Use component
Turnover	Gross output by industry
Employment costs	Compensation of employees
Purchases	Intermediate demand by industry
Taxes/subsidies	
Inventories	
Investment	

5.50 The data also provide an estimate of Gross Operating Surplus at a company level (as the difference between turnover and employment costs plus intermediate demand plus taxes less subsidies) as well as estimates of GVA, total output, and various ratios such as productivity.

<sup>11</sup> *Internationally it is known as a structural survey because it collects detailed structural information on businesses.*

**ABI stratification and coverage** 5.51 The ABI sample is drawn as a stratified random sample from IDBR. The stratification is according to three variables: employment, country and industry. The employment strata are according to six size bands: 0–9, 10–19, 20–49, 50–99, 100–249 and 250+. A different proportion of firms are sampled in each stratum, with all firms sampled in the highest employment group (see Table 5.3). The sample is stratified according to the four countries.<sup>12,13</sup> The country stratification also allows industry to be stratified differently for each country: for England and Wales, industries are stratified at the 4 digit SIC level; for Northern Ireland, the 2 digit SIC level and for Scotland, a hybrid 2/3/4 digit level. The survey does not, however, cover all industries:

- farming is covered by the DEFRA National Farm Survey and the NI Department for Agriculture and Rural Development Farm Survey;
- the full range of ABI variables for banking data is collected by the Bank of England;
- the sample for finance and insurance is not yet comprehensive and there are a number of methodological issues that need resolving;
- public administration, defence and compulsory social security are covered comprehensively by alternative data sources and surveys of the public sector; and
- public sector health and education services are also based on public sector sources, furthermore there are a number of problems with ABI based private health sources.

Table 5.3: ABI GB sample

Size band	Total turnover in population (ie on IDBR) £ billion	Sample size number of firms	Firms sampled as a share of population per cent	Share of size-band turnover in sample per cent
0-9	435	28,966	1.9	1.9
10-19	176	10,438	8.7	15.2
20-49	194	12,050	18.9	26.1
50-99	173	7,320	33.8	48.5
100-249	321	6,928	58.4	76.4
250+	1,727	7,721	100	100
<b>Total</b>	<b>3,026</b>	<b>73,423</b>	<b>4.1</b>	<b>70.8</b>

Source: ONS

**Sample size and other arrangements** 5.52 Overall, 73,423 firms were sampled for Great Britain ABI2 in 2002. This represents only 4.1 per cent of the total population of firms on the IDBR, but 70.8 per cent of total turnover (Table 5.3). Furthermore, the ABI features a number of measures aimed at keeping compliance costs low: (i) some firms are required only to fill in short forms containing a minimum data set of key totals – the use of these forms has been increasing since the survey started; (ii) in line with the ‘Osmotherly Guarantee’ for the lower size band, the maximum sampling fraction is 1 in 6; and (iii) within sampled cells in this size band there is a 50 per cent rotation rate, so reporting units will be selected for only two years before being replaced. While there is clearly a need to avoid unnecessary burdens on business, it does not seem sensible to place too many restrictions on the ABI in view of its central role in the production of National and Regional Accounts (these issues are discussed further in Chapter 11).

<sup>12</sup> Again special arrangements are in place for Northern Ireland, with DETI responsible for the management and processing of the Inquiry.

<sup>13</sup> While, at present, use is only made of the country stratification, identifiers exist show to the fuller regional classification of the UK.

**Allocation of sample** 5.53 The sample is allocated to strata using ‘Neyman optimum allocation’, an algorithm that minimises the expected variance of aggregate turnover for given fixed costs.<sup>14</sup> Under this procedure, the actual variance of the overall estimate is a consequence of the survey arrangements and resources, rather than being designed to a user specification. In fact, there has been little debate over what overall level of accuracy is acceptable, though some users have pressed the ONS for publication of standard error figures. The ONS does publish information on the standard error of ABI estimates on its website, but not an estimate at the aggregate level. Information provided to the Review gave an estimate of 95 per cent confidence limits of  $\pm 3$  per cent for total GVA and  $\pm 0.8$  per cent for total employment at GB level, implying standard errors of about 1.5 and 0.4 per cent (see Annex A2 for fuller details).

5.54 Once sample totals have been estimated, population estimates are obtained according to sampling fractions from the various strata, and additional information on the employment size of business taken from the IDBR. These basically allow ‘grossing’ of the results according to the share of employment sampled against the total employment in the stratum. If sample sizes within strata are too small, several strata may be combined when ‘grossing up’, which makes the estimates more robust. These totals for the various industries are then fed into the Supply and Use analysis.

### ABI: Stratification

5.55 Sampling theory tells us that if target populations can be arranged into groups or ‘strata’ with common characteristics, then designing surveys taking into account these characteristics should increase the accuracy of any aggregate estimates. More specifically, gains from stratification come if between-strata variation is high and within-strata variation is low. In practice, however, the amount of detail in the stratification of official surveys is a compromise between accuracy requirements and user demand for coverage of detailed subgroups of the population.

5.56 The ABI is stratified by employment, country and industry. The size (based on employment) stratification is regarded as most important from the accuracy perspective, with accounting variables closely following size measured by employment. The country stratification was introduced primarily to ensure that the sample adequately covered the four countries and hence to improve the accuracy of country-level estimates. The industrial stratification itself, however, reflects a number of demands that go much further than statistical stratification purposes.

<sup>14</sup> *The ABI sample is allocated to minimise the variance of the level of turnover. Some data providers and users have argued that given the primary user emphasis is on growth, all samples should be drawn to minimise the variance of growth rather than level.*

**Industry stratification** 5.57 From the user point of view, there is a very strong and widespread demand to analyse overall movements in production by detailed industry. As noted in Box 5.1, the EU requires data on 517 industries. Furthermore, detailed industrial (and hence, approximately, product) estimates are required to assemble Supply and Use Tables. From the statistical point of view, some industry groupings may lead to increased accuracy. But the primary purpose of industrial stratification is the user consideration. Stratification ensures that relatively accurate industry estimates can be made. Obviously, because of the limit on overall sample size of the ABI, industrial totals cannot have the same order of accuracy as the national totals. For given resources, a choice must be made of what variability to minimise (and in some circumstances this choice can imply some bias in the estimates). If the purpose of stratification is to minimise variability at the aggregate level, it does not simultaneously minimise variability at the level of each stratum. Furthermore, it should be noted that estimates can be made for a subset of the population (a ‘domain’) without the need for that subset to form a stratum. Stratification merely ensures that the sample size in a stratum is fixed, and that estimates for the various population characteristics in that stratum can be made which are consistent with known information about the stratum. Furthermore, even with stratification, estimates for some cells will be based on only a few sampled units and can, hence, be subject to significant variability from year to year.

**‘Over-stratification’** 5.58 It is possible to over-stratify surveys. If the chosen characteristic does not exhibit the desirable stratification properties strongly, or if too many characteristics are used, then stratification according to those characteristics may lead to higher sample sizes in order to achieve the same accuracy for the overall estimate, because each stratum requires some sample elements. For given resources, by ensuring at least a certain sample size in *each* stratum, estimates of totals within strata will be more accurate, but the overall total could be less accurate as a consequence.

5.59 The existing country stratification provides a foundation for an extension to the nine English regions as well as the countries. Furthermore, a review of the wider industrial stratification could be usefully carried out alongside the implementation of the fuller regional structure (these issues are developed in the discussion of recommendations in Chapter 6 and in Chapter 9).

### Apportionment

5.60 For firms with a regional structure, a ‘correct’ allocation of accounting information to local units could only be achieved through actually asking businesses specifically for local detail. As discussed, if this approach is not adopted, it is necessary to use approximation techniques.

5.61 The production of regional data is therefore reliant, at present, on *apportionment models*: methods of allocating reporting-unit information to local areas. The technique is applied to all variables on the ABI for all firms with a regional structure and contributes to the present estimates of regional GVA. Fundamental to the present and future technique is the local-unit structure of business employment data held on the IDBR, and collected and updated via the ARI (or local-unit estimates of employment collected directly from firms via the ABI in Northern Ireland).

5.62 The employment structure of any business suggests an obvious allocation. The simplest method of apportionment would be to allocate reporting-unit aggregates to regions according to the proportion of their employment in each region. Such procedures, underpinned by the previous AES, were adopted prior to the introduction of the IDBR/ABI. However, with the introduction of the ABI, the ONS moved to making the allocation according to further assumptions based on productivity. Its view is that local-unit activity of a regional multiple is better proxied by the productivity of small- and medium-sized companies in the same region as that local-unit. (For apportionment purposes, the ONS defines small and medium companies as businesses with three or less local-units and less than 100 employees.) Operationally, this sets up a requirement for a large number of regression models according to the wider stratification of the IDBR, with models estimated for each sub-region (NUTS 2), industry (2 digit SIC) and size (eight employment bands). The models are based on data for a single year, rather than estimates over a number of years. (Northern Ireland reporting-unit accounting information is allocated to local units on the basis of the local-unit share of employment as reported by the business in the ABI, instead of the ONS apportionment model.)

5.63 As will be discussed in Chapter 6, these new arrangements appear to have led to increased volatility in overall estimates of GVA.

## OTHER SURVEYS AND TECHNIQUES OF NATIONAL INCOME AND EXPENDITURE MEASUREMENT

5.64 While the arrangements discussed in the previous section form the core of ONS business surveys, a far wider range of surveys and techniques are required for the full estimation of Regional and National Accounts.

### PRODCOM

5.65 The ABI survey allows the calculation of industry totals but is not capable of allocating those totals to specific products as required by Supply and Use analysis. In order to make this allocation, the ONS uses the PRODCOM survey (PRODuCts of the European COMmunity). This harmonised survey is a statutory requirement under European Union legislation for the collection and publication of product statistics. It is compiled only for the manufacturing sector on both an annual and quarterly basis and covers approximately 25,000 businesses annually and 4,500 quarterly. Data are available on the value and volume of UK manufacturers' product sales, merchanted goods, work done, sales of waste products and residues, and all other income including turnover for the industry. It led to a substantial increase in both the number of contributors and in the number of products covered relative to the previous sales inquiries that (in 1993) the harmonised survey replaced. Information is collected to the lowest level of SIC disaggregation (five digit).

5.66 Outside the demands of Supply and Use balancing, PRODCOM information is published directly as detailed industry analysis, as well as alongside trade statistics; it is also used to calculate the weights for the Producer Price Index (PPI). Results from the annual survey are currently published around nine months after the reference year and quarterly data currently becomes available approximately five months after the end of the quarter.

## Income measurement and Inland Revenue data

**National measures** 5.67 Annual estimates of components for the income measure of national GDP are underpinned by data collected for tax purposes by the Inland Revenue. This administrative source avoids specific surveys, given that the incomes of all companies and most individuals are already reported for tax purposes. Crudely, the aggregate of taxable income is the income measure of GDP. The Inland Revenue, in theory at least, should have most of the records necessary to construct this measure. However, adjustments are also applied, for example to allow for incomes below the tax threshold. The brief discussion here focuses on the main components: wages and salaries and gross trading profits. In the former case, the regional extension is obvious.

**Individual income** 5.68 In the case of individuals, tax payment from employment income is largely automated through 'Pay as You Earn' systems (PAYE). Companies deduct taxes due on monthly incomes and make payments direct to Inland Revenue. Wages and salaries estimates are therefore constructed directly from the employers' records on their employees. The estimates are, however, sample based, with DWP drawing a one per cent sample of employers' tax deduction documents from their National Insurance Recording System (NIRS2) database.

5.69 Total pay for the sample is grossed up in accordance with the grossing of National Insurance Contributions of the sample to the whole population. It is regarded as sufficient to estimate total wages and salaries with a standard error of about 0.25 per cent.<sup>15</sup> The data are not fully comprehensive and include adjustments in a number of areas, for example to bring the data onto a calendar- rather than financial-year basis, to include income below the PAYE threshold and due to Her Majesty's Forces and income due to fringe benefits such as company cars.

5.70 The system provides annual data (financial year) with a lag of about one year. Prior to this point, annual and quarterly wages and salaries are estimated as a product of data from short-term employment and earnings surveys (see Chapter 7 for a discussion of these sources). However, at present, there is increasing use of the short-term method because of problems with the annual source (see Box 5.3). These problems have had significant implications for the production of regional and national data.

### Box 5.3: Income data

At present there are a number of concerns with the PAYE income data supplied to ONS. There were initial problems in processing employers' end-of-year returns associated with the introduction of the new National Insurance Recording System (NIRS2), which led to a delay in supplying the ONS with data for 1997-98 and 1998-99. However, even after the introduction of NIRS2, there have been problems associated with the extraction of sample data which led to a shortfall of certain records for more recent years. This has meant that the benchmark estimates of earnings have become unreliable. As a consequence, the ONS has not yet benchmarked national figures for 2000-01 and 2001-02, and furthermore have lost this crucial source for the regional breakdown of GVA. Inland Revenue staff are addressing these problems, and revised figures are due to be available in the next few months, with routine benchmarking planned to be back on stream by April 2004.

<sup>15</sup> *Office for National Statistics (1998)*, page 288.

5.71 The annual *regional* allocation of wages and salaries should simply follow from national systems. The Inland Revenue sample of PAYE records includes a regional identifier, and the sample size has been enlarged to improve precision of regional estimates. The consequent regional distribution should allow a simple pro-rating of national results to the regions.

5.72 However, as a consequence of the wider problems, regional measures of wages and salaries are currently also adopting methods based on the short-term employment and earnings data (see later for specific details).

**Company income** 5.73 Company income is taxed through corporation tax, payable on ‘gross trading profits’ (GTP) and other forms of profit including corporate gains. Companies provide levels of their GTP in annual self-assessments of their tax liability. The Inland Revenue therefore provides the ONS with annual estimates of GTP derived from its corporation tax database (using a census of large companies and 10 per cent sample of smaller companies). This process has a lag of about 18 months before first estimates are made, because self-assessments are submitted 12 months after the end of the company’s accounting period. There are also a number of timing and definitional differences between the National Accounts and corporation tax measures, leading to a number of adjustments to bring the data on to a National Accounts basis. Before these estimates are available, profit data are based on the rather small quarterly profit inquiries (with a sample size of 1,600 per quarter).

