Statistics Commission

RELIABILITY STUDY REPORT

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**Statistics Commission
Report No. 11**

Reliability Study Report

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Contents

Introduction

1. A key component of integrity for National Statistics is knowledge of the limitations of the data and the assessment of fitness for purpose for users. The Statistics Commission uses the term reliability in a very general sense to include all aspects of accuracy and validity. It encompasses components of relevance, accuracy, timeliness, accessibility and clarity, comparability over time and space, coherence and completeness.

2. The Commission asked ONS to establish the base line position. ONS completed a pilot study in 2001 to assess the feasibility of collecting information on the extent to which reliability of National Statistics output is:
    *   known to and understood by statisticians producing the data and
    *   disseminated effectively to users

3. This base line study was restricted to ONS outputs. The Commission has now contracted with NHS Scotland, Information & Statistics Division to test whether ONS's approach is relevant to, and works effectively in other government departments that produce National Statistics. The Department for Education & Skills (DfES) and the Defence Analytical Services Agency (DASA) volunteered to take part in the study. Statistical publications from these departments are mostly derived from administrative data sources and both departments are recognised as being focused on the quality of their statistical system.

Review of ONS Pilot Study

4. The objective of the pilot study was to assess the feasibility of collecting information on the extent to which quality information is measured and disseminated to users. The pilot study used face-to-face interviews with statisticians responsible for outputs and covered six quality indicators :-
    *   sampling errors – levels
    *   sampling errors – changes
    *   response rates
    *   revisions
    *   sample size
    *   other measure

5. The report identified that the quality indicators chosen were not appropriate for all ONS output – sampling errors are relevant for surveys, but for administrative data completeness indicators are needed. The report piloted a scoring system, rating each quality indicator, and provided an estimate of 0.5 person days to review each output.

6. Key recommendations from the report were:-
    *   the range of quality indicators should be reviewed with reference to the European Statistical System (ESS) framework for quality measurement
    *   a self-administrated questionnaire be developed

7. Following submission of the report to the Statistics Commission, the ONS Quality Centre have developed a draft Quality Measurement and Reporting Framework based on the data quality attributes that have been agreed for the ESS – relevance, accuracy, timeliness, accessibility, comparability coherence and completeness, (Table 1). For each of these seven attributes and sub-dimensions an ideal quality measure has been identified. Many of these quality measures will be difficult or costly to estimate so a selection of proxy indicators have been suggested.

TABLE 1: - Attributes of data quality for the revised ONS template

ATTRIBUTE	Definition
Relevance	Concepts, measurements and products reflecting user needs
Accuracy	Distance between the estimate and the true (unknown) parameter value
Timeliness & punctuality in disseminating results	Responsive to user needs
Accessibility & clarity	Results available in a user-friendly manner. Users provided with information about quality of statistics and methods used to derive them
Comparability	Comparisons possible over time, geography or between sub-populations
Coherence	Consistent standards
Completeness	Coverage reflecting users needs.

8.   The draft framework was supplied to the research team after approval by the ONS Quality Project Board in July 2002. Progress continues to be made within ONS on this revised framework, and components are referred to in the consultation for the National Statistics Quality Management Protocol.

9.   The review team considered that the new framework was a considerable improvement on the original pilot study, and decided to adopt it for this study. However there still seemed more development work needed on reliability, covering purpose and appropriate secondary analysis.

Revised Methodology

Concept of Reliability

10.   The concept of reliability of statistics is difficult to define, since it is dependant on the end-user viewpoint, and there are multiple users for all statistical outputs. Fitness for purpose describes the concept from the individual user viewpoint. The statistician producer needs to provide access to relevant quality measures and indicators about the data, so that users can understand the strengths and limitations of the statistics and **know how to use them.** Reliability of a statistical series can be viewed as the combination of all appropriate uses.

The information needed for users to decide whether statistics are fit for a particular purpose are:-
- What is the purpose in collecting these data?
- Who are the primary users?
- How absolute is what is being measured – what biases might there be from respondents and what impact will these have?
- Do you know what other uses have been made of these data?
- How has this been communicated to the reader?

