



Labour market and productivity statistics

9.1 Chapter 3 identified the importance of labour market and productivity data for economic policy of various kinds. This chapter examines the measurement of labour market statistics, population and productivity data published by the ONS. The ONS already has wide-ranging programmes to improve the quality of labour market and productivity statistics. These are discussed briefly here. Overall, we welcome the improvements being made to the measurement of labour market data and productivity in recent years and support the direction in which this work is heading. However, we have a few comments and recommendations on what we think is the appropriate direction for these programmes.

LABOUR MARKET STATISTICS

9.2 Labour market statistics (LMS) are used across the spectrum of economic and social analysis. In particular, they provide key indicators: for the assessment of pressures in the economy which may affect price inflation; for input to models of future output trends; for input to policy assessments of work and welfare dependency issues; and for enhancing understanding of changes in the way we work. The regular statistics that are published include those relating to:

- the characteristics of people who have a paid job and those who do not;
- employers' demand for labour in terms of both filled jobs and job vacancies;
- enterprises' labour costs and people's earnings from employment;
- the occupations and industries in which people work;
- the characteristics of claimants of working age benefits; and
- industrial relations between employers and employees.

9.3 A number of issues with labour market data were identified during our consultation with users of statistics, including: different estimates of employment from the Labour Force Survey (LFS) and workforce jobs (WFJ), when conceptually there should be only a single measure; problems with grossing the LFS estimates; and the lack of a reliable breakdown of employment by industry. However, much of this is being dealt with as part of the ONS' ongoing work to improve the quality of LMS. The ONS has developed a strategic blueprint for the development of LMS.¹ It is made up of seven principal components:

- use of a framework for presenting LMS;
- development of more coherent and better quality employment and job statistics that resolve the present unexplained divergences between different sources;
- improved labour supply and demand data, based on administrative sources and new surveys;

¹ It is published in the *National Statistics Work Programme for 2003/04 to 2005/06*. See ONS (2003d)

- improvement of LFS estimation, coverage and timeliness;
- better quality annual local area LMS (Neighbourhood statistics);
- improved earnings sources and measures, including better quality information about the full distribution of earnings including low pay; and
- modernisation of LMS information management and statistical systems, including a re-engineered system that will produce LFS data, in line with each year's new population estimates just one month after the population data are published.

Implementation of the LMS blueprint 9.4 This LMS blueprint is to be implemented in two ways. First, statistical quality issues are to be addressed through National Statistics Quality Reviews and the implementation of their recommendations. Three major National Statistics Quality Reviews were conducted during 2002-2003: the Framework for Labour Market Statistics; the Labour Force Survey; and Distribution of Earnings Statistics. A further Review – of Employment and Jobs Statistics – recommended in the Framework Review was begun in 2003.² These Reviews set out an agenda for improving the quality and timeliness of LMS. Their findings are discussed below:

9.5 Second, an LMS re-engineering project, which began in 2002, is managing the changes to the infrastructure and statistical systems and tools. This project is a key part of the ONS's overall modernisation plans (these are discussed in Chapter 4) and aims to introduce modern information technology and high quality, standardised statistical methods to the production of LMS. The new systems should deliver greater reliability, timeliness and quality of LMS sources and outputs.

LMS Framework Quality Review

9.6 The Framework Quality Review developed a more rigorous and explicit framework for labour market statistics; and reviewed, within the context of the framework, the fitness for purpose the employment, unemployment, earnings and associated labour market statistics. The review made 28 recommendations, including on the framework for LMS, employment and jobs, sub-national labour market data and making better use of existing labour market data.³ The recommendations on employment and jobs are being addressed through the Employment and Jobs Quality Review (see below).

The supply and demand model 9.7 A key recommendation of the Framework Quality Review was that the framework for labour market statistics should be structured around a supply and demand model (known as a labour market accounting system). All the key concepts in labour market statistics can be described in relation to the supply and demand framework, which is shown in figure 9.1.

9.8 The review also recommended that a web-based manual of labour market statistics should be published to promulgate this model and that the manual should describe:

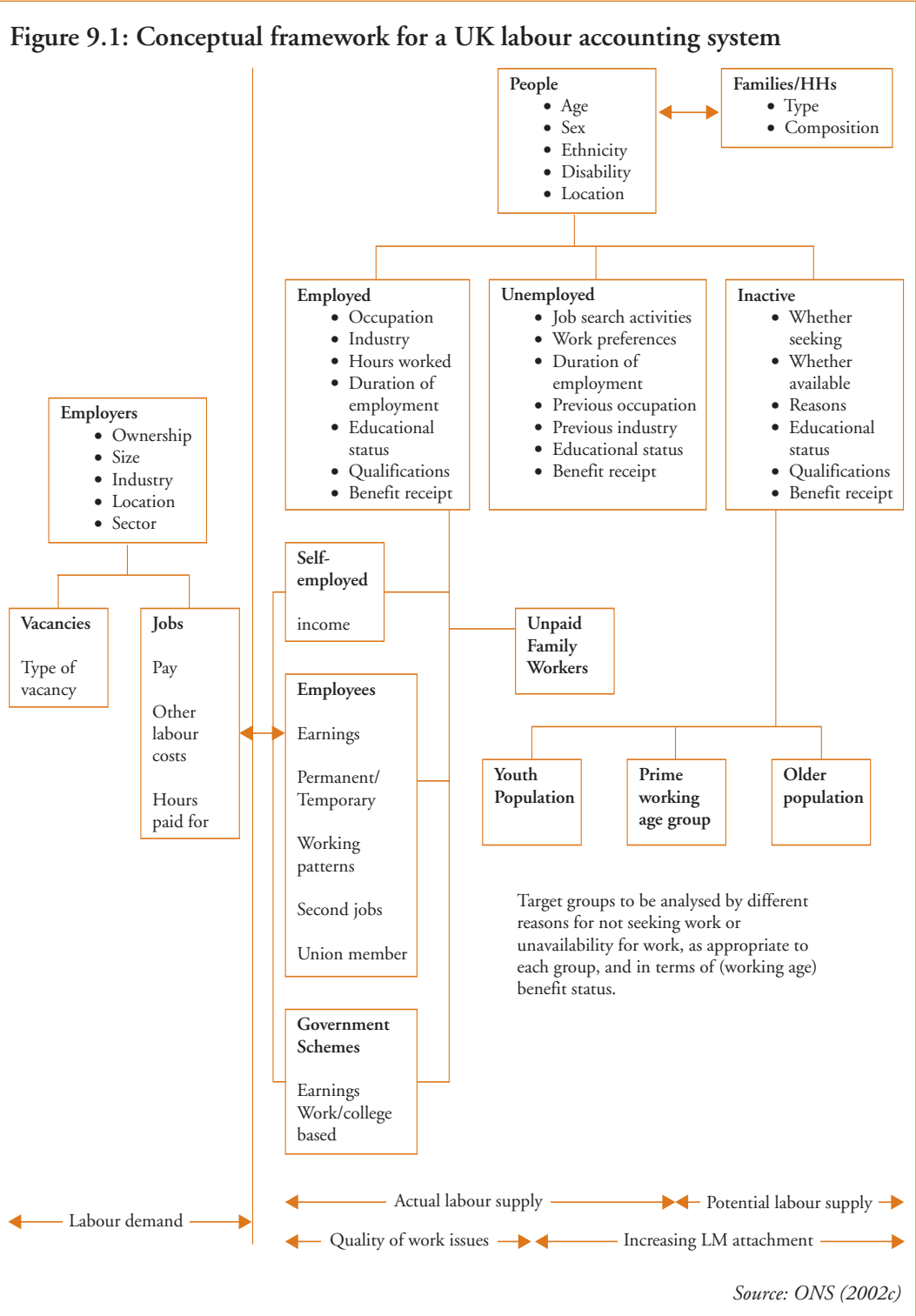
- the concepts behind labour market statistics collected and published by ONS;
- the sources used to collect the statistics;
- methods we use to collect and collate data; and

² *The emerging findings from this review were published on 12 March. See ONS (2004b).*

³ *See ONS (2002c). The ONS' plan to implement the recommendations, along with their progress against the plan to date, is available at www.statistics.gov.uk/methods_quality/quality_review/labour.asp.*

- the dissemination of statistics via web-based and paper publications, data releases, publication schedules, and analytical/methodological articles available.

The manual should also describe the pros and cons of each source, and recommend the most suitable source for data on specific concepts.⁴



⁴ An experimental version of the manual, offering only a limited amount of information centred on the concept of 'unemployment' can be found at www.statistics.gov.uk/about/methodology_by_themellabour_market/manual.asp. Following a consultation period which ended in January 2004 the manual will be developed further to include all key concepts, sources and methods.

9.9 In response to recommendations in the Review to develop statistics on labour market attachment, the ONS and the Department for Work and Pensions have examined matching LFS data with administrative benefits data.⁵ The ONS has also begun an experimental project to match benefit and LFS data for one quarter. Furthermore, in light of research on economic activity and inactivity and labour market attachment,⁶ the ONS is aiming to develop and test new questions on activity for the 2005 Labour Force Survey, which should better identify potential labour supply.

9.10 The Framework Quality Review also examined ways by which the new and improved information could be provided through the better use of existing labour market data and by improving a number of existing data sources, series and analytical work (recommendations 16-26). The ONS' response to these recommendations is to be welcomed. For example, the ONS published in August 2003, on an experimental basis, consistent historical time series in response to a recommendation that they should develop data that are consistent over time.

Vacancy data 9.11 Vacancy data is an important part of the data on demand for labour. However, problems have been experienced with vacancy data obtained from Jobcentres (which is part of the total). This series has been suspended as a *National Statistic* until the ONS can sort out the problems with it, due in part to changes in the way Jobcentres work.⁷ Partly in response to the withdrawal of this data, the ONS has developed a monthly job vacancy statistics series from its new survey of employers across the whole economy, with publication from 2003.

Labour Force Survey Quality Review

9.12 The Labour Force Survey Quality Review examined the quality of LFS data, with quality being defined as 'fitness for purpose'. Part of this involved identifying the main uses of the LFS. The Review identified "the prompt publication of key aggregate, whole economy indicators and supporting information from the LFS as the most important purpose of the survey".⁸ But the data produced serves multiple requirements – as discussed in Chapter 3. The Quality Review noted that even if the survey had not become a multi-purpose vehicle, no single design would be optimal for all aspects of its primary purpose. For example, the measurement of changes in unemployment is not optimised by the same design that would be best to measure changes in employment. The Quality Review found that most users had been ready to accept some trade-offs to enable the LFS to meet their needs.

Distribution of employment by industry 9.13 The Review produced 11 recommendations, including one to improve the quality of the LFS breakdown by industry. A key problem that had arisen for users was that the industry breakdown of employment data from the LFS showed a very different distribution from employer-based surveys. Comparability with other sources is important for the LFS data because estimates from employer-based surveys are at the heart of the National Accounts and are used for productivity estimates. The discrepancies have meant national accountants have been unable fully to utilise the LFS data. The reason for the differences is the different perception of company activities between the company head office (completing the employer survey) and the individual employee respondent (answering the LFS questionnaire).

⁵ See Barham et al (2003).

⁶ A number of articles have been published. See, for example, Barham (2003).

⁷ However, the Department for Work and pensions has continued to publish the data.

⁸ See ONS (2002b).

9.14 The ONS published a plan to address this problem in March 2003.⁹ A pilot study will take place in March 2004 to test whether interviewers can gather sufficient information from LFS respondents to match with the relevant IDBR local unit record. The results from this pilot exercise are due by April 2004. If successful it will enable the LFS to add the more accurate IDBR information about respondents' employers in relation to workplace location, industry and the public/private sector distinction. And, if successful, it will be incorporated fully into the LFS by the end of 2004. We welcome this development.

9.15 Other action from the review includes extending population coverage to include communal establishments¹⁰; changes to the questionnaire for calendar quarters (calendar years will be introduced from January 2005); and calculation and dissemination of sampling and non-sampling quality measures. In addition, methodological work will be undertaken to investigate the quality of provisional estimates of key LFS aggregates produced a month earlier than the final series using time series modelling.

The Distribution of Earnings Quality Review

9.16 This Review widened a planned triennial review of the New Earnings Survey (NES) to consider the context of earnings statistics more generally.¹¹ It considered the NES alongside earnings data from other sources, particularly the LFS; smaller surveys such as the Family Expenditure Survey also fell within the scope of the review, although it concentrated mainly on the earnings aspects of the major surveys. The Average Earnings Index, and the Monthly Wages and Salaries Survey on which it is based, were subject to their own detailed programme of reviews.

9.17 The Review concluded that there were a limited number of topics that should be addressed in order for the ONS to produce earnings data that are fully fit-for-purpose. It recommended that a body of work be undertaken in respect of six topics, which should lead to recommendations for improvements to one or more of the existing statistics on earnings. The topics concern:

- measuring low pay, hours and part-time employment;
- survey designs, outputs, frequency and respondent burden;
- data linkages and integration;
- quality and data collection;
- short-term indicators; and
- developing a framework for earnings statistics.

Measuring low pay, hours and part-time employment

9.18 The ONS is developing a new methodology for estimating the number of individuals at the bottom of the pay distribution. This work will build on data produced from a new survey of earnings, the Annual Survey of Hours and Earnings (ASHE). The results from the survey will be published in October 2004, alongside data based on the current methodology to allow comparative analyses of the impact of the methodology change.

⁹ The implementation plan is available at

www.statistics.gov.uk/methods_quality/quality_review/downloads/NSQR12_Implementation_plan_progress.doc

¹⁰ An article was published on the ONS website in March 2003 describing plans. An LFS pilot study is due to take place in March 2004 to test a system of sampling and interviewing people who live in communal establishments.

¹¹ See ONS (2002a).

9.19 The methodology and design of ASHE builds on that underpinning the NES, which is based on a sample from the Inland Revenue PAYE system. The design will incorporate additional employees not included in the NES, thus increasing the scope of the survey to encompass more of the population of employees in employment. Some of this extension in coverage will be achieved by the ONS conducting surveys supplementary to the main ASHE, for example to capture data on employees working in businesses registered for VAT only. Other developments will require the ONS to take samples from more than one extract from the PAYE system, to identify employees switching employment or coming into the sample after the initial extract is identified. This work will be introduced for the 2004 survey, in time to allow the ONS to produce improved data when the survey results for 2004 are published towards the end of the year.

Short-term indicators 9.20 The ONS has introduced a new indicator of growth in average earnings that complements those previously available. The seasonally adjusted AEI excluding bonuses and arrears allows users to look at growth in ‘basic pay’ and satisfies a defined user requirement. Work is also well underway to develop both an Average Earnings Ratio and a Labour Costs Index. The ONS expects to publish these two new series as experimental indicators in spring 2004.