5.74 From the regional perspective, the Inland Revenue data on GTP remains subject to the substantive practical shortcomings of enterprise-based reporting. As would be expected, companies report tax for the business as a whole and not at local-unit level; furthermore, the majority of the tax yield arises from large and frequently multi-national companies. The Inland Revenue corporate tax data is, therefore, not a suitable source for a meaningful regional breakdown. Instead the regional profits data has been estimated from annual business/employment inquiries (discussed later).

### Expenditure measurement

5.75 Expenditure data is estimated by a variety of methods according to each sector of the economy (households, government, etc). From an annual perspective, the sources combine a mixture of annual benchmarks and simple aggregations of quarterly data. None of the sources is aimed at regional data, but some offer a regional perspective that can and has been developed to contribute to the additional releases of regional data noted earlier.

**Household consumption** 5.76 Annual estimates of household final consumption expenditure (HHFCE) are derived from the most diverse range of sources out of all the expenditure components of GDP. Much of the estimate (over 40 per cent) is based on data from the Expenditure and Food Survey (EFS). The same source also underpins the quarterly measure. The EFS is a continuous survey, sent out to 12,000 households a year in Great Britain. Northern Ireland is also sampled, about 1,000 households being selected randomly from the Valuation and Lands Agency list. Respondents, numbering about 7,500 in the United Kingdom as a whole, are asked to record all their expenditure over a two-week period, and also to keep a separate and longer-term record of larger purchases (e.g. fridges and hi-fi equipment).

5.77 In theory, this measure should provide a fairly comprehensive measure of expenditure on most goods and services; however, both quarterly and annual measures are supplemented by other sources. The main ones are business inquiries into the retail industry, HM Customs and Excise information on duties collected, and registration data from the Society of Motor Manufacturers and Traders (see Box 5.4).

### Box 5.4: Other survey sources for HHFCE

The Retail Sales Inquiry is a monthly survey of retailers' sales; and the estimates supplement quarterly EFS data for most goods except food, drink and tobacco, vehicles and energy products. In annual terms, data collected by the ABI for retailers supersede the quarterly figures in similar areas.<sup>1</sup> Excise duties are flat rate taxes levied on quantities of certain goods (alcoholic beverages, fuel and tobacco). Sales of these goods are therefore reported to Customs and Excise as part of revenue collection systems. These figures, theoretically, provide accurate estimates of the sales in these areas and are, therefore, used as the main measure for these components of expenditure. The same figures also underpin annual estimates. While the figures can be distorted by tax avoidance, a number of adjustments are made, also based on Customs information, to take into account this type of activity. More generally, a number of other specific and diverse sources are used, for example motor vehicle sales are estimated via data from the Society of Motor Manufacturers and Traders.

<sup>1</sup> The ABI also provides a specific adjustment for 'retail carry in' – direct sales from non-retail industry to final consumers (which has become very common in the computer industries).

5.78 Extension to regional estimation is primarily dependent on the EFS, which already features a regional dimension, but is of insufficient sample size to produce robust regional figures (previously published figures used a weighted average of the latest three years). The EFS information is supplemented by other sources (e.g. data on rent and education). As noted, regional figures have been produced in the past, but not since August 2001 (for 1999).<sup>16</sup>

**Government consumption** 5.79 Annual National Accounts Government Final Consumption (GFC) expenditure data is based primarily on the Government's published 'Appropriation Accounts'. These provide audited and detailed outturn figures for all government expenditure. In terms of ONS processes, they are used to benchmark short-term quarterly estimates based on various surveys managed by both the ONS and HM Treasury.

5.80 A regional allocation of annual government expenditure data is available through the annual HM Treasury publication, *Public Expenditure Statistical Analyses* (PESA). The allocation is not fully consistent with National Accounts requirements, in particular because it does not allocate consumption strictly according to consumption taking place 'in' regions (see below). The Scottish Executive also produces an annual analysis of Government Expenditure that is high profile, and widely used and quoted. More recently, the ONS produced fairly extensive experimental Regional Government Accounts as part of a Eurostat-funded pilot exercise to develop regional government accounts (Hillis, 2002).

**McLean Report** 5.81 More generally, HM Treasury and other departments have regarded the regional allocation of government expenditure as a key priority from wider perspectives than for National Accounts. The ODPM commissioned a report that looked at the quality of the existing regional breakdown (Nuffield College, 2003) – see Box 5.5.<sup>17</sup>

<sup>16</sup> These are known as measures of Individual Consumption Expenditure (ICE) rather than HHFCE.

<sup>17</sup> HM Treasury and DEFRA were also involved in the funding of this project.

### Box 5.5: McLean Report

Professor Iain McLean of Nuffield College, Oxford led a research project examining the quality of official data on government spending for the benefit of the English regions and identified methods that might be used to improve estimates of regional spending.<sup>1</sup> The research examined the methods and results of the regional spending statistics for 2000-01 published in the Treasury's annual publication *Public Expenditure Statistical Analyses* (PESA), in 2002.

The PESA data show expenditure on public services allocated over regions and the countries on the basis of which region or country benefits from that spending, termed the 'for' method.<sup>2</sup> The main alternative, termed the 'in' method, measures spending according to where the economic activity associated with the spending takes place.

Total public spending is split into spending that can be identified as benefiting individual regions and that which can not, such as defence, because it benefits the UK as a whole. Total identified regional expenditure is then apportioned between regions. McLean identified problems with some departments' methods of apportioning spending between regions and estimated that 12 per cent of departments' returns underlying the statistics published in PESA 2002 were affected.

The report produced corrected regional spending data, estimating that the PESA data understated public expenditure in London and overstated public expenditure in the East of England and the South East. But the changes were less than £½ billion for any region.

However, the headline numbers conceal proportionately larger differences in terms of spending on separate functions in each region, with the biggest changes made to the allocation of spending on education, law, order and protective services and agriculture, forestry, fish and food.

The report made eleven recommendations aimed at improving the recording of regional spending data. It also found that some of the required improvements were already underway. The most relevant recommendations for our Review are:

- All Departments that make returns in the PESA exercise should study good practice across government.
- Each Department's Head of Profession for Statistics should draw up a protocol for the collection and return of territorial and regional expenditure data for the Department, and the Department should ensure that a senior manager is in charge of the process.

<sup>1</sup> The report, *McLean (2003)* can be obtained at <http://www.local.odpm.gov.uk/research/expnder.htm>.

<sup>2</sup> Expenditure on services includes most central government and local authority spending, current and capital, but excludes debt interest and public service pension payments.

**Business investment** 5.82 For the annual expenditure measure of GDP, the source of gross fixed capital formation (GFCF) is the ABI as discussed above. The results from the ABI are used to benchmark a short-term measure based on a quarterly inquiry. GFCF is the main component of a wider aggregate, gross capital formation, which also includes ‘changes in inventories’ and ‘acquisitions less disposals of valuables’. Of the two, the expenditure of firms on inventories is the more significant: changes to the stocks of raw materials, work in progress and finished goods in the period of account also count as final expenditure as far as the expenditure measure of GDP is concerned. The annual estimate of the change in inventories is again estimated from the ABI.

5.83 In practice, the ABI sources allow a regional allocation via apportionment, although this is an area where the apportionment techniques used are probably inadequate. Business investment is likely to be unevenly distributed across local-unit sites of any enterprise. Previously, specific local-unit reporting arrangements allowed a fuller regional analysis. As a consequence, regional investment data have been particularly disturbed by the introduction of the ABI and had not been produced since 1996. New data, based on apportionment of ABI results, were released in October 2003.

**Exports and imports** 5.84 Trade in goods data are estimated in two ways: trade with the EU is estimated via the INTRASTAT system based on VAT records; trade outside the EU is estimated from Customs and Excise records of imports and exports. Figures based on these systems lead to monthly estimates of trade, with annual estimates essentially an aggregation of monthly figures. (As with HHFCE, additional estimates are made for illegal activity such as smuggling and also VAT missing trader inter-community fraud.)

5.85 As with the measurement of output, measurement of trade in *services* is more difficult than the measurement of trade in goods; and systems are less well established than their goods counterpart. Estimates are now based on the Inquiry into International Trade in Services (ITIS). This survey began in 1996, replacing a wide range of inquiries. It has an annual sample size of 20,000, providing a benchmark for a quarterly inquiry of only 650. Additionally, the International Passenger Survey (IPS) contributes directly to the travel account for trade in services.<sup>18</sup>

5.86 Trade data are of course a major sticking point with the production of a fuller expenditure measure of regional GDP. The ONS and HM Customs and Excise publish estimates of individual regions’/countries’ trade in goods with the rest of the world. These are based on a regional identification from Value Added Tax registration numbers (see Simpson, 2000). However, the estimates are a long way from the fuller inter-regional trade matrix that is required for aggregate measurement of regional expenditure.

### LATEST REGIONAL ACCOUNTS DATA

5.87 As noted, at present, regional GVA estimates are based on the income measure. These basic figures and disaggregations are supplemented by industry detail, measures of household income, expenditure aggregates and more detailed ‘sub-regional’ estimates.

<sup>18</sup> *The IPS is based on interviews with a sample of passengers travelling via principal airports, sea routes and the Channel Tunnel. The number of interviews conducted each year is around 250,000. A February 2003 ONS Quality Review of ITIS raised concerns about both the size of the quarterly survey and shortcomings in the coverage of the legal sector.*

### Income-based GVA measure

**5.88** In the past, the key components of regional GVA have been estimated via Inland Revenue sources and ‘proxies’ via the Annual Employment Survey that was collected according to a local-unit structure.

#### Problems with wages and salaries estimates

**5.89** However, for both wages and salaries and gross trading profits (GTP), system changes and other problems have demanded a change in approach. From the perspective of wages and salaries, the Inland Revenue method cannot be used at present because of the problems with the income data (see Box 5.3). This has meant that regional wages and salaries estimates are only based on this method up to 1996. In the meantime, the ONS is using an alternative method based on New Earnings Survey (NES) earnings data and ABI employment data. NES data provide regional estimates of earnings that can be multiplied by regional estimates of employment. For GB, the latter are obtained by apportioning national employment figures from the ABI according to previous regional allocation of employment held on the IDBR (Northern Ireland has direct estimates).

#### Use of ABI for profits

**5.90** For GTP, the transition to the ABI has also demanded changes to method. Here, there is a degree of complexity that goes beyond the use of apportionment. At present, the allocation of national totals for GTP is based on a type of ‘residual estimation’, with different techniques for the main industrial sectors of the economy. For the manufacturing sector, a proxy for GTP is obtained by subtracting the ABI-based compensation of employees figures described above from regionally apportioned value-added figures, are also derived from the ABI. For the service sector, GTP is allocated according to compensation of employees, and the ABI2 data are not used. The ONS argues that this is necessary because of concerns with the detailed ABI figures for the service sector. Similarly, *ad hoc* techniques are applied for estimates of GTP for other industrial sectors.<sup>19</sup> (While previous systems still demanded the use of a residual technique, allocation was simpler via the fuller Annual Employment Survey.)

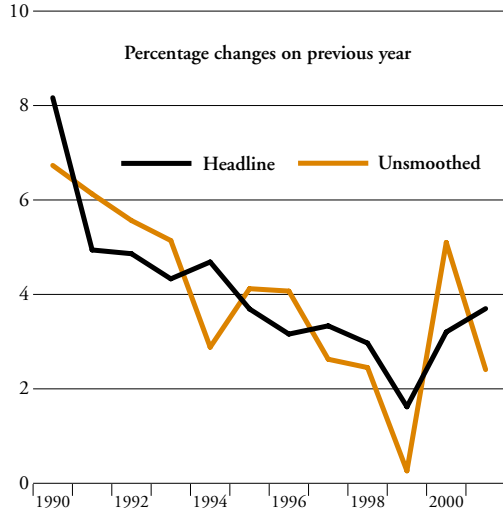
#### Volatility

**5.91** Furthermore, the GVA figures at an aggregate level have been considered by the ONS and users to exhibit excess volatility in growth. The most recent figures, published in August 2003, were therefore smoothed using a five-point moving average technique. Chart 5.1 shows the data pre- and post-smoothing. The use of such smoothing can only be a short-term response as it fails to tackle the underlying causes of volatility. The discussion on recommendations in Chapter 6 argues that some of this volatility may have arisen from the new ABI-based techniques and apportionment processes.

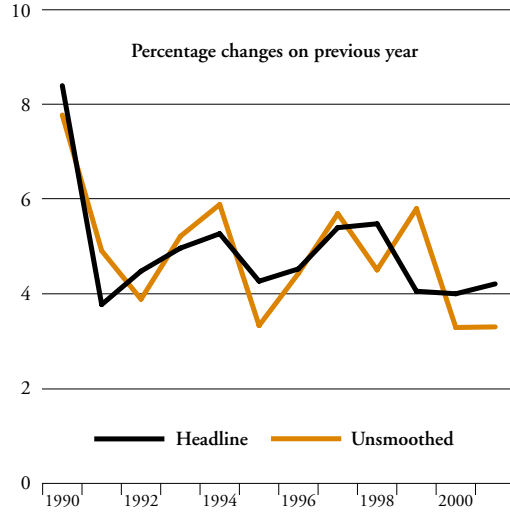
<sup>19</sup> Also involved in the production of GVA for regions are estimates of other components such as employers’ contributions, rental receipts and holding gains; the reader is referred to ONS background articles (e.g. Lacey (2000)).