11.   To get a better understanding of the concept of reliability the study team developed a reliability assessment template that extended the ONS Quality Measurement and Reporting Framework by adding questions on useability:-
- Is it clear who the target audience is for the publication?
- Are the needs of users addressed and uses of data described?
- Are errors/biases recorded and reported?
- Are temporal changes addressed?

12.   In the mid-nineties, ONS initiated the collection of metadata about official statistics in the UK, describing the outputs, and data sources, using a sub-set of the emerging international standards at that time for data documentation. ONS developed a database, StatBase, as an on-line information resource that is accessible via the web and has two main components - The Catalogue and Datasets. It should be a key reference tool for anyone seeking detailed information about official statistics.

13.   The study team considered that most of the usability material should be available from either the outputs or the source description in StatBase, and decided to use it as an additional primary resource for the assessments. At the start of the research project Statbase was easily searchable on the ONS website, but with the re-vamp of the site, it is no longer separately identifiable. It is assumed that Statbase will be subsumed into a modernised IT infrastructure for ONS, but this has not been confirmed.

Assessments

14.   A systematic sample was made for each department based on the National Statistics outputs listed in May 2002. The selected outputs were agreed with the departments before the desk research phase commenced – no changes were suggested by the departments. The sample consisted of 4 DASA and 69 DfES outputs to be evaluated. The majority of outputs came from administrative data sources rather than surveys.

15.   A team of analysts from ISD completed draft reliability assessment templates by reviewing the outputs on the web and consulting StatBase. This team's primary expertise is in health, so they approached the outputs as new users in the subject area, to see how easy it was to find out about the statistics in education or defence without contacting the producer. There was considerable variability in the conclusions drawn by the team, which reflected the real-life situation of lack of homogeneity amongst users. Time did not permit inter-observer comparisons to be made.

16.   The second phase of the assessment involved on-site interviews with the statisticians responsible for producing the outputs. The draft template was emailed to the interviewee before the meeting. As with the original ONS Pilot Study the purpose of the interview was to determine the level of awareness among producers on reliability issues and the formal and informal processes in place to communicate these concepts with users of the statistics.

Results

Common Findings

17.   The statisticians interviewed demonstrated an enthusiasm for the usability and quality of their products but this often gets lost in the documentation of their work.   Both departments adopt different approaches to quality matters, and it was clear that both had been successful in bringing forward a culture of quality.   The interviews demonstrated that the majority of statisticians interviewed knew why the data were collected; who the primary users were; what the quality of outputs were; any inherent biases and impact on inferences to be drawn. However in the main they lacked knowledge of secondary uses of the data and didn't routinely document the strengths and limitations of the statistics in a form accessible to general users.

18.   Working with administrative sources provides different quality problems than in surveys. In survey management the statistician can exert a high level of control over the content and quality of the questions asked, and the main source of bias is in non-response. Statisticians influence administrative data rather than control them. Response rates are high, but the quality of individual data items can vary from school to school, hospital to hospital. It also

varies with time, no sooner does the statistician think that a high level of knowledge has been built up with administrative staff in one school, when staff move to another job and the learning process starts again. There is a similar situation with Armed Forces personnel who usually change posts every two to three years.

19.   Both departments spend a considerable amount of resource, validating and verifying data as part of the quality assurance cycle. A key part of this work is to develop data standards for their inputs and outputs. This involves negotiation with data providers and users, preparation of valid coding schema and reference files, publication of standards and mapping data from heterogeneous systems to the common format, and tracking code changes over time. Ensuring the reference files are used and kept up to date in local administrative systems requires considerable powers of persuasion.

20.   Having worked with data providers to establish and communicate the required data standards, and auditing the data as they are received, the statisticians identify completeness issues, and changes from expected values as they prepare the data for publication. They use a variety of techniques to impute missing and/ or wrong data depending of the reasons for the error. Imputation is used to provide estimates of the true value based on previous trends where a time series is available, based on both within and between unit variation. Grossing-up can be used when estimates are available of the under-recording of data within a unit. The statistical outputs always contain details when estimations have been made, often in footnotes to tables.