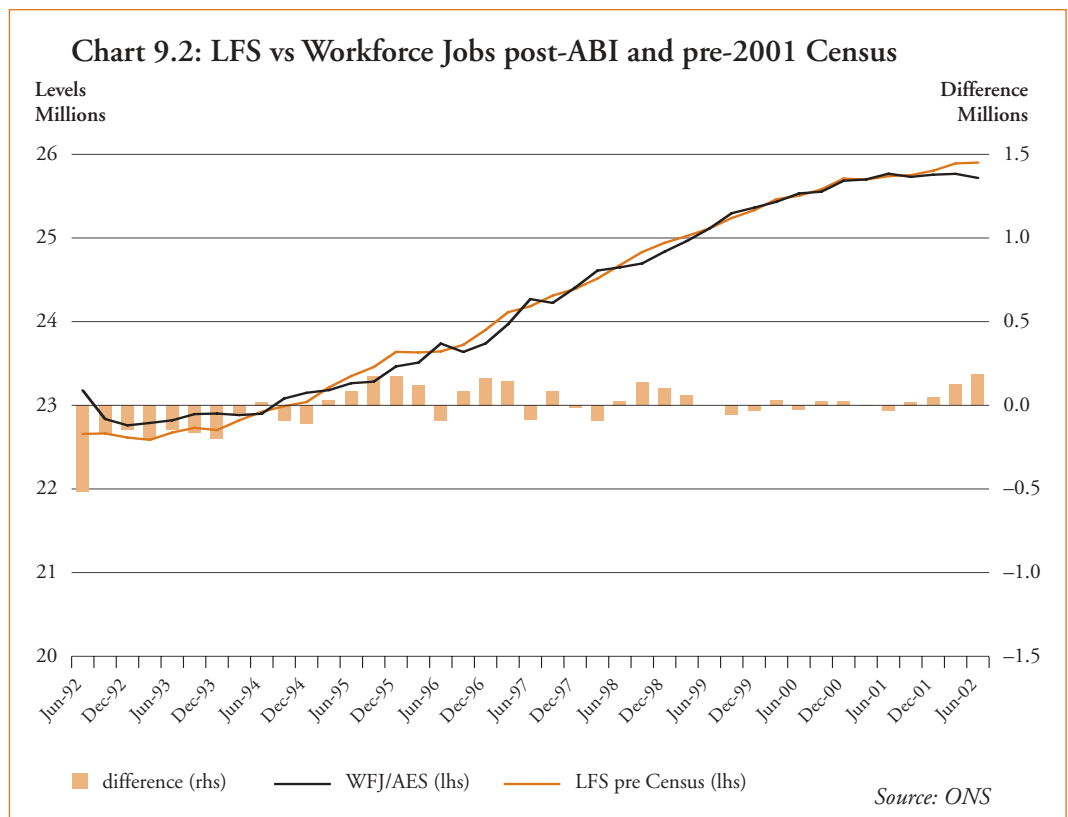
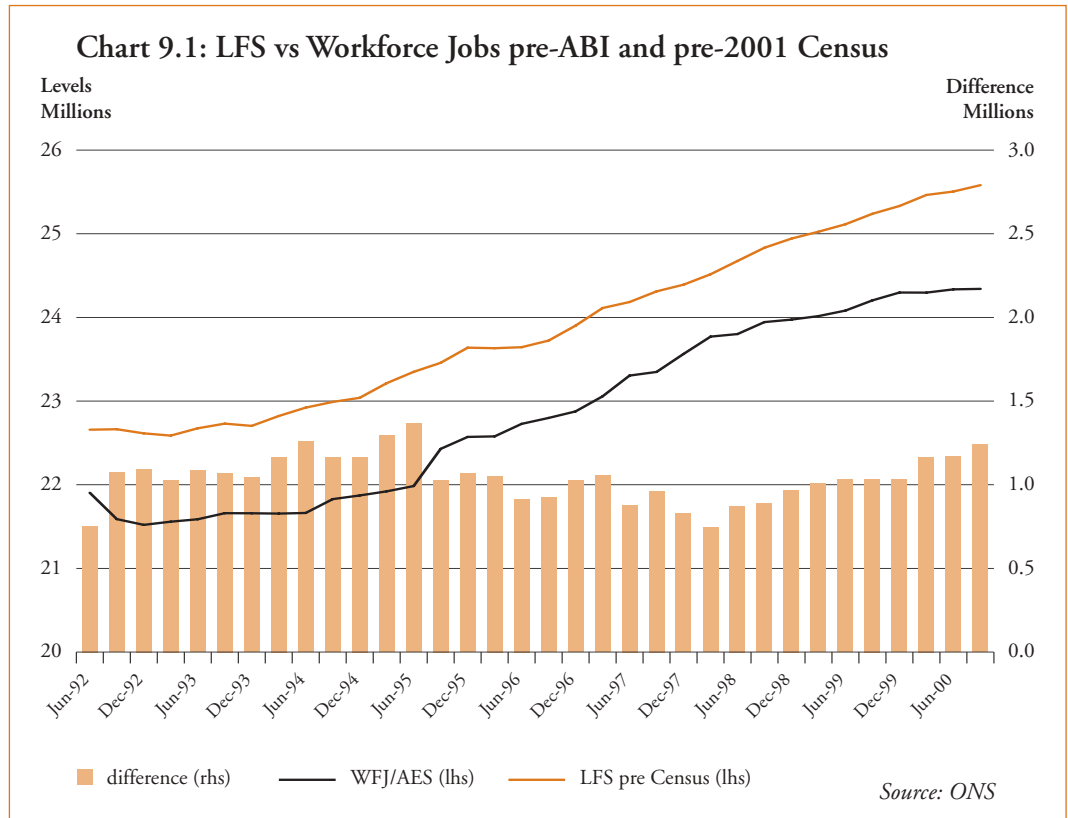
Employment and Jobs Quality Review

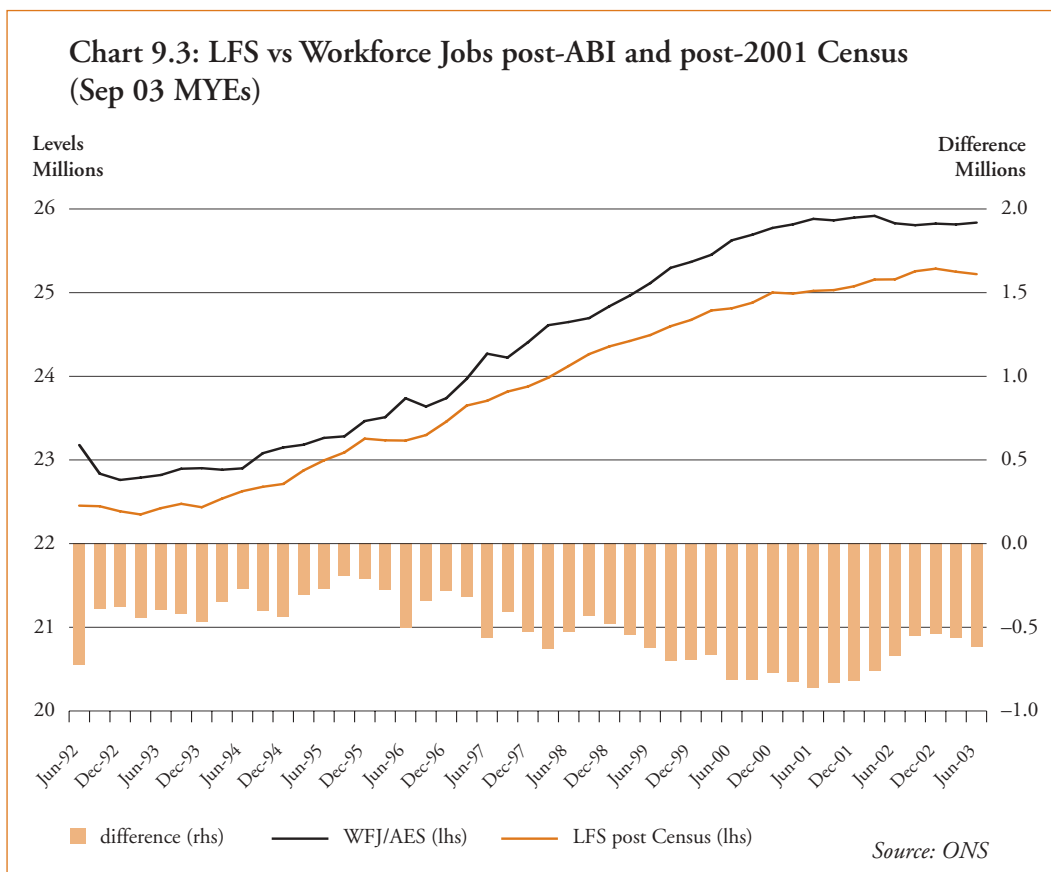
9.21 Following the Quality Review of the Framework for Labour Market Statistics, a supply and demand representation of labour market transactions is increasingly being adopted for the presentation of LMS. This sits well with, for historical and practical reasons, the way UK data on labour supply and demand are collected separately. Labour supply is typically collected through household surveys, such as the LFS and the Census, and through administrative sources, such as the working-age benefit records. Data on labour demand is typically collected through employer surveys such as the Annual Business Inquiry (ABI), the quarterly Workforce Jobs estimates benchmarked to the ABI and the ONS Vacancies Survey. These measures are discussed in our First Report.

9.22 Statistics of people in employment and of jobs are not the same thing. Nevertheless, providing that proper account is taken of multiple jobholders, there should, in principle, be a single, unique set of estimates of jobs.

Difference between LFS and workforce jobs 9.23 The main problem is that, in practice, there are significant differences between the number of jobs estimated from household surveys (the LFS), and from business surveys (the ABI and intermediate Workforce Jobs updates of this). These differences are both in terms of levels and changes over time. Charts 9.1, 9.2 and 9.3 show how the LFS and business survey estimates of jobs have related to each other over a number of years: Chart 9.1 shows that, prior to the introduction of the Annual Business Inquiry, the LFS jobs series was substantially higher than the business survey series; Chart 9.2 shows the post-ABI position, when the two series were relatively close; and Chart 9.3 shows the position, following the re-weighting of the LFS to new population estimates based on the 2001 Census, when the business survey estimates became considerably higher than those from the LFS. The difference has widened further following the introduction of new estimates of self-employment from the LFS in the WFJ series in March 2004.¹² These differences are inconvenient for users, especially as it goes beyond two different measures of employment: the business survey jobs data by industry is used by the ONS for producing productivity measures.

¹² *This change to the estimate of self-employment results from the introduction of the Standard Occupation Classification 2000.*





9.24 While it is possible to argue that each of the separate sources of data has some advantages in its own right, more needs to be done by the ONS to explain the reasons for differences between the LFS and business survey sources. This was the motivation of the Quality Review of Employment and Jobs, begun in June 2003. The emerging findings of the Quality Review¹³ report that the ONS should publish a detailed analysis of the reasons for the differences between the LFS and business survey sources during the first half of 2004. Moreover, the ONS has undertaken to keep this analysis up to date on an annual basis covering, where possible, the position at regional as well as national level. We welcome this work and look forward to the publication of the analysis.

Improving industry classification of jobs

9.25 In addition to the differences at a national level, the LFS and business survey estimates provide different estimates of the industrial composition of jobs. The ONS advises that “the best measure of the number of jobs in the economy as a whole is provided by the LFS ... workforce jobs ... provides the best estimate of the industrial composition of jobs.”¹⁴ The ONS is undertaking a pilot exercise to match the IDBR with LFS interview information about a persons employer to improve the industry breakdown of employment dates from the LFS – this is discussed above.

¹³ See ONS (2004b), which reports on the emerging findings of the Review. The final report is due by summer 2004.

¹⁴ See Black and Richardson (2003).

Public-private sector breakdown 9.26 A key breakdown for policy makers is employment between private and public sector jobs. However, neither the LFS nor the workforce jobs series provides a satisfactory estimate of public sector jobs, or therefore, of the allocation of total jobs between public and private sectors. The LFS estimate of public sector jobs is an overestimate because of errors in self-classification by households; whereas the workforce jobs series is not disaggregated between public and private sectors. One category covers public administration, defence and compulsory social security, which is wholly in the public sector. Two other categories are health and education, but these include both public and private sector jobs. In these circumstances, the ONS advises that the only satisfactory method of estimating the number of private sector jobs is as the difference between the number of jobs in the economy as a whole and the number of public sector jobs estimated independently.¹⁵

9.27 **Recommendation 65:** The public sector should be brought into the Workforce Jobs Survey. The ONS should review the best way in which to do this, including improving the administrative information that departments provide to the ONS. It is important that the public sector improves the quality and timeliness of information on people employed.

Implications for the ABI 9.28 The issues discussed above raise a number of deficiencies with jobs data from the ABI. The Quality Review suggests the need for a number of investigations which could have implications for the ABI. These include: how the ABI sampling, estimation and revision practices ought to be revised to meet LMS users' needs – the ABI is designed to produce an estimate of the number of jobs rather than estimates of changes from year to year in jobs by industry, as demanded by some users; whether the ABI should be moved from a December reference period to September, to avoid the seasonality of jobs at the end of the year; whether, to improve the quality of regional ABI data, the ABI should incorporate much of the Annual Register Inquiry collection of local unit based data.

9.29 **Recommendation 66:** We welcome the intention of the ONS, as part of the Quality Review of Employment and Jobs, to investigate how changes to the ABI can improve the quality of labour market statistics and better meet users needs. However, this review will need to take into account our wider recommendations for changes to the ABI.

A new system for compiling workforce jobs 9.30 The Employment and Jobs Quality Review also puts forward proposals for a new system for compiling workforce jobs data.¹⁶ At present the process is extremely complicated and, consequently, subject to error – in almost all of the last 28 quarters the WFJ estimate has had to be revised upwards once the next ABI was available. These biases mean the potential advantage of the WFJ being collected from the same survey as the output measures has not been realised in practice. Instead of rectifying the problem in the current system, the ONS proposes a new system for WFJ estimation. The new WFJ system would not deliver a set of quarterly jobs statistics largely collected using the same business surveys used for the collection of output data. Instead, it would make greater use of the LFS, and hence would depend critically on the success of the project to use the IDBR for classifying LFS data by industry. It would also benefit from our proposed improvements to the IDBR. A potential problem with this new approach is that the LFS is based on a systematic, rather than a stratified, sample. This means that for some smaller industries the LFS estimates would not be sufficiently precise for WFJ up-dating, requiring some inter-ABI survey data collections for the industries affected. With this exception, the end of quarterly jobs collection from business should release some compliance cost.

¹⁵ Black and Richardson (2003) present the ONS' latest estimates of jobs in the public and private sectors.

¹⁶ See ONS (2004b) for details of the proposal.

9.31 The new workforce jobs system will increase the alignment between the LFS and business survey estimates of change in jobs levels; and it will produce estimates of jobs by industry and public/private sector benchmarked to the ABI. However, there could continue to be a difference between LFS and WFJ estimates of jobs because of the different populations to which the LFS and WFJ are benchmarked (population and ABI respectively).

9.32 While the main benefits of the reconstructed WFJ series would be for producing more timely, frequent and coherent jobs data, there would be advantages for productivity work also. In particular, much better quality measures of hours worked by industry can be obtained for hours based productivity analysis. Conversely, the coherence between output and jobs data may deteriorate, since they may no longer come from the same source. Detailed micro analyses of productivity obtained using output and jobs data collected from the same firms – if these are needed – could continue to be produced annually from the ABI records.

9.33 **Recommendation 67:** We consider the prospect of a single series of jobs data to be a reasonable aim and recommend that the ONS reviews the work required to develop a single measure, in the light of implementing the proposals from the Employment and Jobs Quality Review.

Hours worked 9.34 The Quality Review also assessed user requirements for data on hours worked. It concluded that the changing dynamics of the labour market mean good data on hours of work (both actual hours and usual hours) are essential. At present, the ONS' main sources of data on hours are the LFS (a household survey) for actual and usual hours worked, and the New Earnings Survey (NES) (an employer survey) for normal hours worked, both for full-time employees in their main job. However, these sources have been showing differences in estimates – LFS estimates of average usual basic weekly hours worked for full time employees have been higher than the NES estimates, by 5.4 per cent in 2000.¹⁷ Two complementary theories help explain these differences: employees on a salary who regularly work longer hours than their contracted hours may treat those hours as part of their usual basic hours worked; and salaried workers may be less conscious of the hours they work, and more prone to errors in their responses.

9.35 The results of an ONS Time Use Survey in 2000 were published in February 2004.¹⁸ The study was designed to provide data on hours worked comparable with other European studies. It also allowed, through the collection of data in three forms, for a comparison to be made against hours worked estimates from the LFS and NES and analysis of the difference between them.¹⁹ The ONS plans to undertake further analysis to assess the quality of hours worked measurements.

¹⁷ See Williams (2004b).

¹⁸ See Williams (2004a).

¹⁹ Ibid.

POPULATION

9.36 The needs for population measures have become more varied and the population more diverse and less able to be exactly quantified. As the population becomes more mobile, more aged, ethnically diverse and as the household structures and lifestyles change, simple counts of the population by sex and age no longer provide a sufficient understanding of the demographic picture. Yet policy development and delivery require more and more detailed evidence as population statistics are used in a wide variety of ways, including:

- resource allocation and targeting resources;
- understanding the long-term context and the demographic consequences of public policy;
- assessing the implications for public programmes of demographic and social change including the impact of wealth creation;
- policy development and service planning – setting targets, monitoring and evaluation;
- understanding the labour market;
- informing the public and businesses, as well as supporting effective local government;
- democratic accountability; and
- meeting international obligations.

9.37 As a consequence of the rapid changes in society and growing demands for population data, it has been questioned whether the ten-year gap between censuses is too great. Criticisms of the latest census (2001) are well known.²⁰ In response, the ONS has undertaken a wide-ranging review of the processes and methodology behind the production of population data, and how well they meet demand.²¹ In response to this review, a number of projects to address identified gaps in official population statistics have been set up. The expected outputs are better estimates of international migration, small area populations and up-to-date quarterly population estimates (QPEs). The ONS is also re-engineering its own processes and systems for producing population estimates and projections.

²⁰ The ONS has published a summary of what happened with the data and how they are addressing it, available at www.statistics.gov.uk/about/Methodology_by_theme/Revisions_to_Population_Estimates/default.asp

²¹ ONS (2003a).

Migration

9.38 The contribution of international migration to the overall change in the population has grown in importance. In 2001, for example, net international migration is estimated to have contributed three-quarters of the growth of the UK population, up from near to zero a decade before. However, each of the range of existing survey and administrative sources used to estimate international migration is, in some way, limited with respect to coverage of migration. A Quality Review of international migration statistics considered the use of multiple data sources to improve estimation of migration to be appropriate, and necessary, to capture the diversity of migration – the data sources for immigration are currently better than for estimating emigration.²² The recommendations focussed on developing and making better use of existing sources and developing potential new sources, including retaining the International Passenger Survey (IPS) as the main source for estimating migration; the use of LFS and IPS survey data, alongside administrative data, to improve estimates of the geographical distribution of international migration; greater use of survey and administrative data sources on persons subject to immigration control, such as the Home Office’s administrative data sources; and using new administrative data sources, such as a population register, as they are developed. Background work to implement the Quality Review’s recommendations will take place over 2004-2005.²³ Our recommendation on intra-regional migration in our First Report is updated in Chapter 11.