Chart 5.1: GVA growth in regions and devolved administrations (current prices)

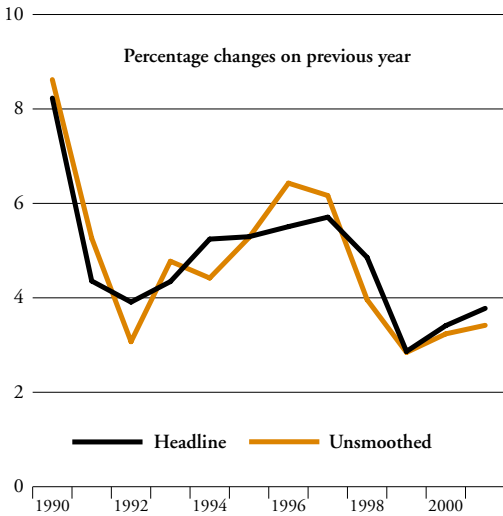
North East GVA



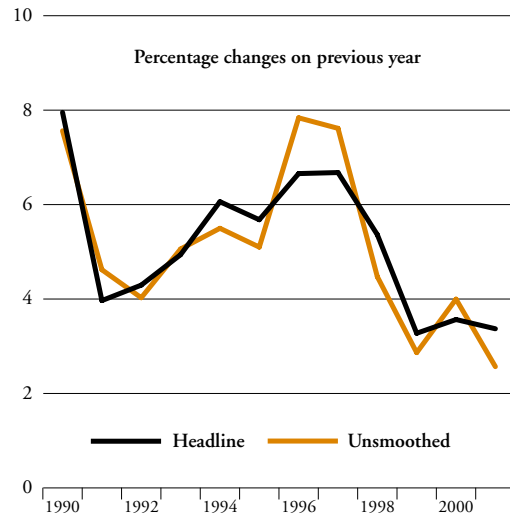
North West GVA



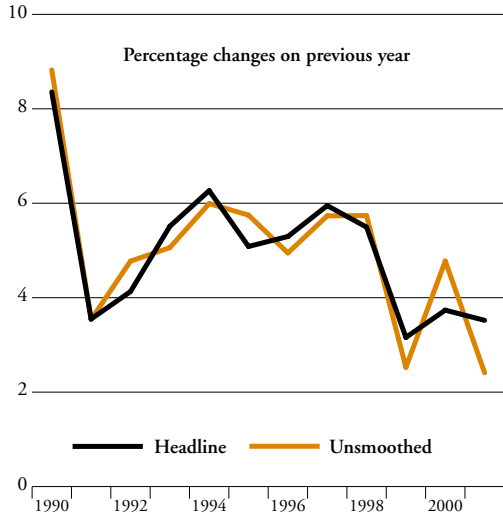
Yorkshire and the Humber GVA



East Midlands GVA



West Midlands GVA



East of England GVA

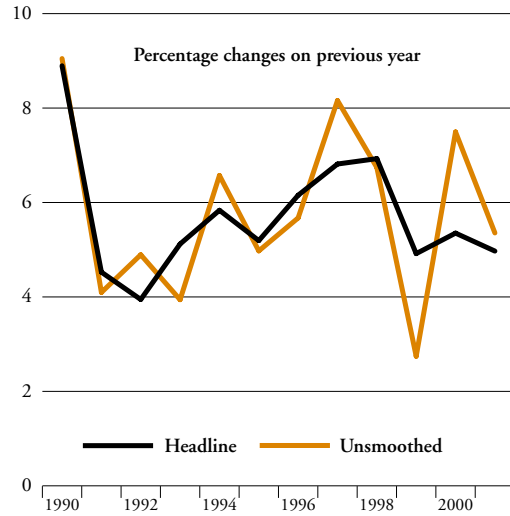
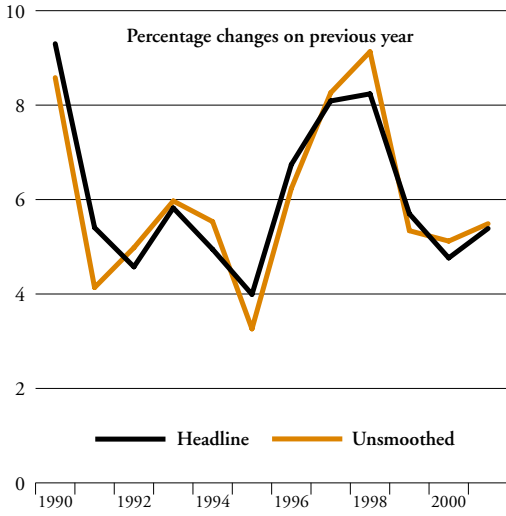
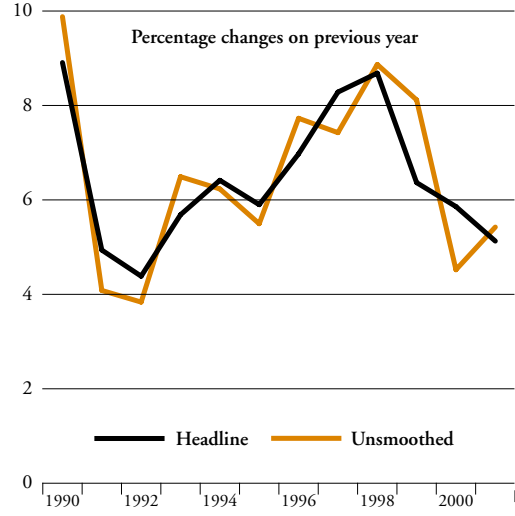


Chart 5.1: GVA growth in regions and devolved administrations (current prices) (continued)

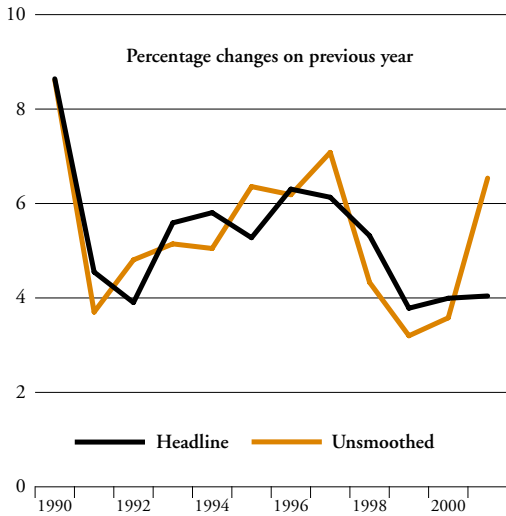
London GVA



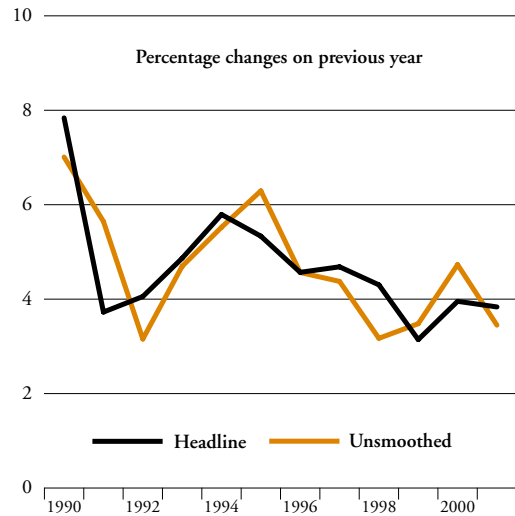
South East GVA



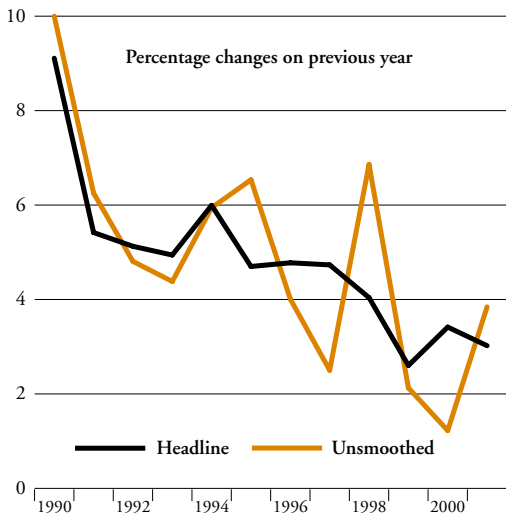
South West GVA



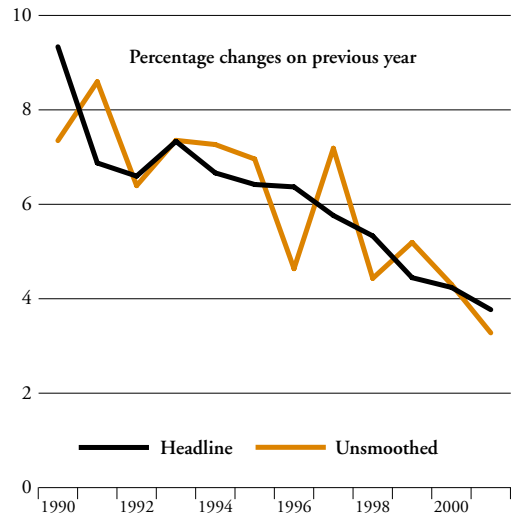
Wales GVA



Scotland GVA



Northern Ireland GVA



5.92 For reasons largely out of the hands of those involved in the actual day-to-day production of regional data, the situation has become untenable. While much attention has been focussed on the withdrawal of the figures (see Box 5.6), less has been afforded to the actual detail of the problems with estimation.

### Box 5.6: Withdrawal of Regional Accounts

On 22 November 2002 the ONS published a set of Regional Accounts for the years 1989–1999. These figures incorporated changes arising from the introduction of the ABI, in particular a revised breakdown of gross trading profits and revised industry breakdown. After serious user concern and internal investigations, resulting in the discovery of processing errors, the figures were withdrawn on 10 December 2002. At the same time publication of provisional 2000–2001 GVA estimates scheduled for release on 17 December 2002 was also postponed.

After prolonged investigations and action, revised 1989–1999 figures for regional GVA were released on 14 August 2003. Figures for 2000 and 2001 were released on 20 August 2003. The ‘Nolan Review’ (Nolan, 2003) and the associated ONS response discuss these issues in more detail.

5.93 These problems have not gone away. The virtually total reliance on a variety of proxy techniques, the potential inadequacy of sample sizes, the use of new apportionment models and the use of smoothing at aggregate level mean that, even at present, there remain questions about the validity of the overall estimates.

### Industry allocation

5.94 UK Regional Accounts also include an industrial dimension. Alongside the latest estimates of regional GVA is a breakdown of regional activity into 17 (at NUTS 2 level) and 31 (at NUTS 1 level) industrial sectors. The figures are derived via proxy indicators based on a variety of sources; manufacturing uses value added from the ABI (with apportionment) and services, including government, use labour market data. Totals are constrained to those from the income-based allocation.

5.95 While there are concerns about the volatility and validity of the estimates, users in regions regard these figures as essential to economic analysis. Wider issues related to the industrial disaggregation are pursued further alongside the recommendations in Chapter 6 and the discussion of industrial detail in Chapter 9.

### Measurement of gross household disposable income per head

5.96 *UK Regional Accounts* also includes a measure of household income: gross household disposable income.<sup>20</sup> This measure takes a wider definition of income than just wages and salaries, adding dividends, net interest payments, various transfer payments from government (such as income support, benefits and pensions) and subtracting taxes and national insurance contributions. The measure is defined by ESA 1995 and is based on figures that to some extent can be ‘regionalised’ in a reasonably meaningful way at NUTS 1, 2 and 3 levels. Important sources are the Inland Revenue Survey of Personal Incomes (SPI) data on pensions and property income and Department for Work and Pensions (DWP) data on social security income. One drawback of the measure is for international comparisons, as it does not take into account the higher level of public service provision in higher tax countries (alternative measures are being examined at the European level).

<sup>20</sup> The ONS has proposed that gross household disposable income is a more appropriate measure of regional welfare – this is discussed in Chapter 6.

5.97 Users have emphasised that these figures remain very out of date. The latest figures relate to 1999 and were first published in July 2001. The ONS has yet to schedule publication of figures for 2000 and 2001.

### Sub-regional data

5.98 As discussed in Chapters 2 and 4, policymaking from a regional perspective leads to an inevitable demand for a deeper understanding of the regions themselves, involving data at ‘sub-regional’ level. The ONS’ systems are already geared to meeting these demands, due partly to the requirements of the European System of Accounts 1995 regulation, and the allocation of EU structural funds according to NUTS 2 GVA (see Chapter 4). Specifically, sub-regional data for both GVA and gross disposable income are produced as a matter of routine. The experimental government accounts figures and latest GFCF estimates were also produced according to NUTS 2 regions.

5.99 Estimation is based on hybrid income/production approaches. NUTS 1 regional results are allocated to their NUTS 2 constituents according to a wide range of indicators and proxies from the ABI (involving apportionment where necessary), labour market and earnings sources and others.

5.100 At this level of dis-aggregation, it is likely that the figures are presently little more than approximations. In the past, there has been a surprising lack of concern over the validity of the data, given that the allocation of Structural and Cohesion Funds have relied on these figures. However, these figures are now receiving increased scrutiny. ONS concerns with the most recent figures led to the NUTS 2 estimates being delayed until 31 October 2003. More generally, the validity of these figures is now being pursued as part of a separate research project led by Eurostat.

## NATIONAL ACCOUNTS ANNUAL BALANCING

5.101 From a national perspective, the surveys discussed above are used to complete the Supply and Use framework as outlined in Figure 5.1. After completion, it is inevitable that the varying sources do not line up. All data sources are subject to statistical error, as samples do not include all the units for which measurement is needed. In addition, both statistical surveys and administrative sources are subject to non-sampling error due to incomplete coverage, non-response, measurement error, etc. The process of achieving coherence in the accounts by balancing Supply and Use Tables can be explained most simply as a series of different types of adjustment.