21.   From the desk research, information was generally available in the publications on quality indicators, but very little was recorded for usability indicators. However in the face-to-face interviews, statisticians clearly knew the primary reasons for the data being collected, how they were used and the review processes involved.   Where statistics branches are co-located with departmental policy colleagues, they tend to work closely to determine the outputs required to support policy development and planning. The documentation of these purposes and communication with other users involved in secondary analyses is at an embryonic stage.

22.   Most statisticians were surprised that the study had used StatBase as a primary information source. There was no ownership for the product in departments. It was viewed as an ONS product and has been so cumbersome and bureaucratic in production that producers have lost interest. DfES have a central function that chases for updates to StatBase when outputs are published, whereas DASA, in common with most other GSS departments, have until recently provided very few updates since the system was established in 1998.

23.   Formal identification of users for statistical outputs in the departments is at an embryonic stage. Both DfES and DASA are clear on the policy user requirements and statisticians spend considerable effort to ensure that their products meet changing departmental needs. There is recognition of the wider customer base, and the importance of engaging users is identified within Theme Group plans, but statisticians on the coal face are still grappling with how to effectively engage the broad church of users (the public, media, lobby groups, teachers, parents, local authorities, defence employees and their families) and satisfy their sometimes opposing demands.

24.   There did not seem to be systematic recording of secondary uses of data, although some statisticians did get direct feedback from users, which has increased with web publications. Interviewees valued direct contact with users, and in some cases felt that instead of providing detailed documentation that might be of limited use, it was better to have a conversation with the user to discuss the purpose they wished to use the data for, and to advise them on the strengths and limitations directly and add-value by suggesting alternatives.

25.	Some commented that interpretation of statistics is an art rather than a science, and it is important to understand the purpose/ needs of the users. Examples were given where advice was made to policy customers on the interpretation of statistics but it was not taken because the message was not what the policy contact thought the minister wanted to hear. It was felt that National Statistics was supportive in this area, because departments now were able to include more interpretation with the statistical release. Both departments recognised that they were just starting to add this contextual interpretation to outputs.

26.	A key conclusion from the interviews was that the added dimension to the quality system is 'statistical nous'. This term encompasses the knowledge and experience of staff who have work in a subject area for a considerable length of time and :-
*	have learned from past mistakes
*	know what could go wrong
*	understand the whole statistical system for the subject area and the political context of the data
*	anticipate customers' needs and pressures they are working under.

In current management terms this is described as organisational knowledge. Internet technologies are being developed to make it easier to share business experience across the organisation, and also to provide access to the information for customers.   Motivating experts to share their knowledge is quite a management challenge - the justification and benefits need to be promoted.

Defence Analytical Services Agency

27.	Quality is part and parcel of the stated organisational values and beliefs within DASA, linked to the business excellence model for delivery of analytical services. DASA has carried out three major quality reviews under National Statistics covering Defence Personnel Statistics and Armed Forces Medical Statistics and the Annual Publication *UK Defence Statistics* and has others underway or planned. Each review produces an implementation plan that is reported against every quarter, embedded in the business performance system. One benefit of this approach is that it raises business risks around data quality issues to the management board so that action can be taken to minimise these risks.

28.	The review process adopted is quantitative wherever possible and measurable objectives are set and monitored – examples are available at www.statistics.gov.uk/methods_quality/quality_review/other.asp. Documentation is extensive and subject to scrutiny by external auditors and/or the Statistics Commission if requested. The formats of the reviews are built on the ESS principles (already embodied in GSS thinking) but tailored to the business process model linked to the administrative sources within DASA. Another advantage of this approach is that bottom-up ownership of the process can be achieved, and linked to business planning. DASA set the review of UK Defence Statistics as a key performance target for 2002 following this quality review. Table 2 compares concepts within the two approaches, and demonstrates that the data quality attributes can be embedded into departmental business methods rather than viewed as a separate process.