An integrated population statistics system

9.39 Our First Report identified the growing demand for data, including population data, for small areas and population sub-groups. To respond to this demand the ONS developed the Neighbourhood Statistics Service. In addition, the ONS is exploring ways to produce population statistics that contain personal level information covering the whole population of England and Wales. The ONS has consulted on proposals for an integrated population statistics system that combines census, survey and administrative data, linked at individual person level, to create a single, comprehensive population statistics database, which is updated over time.²⁴ The ONS intends for this database to underpin all of their population and social statistics. It would also provide more accurate small area statistics much more frequently and quickly than is possible at present.

9.40 Key elements of the ONS’ proposals include an address register; a full census; a linked statistical database at the individual person level; and a linked population database (following census 2011) which is updated using administrative records, survey data, the address register and other records. The linked database would form the basis of all future population statistics, including the NeSS, underpin mid-year population estimates and provide an individual level sampling frame for social surveys. It would also avoid the problem of decennial census with population estimates in the intervening years, which are revised sharply in census years. From a statistical perspective, we support these aims – if achieved, the new system should begin to deliver population information early in the next decade. However, there are a number of civil liberty and other issues, such as the availability and access to administrative data that would need to be addressed before these plans could be implemented in full.

²² ONS (2003c).

²³ *The plan to implement the Review’s 19 recommendations is available at www.statistics.gov.uk/methods_quality/quality_review/downloads/final_implementation_plan_nsgronim.doc*

²⁴ See ONS (2003e).

Box 9.1: Devolved responsibilities

ONS are responsible for the production of population statistics for England and Wales and for collating and making available UK population statistics. The General Register Office Scotland and the Northern Ireland Statistics Research Agency are responsible for population statistics for Scotland and Northern Ireland respectively. The work is carried out under the auspices of the three Registrars General. In the case of national population projections the Registrars General formally commission the Government Actuary's Department (GAD) to produce the projections. GAD has a remit to produce UK projections in connection with its statutory duties under the National Insurance Act. The approach ensures consistent and coherent projections for the UK and its constituent countries.

For the project on quarterly population estimates, the ONS leads the work with contributions from General Register Office for Scotland and Northern Ireland Statistics and Research Agency on the appropriateness of the proposals in Scotland and Northern Ireland. Once a method has been devised and agreed throughout the UK, the production of quarterly estimates will be the responsibility of each of the Registrars General. The ONS will combine the estimates for England, Wales, Scotland and Northern Ireland to produce timely estimates for the United Kingdom on a quarterly basis.

Quarterly Population Estimates for the UK

9.41 In addition to use for planning and monitoring purposes and in resource allocation, population statistics provide population controls for grossing results in sample surveys to represent the whole population and in particular, for grossing the results from the LFS. At present mid-year population estimates for the UK are not available for fourteen months after the date they relate to. As LFS results are published six weeks after the reference period, more timely grossing totals are required. At present population projections are used, based on numerous assumptions. These assumptions are particularly difficult to get right in times of unexpected population change. In such cases, neither the annual population estimates nor the population projections meet the LFS needs for grossing totals. In response, the ONS has started work to produce quarterly population estimates (QPEs).

9.42 The ONS began a project in 2002 to investigate the feasibility of producing population estimates on a quarterly basis six to eight weeks after the reference period.²⁵ It is examining suitable data sources and methodologies as well as the feasibility of producing the other population data that are required for LFS grossing, such as estimates of the population in households, for example. The project has also considered the appropriate level of geographical disaggregation for which quarterly population estimates can be produced, focussing on NUTS1 Regions. The original plan was to begin producing estimates from August 2003 – the ONS plans to publish shortly a Quarterly Population Estimate for England and Wales combined for end December 2003. The series will be experimental statistics as the methodology is further developed. Future QPEs will be published about eight weeks after the reference date. The ONS are planning to introduce the series for the UK and the Government Office Regions of England during 2004. These estimates will take advantage of more recently available data on births, deaths and net migration but will still be subject to revision as better quality data become available. They will also be consistent with the annual mid-year population estimates.

²⁵ Information on the project is available at www.statistics.gov.uk/about/Methodology_by_theme/qfe/default.asp

Grossing the LFS estimates 9.43 Over the medium-term the LFS series will be brought into line with the new population estimates in the month following the release of each year's mid-year population estimates²⁶, but these will be revised in November in line with the release of re-weighted microdata until new LFS weighting methodology is introduced. In the longer term, the re-engineering of the LFS systems will enable new annual population estimates to be incorporated into revised, consistent LFS series in the month following the release of each year's new population numbers, without the need for subsequent LFS revisions. The ONS aims to have the system in place by 2005. The longer-term plan also includes the intention to devise an LFS weighting procedure that is capable of taking full advantage of the new quarterly population estimates.

Census

9.44 The 2001 census results have called into question the data and methods used to estimate population change between censuses. The official mid-year estimates and the projections based on the census have proved not to be adequate and, by 2001, some local authorities showed large differences between population estimates and the 2001 censuses.

9.45 Looking ahead to the 2011 census the ONS is examining alternative sources to estimate the population of the UK and understand its characteristics. The census strategic development review identifies a number of ways that this could be done including the use of administrative data and other sources. However, this is not a new proposition.²⁶ The review discusses whether different databases can be linked at an individual level to support a statistical analysis of the population. The potential benefits would be relieving the burden on collecting data and creating a better statistical basis for policy makers. However, for such data sharing to take place, there are legal and civil liberty issues that would need to be addressed, and systems would need to be underpinned by practices which safeguard the data and ensure its appropriate use. Nonetheless, there are operational reasons why identification of data may be important: a 2002 Department of Health report in support of the White Paper "Saving Lives: Our Healthier Nation" made the case for such a database linked at individual level.

PRODUCTIVITY

9.46 Since the introduction of the ABI in 1998 the ONS has sought to improve the measures of productivity for the UK and different sectors of the economy. The ONS has followed a programme of developing these statistics. This section briefly describes the developments followed in recent years, the ONS' plans for developing the measures further over the next few years, before making a number of recommendations on how these should be directed further.

²⁶ *Werner (2003) outlines the ONS' short-term solution to keep LFS estimates in line with the latest population estimates.*

²⁷ *Rbind (1985) proposed the "integration of data from the many existing data sources to give an ongoing, 'cradle to grave' inventory of people and land".*

9.47 The ONS has a broad strategy for developing the measurement of labour productivity, which we endorse.²⁸ The work programmes fall into four main areas: service sector productivity; labour input, capital input (discussed in Chapter 10) and utilisation of the Annual Business Inquiry. The priorities identified in these four areas reflect responses to a consultation exercise conducted by the ONS in Autumn 2001. The ONS intends to deliver the identified work programmes over three years. Already, the early results of this work are being used to further understanding of productivity growth in sectors of the economy.²⁹

9.48 Labour productivity is a derived statistic, combining both output and labour input measures. For good quality productivity measures it is therefore important that:

- the component data, factor inputs, output, and deflators, are reliable;
- the underlying data series are coherent; and
- there is a reasonable length of the time-series.

9.49 The monthly and quarterly productivity growth measures are derived from employment and output growth data collected in the short-term production and turnover inquiries (discussed in earlier Chapters). These high frequency measures are benchmarked on the annual ABI data. The innovation, introduced in 2001, is that output and employment are collected from the same firms, improving the correlation between output and input data.³⁰ Moreover, it also allows for changes in output and input data to be cross-checked at the firm level.

9.50 Production of productivity data is skewed towards the production of more detailed disaggregated data for manufacturing than for services: quarterly manufacturing productivity data is presented broken down between eleven subgroups, by both output per job and output per hour. This imbalance reflects the comparable availability and quality of the source data: output and employment data for manufacturing is collected in the Monthly Production Inquiry (providing the monthly Index of Manufacturing and the Index of Manufacturing Workforce Jobs), while services data is collected in the Monthly Inquiry into Distribution and Service Sectors (MIDSS). The comparative quality of the data from the two Inquiries is discussed in Chapter 6.

9.51 The GVA and labour input measure used for compiling productivity are both based on the ABI. But the consistency of the two measures is diminished due to adjustments made by National Accounts to value added for coherence (quarterly and annual balancing processes are discussed in Chapter 4). A particular difficulty is that while the coherence adjustments can occur in any industry, they tend to appear most frequently in a limited set of service industries; their effects are most significant in the 'transport and communication' and the 'business service and finance' industry sections of GDP(O). This will affect the indices of productivity of a particular industry over time as the allocation of the adjustment varies, and it will affect comparison of the value levels of productivity between different industries or sectors.

²⁸ See Lau (2002a).

²⁹ See, for example Lau and Vaze (2002), which brings together development work on quality-adjusted labour input and a volume index of capital services with output measures in the growth accounting framework. A key purpose of the work is to check the consistency of the new measures being developed.

³⁰ See Daffin (2001) for a description of the improvements made to productivity measures.

Box 9.2: Measuring productivity

National Statistics publish data for output per hour worked, output per filled job, unit wage costs and unit labour costs. Productivity data are available for the UK whole economy, production and manufacturing sectors. An experimental release of productivity for the service sector is published each quarter.

UK output per filled job is the ratio real of Gross Value Added (GVA) at basic prices and productivity jobs. The source data for productivity jobs is virtually the same as for workforce jobs. The methodology used to produce the productivity jobs indices has been developed with the aim of producing a jobs measure that is consistent with the output measure used in calculating output per job estimates.¹ Output per job data are published on a monthly basis for manufacturing and on a quarterly basis for the whole economy, production and manufacturing sectors.

UK output per hour is the ratio of real GVA at basic prices and productivity hours. The methodology used to produce the productivity hours indices has, like productivity jobs, been developed with the aim of producing an hours worked measure that is consistent with the output measure used in calculating output per hour estimates. Output per hour data are published on a quarterly basis.

All industry **output per filled job** and **output per hour worked** estimates are published for Government Office Regions (NUTS 1) on an annual basis, but only using nominal output data. The regional measure of output is taken to be regional nominal Gross Domestic Product (GDP) on a place of work basis. Regional output per job is the ratio of nominal GDP and regional workforce jobs. Regional output per hour is the ratio of regional nominal GDP and regional total workforce hours worked. It should be noted that there are no productivity jobs or productivity hours data available on a regional basis.

Whole economy unit wage costs index estimates are based on GVA at basic prices, total wages and salaries, and productivity jobs. **Manufacturing unit wage costs** estimates are based on the seasonally adjusted monthly Average Earnings Index, manufacturing productivity jobs and the manufacturing index of production. Manufacturing data are released on a monthly basis and whole economy data are quarterly.

A **whole economy index of unit labour costs** is published on a quarterly basis for the whole economy. The index uses the same methodology as is applied to calculate unit wage costs; however, extra labour costs are added to the wages and salaries figure prior to calculation.

Both of these are denominated by only one factor of production, namely labour. Capital is also an important input and some other measures of productivity take this into account. In particular, **Total Factor Productivity (TFP)** attempts to measure output per unit of inputs, where inputs are generally labour and capital but can be extended to others. It measures how efficiently capital and labour are used together and captures a range of factors such as skills, technology, organisation, competition and economies of scale. In principle this is a superior measure of an economy's efficiency. It is, however, very difficult to calculate accurately due to data limitations, particularly for capital inputs and, in practice, is subject to substantial measurement error. TFP is derived as a residual in a growth accounting framework after accounting for the contribution of labour and capital to output and so contains all influences that cannot be explained. The growth accounting framework is discussed in Chapter 10.

¹ The ONS does not recommend that these series are used for any other purpose than in the calculation of productivity and unit wage costs.

Experimental data on non-production industries 9.52 In February 2002, the ONS published new experimental labour productivity measures for the non-production industries.³¹ These include output per job and output per hour data for the service industries, including distribution, hotels and catering. It also includes new annual data on the agriculture, forestry and fishing industries.

9.53 Recommendation 68: As the ONS continues to develop the IoS and other measures of service sector activity it will be important to ensure that measures of service sector productivity are developed alongside. The ONS should aim to continue development of the service sector productivity measures so that they lose their experimental tags at the earliest opportunity.

Public sector productivity 9.54 The work undertaken by the ONS to improve the measure of service sector productivity, through, for example the development of the IoS, will also help develop measures of public sector productivity. But measuring the productivity of public services is more difficult.³² A number of key questions need to be resolved, such as what is the appropriate measure of productivity of public services? The indicative data is based on gross output (rather than net output, or value added) to meet analytical need in that there is an interest in the quantum of goods and services provided by the Government. Questions about how to define and measure the inputs and outputs required to measure productivity, as well as the appropriate deflators and capturing quality change will be addressed by the Atkinson Review.

Utilisation of the ABI 9.55 In an attempt, in part to overcome the effect of the coherence adjustments on the measure of productivity in the manufacturing sector, work was undertaken in 2002 to estimate new measures of labour productivity directly from the ABI (as opposed to from National Accounts data, which includes the coherence adjustments to the ABI data).³³ The benefit of this approach is that estimates of labour productivity for the manufacturing and services sectors are directly estimated. Data are presented annually for 1998-2000. Moreover, the ABI data allows for a more detailed and comprehensive breakdown of the manufacturing and service sectors to the four-digit SIC92 level. However, the analysis identified a number of issues regarding the data, including the need for appropriate deflators, for example, which prevent more than tentative conclusions being presented. Development of the ABI, including an expansion of the sample, will help improve the quality of these data as a source of sectoral productivity measures.

International Comparisons 9.56 As noted in Chapter 3, there is considerable interest in comparing whole economy productivity measures across countries, driven by the joint DTI and HM Treasury PSA target. Such comparisons may be of growth rates or of levels. To make international comparisons of productivity levels both outputs and inputs have to be computed in a comparable manner and output must be adjusted for differences in price levels. The ONS publishes comparisons twice yearly.³⁴ Such analysis relies on the increased comparability of GDP and worker numbers across major economies, as well as reliable estimates of Purchasing Power Parities.

³¹ See Daffin et al (2002).

³² Pritchard (2002) explains the ONS' initial approach and presents some indicative results.

³³ See Daffin and Lau (2002).

³⁴ Richardson (2001) explains how the ONS took on responsibility for publishing international comparisons of productivity data from the DTI. Barnes and Asogbon (2004) present the latest data, including latest changes to the methodology employed by Eurostat and the OECD.

Skills 9.57 Raising the skill level of participants in, and entrants to, the labour market is a key aspect of the Government's productivity agenda. In the growth accounting framework, output growth can be attributed to increases in the volume of labour input, for example hours worked, but increasingly some part of growth can be attributed to changes in the skills composition of the workforce. Success in improving skills levels becomes more important in an increasingly knowledge-based economy.

9.58 Generally, in productivity analysis, skills have been proxied by qualifications. Changes in the economy, including the move to a greater share of services, are reflected in new skills, including specialised qualifications associated with industries ranging from construction to computing services and finance. Understanding how new skills affect worker productivity is important for policy makers in better understanding productivity drivers. It also important for assessing skills shortages in specific areas of the economy.

9.59 The main responsibility for analysing and publishing data on skills rests with the Department for Education and Skills (DfES),³⁵ except in some areas, such as health, where the responsibility rests with another department. The ONS can help inform this analysis in a number of ways, although it is important to balance resources devoted to this with policy demand:

- by improving data on education attainment levels from the LFS and, as qualifications are only a proxy for skills, mapping relative wages on to qualifications to provide a measures of the stock of skills;
- by producing estimates of quality-adjusted labour input measures – there is interest in quantifying the impact of changing skills on productivity growth and such measures can be used in estimating TFP;³⁶
- by producing an education satellite account to analyse the link between the outputs of the public sector, the private sector (both education establishments and in-house training by business) and household production and outcomes – the stock of skills/education in the economy; and
- by micro data linking analysis to help understand how skills affect productivity. Pilot work is underway to do this.³⁷

³⁵ Data published by the DfES are available at www.dfes.gov.uk/rsgateway/.

³⁶ See Lau (2002b).

³⁷ See Haskel and Pereira (2002).

10

Other frameworks

10.1 Previous chapters have concentrated on the core system of the National Accounts and the registers and sources that underpin them, with the primary focus on the consequences of structural change for the development of the statistical system. This chapter examines the wider economic and statistical framework available to analyse and present specific aspects of the economy and new policy demands. The growth accounting framework and data linking project provide a framework for analysing activity and growth and assessing the contribution to growth of specific sectors or industries. Other frameworks, such as Satellite Accounts and Social Accounting Matrices allow the presentation of the inter-relationships not available in the National Accounts. They can perhaps be thought of as effective ‘add-ons’ to the National Accounts.

10.2 These tools are useful ways to analyse many of the questions raised about detailed relationships in the economy and how they are changing. But the quality of the results from these different approaches is only as sound as the National Accounts and other data on which they are based. Our recommendations to improve the quality of the National Accounts set out in earlier chapters will also improve the quality of the data derived using these frameworks.

GROWTH ACCOUNTING

10.3 The theory of growth accounting provides a framework in which the contribution of each sector to the national economy can be measured and assessed. It also enables us to see how these contributions evolve over time. Moreover, growth accounting also provides a useful check on the coherence and consistency of economic statistics. For each industry, measures of output and of inputs are required. It is important that these statistics, broken down by industry, are consistent with the whole economy measures available from the National Accounts. This section briefly describes the potential contribution growth accounting can make to understanding the changing structure of the UK economy. These comments have benefited from a paper prepared by Nick Oulton for this Review.¹

10.4 Growth accounting analyses have been influential in the ongoing debate about the US productivity acceleration of the 1990s.² They have also been employed to inform the UK policy debate³ and to analyse the failure of Europe or the UK to experience a similar productivity acceleration.⁴ Also, the statistics required for growth accounting can be used as a basis for testing more complex hypotheses, going beyond those required for growth accounting itself.