**National Accounts adjustments** 5.102 Survey-based data are essentially the starting point to this process, revealing gaps between supply and demand, and inputs and outputs at both aggregate and product level. The process of balancing involves the application of adjustments to component series of the tables. These adjustments can be further divided into three types: conceptual, quality and balancing (although in practice the distinction can often be quite blurred):

- conceptual adjustments reflect the need to bring some data sources in line with the required National Accounts concepts, for example deducting business spending in shops from retail figures to obtain appropriate measures of household consumption; and adding estimates of tax evasion to various estimates of income;
- quality adjustments are made to correct for known inaccuracies in data sources, for example the problems with Inland Revenue wages and salaries data (Box 5.3); and
- the balancing adjustments are the most important of the adjustments. These reflect judgments on which of the conflicting signals is sending the more compelling information. The purpose of the product breakdown is to be able to make these adjustments at a detailed level. Ultimately, of course, the choice is between production, expenditure and income estimates of the various quantities.

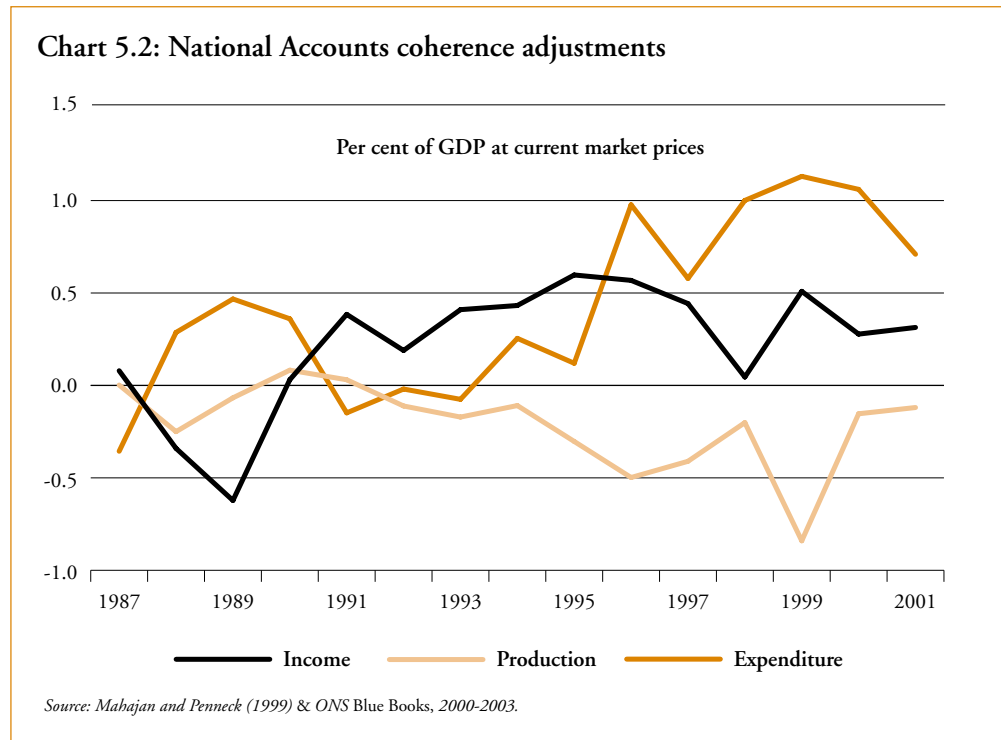
5.103 Since 1999, these adjustments have been made public according to whether they are applied to production, expenditure or income, as well as the specific components of each measure that were adjusted.<sup>21</sup> In this way, the system delivers what the ONS regards as a single ‘best’ estimate of GDP, but also some idea of the divergence between the three measures and more generally the reliability of the accounts.

5.104 This single-estimate based system replaces the previous system where the then Central Statistics Office (CSO) estimated and published the three measures alongside each other, but did not offer users advice over which was ‘correct’ (although a simple average of the three measures was calculated). A primary concern of the ‘Pickford Review’ of government economic statistics (Cabinet Office (1989)) was the increasing divergence between these measures in the late 1980s. The present method is therefore such that official statisticians make necessary judgements between the three measures in order to give a single best view. This method appears to have become accepted as the norm.

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<sup>21</sup> A particularly useful summary over time was published in Mahajan and Penneck (1999, p. 31); figures for the latest years are then published annually in the Blue Book.

5.105 Chart 5.2 presents a time series of the coherence adjustments made to the production, expenditure and income measures as a share of total GDP.



**Divergence between the measures?**

5.106 Overall, the figures show the production and expenditure measures diverging to an increasing extent in recent years, with the income measure generally somewhere in the middle. The ONS chooses to go closer to the ABI-based production measure than the expenditure measure (i.e. the absolute value of the adjustment is smaller), but does not estimate GDP quite as high as the production data implies. (While the chart suggests that the ONS is going with the income measure, this is more coincidence than design.) The time series of the figures suggests that the adjustments to expenditure and production measures exhibit a degree of cyclicality (although this is based on a very small sample).

5.107 The relatively wide gap between the output and expenditure measures may be a concern from the perspective of the Review. This gap of between 1 and 2 per cent of GDP has persisted for the three years based primarily on ABI data (1998-2000; although with a smaller gap in 2001). A number of factors might explain this wider gap: (i) because the comparison is not ‘real time’, adjustments to earlier years may have been larger when the figures were first estimated; (ii) present National Accounts techniques may lead to a more rigorous identification of coherence adjustments; (iii) potential cyclical factors; and (iv) expenditure data failing to pick up all activity. Nevertheless, there may be a concern that the gap is, in part, related to the introduction of the ABI. This issue is pursued in the next chapter.

## CONSTRUCTING VOLUME DATA

**5.108** So far the discussion has concentrated on the production of current price figures. The production of volume figures is crucial to most users of National Statistics. Furthermore, the production of such figures at a regional level is a key demand due to the regional PSA target.

**5.109** Deflation is a complex issue both theoretically and more so in practice. As with current price data estimation, the processes used depend on whether they are related to quarterly or annual measurement, and which method of GDP estimation is being looked at (income estimates are not deflated at the national level). There are also additional complications due to the need for quality adjustments and now due to the chain-linking technique. The discussion below examines first, techniques for national estimates and second, regional implications.

**National techniques 5.110** Methods of deflation for short-term turnover data were briefly addressed in Chapter 5. Producer price indices are used to deflate manufacturing in fairly standard ways. It is generally simple to define a unit of production and to price that unit each month. The main exception is where technology is leading to fast quality change. Most obviously for computers, quality change in products over time means that prices need to be adjusted to reflect the element of price change due to quality improvement. Such methods inevitably involve a degree of subjectivity and have been the subject of substantial international debate. The ONS adopts a number of techniques in practice, most recently introducing ‘hedonic pricing’ for computers in both the producer price index and the harmonised index of consumer prices (Ball and Allen (2003)).

**5.111** Measurement of service sector prices is more complicated because first, the definition of a unit of production is more difficult, and second, measurement of quality change is then even less well defined than for the manufactured products (for instance the services of a city lawyer) and third, there are no prices at all for most public services. With the dominance of the service sector, development of measures of Corporate Service Price Indices (CSPIs) has been a high priority for the ONS over recent years. These measures are now increasingly used to deflate relevant service sector turnover. In addition, prices that reflect services sold direct to consumers are directly deflated by components of the Retail Prices Index (RPI). (Areas where CSPIs are not developed tend also to use RPI-based measures as proxies.)

**5.112** The components of the quarterly expenditure measure of GDP are also deflated, and the aggregate measure published as the ‘GDP deflator’. As with measurement of sales data, techniques vary according to the sector in question:

- detailed component price indices from the Retail Prices Index are used for HHFCF;
- GFCF uses mainly producer price indices (as do changes in stocks);
- deflators for trade in goods are based mainly on directly-collected export and import prices, although some use is also made of producer price indices. On the other hand, deflation of trade in services is based on a wide range of proxies; and
- government final consumption is currently an area of development, with increasing use of output measures, i.e. measures directly addressing output (e.g. numbers of hospital operations or pupils). In these areas, the deflator is derived implicitly as the ratio between current price and constant price measures. Other areas of government expenditure are deflated using aggregate price measures such as the RPI or average earnings index.

5.113 Income deflation is conceptually unclear; individual components are only produced at current prices. In this way income-based measures of GVA are not a good foundation for obtaining *regional* volume measures. Existing attempts by the Department of Trade and Industry and ONS have used production-based data (see below).

5.114 While the production measure – and hence deflation technique – underpins the short-term movements of GDP itself, the published GDP deflator is that due to the expenditure components. This is, theoretically, the same as the aggregate effect of the production deflator, but, in practice, the differing procedures are likely to lead to different aggregate results.

5.115 However, when the annual Supply and Use process is reached, expenditure deflation becomes the dominant technique in practice as well. The fully-balanced Supply and Use Table at current prices allows the deflation of either expenditure or production measures of GDP. Expenditure components are therefore deflated using the techniques described just above. The results lead to both aggregate volume data as well as the aggregate deflator.

5.116 This approach is used because to deflate the production measure *fully* at Supply and Use stage requires ‘double deflation’ – i.e. deflating industry turnover and intermediate consumption separately. Producer price measurement systems have not been regarded as adequate to this task, and hence expenditure deflation has been preferred. A fuller approach to deflation – in particular, construction of volume Supply and Use Tables – is likely to be a key element of the re-engineered National Accounts.

5.117 This likely development is preceded by the introduction of chain-linking. With the 2003 *Blue Book* dataset, UK deflation procedures have been changed to adopt this technique which is both in line with ESA95 conventions and international best practice. Under this system, volume figures are derived in prices of the previous year (e.g. see Beadle and Tuke (2003)) and are referred to as chained-volume measures (CVMs) rather than the previous ‘constant prices’.<sup>22</sup> These processes essentially allow volume measures to be more responsive to changing patterns of output and expenditure over time.

**Regional implications** 5.118 As emphasised throughout the Report, the ONS does not, at present, publish volume GVA figures for regions/countries. However DTI, ODPM and the ONS have been examining alternative techniques that would allow approximate volume estimation. These are based on the use of national price indices, but allowing for the different industry mix across regions. The DTI work (see Douglas (2003)) is presently used to provide provisional data for analyses of the regional PSA target. The ONS work uses alternative techniques, based on a production-type approach with fuller industry detail using the ABI (see Insalaco (forthcoming)). These developments are clearly necessary in the absence of official volume figures.

5.119 From the longer-term perspective, the likely requirements are unclear. First, there is the issue of whether inflation rates vary at regional level. Second, if significant variation is present, soundly-based methodology for volume measurement may require different approaches to those used at national level. If significant variation is not present, then approaches described in the previous paragraph may prove adequate – given a firmer current price baseline.

<sup>22</sup> However, prices for the most recent estimates are not based on the previous years’ prices but the latest year derived via input-output processes (i.e. 2001).



# 6

## Developing Regional Accounts

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**6.1** Devolution of economic policy to regions and countries has led to a demand for regional information that is more reliable, accurate, extensive and timely than at present. Unfortunately this demand comes after a degree of survey consolidation in response to concerns with national figures, which has increased the difficulty of producing Regional Accounts and contributed, in part, to the loss of confidence in the data. Nevertheless, basic survey structures and other techniques are already in place. Furthermore, the current ONS National Accounts re-engineering programme has led to a fundamental review of not only the technological infrastructure to deliver statistics but also the underlying methodology and broader survey structures. However, allocation of already limited resources to these re-engineering processes is inevitably both an opportunity and a threat for the proposals for enhanced regional data set out below.

**6.2** The proposals below follow consultation with relevant experts at the ONS. As discussed in Chapter 2, they are intended to be regarded as largely indicating the broad direction. Ultimately it is for the ONS to choose the precise way in which to meet the extended demands for regional data. Nevertheless, it is clear that an examination of processes at this level of detail has been relevant within the implicit cost-benefit framework of the Review. In turn, we hope that the specific nature of the recommendations will help to stimulate future discussion.

**6.3** The recommendations also reflect what appears to be possible within boundaries broadly set by existing survey mechanisms. Wider structural changes to how the ONS receives and processes its data in future could have substantial implications for the production of regional data – in particular in the event of greater access to administrative data. The report highlights the benefits that could result from such access (see Chapter 10). But much more work would be required to set out the detail of how and where they might be used, and how their use might affect the production of Regional Accounts.

**6.4** The implementation of our recommendations for Regional Accounts should also have the additional benefit of improving annual national GDP figures through increases to samples, improved validation of estimates and sampling frames as well as through bringing together the production of Regional and National Accounts and the greater input of statisticians who are closer to the regional dimension.

**6.5** Lastly, recommendations have been set out with only the present regional policy agenda in mind. The position must be reviewed in the event of significant changes in demand for regional data over and above those identified here.

### Immediate demands

6.6 The recommendations set out a medium-term timetable for improving Regional Accounts (see also the discussion at the end of the chapter). However, there are immediate and pressing demands that also need mentioning. Over the next three years, Regional Accounts data will continue to grow in profile, with, in particular, figures produced in 2004 potentially used for the allocation of significant EU Structural Fund resources, and figures produced in 2006 used for the first full assessment of performance against the regional PSA target. The production of figures for these assessments will be unlikely to benefit from the medium-term proposals outlined here, and will have to rely largely on existing methods and whatever can be done to respond to the associated methodological concerns. That said, the ONS has made significant moves that should enhance quality in the short term:

- there are plans to increase staff resources for Regional Accounts;
- the Regional Accounts production has moved to the division responsible for the production of National Accounts;
- more resources have been allocated to quality assurance of ABI-based data; and
- the ONS is continuing to work with colleagues in the Inland Revenue in order to resolve difficulties with its data.

6.7 **Recommendation 1: The momentum behind ongoing changes to the production of Regional Accounts in the ONS should be maintained and developed as necessary. There should be appropriate senior management input into the process and demonstration that these are priority areas. Specifically, present problems with Inland Revenue sources should be resolved as a matter of urgency.**

### OUTLINE OF PROPOSALS FOR REGIONAL GVA

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**GVA** 6.8 Unsurprisingly, the single most important priority for most regional policymakers is a reliable and timely measure of annual Gross Value Added (GVA) for NUTS 1 regions at both current prices and in chained-volume terms.