Table 2: mapping of DASA approach to ONS quality & reporting framework

DASA – Review of Defence Personnel Statistics	ONS Draft Quality & Reporting Framework
A. Securing Quality of Data Supply	
Accuracy	Accuracy
Delivery (electronic)	Accuracy
Service Level Agreements	Relevance
B. Robust Processes and Confidentiality	
Relevance & Effectiveness of Documentation	Relevance / Comparability
Data Protection Act, Confidentiality	_
Delivery & Disaster Recovery	Accuracy
C. Adding Value & Quality	
Revision & Retention	Coherence
Metadata	Accessibility
Coverage	Completeness
Dealing with Errors	Accuracy
Improvements	Relevance
Source systems	Accuracy
D. Dissemination	
NS – Release & Code of Practice	Timeliness & punctuality
NS – Product & User Review	Relevance
Disclosure	Completeness
Discontinuities	Coherence
Outputs	Relevance
E. Coverage	
Gaps	Completeness

29. DASA senior management certainly see themselves as custodians of the MoD statistical system and understand the many administrative systems that contribute to it. They work together with users and suppliers, educating themselves and suppliers about where quality issues can arise and the impact this can have. Analytical staff are co-located with their main customers, which means that they are spread across several sites in southern England. This helps communication with internal providers, but needs strong leadership to implement shared values for quality within the agency.

30. Interviews with staff demonstrated that there is a commitment to continuous quality improvement for outputs. The *UK Defence Statistics* annual compendium is DASA's flagship publication and is subject to complex quality checking. As with most National Statistics outputs published on the web, revisions can be made quickly, and communicated to users. Methodological changes are announced in advance.

31. The DASA staff have to deal with major data quality and methodological issues. Changes in administrative rules and processing can occur in the Service and Civilian personnel area, for example, without DASA's prior knowledge. A major change in an administrative system may mean there is no direct means of assessing the accuracy of the statistical information emanating from them. DASA manages these risks by working with data suppliers, customers and administrative staff. Late reporting of data and other quality issues are monitored.

32. In common with other government departments, the move to Resource Accounting from Cash Accounting has caused major discontinuities in statistical series of Defence Expenditure. The impact of this on the usability of statistics is well explained in the publication. Following the revisions required for UK Defence Statistics 2001, a quality review

of finance and economic statistics is nearing completion, having involved the MOD Corporate finance controller as well as external users.

33.   As part of the internal quality management system within DASA there is detailed documentation about the data, and statistical processes in place. Infrastructure developments in data warehousing will incorporate metadata storage, so that knowledge about the evolution of the data will be accessible to staff. Providing electronic access to 'open' sections of this information for external users should be achievable in the longer term.

34.   Senior MOD users are members of the DASA Owner's Advisory Board. Senior customers also from the basis of business area Customer Advisory Groups and DASA staff continually engage with policy users at working level. The demand for tri-service reporting is growing, and adds complexity to the interpretation and analyses of DASA statistics. This requires staff with knowledge and experience across the services, in both analytical and policy teams. High turnover of staff, means that knowledge about the intricacies of bringing together various statistics is in short supply.

35.   While relationships with internal stakeholders appear to be well developed, external users links need to be extended. Methodology reviews, for example, that of Employment dependent on Defence expenditure, include specialist academics and policy users, and the review of UK Defence Statistics involved both academic and industry representatives, an involvement that has since continued. DASA are aware of a gap in formal consultation with other external users. Lobbying groups and recent media coverage covering for example Gulf War veterans, and alleged bullying in army training, raise additional parliamentary questions, and direct ad-hoc requests to branches.   It could help focus external user requests if information, suitable for a general audience, was available on the web site about types of data available covering all Defence Statistics, with discussion about appropriate use.