¹ *We are grateful to Nick Oulton for preparing this paper. It is published in full alongside our report and can be obtained at www.hm-treasury.gov.uk/allsofp. Clearly, while we have benefited from Nick Oulton's work, the views presented here are our own.*

² *See, for example, Oliner and Sichel (2000); Jorgenson and Stiroh (2000a) and (2000b).*

³ *See O'Mahony (1999).*

⁴ *See, for example, O'Mahony and van Ark (2003).*

The growth accounting framework 10.5 The growth accounting framework is an extension of, not a substitute for, the National Accounts as they currently exist. The starting point is the aggregate growth accounting equation, which divides GDP growth between individual factor contributions, usually labour and capital, with Total Factor Productivity (TFP) growth as a residual. The contribution of each factor is its share in total inputs multiplied by its growth rate. The labour input is a weighted average of the growth rates of the different types of labour, where the weights are the shares of each type in the aggregate wage bill; the shares are equal to the elasticities of output with respect to the inputs under the assumption of perfect competition. Capital input is defined as the flow of aggregate *capital services*, not the capital stock. The treatment of capital is therefore exactly analogous to the treatment of labour, where each type of labour input is measured by the flow of labour services, ie hours worked.⁵ Labour input grows either if hours worked increase or if the quality of labour increases. TFP growth is calculated as the residual.

10.6 This equation can be rearranged in *per hour* worked terms: the growth of GDP per hour worked is equal to capital deepening plus labour quality contribution plus TFP growth, where capital deepening equals capital's share times growth of capital input per hour worked; and the labour quality contribution equals labour's share times growth of labour input per hour worked. We can also calculate TFP growth using prices rather than quantities, the so-called dual approach.⁶

10.7 The aggregate growth accounting relationship can be built up from corresponding relationships at the industry level: the aggregate TFP growth rate of the economy is equal to the weighted sum of industry TFP growth rates. In other words, changes in aggregate TFP can be assigned either to changes in the underlying industry rates or to structural change.⁷

Barriers to implementation 10.8 To implement the growth accounting framework at the industry level, measures of both gross output and value added for each industry are required on the one hand and of all the inputs – capital, labour and intermediate – on the other. Such data needs to be consistent conceptually. Oulton identifies a number of difficulties with using official data.

10.9 The first difficulty arises from the way growth of output of the industry level is constrained, in aggregate, to the growth of GDP, which follows the expenditure estimate (discussed in Chapters 4 and 5). Part of the problem is that the output growth measure is estimated using only single deflation, rather than double deflation⁸. Moreover, in levels terms, the adjustments to the output measure of GDP, after the supply-use balancing process, are all concentrated in the service sector. That is manufacturing is left unadjusted. The ONS' Review of Short Term Output Indicators noted this problem, which should be addressed by the ONS' modernisation programme (see Chapter 4). Other fundamental difficulties include the measurement of capital services (discussed below); and issues surrounding the measurement of specific, largely new, sectors, which affect trends and the boundaries of output. Information and communication technologies (ICT), also called the 'new economy', are a case in point.

⁵ *The important distinction between capital services and capital stock was introduced in Jorgenson and Griliches (1967) and set out theoretically in Jorgenson (1989). For further discussion, see Diewert and Lawrence (2000).*

⁶ *The growth of TFP in industry i is equal to the absolute value of the growth of price of gross output of i minus cost-share-weighted growth of prices of capital services, labour and intermediate input. Provided that the accounting system is consistent, theoretically the dual approach must yield exactly the same answer as the one using quantities.*

⁷ *The crucial link between the industry TFP rates and the aggregate TFP growth rate is provided by the concept of Domar aggregation. Structural change is represented by changes in the 'Domar' weights. See Oulton (2004), prepared for this Review.*

⁸ *Double deflation is the theoretically preferred approach to deflation of the production measure of GDP, involving deflating gross output and intermediate demand separately.*

New economy 10.10 The correct measurement of ICT is of critical importance to the analysis of productivity growth. However, there are differences between countries in the way that the same methodology is being applied: the evolution of official price indices for computers differs widely across countries, yet most observers judge the differences to be much too great to be plausible reflections of genuine differences between countries, given that computers are widely traded internationally. Applying US methods and price indices to ICT raises the growth rate of UK GDP and also raises substantially the contribution of capital to economic growth, while reducing that of TFP.⁹ The ONS has recently adopted hedonic methods for the PPI and RPI for computers – see Chapter 7.

10.11 There are equally pressing problems in software investment, which some argue is under recorded.¹⁰ Moreover, there is no official price index for software in the UK: in the National Accounts, software investment is partly deflated by the plant and machinery deflator and partly by a price index based on computer programmers' wages. This reflects that software investment is included in the National Account in plant and machinery and also in an adjustment series covering own-account software development. A survey of service sector products would help provide data to inform this – see Chapters 4 to 6. Similarly, there are no data for the UK on the average service lives of computers and software. Other related measurement issues include:

- measuring prices for many types of hi-tech equipment, such as telecoms and medical equipment, is difficult and requires a similar approach to ICT;
- getting the semiconductor price right is important – technical progress in semiconductors appears to lie at the heart of technical progress in computers, telecommunications equipment, and many other types of machinery; and
- expenditure on software is treated in the National Accounts as a form of investment, unlike R&D expenditure, which continues to be regarded as current expenditure (intermediate consumption). There would be benefits from having estimates of R&D expenditure for each industry on the same basis as other types of investment; at the moment published R&D spending is only broken down into 11 industry groups.

10.12 The more mundane measurement problems with implementing the growth accounting framework, which Oulton highlights, include:

- it is hard to get long runs of data, eg 20-30 years, because the Standard Industrial Classification (SIC) is changed at roughly 10 year intervals and earlier series are not always revised to the new basis;
- some basic economic series are not produced by the ONS and have to be constructed from a variety of sources. For example, hours worked are not published at the industry level;
- there are inconsistencies between the levels of aggregation at which different series are published; and
- the asset breakdown for the ONS's series for investment in fixed assets is poor.

⁹ See, for example, Oulton (2002a).

¹⁰ Oulton (2001) argues that the level of software investment in the UK should be multiplied by a factor of at least three because the ratio of the official series for current price software investment relative to investment in all types of computer is low in the UK compared to other European countries and the US. This would add about 1 % to the level of GDP at the end of the last century.

Sustainability 10.13 The growth accounting framework can also be an important building block for the analysis of sustainability – see box 10.1. Sustainability is a contentious concept that can be defined in more than one way. But the central notion behind the economic concept is the level of consumption that can be maintained indefinitely, without running down or using up stocks of resources, whether natural or man-made.¹¹

Box 10.1: Sustainability and growth accounting

One measure of sustainability, known as Weitzman’s Net Domestic Product¹ (WNDP) can also be calculated within the growth accounting framework. Weitzman shows that WNDP, measured in consumption units, can be considered a monetary measure of social welfare. So the current level of consumption must obviously be part of the measure. In addition, net investment increases future consumption so the present value of the future stream of consumption that is generated by adding to capital stocks is also important.

Measuring WNDP requires measures of capital stocks, which requires the investment goods (correctly adjusted for quality) and also depreciation rates. We could estimate WNDP at the aggregate level only. But just as policy-makers and analysts are interested in tracing the sources of GDP growth, a similar kind of growth accounting decomposition, requiring the same statistical materials as for GDP, is possible for estimating WNDP too.²

The extent to which we can regard WNDP in practice as a satisfactory welfare measure depends on (a) the extent to which actual market prices correspond to true social values and (b) whether or not all relevant capital stocks have been included. Weitzman’s NDP is not generally estimated by statistical agencies. However, it is possible to derive net domestic product at 2000 basic prices from published series. But investment, imports and government expenditure are valued in their own base year prices, not in consumption units.

¹ *Weitzman’s estimate of net domestic product is a measure of the sustainable level of consumption. It differs from the conventional measure of net domestic product by using consumer prices to deflate all components, including net investment. Weitzman showed that WNDP is the yield on wealth, ie it is equivalent to permanent income, and is directly observable: only current prices and quantities enter into WNDP.*

² *Oulton (2002b).*

The case for joined-up statistics 10.14 Growth accounting provides a fruitful way of assessing the contribution of each sector or industry to the whole economy. Oulton also argues that it provides a very useful framework for economic statistics, which the ONS ought to adopt. He suggests the following action programme for the ONS in order to implement fully the growth accounting framework:

- improve the measurement of real output in the services sector by completing the Corporate Services Price Index programme, so that it covers the hard-to-measure industries like banking, insurance and business services (particularly legal, accounting and consultancy services);
- rebalance coverage of the national economy so as to allow greater disaggregation of private services;
- introduce double deflation into the national accounts. That is, continue with and complete the chained volume supply-use programme and make it an integral part of the national accounts process;

¹¹ *The modern formulation is due to Weitzman (1976), elaborated in Weitzman (1997) and (2003).*

- widen the use of hedonic methods for price measurement in hi-tech areas where such methods are likely to make a substantial difference, eg software, telecommunications, and semiconductors;
- commission or carry out research on the service lives of different types of capital and on their patterns of depreciation;
- commission or carry out research on the level of software investment, to establish whether the very large difference between the UK and the US is correct or an artefact; and
- integrate statistics on employment (and better still, hours worked), output, prices, investment, and R&D so that all are published on a common industrial breakdown. Maintain the continuity of this breakdown even when the SIC is changed.

CAPITAL STOCK AND CAPITAL SERVICES

10.15 The capital stock measures the stock of capital assets in the economy used for production. There are two related concepts. The first is a wealth (or stock) concept, with the related concept of consumption of fixed capital, used in compiling the National Accounts. The second is a productive (or flow) concept, used for estimating services provided by an asset and used in production. (To illustrate the difference a five year old lorry may be worth only half as much as a new one, but it may produce similar capital services in a particular year). The ONS produces wealth estimates as part of the annual National Accounts compilation process.¹² The Volume Index of Capital Services (VICS) uses the same underlying data but is compiled separately as an experimental series.

10.16 The ONS estimates capital stock using the perpetual inventory method (PIM).¹³ This is the approach recommended in international manuals, used because capital stock is a difficult concept to collect directly from businesses. The model operates by accumulating new investment, which is then retired from the capital stock using assumptions on operational life lengths and rates of depreciation. Adjustments are also made for the premature scrapping of capital. The calculations are done separately for asset types and industries. However, the need for the simplifying assumptions makes the estimates inevitably somewhat uncertain. Moreover, a number of users have commented that the asset breakdown of both capital stock and investment is insufficient for their purposes and analysis would benefit from the breakdown being increased.

Improvement project **10.17** Following development of a project¹⁴ to improve the ONS' estimates of capital stock and capital consumption, the ONS published, in October 2003, data for gross capital stock, capital consumption and net capital stock.¹⁵ These are provided at a greater level of detail by asset, sector and industry and with more accurate sector breakdown than had previously been published. The revisions correct a number of errors in the previously published data and make a number of methodological improvements. It is intended to publish these data annually.

¹² *Capital stocks were suspended in the 2002 Blue Book and re-instated in 2003 as a separate publication to reflect the larger range of detail now presented.*

¹³ *Vaze (2002) reviews the use of the PIM.*

¹⁴ *The project includes representatives from the Bank of England and the National Institute for Economic and Social Research (NIESR).*

¹⁵ *See Vaze et al (2003).*

10.18 The next stage of the project will look at the assumptions underlying the perpetual inventory model, including:

- the types of assets used in the National Accounts with a view to recommending the most appropriate category in the breakdown of capital stocks. Asset types change over time and advancing technology creates completely new assets requiring different treatment to reflect changes in the way they are used. Knowledge-based assets are an extreme example, presenting particular difficulties; and
- how long assets are actually used, leading to estimates by different industries. There are little administrative data available for this type of information and possible sources of data are being investigated.

Whole of Government Accounts data 10.19 The project will also look at incorporating the Whole of Government Government Accounts (WGA) data into the capital stock estimates and integrating the measures of VICS into the statistical processing systems of the National Accounts. WGA data is collected from individual government departments on a consistent basis and provided by HM Treasury to the ONS. Work has already begun on checking that the WGA capital stocks data provided are consistent with data produced by the ONS. Initially the ONS needs to establish reasons for inconsistencies with the data before it can replace capital stock estimates produced by the PIM.

Other developments 10.20 The ONS carried out a survey on asset registers for a short period of time, but this survey was suspended. The ONS has now begun work to look at how the collected data could be used, although the amount of useful data is small. If it is found that it could be used for estimating the length of asset lives and estimating the importance of premature scrapping, then there may be a case to re-instate the survey, perhaps as part of an omnibus survey (see Chapter 6), or begin a new dedicated survey. Other issues covered in the project include the treatment of roads, agricultural assets, the decommissioning of nuclear reactors and premature scrapping. Work on microdata is also underway to compile firm-level ICT capital stock estimates, using annual survey data from 1999 onwards plus quarterly surveys from 2002 forward, and to assess the effects of ICT asset types on productivity. This work will also contribute to analysis of asset life lengths – a review of life-lengths was last carried out about fifteen years ago.

Volume Index of Capital Services 10.21 In addition, the ONS has developed an experimental series for productive capital and a VICS to provide a measure of capital input into production and to complement the current wealth measure.¹⁶ It is expected that, following re-engineering of the National Accounts, VICS data will be derived from the ONS' PIM, but for the time being it will be updated annually following publication of the *Blue Book*. The experimental data present estimates of growth in the VICS for both the production and service industries, including 18 sub-categories for each. The research to date shows the importance of the correct treatment of new economy assets in measures of the productive capital stock. The results are sensitive to the assumed life lengths and to the deflators associated with an asset, as they form the basis of weighting the stock of a particular asset in the capital services measure.

10.22 **Recommendation 69: Development of better measures of capital stock and capital services is important, particularly the improvement in measuring investment, including detail of the asset break-down (see Recommendation 62). The ONS should examine the need for more regular reviews of the life of capital assets.**

¹⁶ See Vaze (2003).

BUSINESS DATA LINKING

10.23 As discussed in the previous Chapter, research on productivity in the UK has focused for many years on aggregate data, looking at the economy as a whole. In recent years attention has turned to using disaggregated data to explore more of the story and identify areas for specific policy intervention. To support this micro-level work, a project involving the ONS, other government bodies and various universities and research institutes began in the late 1990s to investigate the vast databank of historical information on businesses held by the ONS and its usability for such research.¹⁷ Little research use had been made of this data previously, partly because legal restrictions made access to the data outside the ONS difficult to obtain, but also because technology to link the different datasets had not been available. However, in recent years, the ONS has begun to give researchers on government contracts limited access to confidential business data in a secure environment. Since 2002, the ONS has been formalising the legal framework for access, making the access procedures more transparent, improving the research facilities themselves and developing documentation to build up a research resource – see box 10.2.¹⁸

10.24 The data linking project at the ONS has three dimensions:

- the linking of observations over time (longitudinal linking) using the Inter-Departmental Business Register (MBR) as the key;
- the linking of different data sets with complementary information (cross sectional linking); and
- research using the linked data.

Linking data sets **10.25** Data linking exploits the fact that the same business may enter the sample of a number of distinct surveys or be sampled in several years. Linking various surveys together expands the number of variables available and enables changes over time to be measured at firm level. Underpinning business microdata is the same sampling frame for all of the ONS' business surveys. In the UK, the IDBR lists all businesses and their plants or units, fully reflecting the complex structures of modern businesses (the IDBR is discussed further in Chapter 6). The use of the IDBR as the common sample frame allows individual businesses to be linked across surveys and over time. So, for example, firm-level output and employment (from the Annual Business Inquiry) could be linked to spending on R&D (from the Business Expenditure on R&D Survey). Current available datasets include various capital stock estimates plus:

- Annual Respondents Database¹⁹ 1973-2001 (production) 1994-2001 (construction and services);
- New Earnings Survey 1986-2002;
- Community Innovation Surveys 1997 and 2001;

¹⁷ See Criscuolo, Haskel and Martin (2003) and Barnes and Martin (2002) for a description of the development of the Business Data Linking project at the ONS.

¹⁸ All research is carried out on ONS premises. While analytical results may be removed from the ONS, so long as they do not contain any disclosive material, raw data are not allowed to be removed under any circumstances. The ONS is creating a secure operating environment for researchers, the BDL Microdata Laboratory, which will open during 2004. The ONS has developed protocols for data access, which will be published shortly.

¹⁹ The Annual Respondents Database maintains the information collected on the IDBR and the panel microlevel information obtained from successive cross-sections of the ABI. Criscuolo, Haskel and Martin (2003) discuss difficulties creating and maintaining the ARD, such as, for example, boundaries of a reporting unit varying from ONS survey to ONS survey.

- Employer Skills Survey;
- Annual Inquiry into Foreign Direct Investment;
- e-Commerce Survey 2000 to 2002;
- Business Expenditure on R & D; and
- Surveys on capital spending (annual from 1999, quarterly from 2002).