6.9 We believe annual regional GVA estimation should be changed to the production approach, rather than the existing income-based approach. The production approach is recommended by the ESA 95 discussion of regional activity measurement and offers both conceptual and practical advantages over the income approach:

- theoretically, there is no ambiguity about where production is taking place. Production occurs where a business or part of a business is located (although, in practice, reporting unit issues remain difficult);
- unlike income, production can be deflated in a manner that makes practical and intuitive sense;
- the most comprehensive annual survey of business, and potentially the best source of regional data, the ABI, is aimed primarily at the production approach;

- the use of production for regional GVA estimation is more in line with methods for measurement of annual National Accounts, where production is proportionately the most important component and hence offers the best chance for compatibility and coherence between the two processes; and
- the production approach is also potentially amenable to the use of administrative data via turnover and purchases data collected for VAT purposes.

**6.10 Recommendation 2: Present estimates of regional GVA are not of sufficient quality to support analysis of the Government's policy objective to increase growth in the regions. Each region and country (at NUTS 1 level) should have annual baseline data for GVA at current prices and in (chained-) volume terms, which would be derived according to the production approach. The ONS should take preliminary steps, including proposing an appropriate timetable for the production of these data, in time for a statement on progress to be included in our Final Report.**

**Expenditure and income** 6.11 We do not recommend that regional GVA be derived according to the three approaches: production, income and expenditure. There are substantial additional practical difficulties in achieving a comprehensive picture for the regions, in particular from the expenditure perspective, which would demand measurement (and deflation) of a matrix of inter-regional trade flows, for which no data exist at present and could only be obtained at significant cost. Nevertheless, there is a clear interest in key components of the expenditure measure and these should be pursued on a case-by-case basis.

6.12 At the same time, emphasis on the production measure should not lead to neglect of the (current-price) income-based measure, for which measurement systems are already in place and which should improve, partly as a consequence of developments already in the pipeline and partly as a result of wider developments outlined in this section. Furthermore, income-components are also likely to underpin the more 'welfare-based' perspective on national income (see below).

**6.13 Recommendation 3: The ONS should continue to publish the income-based measure of regional GVA. The production and income measures should be accompanied by the main components of domestic expenditure, but we do not propose full estimation of the expenditure measure.**

**Short-term indicators** 6.14 We also heard some demand for higher-frequency indicator data about the present state of the economy, in some cases expressed as a desire for quarterly GVA. As discussed in Chapter 5, the Scottish Executive has produced its own measure for some time and the administrations in Wales and Northern Ireland are also moving towards short-term output indicators for both the manufacturing and service sectors. However, there is not a substantial policy requirement for a quarterly measure of GVA, although the political demand in the cases of countries is recognised. Furthermore, short-term estimates at a regional level are likely to be of questionable accuracy. We therefore propose that the development of short-term indicators should be a matter for regions and countries themselves, if they so desire, rather than part of any core package.<sup>1</sup> Moreover, a number of other indicators may give a better view than quarterly GVA of concurrent developments, in particular up-to-date measures of the labour market and survey indicators produced by private organisations such as the Confederation of British Industry or the British Chambers of Commerce.

<sup>1</sup> However the methodology underpinning the quarterly measures is relevant to discussion of a more-timely indicator of annual regional GVA, discussed below.

**6.15 Recommendation 4:** For most purposes, it would be better to assess short-term regional activity by looking at a range of timely indicators and surveys than by constructing quarterly GVA estimates for each region, which may have relatively low information content. Countries and regions could, however, produce or commission their own quarterly GVA estimates if these were thought necessary. As with initiatives presently underway, some might prefer to do this in collaboration with the ONS.

**Conceptual considerations** **6.16** At present, the ONS current price GVA figures are presented both in aggregate and per head of population. The regional PSA target is expressed in terms of volume GVA per head. As well as practical issues surrounding estimates of population (see Chapter 7) and the difficulty in distinguishing between trend and cycle, conceptual concerns have been raised about the validity of using population as the denominator. These turn on whether the per head measure is intended to estimate welfare or productivity.

**6.17** The ONS has expressed a view – endorsed by the ODPM Select Committee Report on ‘Reducing regional disparities in prosperity’ – that the main focus of the GVA-based measure should be productivity and, therefore, that the denominator should reflect employment.<sup>2</sup> This emphasis would be in line with a move to a production-led approach as well as the additional volume-based dimension. Furthermore, while the regional PSA target is expressed in per head terms, much of the policy discussion is in terms of productivity. On the other hand, GVA per head measures are not only emphasised by the PSA target but also are very widely used throughout the international community for both comparisons of inter-country and intra-country data. For a measure of welfare, the ONS has suggested moving away from the GVA-based measure to gross disposable household income per head of population.

**Residence versus workplace** **6.18** Residence and workplace issues are resolved via welfare/productivity considerations. A production-based approach to regional GVA is by definition workplace-based. However, the policy agendas concerned with a more welfare-based perspective on regions should be addressed via a residence-based measure of gross disposable household income.

**Wider measures** **6.19** Furthermore, measures of both welfare and productivity should not be confined to the above. The expenditure approach offers additional intelligence, with household consumption advising about household welfare, and investment about productivity. More generally, labour market, earnings, income distribution, indices of deprivation and sustainability all have their place in a wider analysis (see for example the ONS’ annual *Regional Trends*). As analyses are extended to smaller areas, the relevance of income, expenditure and other measures increases, while the relevance of GVA diminishes.

**6.20 Recommendation 5:** We support the use of regional GVA both per head of population and relative to some measure of employment; and support the notion that indicators of welfare should emphasise residence-based household income. A fuller picture, however, requires an assessment of a far wider range of indicators than GVA. In addition, below NUTS 2 level, the concept of GVA becomes less and less meaningful, and other indicators are likely to provide a better picture of local economic conditions.

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<sup>2</sup> *House of Commons (2003b) Report para 29; oral evidence, paras 356 - 357.*

## BUSINESS SURVEY PROCESSES

6.21 We see three essential components to developing a production-based measure of regional GDP, which all come in at the survey level: developments to the ABI, IDBR and apportionment methods.

**The Annual Business Inquiry** 6.22 As with national GDP, the Annual Business Inquiry would underpin a production-based approach to the measurement of regional GVA.

6.23 The initiatives will obviously involve expanding the existing country stratification into the nine English regions. Then, given the aim of the existing sample size is to measure the UK as a whole, some increase in the sample size is likely to be needed. The ONS has provided the Review with some preliminary calculations and estimates of the cost (financial and compliance) of increasing the sample to provide accurate regional data. The ONS' note is reproduced at Annex A2.

6.24 Underpinning the ONS' calculations is the basic notion that to achieve the same precision for regional as national figures, it would be necessary to draw the same size sample for the countries and regions as for national figures.<sup>3</sup> This precision (the ONS' 'option 2') would therefore require an extension of the sample by 7.7 times (not by 12 times, because a third of the sample is already a census of larger firms and cannot be extended). However, our view is that accuracy to the same level as national data is not warranted at this stage, and this cannot be entirely disengaged from the likely cost in terms of both cash and compliance. The ONS also sets out a third option: increasing the sample of firms approached by four times, leading to a widening of overall confidence intervals for regional estimates by a factor of about 1.3 times those for national estimates.

6.25 At the same time, we are concerned that the ONS should address the overall industrial stratification of the ABI at both national and regional levels. This has been touched on in the discussion at Annex A2, but in terms of simply trading-off the new regional dimension with a lesser industrial dimension in order to preserve existing costs (as 'option 1'). The discussion also notes that a number of practical measures have already been developed in conjunction with the Scottish Executive; these include the possibility of a more imaginative stratification with regard to industrial detail.

6.26 The extent of the industrial stratification more generally is a thorny matter. As well as national and regional requirements differing very significantly, there are a number of issues at the national level itself. While national requirements for industrial detail are due to both user and producer demands, the dominant demand is the EU requirement for data at the four-digit level of the NACE classification - data on 517 industries. This demand goes much further than the National Accounts production demand for 123 industries (see Box 5.1). As discussed in Chapter 5, it may well be that the apparently user-led stratification is creating a demand for survey results at a level of detail that is inappropriate for the overall accuracy of the measure as well as causing problems with the maintaining of appropriate sample sizes at very detailed levels of stratification (particularly those subject to rotation techniques and those with a high population of small businesses). Cost implications obviously follow. Moreover, at the national level, there are valid concerns on the part of users more widely about the bias of the existing industry detail and Supply and Use allocation towards manufacturing sectors. These issues are discussed in more detail in Chapter 9.

<sup>3</sup> However, such a proposition involves the assumption that existing stratification at the national level should be extended to regions.

6.27 From a directly regional perspective, industrial data are not required to the same level of detail as for national estimates. At present, regional industry output is available down to two-digit SIC level (released on the ONS website). Some users have indicated that this is sufficient. Furthermore, a sampling technique used for the Scottish Executive allows the level of industry detail to be varied according to the industry in question, as well as being underpinned by the same demand for less detail than at the national level.

6.28 There are a number of other issues that have a bearing on the sample allocation and arrangements for the ABI:

- the user requirement for overall accuracy and whether samples are drawn for levels or growth;
- the possibility of gain through more detailed scrutiny of ABI data by statisticians in countries and regions. These issues are developed in Chapter 10;
- the incomplete industry coverage of the ABI. In order to estimate fully the production measure of GDP, the ONS will need to develop techniques and methodology in order to ‘regionalise’ the alternative sources. Bearing in mind existing difficulties at the national level, the major ‘non-ABI’ area of government output and expenditure will require significant work. It may be that one way forward is to widen the coverage of the ABI to include some of these missing industries (Chapter 9 discusses wider industry coverage issues); and
- whether some degree of consolidation with other surveys is possible.

6.29 **Recommendation 6: Extensions to the ABI are likely to be a central component of initiatives to improve the quality of Regional Accounts. Changes to survey arrangements and sample sizes should, however, be an element of a wider review of the national ABI arrangements that encompasses the following issues:**

- **the relevant degree of industrial stratification: while any eventual design would clearly be expected to deliver significantly less industrial detail at the regional level, we also argue that the ONS should develop a more balanced, coherent and flexible approach to the industry structure at the national level. In this connection we support an urgent review of whether EU commitments can be met in alternative ways; if necessary, by challenging the increasingly-outdated basic requirement for industry detail at the four-digit level of the SIC;**
- **the feasibility and desirability of expanding the survey to industrial sectors not covered or not adequately covered at present, such as government; alternatively, discussion of the necessary techniques for regional allocation of non-ABI sources for these sectors;**
- **whether the ABI sample should be drawn according to levels or growth;**
- **publication of the overall standard error of ABI data at national and regional levels each year;**
- **whether a degree of harmonisation could be achieved between, on one hand, the ABI and ARI and, on the other hand, the ABI and PRODCOM (PRODCOM is addressed specifically in Chapter 9); and**
- **an examination of the divergence between (i) the annual ABI production figures and equivalent annual expenditure figures reflected in the National Accounts adjustments (discussed in Chapter 5); and (ii) ABI employment figures and LFS/workforce jobs figures (in conjunction with the ‘Employment and Jobs Review’ – see Chapter 7).**

**IDBR 6.30** Both the ONS and users of data have urged that improving the accuracy of the information on the IDBR – in particular the up-to-date decomposition of companies into local units – is essential to the production of good quality regional data. It seems clear that, at a minimum, apportionment can only be as successful as the quality of regional local-unit information.

**6.31** The quality of the Register depends to a large extent on the annual ONS ‘proving’ exercise via the Annual Register Inquiry (ARI). The ARI was discussed in Chapter 5, and the ONS paper (at Annex A2) also develops these issues. The temporary boosting of the ARI sample that is now in place is, therefore, regarded as vital to the production of regional data. We also see an additional way to improve the quality of the IDBR through increased scrutiny of the Register. Regionally-based statisticians are likely to have better knowledge of local industries in a way that is impossible for the ONS – again this issue is pursued in Chapter 10. A further option that the ONS has raised is whether the employment stage of the ABI might be combined with the ARI, to improve further coherence and quality as well as reduce the compliance cost.

**6.32** Taking a step back, the natural question is whether some companies, in particular large companies, ought to be asked to report some accounting information on a local-unit basis. These issues are addressed in the next section on local apportionment.

**6.33** **Recommendation 7: The arrangements for the Annual Register Inquiry should be consolidated, and extended if necessary, in order to ensure permanently reliable estimates of employment at the local-unit level. The Northern Ireland Statistics and Research Agency (NISRA) should review local arrangements in light of changes in GB. Arrangements that allow those with local knowledge to scrutinise the Register should be put into place. Combining the ARI and the employment stage of the ABI may also offer efficiencies and additional coherence to the local-unit employment profile. The ONS should investigate the feasibility of such an initiative.**

**Local apportionment 6.34** With the quality of the IDBR established, the actual regional allocation of production of regional multiples is then dependent to a significant extent on the apportionment to regions. As discussed in Chapter 5, the present apportionment model has been recently developed, alongside the introduction of the ABI. Our impression is that it may be based on assumptions that are sounder from a theoretical perspective than the practical perspective. In particular, both users and the ONS have drawn attention to the volatility of the results from the new model. Discussion with the ONS has suggested that this volatility results from:

- a lack of time-series dimension for coefficient estimates: they only reflect the sample for the current year;
- extensive missing returns; and
- problems caused by the rotation of samples impacting in over 50 per cent of model estimates.<sup>4</sup>

As a consequence, a significant amount of processing time is devoted to investigating model-based volatility in component series, rather than addressing real economic movements, as well as leading to the perceived requirement to smooth the latest regional estimates of GVA.

<sup>4</sup> *Rotation of smaller firms is used to spread compliance burden (see Chapter 11).*

**6.35** It is clear that the methodology of the apportionment model needs to be revisited, if possible in the light of a study of the behaviour of actual regional multiples relative to their local competitors and of firms' own profiling techniques. This should check key assumptions of the model, including the use of only one year's sample and how well evidence from small firms can indicate the behaviour of large firms.