Department for Education & Skills

36.   DfES provides statistics on Education and Skills covering England and Wales. They produce between 50 and 60, statistical first releases and bulletins each year. The Analytical Services Divisions operate from three offices in Darlington, Sheffield and London. Topics within the Education and Training theme cover:-
- Schools
- Qualifications
- Teachers
- Post-16 Learning
- Employability
- Expenditure

Statistical First Releases are published as quickly as possible, and contain high level statistics for policy monitoring. The more detailed statistical bulletins are published when all the data have been quality assured and contextual comments written.

37.   Most of the data series are derived from administrative data systems with several surveys in the post-16 learning and employability topic areas. The department has to work closely with other government departments, agencies, and local education authorities, influencing them to deliver data to the standards required for National Statistics.

38.   Most producers of statistical data are also users. This aids data quality assurance, because producers understand the impact of errors. It does however introduce the possibility of bias associated with focus on critical performance measures linked to reward systems. Previously many statistical returns from schools were based on aggregated returns produced locally. The current strategy is to move to individual pupil and teacher databases, so that

educational progress can be tracked, and consistency checks applied to aggregate returns from alternative sources.

39. Leadership on quality issues is provided by the Head of Profession, working within the Analytical Services Directorate of the department, and given the wide (physical) dispersion of staff, communication and induction on the importance of quality in statistics must be complex. DfES have a wide range of publications and the interviews demonstrated that the statisticians were aware of quality issues, although a few described it as an added extra. Embedding ownership of quality processes is critical for the future success of National Statistics, and will require training and development across all producers.

40. StatBase was regularly updated by the department, with a rigorous control process in place – producers of National Statistics are chased to provide updates. However, the statisticians see little value in the system, and were surprised to hear that it had been very helpful for this review process, involving potential new users of their outputs. During interviews we explored whether it was a potential training source for new staff. No-one used it for this purpose, preferring the 'sitting with Nellie' approach for knowledge transfer. In London offices, where there is considerable turnover, the statisticians recognised a lack of handover from successors, and felt that they had to start from scratch to learn about their data series and publications.

41. The department has recognised that the knowledge of what has gone before is being lost in some areas. As systems are modernised into data warehouses, metadata systems will be implemented.

42. Government policy on educational attainment has changed rapidly in the last 5 years, and statistical systems have had to adapt to the turmoil of change in administrative processes in schools. The public are direct end users of the outputs, and the department have developed easy-to-use web publications so that parents can compare performance of local schools.

43. The purpose of the data series and involvement of policy colleagues in review and feedback is clear to the statisticians but in the main is not communicated to external users. Most statistical productions have a policy group and a few of them include non-departmental policy users.   In the developmental statistical areas of added-value there has been close working with LEA's and schools.

44. A National Statistics Quality Review of Higher Education (HE) Statistics was completed in May, but was not published by ONS until November, after the field work for this report was completed. The overall assessment was that the statistics are of good quality and meet most user needs, and the review identified a number of areas for improvement. It concluded that none of these areas is such as to cause major concerns about quality; nor do they suggest that the statistics are not fit for purpose.

45. This reliability study has identified common issues with the Quality review. The need for quality assurance of input data from producers outside the current scope of National Statistics is of particular relevance to the reliability of National statistics outputs. The User survey contains valuable feedback for improvements in accessibility of Higher Education statistics, and recommends the establishment of a UK HE Statistics Users Group.

Conclusions

46. The concept of Reliability is complex and is not easily communicated to users. It is not limited to accuracy and timeliness measures, but encompasses all components of European Statistical System :-
*   Relevance
*   Accuracy
*   Timeliness & Punctuality in disseminating results

- Accessibility & Clarity
- Comparability
- Coherence
- Completeness, and
- 'statistical nous' or organisational knowledge
- 'know how' of users

The GSS staff in departments have a clear understanding of the concept, but they do not communicate it systematically to secondary users. The concept of fitness for purpose is an alternative description for reliability, but a statistical output is seldom used for only a single purpose.