10.26 The list of linked datasets is growing as more are added, including new surveys designed to measure aspects of the new economy, such as e-commerce. A result of the work is that new datasets particularly suited to productivity analysis, including analysis of the Government's five productivity drivers, are now being created and stored at the ONS. Box 10.2 summarises some of the analysis undertaken using the new databases.

Box 10.2: Use of Business Data Linking datasets for analysis.

The datasets provided by the Business data Linking project at the ONS have provided a wealth of information for researchers. These datasets have been used in recent years, as access has become easier, to inform research on productivity and related issues. Examples of such research include:

- the effect of skills on business performance, including the importance of qualifications, on-the-job training and effective selection policies, was examined in *Haskel et al* (2003);
- Criscuolo and Martin (2002) measured the effect of multinational ownership on the productivity of UK firms and argued that relatively poor UK performance was associated with purely domestic operations;
- a number of researchers have examined and quantified the productivity impact of the entry and exit of firms: for example, using linked data from 1986 to 1992 *Disney et al* (2003) shows that productivity differs substantially between businesses and that exiting plants have about 4 per cent lower productivity than survivors;
- *Clayton et al* (2004) shows the effect of e-procurement on increasing business productivity, including identifying significant variation between sectors; and
- *Criscuolo et al* (2003) provides some examples of economic analysis using the Annual Respondents Database and the ARD matched with the Community Innovation Survey.

The rich dataset in the ARD and the possibility for matching this with new datasets suggests there are many opportunities for more research in the future. To exploit fully the opportunities for research offered by the Business Data Linking project, and the ARD in particular, an economic research laboratory for microeconomic analysis of business data is being set up, based at the ONS. The academic team CeRiBa helped develop and clean the first datasets and has also completed much of the initial research.¹

¹ Information on CeRiBa and the results of its work using matched datasets can be found at www.ceriba.org.uk.

Further development 10.27 While statistical offices, researchers and policy analysts are becoming more aware of the usefulness of business microdata, there remain some areas for further development work:

- currently the focus has been on exploring and explaining the determinants of business activity, but there remains the possibility of linking business microdata to information about policy interventions – such as incentives to undertake particular investments – to evaluate policy. While such work is statistical in its nature, it would involve combining business microdata with more administrative data;
- large-scale administrative datasets – such as linking with administrative data associated with taxation – provide the most complex and challenging opportunities. Data collected in a statistical survey have properties well understood by statisticians and analysts, but the statistical properties of linked datasets (particularly those linked to tax records) would be a new development. Problems of access to administrative datasets are discussed in Chapter 12;
- the growing globalisation of businesses has increased the interest in international cooperation in the data-linking area. Work in this direction would clearly stretch the legal as well as statistical frameworks within which statistical offices work. Further, it would inevitably require close co-operation and co-ordination with the large businesses that straddle borders; and
- direct feedback from linked data research into the construction of the National Accounts estimates is increasingly possible as micro-data techniques advance.²⁰

10.28 Recommendation 70: We welcome the achievements made as part of the Business Data Linking Project and recognise the advantages to researchers of having access to such linked datasets. Government departments should assist the ONS in identifying suitable datasets that could be added to the existing datasets and in developing suitable protocols for their use.

10.29 Recommendation 71: To improve the suitability of datasets for linking in to the current set, government departments should wherever possible use the IDBR as the sample frame when embarking on a survey.

SATELLITE ACCOUNTS

10.30 National Accounts focus on well-defined aspects of economic activity, but obviously do not necessarily answer every question posed by policy-makers and other statistics users. Satellite accounts allow an expansion of information and detail, without impinging on the National Accounts framework, but in a manner consistent with National Accounts principles. They can serve such data needs as:

- providing more detail where necessary;
- enlarging the scope of the accounting framework by adding non-monetary information e.g. pollution and environmental assets; and
- changing some basic concepts, such as by enlarging the concept of capital formation by the amount of expenditure on research and development or expenditure on education.

²⁰ A forthcoming paper by Beaulieu and Bartelsman will investigate whether disaggregated data can shed light on the possible sources of the statistical discrepancy between the expenditure and income measures of GDP in the US.

10.31 Standard statistical frameworks do not pay much attention to those stocks and flows which are not readily observable in monetary terms. Such items can be analysed by compiling statistics in non-monetary satellite accounts, such as:

- production within households can easily be presented in terms of hours allocated to particular activities e.g. childcare, cooking, cleaning; and
- effects of pollution can be presented in the volume of greenhouse gas emissions, household waste and effluent, consistent with activity estimates in the National Accounts.

Satellite accounts offer the possibility of linking the National Accounts to these non-monetary accounts in a consistent way, through the use of standard classifications, such as the classification of industry or household type.

Environmental Accounts **10.32** The Environmental Accounts are designed to measure the impact of economic activity on the environment in terms of resource use, emissions of pollutants, expenditure on environmental protection and environmental taxes. The Accounts are consistent with the National Accounts, enabling users to compare measures such as energy use per unit of output or greenhouse gas emission per unit of output across a range of industrial sectors. The accounts are used in the production of the Government's Sustainable Consumption and Production indicators and the European Commission's Sustainable Development Indicators. The Environmental Accounts are published biannually alongside the National Accounts (as a separate section in the *Blue Book*).²¹

Household Satellite Accounts **10.33** The Household Satellite Accounts (HHSAs) measure unpaid activities of UK households. Identifying these activities enables a comparison against similar paid activities in the National Accounts and any shifts between the two. The HHSAs are part of the ONS' series of experimental statistics. Estimates for the year 2000 are available from the ONS website.²²

Health Accounts **10.34** Health Accounts provide further information on the existing functional, source of financing and provider classifications (for example, cure versus prevention, public versus private sector financing and hospital versus GP surgeries) to allow for more detailed analysis in the field of health. Health Accounts take a different view from the National Accounts on what constitutes health activity, extending the production boundary to include household production of healthcare as well as redefining final consumption to include occupational health care (classified in National Accounts as intermediate consumption). The ONS is developing Health Accounts for the UK on an experimental basis according to an internationally agreed framework. A first experimental set of UK Health Accounts was published for the financial year 1999-2000 in February 2003. The main indicator from the UK Health Accounts, total UK health expenditure as a percentage of GDP, is used to compare the extent to which different countries allocate varying amounts of resources to health. The ONS published UK health expenditure for 1997-2002 as a National Statistic in December 2003.²³

²¹ The latest Environmental Accounts are for 2001, published in the 2003 edition of the Environmental Accounts, and are available at www.nationalstatistics.gov.uk/downloads/theme-environment/EA2C03oct.pdf

²² Information is available at www.statistics.gov.uk/hhsa/hhsa/index.htm.

²³ Information and data from the experimental Health Accounts and the health expenditure data can be obtained from www.statistics.gov.uk/healthaccounts/.

Tourism Accounts 10.35 Prototype Tourism Satellite Accounts (TSA) for the UK, as well as for the English regions are being developed as part of a programme of work steered by the Department for Culture, Media and Sport (DCMS). The DCMS commissioned a pilot TSA in December 2003, with figures to be published in Autumn 2004.²⁴ Similar projects have been conducted by the Scottish Executive and the Welsh Assembly. This development has come in response to demand from a number of bodies including Tourist Boards, Regional Development Agencies and other related bodies for more high quality data to enable better planning and monitoring.

Future development of Satellite Accounts 10.36 The French national statistical institute, INSEE, has been developing satellite accounts for several years, having worked up satellite accounts for education, environment, tourism, and health. INSEE has also been at the forefront of development of satellite analyses, which are very similar in nature to satellite accounts, but respond to demands for extra information in shorter periods of time as they are not so closely meshed with the central National Accounts framework. Such analyses have been done prior to the development of the more resource intensive satellite accounts, such as audio-visual output, as well as for other topics including social protection and housing.

10.37 There is a growing potential for using satellite accounts for understanding and aiding policy making. For example, there has been interest in Transport Satellite Accounts, and the Department for Culture, Media and Sports has highlighted the potential use of a Cultural Satellite Account. However, the ONS is not currently considering developing any new satellite accounts. It will be important to consider the relative benefits of developing new accounts against the various costs, including the increased burdens placed on firms and individuals, of collecting the data.

10.38 *Recommendation 72: In general, the development of satellite accounts needs to be considered in an overall cost-benefit framework. The ONS should consider the resource costs of these developments against its wider objectives and the frequency of the various accounts should be tailored to the specific policy demand.*

SOCIAL ACCOUNTING MATRICES

10.39 A Social Accounting Matrix (SAM) links together the statistics of National Accounts with the statistics of the labour market and of households to show the inter-relationships between economic and social statistics. Its presentation clearly illustrates how the economic process is embedded in the National Accounts, from the generation of income, through its distribution and re-distribution and finally to its accumulation in the form of assets. The matrix representation of the statistics has the advantage that it shows both sides of a transaction: who pays and who receives. Furthermore, the SAM allows for the household sector, which appears in the National Accounts, to be broken down into smaller groups and effect of the differential behaviour of these groups to be analysed. For example, compensation of employees can be broken down to show how it relates to the characteristics of the people who supply the labour, and the household sector can be expanded to show how disposable income or final consumption varies by household type.

²⁴ *Information on the Tourism Satellite Account is available at www.culture.gov.uk/global/research/statistics-frameworks-and-guidance/tour-Sate-acc.htm.*

10.40 A similar matrix can be constructed showing the volume of employment (in hours) rather than the wages and salaries (in monetary terms). Dividing the two matrices provides the average pay per hour for the employees presented in the matrix. Thus the SAM provides a framework to present wage differentials by worker type, distinguished by qualification attained, sex and broad industry sector. This detail is helpful in the analysis of, for example, returns to education and the gender pay gap. Moreover, this derived matrix allows the derivation of a quality-adjusted labour input volume index, and also allows changes to labour composition to be tracked over time. Such a derived statistic can be used for growth accounting.

10.41 An official SAM was first produced by the ONS in 1996 for the year 1993. The ONS has improved on this earlier work and produced, in 2003, a pilot SAM for 1996.²⁵ SAMs can be produced using a top-down approach (disaggregating National Accounts totals) or a bottom-up approach (by adding microeconomic data sources). The pilot SAM follows the top-down approach: statistics from household surveys are integrated into the National Accounts framework, which requires the adoption of common units, definitions and classifications – as such surveys were originally collected for different purposes. The process of putting together the pilot SAM has exposed potential inconsistencies between the National Accounts and microeconomic data from other surveys.²⁶ The compilation of the wages and salaries matrix uses National Accounts data and LFS data for information on the sex, education of employees, the industry in which they work and their wages and salaries. The main problem is inconsistency in the classification of industry in the LFS and National Accounts. This was discussed in Chapter 9.

²⁵ See *Frogner and Stuttard (2003a)*.

²⁶ See *Frogner and Stuttard (2003b)*.

11

Regional recommendations revisited

11.1 Our First Report asked for views on a number of issues, and on the recommendations and conclusions more generally. Annex A summarises the main points made in the comments received.¹ This chapter explains how our views on regional statistics have evolved in the light of those responses and further discussions, and revisits the recommendations from our First Report. The majority of responses expressed broad support for the direction of change set out in the First Report. Below we discuss primarily the main changes to our recommendations in view of the consultation; we do not repeat the full background, which is set out in our First Report.

Developing Regional Accounts to provide better quality, more timely annual baseline estimates

Benchmark GVA estimates **11.2** There was overall agreement that development of better quality GVA estimates should be a high priority. Even though it was difficult to apportion output between regions, the production approach was thought to be the most suitable for estimating annual benchmark data. Recommendation 1 is unchanged. The ONS and Inland Revenue are pursuing work to resolve remaining problems with the sources currently used for Regional Accounts

11.3 Recommendation 2 of our First Report asked the ONS to take preliminary steps, including proposing an appropriate timetable, in time for the Final Report. The ONS' response stressed the need to view development of Regional Accounts as part of the ongoing modernisation programme. It included a timetable, reproduced in Table 11.1, for the major blocks needed to meet the key regional recommendations of our First Report. The timetable suggested that development of sources and new methodology would take several years, with experimental data on the new basis for 2006 becoming available in 2007-08, alongside existing data.

¹ Individual responses to the First Report are available on the internet at www.hm-treasury.gov.uk/allstopp.

Table 11.1: The ONS' suggested timetable

Work package	2004-05	2005-06	2006-07	2007-08
Enhance surveys	Development work	Enhance value through modelling for enterprise/unit apportionment	New survey developments being implemented, following ONS modernisation programme changes to ABI and other systems	New data start to come on stream from revised surveys, initially as experimental statistics
National Accounts and other analytical work	Conceptual development work for new methods of compilation and deflation. Specification of new approaches to modelling data to increase value from and for regional data. Explore real scope for use of administrative data.	Increased modelling to make use of Inland Revenue data, and take on new sources as they become available.	Developments to make use of richer data on services etc	Take on changed data as they start to become available from the main sources, initially as experimental statistics
Regional statistical presence	Develop agreed statement of functions for regional staff Initiate pilot work in one or two regions	Start discussions to develop regional capacity in all regions	Subject to money, roll out programme. Regional teams getting bedded in and providing services both locally and nationally	

11.4 The Review Team is not in a position to assess the competing priorities for ONS resources, or to speculate on funding levels. Nevertheless, the proposed timetable is likely to disappoint many users of regional data. We would challenge the ONS to look for areas where earlier progress might be possible, including in particular the development of the timely indicator of regional GVA proposed in Recommendation 14. We have updated Recommendation 2 in this light.

11.5 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.

11.6 Recommendation 2: Present estimates of regional Gross Value Added (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 aim to produce estimates according to the timetable set out in its response to the First Report (2007-08), and earlier if possible.

11.7 Recommendation 3 has been combined with Recommendations 11 and 12.

- Short-term activity** 11.8 While there was general recognition among respondents that improving the benchmark annual GVA estimates should retain the highest priority, there is clearly a strong interest in more frequent GVA estimates, particularly in the devolved administrations. We recognise that the regional agenda is evolving and some English regions may decide to commission quarterly estimates too. If the number of regions with quarterly estimates were high enough, the potential economies of scale and advantages of consistency might tip the balance in favour of the ONS producing combined estimates for all regions and countries. We have amended Recommendation 4 accordingly.
- 11.9 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. Over the longer term, once other priorities have been addressed, there may be a case for revisiting the provision of short-term activity indicators if a significant number of regions or countries have commissioned their own quarterly GVA estimates.
- Measuring productivity and welfare** 11.10 The First Report noted that, while productivity was a main focus for regional policy, there was continuing interest in various aspects of welfare at a regional level. However, the consultation responses focused on measuring productivity, showing interest in looking at regional productivity in relation to hours worked as well as to employment.² We have amended Recommendation 5 to reflect this, and also to clarify the respective uses: GVA per head on a residence basis for welfare and GVA per employee or per hour worked on a workplace basis for productivity. Using other measures can lead to confusion. GVA per head is not a good measure of productivity it is affected by differences in the proportion of inactive or non-working age people in the region; and GVA per head on a workplace basis is not a good measure of welfare because of the effects of commuting.
- 11.11 Recommendation 5: We support the use of regional GVA both per head of population and relative to some measure of labour input, which preferably would be on the basis of both employment and hours worked. Indicators of welfare should emphasise residence-based household income, while indicators of productivity should emphasise workplace-based GVA. A fuller picture, however, requires an assessment of a wider range of indicators than GVA. In addition, below NUTS 2 level, GVA becomes increasingly difficult to measure, and other indicators are likely to provide a better picture of local economic conditions.
- Surveys and methodology** 11.12 Chapter 6 above brought together our proposals for the Annual Business Inquiry to meet regional, national and sectoral needs, which had been reflected in parts of Recommendation 6 of the First Report, now combined in Recommendation 51. Other parts of Recommendation 6 are picked up elsewhere in Chapters 4 to 6. It also highlights the importance of an accurate sampling frame to underpin statistical surveys, and potential estimation techniques too. The Inter-Departmental Business Register (IDBR) provides the sampling frame for the ONS key business surveys; Recommendation 50 updates our proposals for improving the accuracy of the IDBR and making it easier for others to use – particularly important for increasing the quality and comparability of surveys undertaken in different regions. A key part of the regional statisticians’ role, discussed in the next chapter, will be bringing local knowledge to bear to improve the accuracy of the IDBR.

² Chart 4.1 of the First Report showed how the two measures can differ.

11.13 The IDBR also plays a significant role in Regional Accounts, because it holds information on employment for the reporting and local units. Respondents to the consultation stressed the need for an accurate register of companies to underpin regional and sectoral allocation. The Register is updated through the Annual Register Inquiry (ARI), discussed in the First Report in more detail, and its accuracy can play an important role in improving the IDBR. There may also be some scope to rationalise the ARI with the employment information collected by the first part of the ABI. The intention behind Recommendation 7 of our First Report is now encompassed in the more general Recommendation 50 on business registers in Chapter 6 above.