**6.36** As stressed, an alternative approach to modelling the allocation to regions is to ask companies directly for local-unit information. We have heard that wider local-unit reporting of economic variables may not be desirable. Nevertheless, the consultative process offers the opportunity for wider opinion, consideration of alternative techniques (such as the feasibility of special arrangements for larger companies) as well as an examination of the approaches taken in other countries.

**6.37** **Recommendation 8: The ONS should, as a matter of priority, review the methodology for apportioning reporting-unit returns to regions. This appears to be a significant source of volatility and uncertainty in the aggregate estimates of regional GVA. Such a review should be complemented by case studies of some of the largest enterprises to indicate whether there is justification in the current practice of allocating the returns of large enterprises according to the observed behaviour of small firms. It should also consider whether some local-unit reporting of accounting information should be introduced.**

### PRODUCTION OF ACCOUNTS

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**Integration with National Accounts** **6.38** Organisational changes within the ONS have led to the production of Regional Accounts moving to the division that is responsible for the production of National Accounts. This is a welcome step in bringing Regional Accounts out of the shadows. Developing increased synergies between the two processes will be a longer process, but one that seems essential to the quality of regional figures:

- the detailed scrutiny of ABI data that takes place on Regional and National Accounts should be coordinated in a more effective manner;
- the emerging aggregates at regional and industrial level should offer alternative and valid perspectives on the overall totals. Statisticians from the countries, and those that we propose basing in the regions, could be involved in these discussions at an early stage with their views given appropriate weight. It is essential that the final ONS figures are endorsed by all compilers; and
- an aim for a degree of co-ordination in release practice, ideally with regional GDP released in the *Blue Book*, according to the same timetable.

Ultimately, there is a need to get away from the aggregate of regional GVA estimates always being constrained by the national total. However national GDP could only reflect changes in regional estimates when they are of a recognised high standard.

6.39 Nevertheless, it cannot be pretended that the co-ordination of the two processes will simply fall into place. There will remain significant methodological differences between the national and regional approaches. National data will remain a balancing act between the three measures of GDP via the Supply and Use process, whereas regional estimates are more likely to be ‘stand alone’ without the Supply and Use process, and only some degree of balancing possible between income and production. Furthermore, there may be methodological differences between Regional and National Accounts. In particular, it will need to be decided whether regional GVA data should be based on direct estimates of value added from the ABI or on a turnover proxy to value added. The proxy approach is how short-term indicators are constructed; the issue is also relevant to deflation technique - see below.

6.40 **Recommendation 9: Over the longer term, the ONS should identify and take the necessary steps to integrate Regional Accounts into the National Accounts framework as fully as possible and to increase the quality of Regional Accounts data towards that of the National Accounts. Statisticians in regions and countries should be involved in production of the figures for their areas:**

- there should be adequate arrangements to incorporate locally-obtained information from this process into national totals;
- all relevant institutions should approve the quality of the final estimates; and
- existing mechanisms for resolving differences should be developed to meet the requirements of all interested parties.

**This recommendation should be subject to the processes improving both national and regional figures; national totals should remain the responsibility of the National Statistician.**

#### Deflating the figures

6.41 A key motivator for this Review was the lack of availability of GVA in volume terms, which are required for the regional PSA target. It is worth noting up front that few countries produce regional volume estimates, and we know of only Canada that has developed *direct* measures of regional price change.

6.42 The production-based approach to GVA allows deflation by industry according to producer- and service-price indices, applied either to turnover or to value added using double-deflation techniques. If detailed deflation were required, there would not only be this choice between approaches, but also issues related to the deflation of non-ABI areas. It is of note that a production-based approach to deflation of regional figures would be different to the expenditure-based techniques used at present for national annual figures outlined in Chapter 5, although re-engineering would bring the two closer together.

6.43 Furthermore, it is unclear whether comprehensive deflation techniques will be necessary for present purposes. Those few countries that deflate regional GDP figures tend to adopt partial techniques, usually based on allowing weights for deflators to vary by region but using *national* price indices for each sector. This captures relative price movements due to different sectoral mixes in each region, but not regional differences in price movements for each sector. As discussed in Chapter 5, the techniques adopted so far by the DTI and the developments at the ONS have also mimicked these approaches.

6.44 Whether or not the use of national sectoral price indices for regional deflation is acceptable does not appear to have been tested. There is evidence that price levels differ (see Chapter 7), but it is not clear to what extent price changes differ between regions. The Review has heard anecdotes that price changes of production goods may not vary regionally, but services such as accountancy or lawyers may do so.<sup>5</sup> However, there seems to be no authoritative studies on the issue. It should also be emphasised that the measurement of service prices at a national level is still in its infancy, and any regional development may involve a significant increase in complexity that must rely on adequate national data first. Therefore the area most likely to require a regional dimension is unfortunately the one least developed for national data.

6.45 **Recommendation 10: The ONS should conduct a study of whether the rates of change of producer and corporate service prices vary regionally, and if they do, to follow up with a feasibility study of whether price data currently provided centrally can be provided locally.**

**Income estimates** 6.46 At the most obvious level, methods for estimating income are already in place and many involve no additional sampling burden beyond what is already in place for other purposes. As Inland Revenue sources come back on stream, there should be an improvement in the quality of these measures. At the aggregate level, the measures will provide some sort of balancing information for regional GVA (at current prices). Furthermore, measurement of income components, in particular wages and salaries, remain crucial for measures of regional welfare. Similarly, these measures should also provide reasonably sound information at NUTS 2 and NUTS 3 levels. Nevertheless, we are also concerned that the ONS takes this opportunity to address any shortcomings with existing data sources, particularly towards the fuller estimation of gross household disposable income.

6.47 **Recommendation 11: There will continue to be a demand for GVA according to the income approach, and for a measure of gross household disposable income. The ONS should put together proposals for any necessary improvements to existing methods and sources.**

**Expenditure components** 6.48 Developing regional expenditure data is a more complicated issue. It is not felt that comprehensive measurement of trade flows between regions is at this stage sensible. However, a number of initiatives are underway that have a significant bearing on a partial coverage of this sector, and others should be added in order to obtain annual estimates of household demand, gross fixed capital formation (GFCF) and government final consumption (GFC) by region:

- as noted, the ONS last produced regional estimates of Individual Consumer Expenditure in 2001. As at the national level, an improvement of quality will primarily rely on extensions to the Expenditure and Food Survey (EFS) as well as relevant regionalisation of other sources;
- estimates of GFCF by region were released in October 2003. These estimates were underpinned by ABI figures, using standard apportionment procedures. While these estimates provided users with a useful guide, the estimation of GFCF may be one of the areas where existing apportionment methods do not go far enough. Capital projects are by their nature not likely to be evenly spread in the way that apportionment models require;
- as noted in Chapter 5, methods of estimating government expenditure by region have received extensive attention this year under the McLean Report (see Box 5.5). Implementation of the recommendations (which partly rests with the ONS) following from this review should lead to improved ONS estimates of regional GFC expenditure according to the GDP expenditure framework.

<sup>5</sup> The latest ONS analysis of price level (Ball and Fenwick (2003)) shows greater variation in service price levels than in goods price levels; however, we are not aware of comparable evidence on price changes.

6.49 As discussed in Chapters 4 and 5, the issues surrounding measurement of regional government expenditure are wider than those relating to National or Regional Accounts. There are questions relevant to the accountability of government more generally, which may require action by all Government departments. However, the National Accounts perspective provides a clear way forward according to the ‘in’ approach, with an associated requirement for more detailed regional information on this definition (for example functional data according to capital and current definitions) which we understand are already being pursued by HM Treasury.

6.50 Each of these three measures offers the expenditure side of an income and capital account for the household, corporate and government sectors. As noted in Chapter 5, the ONS has already made tentative steps with its release of experimental Government Accounts. Policy makes no clear demand for figures for other sectors at present, but there may be a requirement in the future.

6.51 Lastly, in line with national GDP figures, these demand measures would be needed in both current price and volume terms.

6.52 **Recommendation 12: There is a requirement for estimates of individual components of the expenditure measure of GDP. The ONS should put together proposals for the following:**

- extending the sample of the Expenditure and Food Survey, perhaps once a year as part of the developing Continuous Population Survey, in order to provide a more robust annual regional breakdown of Household Final Consumption Expenditure;
- the development of fuller regional measures of Gross Fixed Capital Formation that look beyond apportionment techniques;
- the production of an annual National Accounts measure of Government Final Consumption Expenditure that takes into account the recommendations in Professor McLean’s Report and subsequently revisits the fuller government accounts exercise; and
- potential deflation techniques for each measure.

**Sub-regional data** 6.53 We do not propose extending survey sources to aim at accuracy at NUTS 2 and NUTS 3 levels. Nevertheless, the changes discussed above will no doubt serve to improve accuracy at these levels of dis-aggregations, and furthermore, will extend the range of data sources and collected variables that can be brought to bear on the production of these figures. In particular, the production approach to sub-regional GVA might be able to be more rigorously applied.

6.54 **Recommendation 13: We consider that initiatives should be aimed at the improvement of regional economic accounts data at the NUTS 1 level. These should improve the quality of sub-regional data, but we make no further recommendations at this stage on sub-regional data. However, we would welcome views on this issue.**

**Advance indicator of regional GVA** 6.55 Our recommended production-based methodology for regional GVA will lead to a routine annual timetable according to, or at least close to, that of the *Blue Book*. At present, this implies regional GVA release with a lag of some 18-21 months. As discussed at the start of Chapter 5, while indicators can be used in the meantime for estimation of concurrent trends, there is likely to be a need for a more timely and provisional estimate of the annual figure.

6.56 The obvious method of making such an estimate is via the existing short-term surveys described in Chapter 5. These surveys already underpin estimates of Scottish GVA and estimates for certain sectors in Wales; similar systems are also in place for Northern Ireland estimates of manufacturing and services output. In addition, the surveys are aimed at volume measures. Preliminary discussions with the ONS have suggested that survey sample sizes could be boosted in order to provide respectable annual figures, which could be further informed by experience with Scottish and Welsh short-term estimates. The analysis might be conducted so that preliminary (t-1) figures could be included in the *Blue Book* alongside the more firmly grounded ABI-based regional figures for (t-2). As noted above, we do not suggest going as far as aiming at quarterly figures.

6.57 **Recommendation 14: There should be a measure of annual regional GVA growth, based on short-term inquiries, that is more timely than the ABI or income-based approaches. The ONS should put together proposals involving discussion of any need for current short-period surveys to be boosted.**

### Timescale

**Regional accounts** 6.58 This First Report has focused on changes to the method for production of Regional Accounts over the medium term. The demand for Regional Accounts data outlined in the previous chapters is a demand for data now. The RDAs and devolved administrations are in place and are already involved in local policymaking; and while the regional PSA target has a fairly long time horizon, it is clearly important that systems need to be in place to assess performance accurately.

6.59 At first sight, our proposals may necessarily involve a long lead-time. However, it is a great advantage that in all cases we are recommending changes only to existing surveys and processes rather than instigating new ones (which would take rather longer to implement). For the ABI-based recommendations it is crucial that the debate about industry requirements and wider quality review should be pursued quickly. Nevertheless, fuller results based on extended surveys are likely to be some way down the line. In terms of sequencing it may, therefore, be sensible to give priority to the production of the measure based on short-term inquiries, which has the additional advantage of a volume dimension. We, therefore, suggest that the ONS starts the process of developing these techniques and boosting the relevant surveys as soon as possible.

6.60 **Recommendation 15: In terms of timing, preparatory work on extending samples for both the ABI and short-term inquiry-based measures should begin as soon as possible. Changes for the short-term measures should be agreed faster and should be put in place first.**

# 7

## Other macroeconomic regional data

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7.1 Issues on ‘other’ macroeconomic statistics are perhaps less involved and the difficulties less extensive than for Regional Accounts. Many of the figures already incorporate a significant regional dimension, while, in other areas, development programmes based on a number of initiatives and dedicated internal and external reviews will lead to improvements at the national and regional level. Some of these developments are already coming on-stream.

7.2 However, there are clear distinctions between the four areas of regional macroeconomic statistics explored in this section:

- labour market quantities have high demand and high supply, albeit with concerns about quality mainly at the sub-regional level;
- population has high demand and high supply, although with some widely-recognised concerns;
- earnings and wages data seem to have relatively low demand and a largely adequate supply; and
- prices data have a less-clear demand, at present planned to be met by an *ad hoc* supply.

7.3 In some cases the nature of the Review’s recommendations and conclusions are to encourage existing developments, and that conclusions of reviews and other plans should be turned into work programmes, prioritised and implemented. The discussion below is indicative of priorities from a regional perspective and is aimed at informing the overall prioritisation process.

### LABOUR MARKET

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7.4 The ONS provides a rich range of data on the UK labour market, based around surveys of both employees and employers. Both sources provide regional data that are reasonably well regarded, although there are some issues that need to be addressed within the scope of existing systems. In addition, the regional estimates are timely and can be used as conjunctural indicators of the economic situation in a region.

#### The Labour Force Survey

7.5 At the centre of the ONS’s presentation of labour market statistics is the Labour Force Survey (LFS), first conducted in 1973 under EU Regulation. Since Spring 1992, the LFS has been a quarterly survey for Great Britain, with a separate but parallel quarterly survey run in Northern Ireland from Winter 1994-95. From 1998, the survey has been publishing results each month for a ‘rolling quarter’, i.e. for the latest three-month period.

**LFS sample** 7.6 The LFS sample currently consists of about 55,000 responding households in Great Britain every quarter, including around 100,000 people aged 16 and over (about 0.2 per cent of the GB population of that age). A sample of approximately 2,000 responding households in Northern Ireland is added to this (around 0.3 per cent of the population), so that the overall statistics refer to the United Kingdom. A systematic sample is drawn from the GB postcode address file (with some supplements, and from the NI ‘Valuation List’) in a manner that effectively gives a regional stratification. The sample design ensures that the accuracy of both levels and rates of growth is taken into account. Response rates are around 75 per cent to 80 per cent, and the fieldwork is believed to be of generally high quality. The ONS estimates standard errors for most of the key statistics derived from the survey and gives them prominence in monthly releases.