47. Reference to users as a single entity masks the heterogeneity of the customer base Information on the reliability of a statistical output or series needs to be pitched at levels appropriate to the individual customers. While most of the statisticians interviewed preferred direct contact with customers to give a tailored response, there is a need for easily accessible summary information on reliability. Government statisticians within departments are clearly well focussed on departmental policy colleagues as primary users of the statistics, but may not plan for communications with external users. In this information age, statistical offices are focussing on outputs being electronic rather than paper based.

48. National Statistics producers need to make available more information to external users (and potential users) on the purpose of collecting the data, and appropriate use. This will involve working with users to develop their knowledge on how to use the data, rather than just publishing information. This extends the original thinking on quality of statistical systems into reliability of statistics. Awareness of this extension needs to be communicated within the statistics profession. Web technologies could be used to provide innovative methods to get information across to secondary users – e.g. story-boards, case studies, pop-up help text.

49. Technology is critical to delivering this information, and minimising the burden on statistics producers in capturing the qualitative data. More work needs to be done in developing metadata or knowledge repositories, particularly in extending them to include caveats, footnotes and temporal information. ONS Statistical Infrastructure development programme may be supportive to other departments, but needs to allow for exchange and sharing of information between datastores. The European Commission 5th Framework for Research in Information Society has a large programme in statistical metadata, which is likely to move to implementation in subject areas in the 6th framework.

50. Quality assurance is an essential part of the statistical process and not an added extra. The original StatBase approach by ONS failed because the system did not have ownership outside ONS, was cumbersome to update, and seen as an added task. The draft Quality Management & Reporting Template will be a self-assessment tool, and if it can be integrated with modernising government or change management programmes, should provide a useful process to build into departmental business plans. Staff must understand the importance of sharing their knowledge with users.

51. As increased use is made of data from administrative sources, recognition must be given to the different control processes statisticians have to work with. Statistics are a by-product of operational systems, and quality assurance involves influencing systems developers, operational managers and frontline staff. (These staff are often outside the direct management control of the department.) Control and management of reference files are essential for integrating data across a variety of sources. One justification for the continuation of a distributed statistical system within the UK is that it is probably easier to manage the risk of failure to influence systems from within a sponsoring department.

52. This study included review of three of the first phase of NS Quality reviews. Progress in the methodology was apparent, and the documents added greatly to the information available to external users of the statistics to assess the reliability of statistics. Coverage of the

complete range of National Statistics is a mammoth task without additional resources, which is why quality needs to be embedded into the statistical process.

53.   The methods for culture change to embed quality in new ways of working as used in DASA seem to provide a good practice process model for other departments. There is evidence of learning and improvement from the published NS Quality reviews, including communications with external users.   Training and development support will need to be provided for the statistical community at large.

54.   Evaluation of the reliability of statistical outputs is a qualitative process, and subjective. The use of a self-reporting tool as part of the quality system process for National Statistics, should aid communication with all users, provided the information is made available on the web. There seems little point in developing a scoring system, since as with hotel use, 3 stars will suffice for the majority of users, and adoption and implementation of national statistics protocols will ensure that the profession carries a degree of self-audit. External audit can always be performed by the Statistics Commission or Audit Commission and reported to parliament and through the media.

Recommendations

55.   GSS staff should improve communication about the purpose of data series, statistical outputs and their limitations and appropriate use. Within subject areas, a hierarchy of content should be developed to match user needs at the appropriate level of knowledge. The Guide to Official Statistics 2000 produced by ONS from StatBase was useful to the general user. This could be updated by National Statistics Theme groups but would need start-up funding. *(see paragraphs: - 12; 13; 15; 20; 17; 22-26;32; 40; 42-45; 51)*

56.   The complexities of the concept of reliability for National Statistics need to be communicated widely, highlighting the subjective fitness for purpose components as well as the quantitative measures for accuracy, completeness, timeliness etc. The Statistics Commission, possibly in partnership with the Royal Statistical Society, should sponsor a conference to promote the importance of quality processes and usability concepts to producers of statistics, technical users and the more general user. Case studies from ONS and departments could be presented, as well as developments in statistical knowledge repositories for public access. This review has demonstrated that NS producers are making steady progress in improving their quality assurance systems, and this should be shared publicly as a key part of the Statistics Commissions role in ensuring that National Statistics are trustworthy and reflect user needs. *(see paragraphs : - 17; 23-26; 32-35; 44-48; 43; 44; 49; 54)*