11.14 Some of the consultation responses shared our view that, in addition to any problems with the ONS' registers or surveys, the apportionment model currently used to allocate reporting unit information between regions is itself a source of volatility. While better underlying information might reduce the problem to some extent, we still believe that the apportionment model and its effect on regional and sub-regional estimates should be reviewed. We have amended Recommendation 8 to include testing potential models against the observed behaviour of large enterprises. Even so, we do not believe any such model is likely to be able to produce estimates of satisfactory quality for very small areas, and bespoke collection and methodology would need to be developed in such cases. While our proposals for the IDBR and surveys, discussed in Chapters 5 and 6 above, envisage developments that may help apportionment, we believe the resolution of problems with regional apportionment should be given priority.

11.15 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, and also to enable potential alternative apportionment methods to be tested. It should also consider whether some local-unit reporting of accounting information should be introduced.

Incorporating regional intelligence **11.16** One of the key roles for regional statisticians will be to bring regional intelligence to bear on the Regional and National Accounts, as is done for the devolved administrations now. The arrangements for statisticians in the English regions are discussed in the next chapter. We have made no change to Recommendation 9, on the involvement of these statisticians in the framework for Regional and National Accounts.

11.17 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/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.

Regional price deflators 11.18 Recommendation 10, on the possibility of regional producer and corporate service price indices, is incorporated in Recommendation 53 in Chapter 6 above.

Income components 11.19 Responses to the consultation showed that there is some interest in the income estimate of regional GVA and its components, particularly household income, as a measure of welfare.³ The main change to Recommendation 11 is to incorporate part of Recommendation 3 from our First Report.

11.20 Recommendation 11: There will continue to be a demand for a measure of gross household disposable income and the components of GVA according to the income approach. The ONS should continue to publish an income-based measure of regional GVA and should put together proposals for any necessary improvements to existing methods and sources.

Expenditure components 11.21 Responses to the consultation re-iterated that there are many users of regional data who would like detail of trade between regions and countries of the UK; in some cases this was part of a wish for regional input-output tables that would help to analyse economic linkages between regions and industries. We recognise the validity of such demands and note that some regions or countries have already estimated their own input-output tables.

11.22 However, the boundaries between NUTS 1 regions are purely administrative, without tax or Customs boundaries, and we believe the cost of estimating good quality trade information at present would be prohibitive in view of the lack of the taxation or customs information that is available on trade at a national level. A requirement for businesses to account for the distribution of their purchases and sales between the countries and regions of the UK would be onerous and potentially beyond the current information of many firms.

11.23 The consultation exercise did not suggest that there is a particularly great demand for estimates of government consumption at a regional level. As discussed in the First Report, the Treasury publishes annual estimates of public spending for the regions. Although there are some definitional differences,⁴ we believe the detail contained in those figures, once the recommendations of the McLean Report have been implemented, are likely to be more suitable for use in regional analysis than the Regional Accounts estimates of government consumption (ie wages and salaries and spending on goods and services).

11.24 We do see some case for the ONS developing a measure of regional government spending, as part of a wider development of government accounts for the regions. These would require a lot of other information that is not readily available at present, notably the regional distribution of tax receipts,⁵ so they are an aspiration for the longer term rather than an immediate priority. We have amended Recommendation 12 to reflect this, and also in the light of the comment that any expansion of the Expenditure and Food Survey should be spread throughout the year, as an enlarged survey only once a year would risk capturing a seasonal pattern.

³ As noted above, welfare and income are assessed better using residence-based estimates of GVA than workplace-based estimates.

⁴ As explained in the First Report, the Treasury estimates are of total government spending, not just consumption; they consider expenditure 'for' rather than 'in' a region; and they exclude services such as defence that are deemed to be for the benefit of the nation as a whole. Office for National Statistics and HM Treasury (2004) explains the advantages and limitations of the different statistical methods that can be applied to measure regional government expenditure, and which approach has been used by the ONS and HM Treasury in which context, and for what purpose.

⁵ The distribution of some elements of taxation, such as income tax and VAT should be possible, subject to the quality of addresses held by the tax authorities, but others such as corporation tax present greater difficulties. The ONS published a one-off experimental set of regional government accounts, as part of a pilot exercise funded by Eurostat, see Hillis (2002).

11.25 Recommendation 12: There is a requirement for estimates of individual components of the expenditure measure of GDP. The production and income measures should be accompanied by the main components of domestic expenditure, but we do not propose full estimation of an expenditure measure of GDP. The ONS should put together proposals for the following:

- extending the sample of the Expenditure and Food Survey, 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, as a first step towards the possible development of fuller regional government accounts; and
- potential deflation techniques for each measure.

Sub-regional estimates 11.26 There is considerable interest in estimates of economic activity at levels below NUTS 1, but recognition also that many of our proposals for improving NUTS 1 Regional Accounts will also lead to better quality sub-regional estimates. GVA estimates for NUTS 2 areas have added importance because they are the basis for decisions on allocating the EU Structural Funds. While the immediate focus of attention has been on improving Regional Accounts at NUTS 1 level, we suggest that the ONS should also consider the quality of NUTS 2 data when developing the estimates for NUTS 1 areas. Given likely resources and priorities over the immediate future, we do not think it realistic to ask for significant development aimed at GVA estimates for NUTS 3 or lower, although these should be improved somewhat by larger and better stratified surveys, more accurate business registers and better apportionment.

11.27 Recommendation 13: We consider that initiatives should be aimed at the improvement of Regional Accounts data at the NUTS 1 level. These should improve the quality of sub-regional data, in particular the NUTS 2 estimates that are relevant for EU Structural Funds. The ONS should monitor the quality of these estimates and consider whether further action is necessary, for instance making use of estimation techniques, once other priorities have been addressed.

More timely estimates 11.28 There was some support from respondents for the development of a more timely indicator of GVA than the Regional Accounts, which would typically be published after a lag of 18 months or more. None of the respondents commented on how such a measure might best be constructed, or on the suitability of existing short-term inquiries. We continue to believe that adaptation of the existing short-term indicators offers the best scope for timely estimates of regional GVA growth. Here, it will be important that users are given information on how estimates are constructed and any indication of likely margins of error. But user must also accept that initial, short-term estimates are more likely to be subject to future revision than later figures. This is closely linked to the broader Recommendation 51 on business surveys,

11.29 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, with the aim of publishing estimates by 2007, and earlier if possible. Users will need to recognise that any such estimate will, of necessity, have a wider margin of error than the benchmark annual Regional Accounts.

11.30 The ONS' suggested timetable, shown in Table 11.1 above, covers the expansion of the ABI for better Regional Accounts but does not give any explicit indication of the timescale for developing a shorter-term GVA indicator. In practice, both will probably need to be pursued alongside the 'sources' review described in Chapter 6, which may dictate the timing to a large extent. Nevertheless, we believe the ONS should make an early start on these key developments.

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

Improving existing labour market and population data; estimating regional price levels

The Labour Force Survey 11.32 There was some support for our proposals rebalancing the Labour Force Survey (LFS) and for rationalising the current, rather *ad hoc* boosts to the Survey, which should be capable of providing reasonable regional and sub-regional data. However, there was considerable concern over the present discrepancy between LFS and ABI employment measures, and agreement with our recommendation that this should be pursued as a matter of urgency. In addition, there were some suggestions that there may be scope to improve some of the information that is collected by the LFS, particularly on skills. We have amended Recommendation 16 accordingly. Recommendation 17 is encompassed by the new Recommendation 67 in Chapter 9.

11.33 Recommendation 16: The extension of existing arrangements, via the introduction of the Annual Population Survey (APS), to boost the Labour Force Survey (LFS) 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, this beneficial development should be put on a more permanent and balanced footing, including centralising funding within the ONS, following a review of whether the existing arrangements are leading to detailed geographical data of adequate quality, given the differing allocation of resource between countries. The ONS, in consultation with users, should also continue to examine the scope to improve information on skills from the LFS.

Hours and earnings 11.34 Several respondents stressed the need for regional data on hours worked, which differ between regions and account for some element of the relatively high GVA per head or per employee in London.⁶ There was also a suggestion that hours worked should be available separately for men and women, for full-time and part-time jobs. We believe this to be a reasonable request, which would enhance the analytical capacity of the data and should be within the capacity of the LFS. Recommendation 18 has been amended to reflect this point. Comments on earnings data reflected the need for time series information, which is highlighted in Recommendation 19, and also better information on the low paid, which should be addressed by the ONS review of earnings data described in our First Report and Chapter 9 of this Report.

11.35 Recommendation 18: The ONS should publish a regional breakdown of usual hours information, disaggregating male and female, part-time and full-time, and pursue the feasibility study of annual regional estimates of employer-based vacancies.

⁶ See, for instance, Chart 4.1 of our First Report.

11.36 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 the presentation should recognise the increasing importance to users of the time series dimension of the results.

Population 11.37 There was broad agreement on the need to improve population and migration estimates, including migration between regions, although no substantive suggestions for alternative ways of taking things forward. Recommendation 20 is unchanged, apart from recognising the role of devolved administrations, as well as the ONS, in producing population data.

11.38 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 and statisticians in the devolved administrations develop research in order to establish how intra-UK migration can also be estimated more accurately.

Regional prices 11.39 Those who commented on regional prices were mostly content with the approach planned by the ONS, summarised in our First Report. Recommendation 21 now reflects the comment that users would calculate regional inflation rates for themselves from price levels, even if no official inflation estimates were published. This means that the ONS should pay some attention to the coherence of price levels and changes, although the information on relative price *levels* should still take priority. Over the longer-term, there could be scope for further development, for instance if additional information from the expanded Expenditure and Food Survey (EFS), suggested in Recommendation 12, indicated that spending patterns within product groups varied markedly between regions.⁷

11.40 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, recognising that users will be able use level information to derive estimates of regional inflation rates, but these should be aimed at operational simplicity rather than full coherence between price levels and changes.

A framework for providing micro-regional data and increasing comparability

Developing infrastructure 11.41 Respondents had some concerns over the Neighbourhood Statistics Service, but these were generally with particular aspects of the current Service, for example about the timeliness of data, rather than its suitability as a platform for micro-regional data. There was no suggestion that it would not be suitable for such purposes, and the only change we have made to Recommendation 22 is to take account of the need to include the parallel developments in Scotland and Northern Ireland. There was support for using new definitions of rural and urban areas, once they have been agreed within government, and also with the devolved administrations.

⁷ *The present ONS methodology already allows for regional variation in the pattern of spending between different product groups.*

11.42 Recommendation 22: The considerable work undertaken in recent years to develop the Neighbourhood Statistics Service shows what can be possible, although not without a price. We support the aim of the ONS to continue development of the Service. We recommend that this, and parallel systems in devolved administrations, should include scope to cover an expanded range of economic data, which could be presented at a range of different geographies below and up to NUTS 1 regions, to become the key central resource for micro-regional data. Where possible, data for small areas should identify those that cover rural areas, once a consistent definition has been agreed within government. The range of different data, including regional economies and local neighbourhoods, might suggest a suite of different access portals for such an expanded system. But the 'Neighbourhood Statistics' badge should be retained for those data most relevant for neighbourhood renewal.

Regional dimension to new surveys 11.43 Our suggestion that there should, wherever possible, be a regional dimension to new surveys received some support. It is difficult to be prescriptive here, because the precise circumstances are likely to differ for each survey. And we recognise that there may be some times when adding a regional dimension might entail disproportionate cost, or methodological complications. We have also amended Recommendation 23 to take account of the helpful suggestion that it should apply to existing surveys that are being re-designed as well as to new surveys, and also to note the option of providing regional information to a lower degree of accuracy than national data, as indeed we suggest for National and Regional Accounts.

11.44 Recommendation 23: When designing new surveys or re-designing existing surveys, the ONS and other bodies should take full account of the need for regional and sub-regional data. How precisely this is done and the level of accuracy required will depend on the particular circumstances, including assessment of the relative costs and benefits.

Geography 11.45 The consultation exercise provided further examples of the considerable interest in economic statistics at sub-regional level, down to quite small areas. There was broad support for establishing consistent geographical boundaries as far as possible, and Recommendation 24 now reflects the emphasis from users on consistency of sub-regional areas too. There may be some times when particular users have good reason to depart from the standard NUTS hierarchy, but we believe that in most cases a consistent set of regional and sub-regional boundaries is an essential pre-requisite for building up a full picture of the area in question. The only change to Recommendation 25 is to add a reference to the parallel systems in Scotland and Northern Ireland.

11.46 Recommendation 24: The NUTS hierarchy is now widely accepted across a broad range of statistical and administrative bodies. It should ideally be the standard, at the very least at the NUTS 1 level and where possible at lower levels, unless there are overriding operational reasons to do otherwise. We welcome the ONS' proposals for a more stable small-area geography. Any new classifications that are introduced should where possible be built up from this proposed geography.

11.47 Recommendation 25: The current policy is that data included in the Neighbourhood Statistics Service, and parallel developments in devolved administrations, should be available for all areas. However, in some cases there may be good reasons why data are not available for all areas. Within reasonable bounds, we do not believe this should prevent their inclusion on a central system.

NOMIS 11.48 Those users who commented, generally re-iterated the support for the National Online Manpower Information System (NOMIS) that we encountered in discussions before our First Report. This included concern that NOMIS should not be phased out until the required functionality is available on the Neighbourhood Statistics Service. Recommendation 26 has been extended to include the wish that such functionality should eventually extend beyond economic statistics.

11.49 Recommendation 26: Future development of the Neighbourhood Statistics Service, including the introduction of economic statistics, should take full account of the needs of professional users. Accordingly, the ONS should ensure that the analytical requirements of NOMIS users are met in the new framework, wherever possible including Neighbourhood Statistics as well as economic statistics. Until this is possible, NOMIS or an equivalent system should be retained separately and adequately resourced to maintain service to users.

11.50 Recommendation 27 is discussed in Chapter 12, as its applicability extends beyond regional statistics.

Consistency of regional surveys 11.51 Respondents generally agreed on the need to increase the comparability of surveys undertaken by or on behalf of regional bodies. They welcomed the potential role for a ‘kitemark’ that would indicate a common approach had been adopted, according to ONS or GSS guidance. There was some worry that a requirement to use the Inter-Departmental Business Register (IDBR) would not be compatible with undertaking telephone surveys, due to the lack of telephone numbers on the IDBR, and also that very small business is under-represented on the IDBR. We hope that our recommendations for the IDBR in Chapter 6 go at least some way towards answering such concerns; the advantages of a common sampling frame are quite considerable. We have made only one small change to Recommendation 28: to recognise that in the devolved administrations it may be GSS rather than ONS members who would be the first point of contact for central advice and guidance, though there would need to be significant co-ordination with the ONS to ensure consistency.

11.52 Recommendation 28: Regional and local bodies will still have particular needs that are best met through *ad hoc* data collection. Regional autonomy is important, but balanced against this are significant advantages of having data that are compiled on a consistent basis and that are comparable across regions. We therefore recommend that:

- wherever possible, business surveys should use a common sample frame, usually the IDBR;
- Regional Observatories can play an important role here, including sharing of best practice;
- but this may be further facilitated by the ONS and GSS acting as a source of advice and best practice for data collected by regional bodies; and
- the ONS and others should consider an intermediate ‘kitemark’ for surveys which have been undertaken in accordance with ONS advice and compiled according to agreed standards and procedures, but are outside of ONS responsibility.

12 Institutional recommendations revisited

12.1 This Chapter sets out how we have amended our recommendations for the statistical infrastructure, including making greater use of administrative information and compliance cost issues. Respondents to the consultation were particularly interested in proposals for a regional statistical presence and also for making greater use of administrative information; both were supported in most responses. Views from the consultation are summarised in more detail in Annex A,¹ and the background to the recommendations is set out in the First Report; below we discuss the main changes in the light of responses received.

Transparency 12.2 The recommendation on transparency has been moved into this chapter because it applies more generally than just to regional data; it has also been amended to cover all producers of statistics and not just the ONS. Moreover, it relates to our proposals for a regional statistical presence, as part of that role should involve helping users to understand the data better. Quite a lot of information on how data are compiled is already available on the internet, particularly on the ONS website.² But we have heard from some users that it can sometimes be difficult to find. Better signposting and navigation around the site would help users to discover and make better use of this material.

12.3 Recommendation 27: All producers of statistics should aim to provide full information to users about how data have been constructed and which are appropriate uses. A wide range of information is already available on the ONS website, but should be made more readily accessible. Statisticians in the English regions and the devolved countries can also play an important role in informing and helping users.

Capturing change 12.4 As well as responding to the structural change that has already taken place, producers need to ensure that official statistics keep pace with further change in the economy. There was agreement on the need for innovative and strategic capacity within the statistical services, and several respondents stressed the importance of regular liaison between producers and users of statistics as a way of keeping in touch with current issues and changing demands. There was also a feeling that it is not enough simply to spot issues, but there is a need for mechanisms to embed developments into the statistical systems and, crucially, for reallocating resources as priorities change.

12.5 Success in keeping up with structural change would require significantly greater flexibility in deploying resources, and also that key users will know how their views and concerns have been taken forward in the relevant planning processes. One crucial aspect is the need to keep the balance and stratification of surveys under review to reflect ongoing change in economic structure, covered in Recommendation 48 in Chapter 5. The ultimate measure of success would be avoiding the need for a subsequent review to revisit our question of whether official statistics properly reflect the changing economic structure of the UK.

¹ Individual responses to the First Report are available on the internet at www.hm-treasury.gov.uk/allstopp.