7.7 The LFS provides detailed information on the labour market, from headline figures such as total employment, unemployment and inactivity (measured as headcounts and as ratios of the relevant population), through to various characteristics of the labour force such as the gender/age profiles, full-time/part-time split, industrial breakdowns, hours of work and reasons for inactivity.<sup>1</sup> Each month, estimates for key series are released for the UK and for each of the nine English regions (NUTS 1) and countries, with a similar level of detail at both the national and regional level. From August 2003, key annual figures have also been published for unitary and local authorities. The results are available in various publications but also through the NOMIS electronic system (see Chapter 8). Most users appear content with the figures at NUTS 1 level, but there are concerns from time to time about movements in the regional data, often resulting from the relatively larger sampling fluctuations at that level (although see below for discussion of employer and household surveys). For example, recent movements in the Welsh employment measure from the LFS have been argued to be surprising compared with movements in other indicators; the ONS is investigating the causes.

**Other labour market information** 7.8 The LFS data have, however, generally been one element of a wider set of statistics related to the labour market which the ONS publishes each month. In particular, there are quarterly employer-based estimates of employment (‘workforce jobs’ – discussed below) and administrative-sourced estimates of unemployment (the claimant count – also discussed below). The change to the rolling quarterly presentation of LFS estimates coincided with a desire to position unemployment estimates on the International Labour Office (ILO) definition as the headline statistics rather than the monthly claimant count (see below). However, while the LFS estimates are updated each month, the sample design remains such that data for individual months cannot be presented reliably. The position remains a compromise between a correct desire to emphasise the LFS and the need for a picture of the labour market that is updated each month.

7.9 UK labour market assessment is also aided by the claimant count. This monthly measure of unemployment is based on the number of unemployment benefit claimants, obtained via the Department for Work and Pensions (DWP) administrative records. For interpretation of the level of unemployment, users are steered towards internationally-recognised LFS-based measures because the claimant count has been distorted by changes to eligibility criteria for benefits, and because the claimant count does not cover all the unemployed, only those claiming benefit. However, claimant count figures provide users with a timely measure of current trends in the labour market and a very detailed regional breakdown (because it is based on administrative records rather than a statistical sample). The claimant count is also available according to a number of geographical classifications (e.g. travel to work areas, counties, local authorities, constituencies, as well as NUTS).

<sup>1</sup> Given that it is a household survey, results are according to residence definitions (although information is also collected on the address of respondents’ employers).

## Regional enhancements to the LFS

**7.10** As noted above, the LFS provides reasonably reliable estimates of labour market statistics at NUTS 1 level. Since the start of the devolution process there has been increasing emphasis on labour market statistics at a sub-regional level. This has led to a series of arrangements to ‘boost’ the LFS by increasing the sample size, in order to provide reliable results at local education authority level for *calendar year* data. Boosts for England (funded jointly by DWP and DfES), for Wales and for Scotland are already in place. A further sample enhancement for England, funded by the Neighbourhood Statistics budget, is also about to come on-stream. The Northern Ireland sample is already proportionately larger and no further boosting is carried out (although NISRA place more emphasis on industry-based estimates).

**The Annual Population Survey** **7.11** The additional annual sampling and survey processes that follow from these arrangements are now known as the ‘Annual Population Survey’ (APS). This also forms the core of the ONS developments towards a ‘Continuous Population Survey’ (CPS, see Box 7.1). Just as results from the LFS at national level are produced every month based on three-month rolling averages, the APS can, potentially, be used to produce regional and local area labour market estimates every quarter based on rolling 12-month periods. This would be valuable for keeping local area estimates, based on the boosted LFS samples, more up-to-date than they are at present.

### Box 7.1: Continuous Population Survey

The Continuous Population Survey is an ONS development that should lead to better integrated and more robust household statistics. The LFS and associated regional enhancements, APS, General Household Survey (GHS), Expenditure and Food Survey (EFS) and Omnibus Survey will all be based on integrated sampling and data collection. It will be developed and tested over 2003–2006, with current plans to start fieldwork in 2007.

The survey will collect, once only, common ‘classifier’ variables that were collected in each of the previous surveys (such as age, sex, education) as a ‘whole-sample module’. ‘Part modules’ will address variables specific to each of the combined surveys. The aggregate sample size will allow the ONS to provide more frequent estimates for smaller areas than at present, and more precise annual estimates than the current national sources. The survey is also designed to be compatible with continued delivery of all current outputs of these surveys, including those that are not annual estimates. It will also deliver an enhanced analytical capacity between variables collected in the core module and each of the part modules.

The ONS-led surveys comprise the proposed stage one of the CPS. However, the design will allow for the addition of other continuous surveys (e.g. The Inland Revenue Family Resources Survey, ODPM Survey of English Housing) at a later stage, if their sponsors choose.

**Centralisation of arrangements** **7.12** The LFS boosts are essential in the light of user demands addressed in Chapters 2 to 4. However, the Review has two specific concerns. In the first place, the funding arrangements are rather *ad hoc*. Given the importance of these data, not only to regional policy but also national policy concerned with identifying issues at a local level, we argue that there should be a centralisation of arrangements within ONS in order to guarantee resources into the foreseeable future. In the second place, the boosts to Scottish and Welsh samples are significantly higher in per head terms than the overall boost to the English sample. It would be a matter of concern to English policymakers at the centre and in the regions if the boosting arrangements were not to lead to adequate results at LA level. Prior to addressing funding, the ONS should therefore review whether the existing arrangements for England are leading to detailed geographical data of an adequate quality and make further changes as necessary.

7.13 **Recommendation 16:** The extension of existing arrangements, via the introduction of the Annual Population Survey (APS), to boost the Labour Force Survey have led to more reliable figures at local authority level. And the publication of quarterly APS results on the basis of rolling 12-month periods would improve the timeliness of local-area labour market estimates. However, the funding arrangements should be centralised within the ONS in order to put this beneficial development on a more permanent footing. Before this, the ONS should review whether the existing arrangements are leading to detailed geographical data of adequate quality, given the differing allocation of resource between countries.

### Employer-based sources and industry analysis

7.14 LFS data is based on surveys of households; alternative estimates of employment are obtained through approaching firms directly. The ONS does this in two ways that partially overlap: ‘workforce jobs’ estimates and the ABI.

#### Workforce jobs

7.15 The ABI employment numbers are obtained as part of the annual ABI process discussed in Chapter 6; results are not published independently, but are available from the NOMIS system. ‘Workforce jobs’ is a quarterly measure of employment, released as part of the monthly labour market statistics package. The data are built up from a number of sources rather than a single survey. The main sources are the two key short-term turnover surveys that feed into monthly output estimation: the ‘Monthly Production Inquiry’ (MPI) and the ‘Monthly Inquiry into the Distribution and Service Sectors’ (MIDSS), although the labour market component of this survey is only run each quarter. This information is supplemented by figures for public sector employment as well as using some figures directly from the Labour Force Survey (e.g. for the self-employed). Ultimately, the annual employment estimates from the ABI are used to benchmark the quarterly figures, but ABI figures are also sometimes projected forward (often in areas where administrative data is late, for example on health).<sup>2</sup>

7.16 There are a number of issues surrounding the consequent dual sources of employment data. In particular, the headline messages from each series can be, and have been, different. This can be in part due to the different nature of each of the surveys: household surveys count people employed, industrial surveys count the number of jobs. Therefore, if an individual has two jobs, this will be recorded as two jobs from the employer-based perspective, but as one ‘employed person’ from the LFS perspective.

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<sup>2</sup> Northern Ireland processes here are different, with estimates based on a biennial census of employment and a quarterly employment survey. The ABI is not used.

**Divergence between sources** 7.17 However, often the divergence between the sources goes beyond definitional issues. At the aggregate level there are concerns with both the levels of the estimates and the associated rates of growth:

- the Bank of England has emphasised diverging growth between the workforce jobs and LFS measures of employment;
- annual benchmarking of workforce jobs data onto the ABI suggests a downward bias in early estimates of workforce jobs figures, for which an adjustment might be made; and
- the latest benchmarking of the LFS onto the Census population estimates has led to LFS-based employment estimates that are significantly below the workforce jobs/ABI benchmark data. These differences are accentuated at the regional level, with particular concern about the estimates of employment in London, where the ABI records nearly 600,000 jobs more than the LFS for December 2000 (GLA Economics (2003)).

Given the important role for the ABI in the construction of annual accounts, and its potentially crucial role in the construction of the regional accounts, these divergences between the ABI and LFS measures should be resolved in a satisfactory manner. All surveys concerned need to be given a clean bill of health, or action needs to be taken to ensure confidence in these crucial surveys. The ONS is currently investigating these differences, although we emphasise that the divergence at regional level also needs to be addressed specifically with input from relevant users.<sup>3</sup>

**Industry analysis** 7.18 However, presentational disadvantages are partly offset by advantages gained from having two sources providing a permanent, continuous cross check on results. The employer-based sources also offer analysis of employment by industry. Quarterly figures are broken down according to nine main industrial groupings. ABI-based employment data offers further industrial dis-aggregation of employment at regional level via NOMIS. The improvements to the ABI and IDBR discussed in the previous Chapter should lead to a parallel improvement in the detail of regional employment by industry. One particular concern is the quality of public sector employment information; this might be pursued via the extensions to the ABI addressed in Chapter 6.

7.19 Lastly, the industrial classification of LFS data itself has long been regarded as of a poor quality. The basic difficulty is the ability of individual households to know the precise industrial classification of the firm that they work in. Industrial classification of a business is based on the dominant product of that business; an individual working in part of a large firm may not be able to identify the nature of the business according to this national-level classification. As a consequence, the ONS does not publish the LFS industry estimates. However, there is now a programme underway to improve the estimates of industry detail on the Labour Force Survey. This involves an initiative to enable interviewees to identify their actual place of work according to the ONS' Inter-Departmental Business Register.

7.20 **Recommendation 17: Divergences between LFS and ABI estimates of employment continue to cause concern to users. Ongoing investigations concerning discrepancies between the 'workforce jobs', ABI- and LFS-based estimates of employment at national and regional levels should be pursued as a matter of urgency. In the longer term, we hope that the project to improve the industry detail on the LFS should help to resolve such discrepancies.**

<sup>3</sup> *The National Statistics Quality Review of 'Employment and Jobs Statistics'; expected to report in Spring 2004.*

## Hours and vacancies

**Hours** 7.21 The LFS is also the main source for hours worked data. There are two main measures: ‘actual’ hours worked, which takes account of sickness and leave, and ‘usual’ hours worked. Both usual and actual hours are published in the ONS Labour Market First Release. Actual hours are also published by region. Usual hours by region are available from the LFS but are not currently published. The ONS argues that analysis of regional employment by usual hours would be valuable to the understanding of regional labour markets.

7.22 A supplementary source of hours data is the New Earnings Survey (NES), which can be useful for explaining special cases, and – until the LFS industry classification has been improved – is seen as a better source of industry data. The large NES sample also allows for detailed breakdowns by region, county and small areas. However, the NES tends to understate actual hours since it tends to collect contractual hours.

**Vacancies** 7.23 The ONS has recently released a new monthly series of vacancy data based on direct sampling of employers. This survey provides a more comprehensive measure of national vacancies than administrative data based on vacancies reported at Jobcentres. Following long-standing practice, the source provides a standard industrial breakdown, but not a regional breakdown (Machin (2003) looked to a future feasibility study). As with Regional Accounts, regional vacancies information would be costly, as it would involve collecting data on local sites of businesses. Similarly, apportionment-type approaches may be less relevant.

7.24 There have been specific problems with the administrative-based source due to distortions arising from the introduction of the ‘Employer Direct’ initiative. These led the ONS to suspend the production and publication of the Jobcentre data. However, the source has provided a breakdown of vacancies according to the nine English regions and countries – albeit according to the more limited coverage of the administrative data.

7.25 There are therefore two issues on regional vacancies data: first, new survey-based estimation techniques do not have a regional dimension; second, administrative-based data that does have a regional dimension is, at present, suspended.

7.26 **Recommendation 18: We suggest that the ONS should publish a regional breakdown of usual hours information and pursue the feasibility study of annual regional estimates of employer-based vacancies.**

## Productivity and unit wage costs

7.27 At present, the ONS publishes current price estimates of regional productivity. These and associated estimates of unit wage costs will no doubt gain in prominence as the measurement of the regional dimension of both output and employment are improved, and, in particular, as constant price measures of regional output become available. Indeed, as discussed, some users (as well as the ONS) have recommended the use of productivity statistics rather than per head growth figures as a headline measure of regional economic performance. Furthermore, the use of the ABI for production-based annual regional GVA estimates offers a future consistency between employment and output figures that should benefit annual estimates of regional productivity. Annual estimates of productivity will also be able to be combined with NES figures to calculate unit wage costs for regions (see below). However, any apportionment of output on the basis of regional employment will mean that care has to be taken when interpreting regional productivity estimates, as the apportionment methodology involves implicit productivity assumptions.

## EARNINGS

7.28 We have not heard strong arguments for the production of high-frequency earnings data by region. The main use of such data is to assess current labour market pressures, and these assessments are usually carried out at the national level. However, there is considerable interest in other aspects of regional earnings performance, for example from the perspective of competitiveness, comparisons between public and private wages, industrial and gender analyses etc. As with other areas of labour market statistics, robust, detailed and timely structural information on regional earnings is already available through the detailed annual New Earnings Survey (NES).

### The New Earnings Survey

7.29 The NES is mainly based on a one per cent sample of employees from ‘Pay As You Earn’ (PAYE) income tax data statistics. As with compensation of employees, the sample is drawn from the National Insurance database. Results are published in an annual publication that shows earnings statistics across an extensive range of population characteristics. While some growth figures are published, the publication is primarily focused on levels of earnings. Detailed data are also accessible through the NOMIS system. As with other areas of Labour Market Statistics, the NES has been reviewed as part of the ‘Review of Distribution and Earnings Statistics’, and a number of enhancements are being made, in particular in order to ensure that the sample is more fully representative across the whole spectrum of the earnings distribution. While the enhancements are aimed at national data, regional data will be an inevitable beneficiary. However, we stress that the increased emphasis on regional data should lead to more effort in improving the time series presentation of earnings figures. This will allow regions more direct access to a better guide to wage changes as well as levels and will also be necessary for the production of unit wage cost figures.