57.   DASA provide an example of good practice with their quality system approach and this should be shared widely across National Statistics, as a process to develop business excellence in quality and communication. *(see paragraphs: - 7; 17; 19; 25 –29; 39; 50-53)*

58.   ONS should continue their development work on the self-reporting Quality Management & Reporting template, and involve other departments in piloting. Extra attributes need to be added to cover appropriate use. Statisticians will need to involve users in the self-assessment. Further information should be made generally available on the ONS Statistical Infrastructure programme and development plans for statistical metadata repositories (s*ee paragraphs: - 5-12; 21-25; 38; 50; 54)*

Acknowledgements

59.   The author is grateful for the positive approach of the staff interviewed in DASA; DfES and ONS, and appreciative of the time spent in interviews and reviewing documents as an additional task in busy schedules.   The review could not have been completed without the commitment of staff in her own organisation as 'new' researchers in the topic areas, and the flexibility and tolerance of Malcolm Jones, Statistics Commission.

Annex 1 – DASA

UK Defence Statistics 2001

Producers: Janet Dougharty; Tim Knight

Output	Conclusions from Desk Research	Interview Comments
Targets Users Identified?	'An interest in defence'	
Purpose - needs of users and uses of data described	Statistical compendium – official source for armed forces, defence expenditure, regular forces and civilian personnel and defence activities. Examples of uses of data are given.	
Assessment of error/bias	Mainly administrative sources. Completeness and coverage in excess of 95%.	Quality difference between services not highlighted
Fit for that purpose -	'Best shot' at an easy to understand compendium, covering the broad scope of Defence Statistics	
Evidence of User review/ feedback	Feedback form for this publication. Separate quality review completed within DASA for Armed Forces and MoD civilian Personnel statistics	Evidence of action in 2002 edition
Merits /Shortcomings of data	Discusses Finance and Economic data – impacted by switch from Cash to Resource accounting. crapped Regional estimation of employment generated by Defence Industry due to problems linked to ONS economic input/output stats.	
Quality of data description in StatBase	Minimal	No ownership of StatBase in DASA – now assumed by Head of Publications
Accessibility and Clarity	Web and paper version; descriptive text and charts included. Some acronymns.	Improved contextual reporting in 2002 edition.
Completeness – known gaps between key user needs and current data identified	Issues around tri-service reporting known but communication to users could be improved. Review of UKDS will be scheduled as part of future DASA business plans	Has been in 2002 edition
Coherence – explanation of revisions , and flagging.	Good documentation; reissues of key pages and flagging in document	
Temporal trends	No reworking of historical trends – consistency hard over time due to definitional changes in source data. Documented in text.	

STaTiSTiCS   StatBase

Product Document

UK Defence Statistics 2001

Last Updated:	3/5/02
Contacts:	Select type then click View Availability/access enquiries ~
Title	UK Defence Statistics 2001
National Statistics product:	No
Organisation (Sponsor):	Ministry of Defence (MoD)
Type of contents:	Mainly data & analyses
Primary medium:	On-line edition
Secondary medium/media:	Hardcopy Publication
Summary description:	The annual statistical compendium of the Ministry of Defence.

The official source for statistics about the armed forces, defence and civilian personnel and defence activities.
The information is grouped under three main headings: finance, ~ resources & defence services.

Chapter 1 contains ~information of financial statistics. It includes statistcal Defence expenditure, analysed by purpose (ie. personnel, equipment expenditure is split by that on research, development, production,
The chapter also presents information on UK employment depend expenditure, Defence import and exports and on Defence equipment contracts and contractors.
There is also an introduction to Resource Accounting and Budgeting in the Department and some interesting facts about defence expenditure

Chapter 2 presents statistics on personnel. It includes the strength regular forces and of UK based MoD civilian personnel, analysed by gender, rank/grade, function and ethnic group. The chapter also provides data on the armed forces reserves and long-term historical data in service personnel.