² www.statistics.gov.uk.

12.6 Recommendation 35: The innovative and strategic capacity within the statistical services needs to be strengthened, so that they can respond in a more satisfactory way to changes in the policy framework, in the economy and in society. A proactive approach to identifying and responding to these issues would include a strengthened research capability, greater ability to prioritise in the face of substantial but disparate user needs, and good liaison with users to find out how their needs develop over time. Once issues are identified, there should be a mechanism for investigating implications of such changes for *National Statistics* and implementing necessary changes, including reallocating resources.

Integrating regions into the statistical infrastructure and making better use of administrative data (Chapter 10 of the First Report)

Regional statistical presence 12.7 The proposal from our First Report that attracted most comment was that of introducing an ONS or GSS statistical presence into the English regions. Most responses were supportive of the idea and discussed aspects such as their prospective role, location, reporting arrangements and links with other users. Some concern was expressed about the potential cost, with a suggestion that a similar service might be provided from a central location. However, we believe that the full role envisaged could only be carried out effectively from the regions – for example in developing good relationships with regional data users, producers and researchers.

12.8 With the precise orientation of regional institutions varying between the English regions, we believe there is a pragmatic case for deciding on the location of the statisticians on a region-by-region basis. The two prime candidates appear, both to us and to respondents in the consultation exercise, to be the Government Office and the Regional Observatory.³ The Government Office would offer a secure environment for dealing with sensitive information and good communication links; the Regional Observatory would be closer to major users of regional data and was suggested by some respondents as a location that would help statisticians to avoid being ‘captured’ by centre-led work. We believe either location could be made to work, provided that there was an ‘outward-looking’ focus, a balance maintained between centrally-driven and regional work, and adequate safeguards for confidential information.

12.9 With such an innovation, it is inevitable that there will need to be an element of ‘learning by doing’, which in turn suggests that there will be benefits from close liaison between the regions to compare experiences and to learn from best practice. As the ONS’ timetable in Table 11.1 implies, a small number of pilot schemes, if they can be rolled out quickly, could be a good way to test alternative working arrangements. Ultimately, the decision should be taken by the ONS or the GSS, as organisations employing the statisticians, but it is essential that this is done in consultation with others in the region.

12.10 Recommendation 36: There should be a significant ONS or Government Statistical Service (GSS) presence in each English region:

- they should seek to provide a source of regional expertise to improve the ONS’ understanding of the regions, while also developing links with and acting as principal contacts with regional bodies and researchers;
- the offices must be sufficiently resourced to make a real contribution. One person in each region, even with support from ONS Head Office, is unlikely to be enough;

³ See Chapter 3 of our First Report for a description of the range of regional institutions and their relative roles.

- regional statisticians should work with the same independence as those in ONS Head Office, while liaising closely with Government Offices, Regional Development Agencies, Regional Observatories, local authorities and other relevant bodies and individuals;
- the location in each region may vary, in the light of the particular institutional arrangements in that region, but should be one that balances an ability to maintain effective liaison with Head Office with the needs of the significantly ‘outward-looking’ role that is proposed;
- decisions on location should be taken on a region by region basis, considering possibilities such as the Government Office and the Regional Observatory; and
- there should be a common function and reporting arrangements for regional statisticians, even where the location within the region differs.

Assessing micro-data priorities 12.11 There were some suggestions about the nature of our proposed high-level group to establish priorities and assess demands for micro-regional data. Respondents stressed the need for such a group to be quite small in order for it to be an effective decision-making body – this points to something akin to a ‘steering group’. The scale of the challenge is illustrated by the simple point that numbers start getting close to unwieldy even if there is just one representative from each region or country plus one or two from the centre.

12.12 Such unpleasant arithmetic leads us to conclude that the group might be more effective if it could be formed of a smaller number of regional and country-based experts, with a mandate from colleagues not around the table, together with very limited number of representatives from the centre. Perhaps, for example, two or three regions could share a seat on the group. But whatever the configuration, it will be important that it dovetails closely with the present, varying and evolving, regional structures. It will be important for such a group to have clear Terms of Reference and timetable. There will also need to be a clear link into the ONS’ decision-making processes, so that the group knows how its views have been taken into account.

12.13 Recommendation 37: A mechanism should be set up for establishing priorities and assessing demands for micro-regional data. This might take the form of a high-level group including both producers and users of micro-regional data, with regional bodies having a significant voice in the group. A way of limiting numbers around the table would be needed to make such a group workable, for instance by use of experts with delegated powers from regional organisations. The decisions of the group should take full account of the relative costs and benefits of data provision.

ONS central resources 12.14 There was some support for our recommendation on the need for adequately-resourced central support for methodology, user liaison and ICT. Some respondents suggested that statistics user groups should have a higher level of resource and a greater role. In the time available, we have not been able to investigate the decision-making framework of the statistical services in sufficient detail to make more specific recommendations on particular aspects, but we stress the importance that there should be a mechanism for soliciting and taking due account of users’ views.

12.15 Recommendation 38: A higher level of resources should be devoted to building methodological, user liaison and ICT capacity to the level necessary for compliance with the wider recommendations in this Report.

Data needs for PSA targets 12.16 Our proposal for assessing data needs before setting PSA targets attracted little comment. We have amended Recommendation 39 to take account of the suggestion that its coverage should not be limited just to Public Service Agreement (PSA) targets. We also note that this is closely linked to ongoing government efforts to achieve closer integration of analysis and policymaking.

12.17 Recommendation 39: As targets need to be measurable, there are benefits from ONS or GSS experts being involved at an early stage of the development of targets, to advise on any associated measurement difficulties. All suggestions for new Public Service Agreement targets, or other government targets, should therefore set out how performance can be measured, based on early consultation with the relevant analysts.

Pressure from EU legislation 12.18 One potential pressure on the resources of the statistical services comes from the impact of new or revised EU legislation, which can require additional data collection. Such changes are often agreed by one central government department, which then passes responsibility for the data onto the ONS (and the devolved administrations' statistical services for areas of devolved responsibility). This adds a clear risk of distorting the priorities and pre-empting the resources of the statistical services. We have therefore added a new recommendation that aims to prevent such 'crowding out' when other government departments agree EU legislation that requires data collection.

12.19 Recommendation 73: Any additional financial and compliance costs of new statistical regulations introduced by Eurostat should be transferred from the budget of the central government department that leads on the relevant Council formation to the ONS, once the ONS has taken on the measurement role.

Administrative data 12.20 Most comments received were supportive of making greater use of administrative information and of tackling the barriers that have prevented its use. Some respondents noted the potential scope for savings if there were greater collaboration between departments in data collection and use, and some from regional bodies were keen to have greater access to information held by the ONS too. However, most recognised that there remain difficult problems to be resolved, particularly legal barriers and the need to ensure adequate protection of confidentiality. And some were more cautious, emphasising the need to be clear about the quality of administrative information before incorporating it into official statistics, for instance whether address details and industrial classification held by government departments would be of sufficient quality to be used for statistical purposes.

12.21 While many respondents were keen to accelerate progress on making better use of administrative data, there was much less comment on the sort of process that should be set up to resolve issues. We have retained the suggestion that this should be taken forward between the ONS and the government, although we recognise that there are other bodies that might play a role too, including the Statistics Commission. We have extended Recommendation 40 to clarify some of the issues that we believe need to be addressed. Support for use of administrative data also extended to the particular case of access for the ONS to information from the Inland Revenue and HM Customs and Excise, as set out in Recommendation 41. The forthcoming merger of the two revenue departments, announced earlier this month, offers a good opportunity to revisit many of the relevant issues.

12.22 Recommendation 40: Administrative data, if used wisely, appear to offer opportunities to increase the quality and analytical power of key *National Statistics*, as well as reducing the associated compliance costs. More generally, within the important constraints of adequate protection for sensitive information and limiting use to solely statistical purposes, we believe there is considerable scope for the Government to make better use of the information that it holds. The ONS and the Government should explore the extent to which tax and other administrative sources could replace business survey data. They should propose the necessary action to overcome legal and other barriers where information is held within government that is of sufficient quality to improve statistical provision, or where quality can be increased to meet statistical needs, while maintaining adequate safeguards of confidentiality.

12.23 Recommendation 41: We recommend in particular that the Government should as a matter of priority develop mechanisms whereby the ONS and the statistical services in the devolved administrations could have greater access to the information collected by the two Revenue Departments. On the other hand, the ONS should investigate how information on the IDBR could be made more widely available, subject to appropriate safeguards on confidentiality and use only for statistical purposes. Either of these may require changes to existing legislation, or indeed new legislation.

Minimising the effect of our proposals on business compliance costs (Chapter 11 of the First Report)

Simplification 12.24 Those who commented were in favour of simplification of survey forms and similar ways of reducing the compliance burden on business. We have extended the recommendation to take account of some helpful suggestions: that it should not only apply to the ONS; that joint working by government departments could help; and that there was also a potential role for better use of Information and Communications Technologies. Some of our other recommendations, for example on the Business Register and on the wider review of sources, also pick up themes such as consolidation and simplification of sources.

12.25 Recommendation 42: We welcome action by the ONS to keep the complexity of its survey forms under review. The ONS and others involved in data collection should simplify forms as much as possible (recognising the constraint of the need for consistent questions) and also consider whether there is scope for rationalising surveys, for instance by amalgamation and joint working by different departments, where this would reduce compliance costs. Data collectors should also consider the scope for reducing the compliance burden through making better use of Information and Communication Technologies.

Relationship with respondents 12.26 There was some support for our proposals for how the ONS might develop a better relationship with the businesses that fill in its survey forms. The main suggestions were that the contribution of surveys to regional as well as national data should be noted, and that regional bodies could have a part to play in any ‘roadshow’ to explain to firms how their data are used.

12.27 Recommendation 43: The ONS should seek to exploit full advantage from further developing its relationship with companies providing data, for instance by explaining how surveys are used and offering firms information about their sector. The ONS, possibly with the involvement of HM Treasury and the Bank of England, could also improve its ‘brand image’, so that firms recognise the outputs to which their responses to surveys contribute and their importance for national and regional policy. This could improve the response rate of surveys and the quality of returns made by companies, as well as the potential to reduce complaints over compliance burdens:

- the ONS should review the way it explains to firms why it is seeking information from them; and
- part of this could involve (with help from regional organisations, HM Treasury and the Bank of England) regular roadshows to the regions to show firms how their responses feed into the production of national and regional statistics and subsequently into better policy making.

ONS compliance in context 12.28 Several respondents believed the benefits of improved regional data would outweigh the potential increase in compliance cost, provided that it was carefully targeted and produced a real improvement in statistical provision. However, at the same time there was encouragement to find ways of reducing the burden, such as through use of administrative information or joint working by departments. Although any increase in compliance cost should not be approached lightly, the scale of underprovision of data to support regional policy is such that we believe the potential benefits would outweigh some increase in the ONS’ compliance ceiling. We would not wish to see offsetting cuts being forced in other areas of economic statistics.

12.29 Recommendation 44: We recognise that businesses today face many administrative and regulatory burdens, which can be especially difficult for small firms. The compliance cost associated with statistical inquiries is rightly under close scrutiny. But we believe that the ONS accounts for a very small part of the overall regulatory and administrative requirements placed on business. While such burdens should never be increased without good cause, we believe some increase in compliance costs would be justified in terms of the significant improvements in national and regional statistics that can be achieved. There may be scope to offset some of this, in particular through making better use of administrative and tax information.

12.30 Recommendation 45 sought views in the consultation, so no longer applies.

13 Conclusion

13.1 In the preceding chapters we have set out our view of the action needed to move towards the overall aim of a coherent, balanced and integrated statistical system, and one that can respond effectively to a changing environment. Our First Report identified a shortfall in provision of regional data and discussed the imbalance that has arisen because the evolution of economic statistics had not been able to match the pace of structural change, although the coverage of the service sector has improved considerably in recent years. We have sought solutions that not only seek further improvements in the balance of the statistical system, but also reduce the scope for similar problems to reoccur in the future. We have, of necessity, focused our attention on detailed elements of a ‘core’ dataset, including both industrial and regional information, delivery of which should be a technical priority for the statistical services. But we have also pointed the general direction, or areas for closer scrutiny, for parts of the system beyond this core.

13.2 We have set out a large number of recommendations, which in their detail can distract from the wider picture. We therefore re-iterate our view of the main aims of this Report:

- good quality baseline Gross Value Added estimates for NUTS 1 regions, and improved detail at lower levels, as part of an integrated system producing both National and Regional Accounts;
- a statistical system that is not skewed towards particular sectors of the economy, that reflects the contribution and nature of different economic sectors, and that evolves alongside future change in the economy;
- a coherent and efficient suite of registers, surveys and estimation procedures, based on sound statistical principles, that reflects the balance of the economy and delivers reliable results at acceptable compliance cost;
- that the range of information held by government can be used to increase the quality and the compliance and cost efficiency of economic statistics, while safeguarding its confidentiality; and
- good links between the centre, ONS/GSS statisticians located in the regions and devolved administrations and regional bodies, with greater comparability of those micro-regional data that are not collected centrally.

13.3 Many of the recommendations are addressed primarily to the ONS, as the central producer of most UK and sub-national economic statistics, which could also be charged with oversight of how our recommendations are taken forward. However, it is essential that implementation proceeds in close consultation with both producers and users of statistics. Significant contributions to our work were made by statisticians in other government departments and the devolved administrations, by experts in the regional bodies and by a number of other stakeholders. Their involvement in this work must continue.

13.4 Much of the Review has been conducted with cost-benefit considerations at least implicit. But we have tried to avoid questions of the overall level of resources required for the provision of economic statistics: these are rightly for the Government's Spending Review, to be concluded later this year. While we do not have the information required to produce detailed costing of our proposals, a number of our recommendations do have implications for the resources (including business compliance costs) deployed in the production of economic statistics: expansion of the Annual Business Inquiry, development of the business register, establishment of a regional statistical presence and introduction of some form of product survey for the service sector. Some savings, which again we cannot quantify, should be possible if greater use can be made of administrative information.

13.5 We recognise that we have set out an ambitious agenda, which puts substantial demands on the ONS and other parts of the statistical services. Its resource implications extend to both cash and the statistical compliance burden on business. While neither should be increased lightly, we do not believe that the present statistical system is capable of supplying the data needed to conduct effective economic and regional policy. A step change is needed if the Government is serious about providing the information required for regional policy, and about having economic statistics that properly reflect the economy of today.

13.6 Our review has not taken place in a barren landscape. During the course of our discussions and investigations, we have come across a number of reviews looking at parts of the statistical system. In particular, work is already underway to reverse the effects of years of under-investment in the UK statistical system. We have discussed in both our Reports how the ONS' modernisation programme is moving in the same broad direction as our recommendations. This ongoing reform programme is welcome: had we undertaken the Review four or five years ago, the outlook could have been rather more gloomy.

13.7 Finally, it is worth asking how should one judge success or otherwise in meeting the challenges we have identified. A simple test would be whether the main aims, outlined in paragraph 13.2, have been fulfilled; this would be closer to the spirit of our report than a simple count of how many of our recommendations had been met. We realise that we set a challenging agenda, and we wish success to all those involved in taking it forward.



Report on the consultation

A.1 This annex reports on the consultation process that followed publication of our First Report and summarises the responses received. The Review Team is grateful to all those who have contributed by submitting views formally, by attending our seminar or through the other meetings and discussions that we have had. The responses raise a wide range of issues and highlight the breadth of interest in and use of economic statistics. Together with the meetings and submissions in advance of our First Report, they have made a significant contribution to our work and our recommendations.

Seminar on regional statistics

A.2 The Review Team hosted a seminar at HM Treasury on 12 January to discuss the implications of our First Report for regional statistics. Around 100 people attended, including representatives from central and local government, regional bodies, academia and private business. Ed Balls, Chief Economic Adviser to the Treasury, opened the seminar and was followed by speakers from Greater London Economics, the Office for National Statistics, the Scottish Executive, the Statistics Commission and HM Treasury, as well the Allsopp Review Team.

A.3 Points made or questions raised at seminar, either by speakers or from the floor, included:

- whether and how national activity could be allocated sensibly between regions;
- a need for comparability over time, between regions and ideally with other countries;
- whether the ONS could, or should, meet the clear, if political, desire for timely, frequent estimates of activity such as those produced or under consideration in the devolved administrations;
- many of the indicators proposed for regions would be needed for sub-regions too;
- difficulties were caused by having two divergent measures of the same thing, a problem with present employment estimates – particularly in London;
- the importance of input-output analysis for looking at structural issues, even if the information was expensive to obtain;
- problems with confidentiality and disclosure requirements prevented some types of information being shared and stopped others being published;
- some users wanted no loss of the very detailed statistics for manufacturing, and preferably more made available;
- how would a regional statistical presence fit into the different institutional frameworks across the English regions; and
- the need to take account of the views of all users, including private sector users and opposition parties.