7.30 **Recommendation 19: We do not propose the construction of a monthly regional measure of wage/earnings pressures. The New Earnings Survey already provides detailed regional earnings information that wider initiatives should improve, although we stress that the presentation should recognise the increasing importance of the time series dimension of the results.**

### The distribution of income and wealth

7.31 NES data already permit detailed analysis of the distribution of earnings in each region. However, fuller studies of the income distribution need to incorporate other sources of income and associated deductions, such as taxes. At the national level, the Labour Force Survey (LFS), Family Resources Survey (FRS), Expenditure and Food Survey (EFS), British Household Panel Survey (BHPS) and General Household Survey (GHS) all provide information on household earnings and income (see also Box 7.1). The FRS is the main source for analysis of low-incomes. The annual publication, *Households Below Average Income* contains a chapter detailing how income is distributed across the regions and countries. (But users are cautioned about the size of the sampling errors at this level of dis-aggregation and the statistics are presented according to six English regions rather than the standard nine.) The EFS is the main source for the production of figures on the income distribution for the UK as a whole (in particular gini coefficients). Here, the sample size is not large enough to produce income distribution statistics by region.

7.32 We have not heard a strong demand at this stage for a regionalisation of these measures and do not propose any changes to arrangements. However, an expansion of the EFS will lead to the possibility of regional income distribution analysis in the future.

### POPULATION

7.33 Accurate and detailed population data underpin a number of economic statistics and statistical analyses at both the national and regional level, as well as playing a crucial role in the allocation of funding at the local level. As with GVA data, there have been a number of widely recognised user concerns, leading to low public confidence in the data. As a consequence, a number of initiatives are already underway.

#### The importance of population data for economic statistics

7.34 From the Regional Accounts perspective, population estimates are used to present GVA figures per head of population. As discussed in the previous chapter and in Chapter 4, the per head figures are widely used for regional comparisons, and the regional PSA target is expressed in per head terms. From the national and regional labour market perspective, population data are used for both production and presentational purposes. In terms of production, population data are used to ‘gross up’ the LFS sample to represent the UK population as a whole. From presentational and analytical perspectives, many key figures are presented both as counts and shares of the relevant populations, e.g. the headline measure of unemployment is presented as a share of working-age population (from age 16 to 59 for females and 64 for males). Such analyses are important in understanding to what extent labour market developments are due to demographic change rather than economic change. Furthermore, from a theoretical perspective, population migration patterns and trends may be important in the context of studies of regional and national labour-market flexibility and associated implications for inflationary pressures.

#### Population estimates

7.35 The benchmark source for population data is of course the Census. In the ‘inter-censal’ period, population estimates are updated via records of births and deaths and estimates of migration. Following a number of concerns about both the benchmark source and the migration estimates, population measurement has been under a great deal of scrutiny. The National Statistician initiated a review of population statistics that resulted in the report *A Demographic Statistics Service for the 21st Century* (ONS (2003a)). In October 2003, the ONS released a discussion paper, ‘Proposals for an Integrated Population Statistics System’, that built on this review, setting out a broad ‘vision’ and inviting comments.

#### Migration

7.36 The main specific regional concern follows from the most prominent concern with national data – estimation of migration. The ONS Report explains the problem: “Particular issues have emerged from this comparison such as the limitations of the data used to estimate international and internal migration data. The survey data on international migration is not sufficiently robust to provide direct estimates below regional level and often fails to pick up the first substantive residence of migrants, if they move on quickly from their first destination or settle somewhere different from their intended location on arrival. There is no direct measure of internal migration – NHS patient registers provide the best proxy but are known to miss some young men who are less likely to register with a GP when or after they move.” (ONS (2003a)).

7.37 For regional data, there are issues related to both international and internal migration. International migration has been discussed further as part of the ONS Quality Review series (ONS (2003e)). This review sets out the scale of the issue, observing that net international migration to the UK has increased from close to zero in 1992 to immigrants exceeding emigrants by 153,400 in 2002 when it also contributed to about three quarters of UK population growth. These increases were not anticipated and could only be estimated retrospectively. The regional allocation of the changes was subject to the same problems but also to additional uncertainties. The Quality Review specifically addresses the ways to improve this regional allocation. Similarly regional population has also been strongly influenced by patterns of intra-UK migration. Significant shifts in population, in particular from North to South over the 1990s, may not have adequately been reflected in the NHS-based sources.

7.38 **Recommendation 20: Resolution of concerns with population statistics is of crucial importance from the perspective of regional and local policymakers. We welcome the programme of work set out in the Quality Review of ‘International Migration Statistics’, and recommend further that the ONS develops its programme of research in order to establish how intra-UK migration can also be estimated more accurately.**

## PRICES

7.39 From the perspective of this Review, regional price estimation has been regarded as potentially concerning three main issues:

- deflation of current price GVA measures;
- measurement of consumer price *change*; and
- relative price *levels* facing consumers.

As discussed in Chapter 4, the clearest policy demands are for deflators of regional GVA for the regional PSA target and for relative price levels to aid public sector pay negotiation. There is no clear policy demand for regional inflation rates at this stage (although the regular production of statistics on regional price levels could lead to the availability of *implicit* estimates of regional inflation rates).

7.40 Recommendations with respect to deflation have been set out in Chapter 6; this section is therefore concerned exclusively with measurement of the price level facing consumers. The discussion is not extensive because the ONS has already published methodological work following the specific HM Treasury request for some estimates to be available for Pay Review Bodies at the end of 2003 (see below).

7.41 However, as noted in Chapter 4, others have suggested an approach based on regional *pay* differentials. This section pursues methodology according to the specific HM Treasury requirement; the alternative labour market approach has the advantage of being market-based and, in principle, taking all relevant factors into account.

### Purchasing Power Parity

7.42 Measurement of relative price levels is usually addressed via estimates of *Purchasing Power Parity* (PPP). PPP estimates are widely used in international comparisons of GDP, since comparisons at market exchange rates are widely though to be misleading. The construction of PPP figures has been primarily an international concern. National Statistics Institutes have tended to contribute to international programmes at both EU and OECD level, and these organisations then produce international PPP data. Figures are then used to underpin some published comparisons of national GDP, as well as the EU-wide comparisons of regional GDP that underpin the allocation of Structural Funds.

7.43 The national contribution to such surveys tends to involve the pricing of a basket of comparable and representative, internationally-specified, consumer goods and services. In the UK the work has tended to be carried out as a stand-alone exercise, because price level figures do not fall out of RPI surveys which are designed to measure price change and, as a consequence, do not require the tight definitions of commodities that PPP surveys require (for example, brand and technical specification of a washing machine). The prices are then compared with equivalent prices in other countries in order to obtain measures of overall relative prices (with appropriate weights). Prices used should reflect national average prices, but in practice most EU countries restrict price collection to a single location – usually the capital. Where this is the case, routine price collection is supplemented by occasional surveys to look at regional price level differences relative to the capital.

7.44 The ONS (Fenwick and O’Donoghue (2003)) has proposed that the data underpinning the most recent of these national price surveys provide a way forward, in the short term, to address the specific requirement of price-level measures for within the UK, i.e. for UK regions.

### Regional price variation

7.45 The last time the ONS carried out a survey of regional price levels was in 2000, with results released in January 2002 (see Baran and O’Donoghue (2002)). The article included an aggregate measure of the difference between regional prices (NUTS 1) and a national average. Data were based partly on the RPI prices database together with a survey conducted to produce correction coefficients for purchasing power parities, with additional input from a variety of other *ad hoc* sources.<sup>4</sup> The methodology adopted was not comprehensive, involving an incomplete coverage and some assumptions of price invariance across the country that may or may not be valid. Furthermore, the measure did not take an explicitly cost-of-living approach, because the methodology implicitly assumed that the consumption of goods and services was the same in each region (i.e. a national basket with national weights). The article made no claim that the measure was definitive, cautioning that “[t]he design of the survey does not fully allow for an analysis of price level differences which may exist within regions” and also that “[d]ifferences in price levels of a few decimal points between regions are unlikely to be significant”.

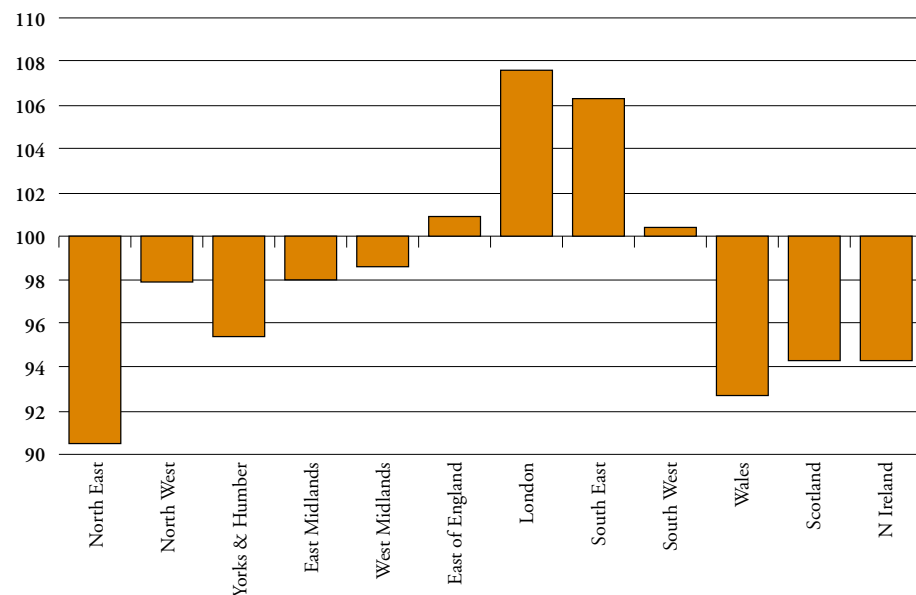
<sup>4</sup> Prices were drawn from the RPI database where items were sufficiently well defined to ensure like-for-like comparisons (such as a one litre carton of semi-skimmed milk). In general, this approach covered mainly food and tobacco products and a limited number of services. Prices for most other goods were obtained from the PPP survey undertaken during October and November 2000 and covering London and locations chosen from across all regions of the UK (about 50,000 prices were collected, covering around 380 items). An example of the use of *ad hoc* sources is the use of rent estimates from the Family Resources Survey.

## Way forward

7.46 To meet the specific demand for price levels data for the UK regions and countries by Autumn 2003 and 2004, the ONS proposed a two-stage approach (the first of which has been completed):

- a partial update of the 2000 exercise, extending the coverage of goods and services and introducing new methodologies in order to obtain a fuller and sounder measure. In particular the exercise takes into account some measure of the variations in the cost of owner-occupier housing. The methodology also uses a weighting structure that reflects the different patterns of consumption in different regions (the new estimates are shown on Chart 7.1); and<sup>5</sup>
- repeating the local price collection survey in May/June 2004, (including a wider sampling of locations within regions) as well as applying and updating the improved methodology used for the 2003 exercise.

**Chart 7.1: Average price in each region relative to the national average in 2003, UK=100**



Source: Ball and Fenwick (2003).

7.47 We have heard from users that the figures already released for 2000 were regarded as a reasonable guide to the price variation across the UK. The omission of owner-occupied housing was, however, quite naturally regarded as a serious concern. Both stages of the process therefore are sensible and should lead to improvements in overall validity, if not accuracy. On the latter, the ONS cautions that the error margin associated with the figures published in Autumn 2003 might be larger than the basic 2000 figures because the survey results are more out of date. While no statements are made about the accuracy of the figures to be published in Autumn 2004, a basic requirement must be that there is an improvement – although we are content that accuracy to the nearest decimal point is unnecessary.

<sup>5</sup> The ONS refer to this as reflecting 'regional baskets'. This terminology is a little misleading for it suggests that the actual goods priced in each region may be allowed to vary – which is not the case.

7.48 From a methodological perspective, we support the extension to regional weights. For instance, people in London and the South East spend more on transport. The technique is valid in the context of the demand for this data to inform the pay review bodies, which implies a cost of living perspective (although we appreciate that the figures being produced by the ONS are not strictly speaking cost-of-living indices). We also note that any extensions to the EFS would benefit the estimation of weights, which currently have to be based on a rolling three-year average given the present volatility at the regional level (although a three-year average is not likely to be a substantial problem because, in general, there is not likely to be significant variation in year to year purchases).

7.49 The ONS' discussions have not pursued whether methods should go beyond regional weights to actually pricing different goods in different regions (i.e. genuine regional baskets). However, it seems plausible that the additional methodological complications and costs introduced by this approach would be likely to outweigh any gain.

7.50 Looking into the future, it may not be necessary for the ONS to carry out dedicated surveys each year. Annual updates could be achieved through the partial updating of figures, as now published for 2003 (see Ball and Fenwick (2003)).

7.51 The ONS paper also discusses longer-term issues, in particular coherence with the existing RPI system, as part of a wider regional price change and level system. As noted at the start, we have not heard significant demand for regional price change data. In consequence, we do not consider that the ONS should integrate systems for regional price levels with national systems for price change to any greater extent than what is convenient and sensible for regional price level comparisons. This will obviously mean that, in the future, price change and price level figures may not reconcile, but such reconcilability could only be achieved at disproportionate cost in the light of user demand. (Although the ONS could constrain successive years regional price level comparisons to the UK RPI inflation rate.)

7.52 **Recommendation 21: We support the ONS' existing approach to 2003 and 2004 regional price level estimates. It should lead to figures fit for purpose. In future, production should be based on a cycle of surveys and updates according to a timetable that meets user demand. The ONS should integrate change and level systems as necessary, but these should be aimed at operational simplicity rather than full coherence between price levels and changes.**