Other meetings A.4 The Allsopp Review Team also made presentations to a number of other audiences including the National Statistics Open Day, the ONS' Statistics for Regional Policy Working Group, ABI User Group and Economy Theme Working Group, and Oxford Economic Forecasting's Industry and Regional Group. In addition, the Review Team had helpful discussions with the following organisations and individuals while preparing the Final Report:

B.K. Atroscopic
Bank of England
Department of Trade and Industry
HM Treasury
Tim Holt
John Kay
Office for National Statistics
Nick Oulton
Sector Skills Development Agency
Statistics Commission
Jack Triplett

Response to the First Report A.5 We received 30 submissions in response to our First Report.¹ There was a wide range of views expressed covering almost all aspects of the Report. A clear majority of responses expressed broad support for the overall approach taken and the direction of the recommendations. Some of the main points raised and additional suggestions are summarised below, although the complete picture can only be gained from the detail of individual submissions.

A.6 The responses highlighted a considerable demand for good quality statistics for a wide range of purposes and often at a very detailed level. Where data are already available, respondents were keen that this should continue; where they are not or only partly available, respondents were keen that they should be introduced or improved. The responses demonstrated significant interest in two of our institutional recommendations: a statistical presence in the English regions and making greater use of administrative data.

A.7 Comments made on our recommendations for developing **Regional Accounts** to provide better quality, more timely annual baseline estimates (Chapter 6 of our First Report) included:

- support for giving priority to improving annual, baseline GVA estimates, based on the production approach, with a wish for back data to ensure comparability over time;
- the overall timetable for improving regional data should be seen in the context of the ONS' ongoing modernisation programme;²
- concern over the volatility of estimates from the ONS' apportionment model, which was not thought suitable for estimating small area data;
- support for expansion and improvement of the Annual Business Inquiry to provide better regional information, with some respondents stressing the need for better sub-regional data while others did not want to lose any of the present detailed coverage of the manufacturing sector;

¹ All responses are available on the internet at www.hm-treasury.gov.uk/allsopp. A list of respondents appears at the end of this Annex.

² The response submitted by the ONS included an indicative timetable for change, in response to the request in Recommendation 2 of our First Report.

- several respondents wanted estimates of full regional trade flows to enable input-output tables to be constructed, while others agreed with the recommendation in our First Report that the full expenditure measure (including intra-regional trade) should not be pursued, at least in the short term, in view of the costs and difficulties involved;
- government consumption in a region would be of limited interest by itself, without other components such as capital spending, social benefits and other transfer payments, or even as part of full regional government accounts;
- some stressed their needs for robust sub-regional GVA data, in one case down to NUTS 4 or 5, and a broader range of sub-regional indicators; and
- there was scope for confusion from inappropriate mixing of workplace- and residence-based data, and in particular estimates of GVA per head on a workplace basis were likely to be misleading because of distortion from the net effect of commuting.

A.8 Points made on our recommendations for other **macro-regional data**, including labour market, population and price estimates (Chapter 7 of our First Report) included:

- some thought that the LFS could be used effectively to obtain better information on skills, sectoral employment or periods of short-term unemployment;
- respondents shared the Review's concern over the inconsistencies between LFS and ABI employment measures, the quality of internal migration estimates, and support for publishing regional breakdown of hours worked;
- some expressed concern over volatility of the New Earnings Survey at small geographies, and that it did not provide sufficient coverage of low paid workers or on a residency base; and
- users will calculate inflation rates if given regional price levels, so there should be reasonable coherence between estimates of levels and changes.

A.9 Points made on our recommendations for **micro-regional data** (Chapter 8 of our First Report) included:

- there were some concerns over timeliness of data in Neighbourhood Statistics and slower progress on some areas;
- data in Neighbourhood Statistics should use the new urban/rural definitions once they have been agreed, but including devolved administrations in discussions on those definitions;
- most supported adding a regional dimension to new surveys where possible, and the recommendation might be extended to include redesign of existing surveys too, although there was some concern about whether additional cost from regional dimension might deter statistical innovation;
- some respondents stressed the advantages of long-term consistent geography, although others wanted some flexibility to reflect changing economic geography or functional areas that do not fit smoothly into the NUTS hierarchy;

- support for an intermediate ‘kitemark’, though there was some concern if this required all organisations to use the IDBR as a sampling frame, because of the lack of phone numbers and low coverage of the very smallest businesses.

A.10 Points made in response to our initial views on the extent to which official economic statistics have properly reflected the **changing structure** of the UK economy (Chapter 9 of our First Report) included:

- a number of respondents, while agreeing on the need to improve coverage of the service sector, did not wish to lose any significant detail of the manufacturing sector;
- the imbalance between coverage of manufacturing and services, particularly in terms of compliance and resource costs, would look even more stark if the international trade statistics systems were included too;
- there was some desire for stratification to be able to take account of the different industrial structures of particular regions, and a suggestion that where excessive detail is required by European Regulation it could become a by-product rather than a driver of data collection;
- only a few respondents expressed concerns about sectors not measured by the ONS, with questions raised about quality of construction and agriculture data and about the regional dimension of construction and financial services; and
- there was support for the need to capture change, and that users should be involved in this too, but there was some concern over the potential effects of ICT, the ‘knowledge economy’ and intangibles, together with an argument that the SIC was not always flexible enough to capture emerging sectors.

A.11 There was considerable interest in the proposal to base some ONS or GSS **statisticians in the English regions** (Recommendation 36). Most welcomed the recommendation and commented on how it might best be implemented. Points made by respondents included:

- some suggested that the Government Office would, at least in the first instance, be a suitable, secure place for the regional statisticians to be located;
- others wanted to keep some distance from ‘centre-led’ activities and adopt an ‘outward-looking’ role working closely with key regional users and researchers, noting that Government Offices are not prime users of data;
- many stressed the need for the location to reflect the particular institutional set-up in each region, with the Regional Observatories mentioned by a number of respondents as a potential location;
- wherever located, it was felt important that regional statisticians operated with the same independence as the ONS/GSS, were not seen as part of central government, had common function and reporting arrangements, and would be able to balance regional and local needs against their responsibilities to the centre; and
- some responses expressed concern at the costs involved, and one urged consideration of other models for providing a service to regions and promoting data comparability.

A.12 Other points made on our **institutional recommendations** for the statistical services (Chapter 10 of our First Report) included:

- the high-level group to discuss regional priorities would have to be relatively small to be an effective decision-making body, but this would mean that not every institution from every region could be represented in person;
- a strong regional voice was needed as a counterpart to strong pressures from central government, London and Scotland, and a clear view was needed on how any arrangement would fit with the ONS' decision-making processes;
- some argued that statistics user groups should be better resourced;
- there was broad support for making better use of administrative data, including tax records, for national and regional statistics, with a wish for speedy resolution of issues of confidentiality and other necessary safeguards; and
- some concern that administrative information was not very good at capturing location effectively, and the scope, coverage and validity for use in statistical analysis would need to be investigated before administrative data were used.

A.13 Points made on our discussion of **business compliance costs** (Chapter 11 of our First Report) included:

- there was thought to be scope to rationalise some statistical surveys and forms, with possible compliance savings also from use of ICT and from greater joint working by government departments;
- presentation of the benefits of data collection to businesses should include the use for regional as well as national data; and
- some respondents stressed the potential benefit of using information collected by other parts of government, which could be used to improve data and/or to reduce compliance costs.

A.14 The Review Team received responses to our First Report from the following organisations and individuals:

Association of Regional Observatories
 The BETA Model
 A Christie, PG McGregor, E McVittie and JK Swales
 City of Sunderland
 CogentSI
 Countryside Agency
 Department for Culture, Media and Sport
 Department of Trade and Industry
 Durham County Council
 Brian Eaton
 Geofutures Ltd
 Government Office for the North East
 Highlands and Islands Enterprise
 Richard Morris
 North East Assembly and Association of North East Councils
 North East Regional Information Partnership

Northumberland Information Network
Northwest Development Agency
Office for National Statistics
Office of the Deputy Prime Minister
One NorthEast
Optimal Solutions Ltd
Scottish Executive
Sector Skills Development Agency
South West of England RDA
Statistics Commission
Ray Thomas
Philip Turnbull
Women's Budget Group
The Work Foundation

List of abbreviations

ABI	Annual Business Inquiry
ARD	Annual Respondents Database
ARI	Annual Register Inquiry
ASHE	Annual Survey of Hours and Earnings
CAP	Common Agricultural Policy
CBI	Confederation of British Industry
CoE	Compensation of Employees
CPI	Consumer Prices Index
CPS	Continuous Population Survey
CSPI	Corporate Services Price Index
CVM	Chained volume measure
DCMS	Department for Culture, Media, and Sport
DEFRA	Department for Environment, Food and Rural Affairs
DfES	Department for Education and Skills
DoH	Department of Health
DTI	Department of Trade and Industry
DWP	Department for Work and Pensions
ECB	European Central Bank
EFS	Expenditure and Food Survey
ESA	European System of Accounts
EU	European Union
FISIM	Financial Intermediation Services Indirectly Measured
GDP	Gross Domestic Product
GFCF	Gross Fixed Capital Formation
GO	Government Office
GOR	Government Office Regions
GOS	Gross Operating Surplus

List of abbreviations

GSS	Government Statistical Service
GVA	Gross Value Added
HHFCE	Household Final Consumption Expenditure
HHSA	Household Satellite Account
ICT	Information and Communication Technologies
IDBR	Inter-Departmental Business Register
IPS	International Passenger Survey
IoP	Index of Production
IoS	Index of Services
IR	Inland Revenue
IT	Information Technology
ITIS	International Trade in Services
LFS	Labour Force Survey
LMS	Labour Market Statistics
LPC	Low Pay Commission
MIDSS	Monthly Inquiry into the Distribution and Service Sectors
MPC	Monetary Policy Committee
MPI	Monthly Production Inquiry
MTIC	Missing trader intra-Community [fraud]
NACE	General Industrial Classification of Economic Activities with the European Communities (the acronym relates to the French language version)
NES	New Earnings Survey
NeSS	Neighbourhood Statistics Service
NISRA	Northern Ireland Statistics and Research Agency
NMW	National Minimum Wage
NOMIS	National Online Manpower Information System
NUTS	Nomenclature of Units for Territorial Statistics
ODPM	Office of the Deputy Prime Minister
ONS	Office for National Statistics
PAYE	Pay As You Earn

PBR	Pre-Budget Report
PC	Personal Computer
PESA	Public Expenditure Statistical Analyses
PIM	Perpetual Inventory Method
PPI	Producer Price Index
PRB	Pay Review Body
PRODCOM	Products of the European Community
PSA	Public Service Agreement
QPE	Quarterly Population Estimates
RDA	Regional Development Agency
RPI	Retail Prices Index
RSI	Retail Sales Inquiry
SAM	Social Accounting Matrix
SE	Scottish Executive
SIC	Standard Industrial Classification
SNA	System of National Accounts
SSC	Sector Skills Council
SSDA	Sector Skills Development Agency
STOIR	Short-Term Output Indicators Review
TFE	Total Final Expenditure
TFP	Total Factor Productivity
TSA	Tourism Satellite Account
TUC	Trade Union Congress
VAT	Value Added Tax
WFJ	Workforce Jobs
WGA	Whole of Government Accounts
WNDP	Weitzman's Net Domestic Product

Glossary of statistical terms

Annual Business Inquiry (ABI): annual survey of business employment and accounting information, such as turnover and investment.

Apportionment: the allocation between regions of the activity of a company that has units in more than one region (see local unit, regional multiple, reporting unit).

Benchmarking: bringing initial estimates in line with later, more robust data; usually in the context of bringing quarterly estimates in line with new annual figures based on larger and more comprehensive surveys.

Blue Book: the common name for the annual *UK National Accounts* that has a blue cover in the shops but not on the internet.

Compensation of Employees (CoE): wages and salaries, national insurance contributions, pension contributions and redundancy payments paid by firms.

Continuous Population Survey (CPS): an ONS initiative to integrate existing household surveys (including, for example, the Labour Force Survey and Expenditure and Food Survey).

Corporate Services Price Index (CSPI): experimental ONS quarterly indices of producer prices for business services.

Chain-linking: technique now adopted by the ONS to construct volume data. Under previous methods volume data was constructed by measuring activity in the price of a specific year (the price reference base) that was updated about every five years. Under chain-linking the price reference base is updated annually. The technique better reflects changing patterns of output and expenditure.

Chained volume measure (CVM): the terminology used to refer to the volume data obtained via chain-linking (see above).

Countries: in the context of this report, England, Scotland, Wales and Northern Ireland.

Devolved administrations: Scotland, Wales and Northern Ireland.

Deflation: the technique used to change figures from nominal terms (current prices) into real terms (constant prices or volume terms), expressing the production (or consumption) of goods and services in the prices of a common year.

Double deflation: a specific approach to the deflation of the production measure of GDP, involving deflating gross output and intermediate demand separately.

European System of Accounts (ESA 1995): international framework for National Accounts measurement to which the UK National Accounts adhere, currently ESA 1995 (see also SNA).

Expenditure and Food Survey: a quarterly survey of household purchases of goods and services.

Financial Intermediation Services Indirectly Measured (FISIM): a component of the National Accounts that reflects the exclusion of interest payments from GDP, but their inclusion in the output of the financial services sector.

Government Office Regions (GOR): the English regions covered by the nine Government Offices, equivalent to NUTS1 regions and the domains of Regional Development Agencies (see NUTS, Region).

Gross Domestic Product (GDP): headline measure of economic activity.

Gross Fixed Capital Formation (GFCF): investment in capital equipment (by households, government or business).

Gross Operating Surplus (GOS): Gross Trading Profits of companies (and surpluses of public sector/government bodies) plus rental income on buildings.

Gross Trading Profit (GTP): profits of companies.

Gross Value Added (GVA): Gross Domestic Product excluding taxes (less subsidies) on products; the headline measure of regional economic activity.

Growth Accounting: an economic framework that analyses the contributions of different factors to total growth.

Government Statistical Service (GSS): the professional body of statisticians operating in a wide range of UK Government departments and the devolved administrations.

Household Final Consumption Expenditure (HHFCE): the measure of households' expenditure on consumer goods and services.

Inter-Departmental Business Register (IDBR): a register of all UK companies maintained by the ONS (apart from some small self-employed businesses below the VAT threshold).

International Passenger Survey (IPS): a survey of passengers leaving and entering the UK.

Index of Production (IoP): a monthly short-term indicator of the activity of the production industries (mining and quarrying, manufacturing and energy).

Index of Services (IoS): an experimental monthly indicator of the activity of the service industries.

Input-Output Supply and Use Tables: these provide a framework through which the three measures of GDP (production, income and expenditure) and their components can be fully reconciled. The tables are used to benchmark the annual level of UK GDP.

International Trade in Services (ITIS): quarterly and annual survey providing estimates of UK exports and imports of services.

Local unit: a single, distinct unit of a company that operates in more than one location (see apportionment, reporting unit).

Labour Force Survey (LFS): a monthly survey of households that is the primary source of labour market information, including employment, unemployment and inactivity.

Monthly Inquiry into the Distribution and Service Sectors (MIDSS): a survey collecting monthly turnover and quarterly employment data from the distribution and service sectors, used for GDP and the experimental Index of Services.

Monthly Production Inquiry (MPI): a monthly survey collecting turnover and employment for the production industries, used for the Index of Production and GDP.

NACE: General Industrial Classification of Economic Activities with the European Communities, the industrial classification adopted by countries in the EU.

New Earnings Survey (NES): annual survey of the earnings of employees.

Neighbourhood Statistics Service (NeSS): a database on the ONS website containing small-area data, including the 2001 Census, down to electoral ward level. The ONS Service covers England and Wales, similar projects have been developed in Northern Ireland and Scotland.

NOMIS (National Online Manpower Information System): an on-line platform through which the ONS gives access to labour market statistics at national, regional and sub-regional levels.

NUTS (Nomenclature of Units for Territorial Statistics): standard classification adopted for the regions of the European Union. There are various levels of which NUTS 1 is the nine English Regions and Scotland, Wales and Northern Ireland. Annex A1 of the First Report explained these in more detail (see also Government Office Region, Region).

Public Expenditure Statistical Analyses (PESA): an annual publication by HM Treasury giving a detailed breakdown of public expenditure outturns and plans, including an estimate of spending for the regions and devolved administrations.

Producer Price Indices (PPI): monthly estimates of the prices of goods bought and sold by UK manufacturers.

PRODCOM (Products of the European Community): a quarterly and annual survey, required by EU regulation, of the products sold by the manufacturing industries.

Public Service Agreement: an agreement between a government department and HM Treasury, as part of the Spending Review, including objectives and targets.

Region: a distinct geographical area, which can vary depending on the context but often refers to the Government Office Regions of England or the NUTS 1 regions of the UK (see Government Office Regions, NUTS).

Regional multiple: an enterprise that operates or has local units in more than one region (see apportionment, local unit, reporting unit).

Reporting unit: an enterprise taken as a whole, including all local units (see apportionment, local unit).

Standard Industrial Classification (SIC 1992): the UK industrial classification, equivalent to NACE except at the most detailed level.

System of National Accounts (SNA 1993): international framework for measurement of National Accounts from which the ESA is derived (see ESA).

Total Factor Productivity (TFP): measure of the efficiency with which inputs are used to produce output; estimated as a residual in the growth accounting framework.

VAT threshold: the level of annual turnover below which you do not need to be registered for Value Added Tax.

Workforce Jobs (WFJ): an estimate of employment, including breakdown by industry, compiled mainly from business surveys.

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