Chapter 3 presents other miscellaneous Defence statistics, including the armed forces, resources available to the armed forces, Service accommodation and health, and results of various Defence operations

The publication is a compendium of data held throughout the Defence Services Agency. It summarises data held in Armed Forces, Civilian, Commercial and Logistics Databases. Also included in Defence Statistics from Other MoD Sources (Tables 3.1,3.3-3.5, 3.11, & 3.13), from Other Government Departments (OGDs) (Table 3.14).

Associated web links: MOD UK Defence Statistics 2001 and 2000, electronic format

Price: Free at MOD website - see link above or £14.50 for hardcopy
Disaggregated by gender: Yes
Main areas for which data is collected: **National:** UK
Associated reference publications: N/A
Bibliographic material: Annual Abstract of Statistics 1998: TSO
Appropriation accounts : Class I Defence HMSO/ISD: volume I**):**
Armed Forces Pay Review Body Reports: HMSO/TSO
Civil Service Statistics: HMSO/TSO, annual
Defence Statistics Bulletins; available from DASA
The Governments Expenditure Plans 1998-99: Departmental Report Defence:TSO: Gm 3902
Guide to the Classification for Overseas Trade Statistics: HMSO/T
Hydrographer of the Navy: annual reports
Meteorological Office: HMSOITSO; annual reports
Navy, Army and Air Force (NAAFI) annual reports and accounts
Overseas Trade Statistics of the United Kingdom: HMSOITSO: mc
Public Expenditure: Statistical Analyses 1998-99: Cm 3901
Reports on the health of the Armed Forces
Standard Industrial Classification of Economic Activities: (i) Revised 1992: HMSO
Statement on the Defence Estimates 1996: HMSO; Cm 3223
Supply Estimates, Main Estimates: HMSOIrSO: annual
United Kingdom National Accounts: HMSO/TSO: annual
Frequency of release: Annual
Most recent year to which contents relate: 2001
ISSN reference:
ISBN reference: 0117729752
Type: Compendium
Advance announcement of release N/A
calendar:
Pre-release access arrangements: **N/A**

Annex 2 – DfES

Schools in England 2001:

Producer: Mike Davidson

Output	Conclusions from Desk Research	Interview Comments
Targets Users Identified?	No	Does have links to other outputs
Purpose - needs of users and uses of data described	Lacks any specific purpose, states generally that it is "the main source of school statistics for England as a whole, allowing comparisons to be made over time."	
Assessment of error/bias	Nothing apart from a brief mention of rounding errors.	
Fit for that purpose -	Comparisons are easier to make between geographical areas than making comparisons over time.	
Evidence of User review/ feedback	None given but the DfES website has a feedback link for users.	
Merits / Shortcomings of data	Double-counting issues have been addressed well. Middle schools are deemed to be either primary or secondary and as such are not analysed consistently with other categories of school. This could have an impact on the interpretation of primary and secondary school data throughout the volume.	Beneficial that data is available for LEAs and Government Office Regions
Quality of data description in Statbase	Statbase summary is vague. It does not summarise the main statistics and gives no mention to the source of data.	Difficult to find on Statbase
Accessibility and Clarity	Tables are clearly laid out and easy to interpret. Footnotes, however, are not always clearly referenced in tables, some labels in tables are unclear.	Items clearly indexed. Good definitions provided throughout
Completeness – known gaps between key user needs and current data identified	Special Educational Needs data identified as incomplete and estimates are given.	
Coherence – explanation of revisions, and flagging.	Revisions of definitions are well explained.	
Temporal change addressed?	The volume is published annually. No comparison with previous years is given in the volume apart from a few examples in the introduction.	Change is currently underway moving from aggregate returns to pupil level data

Extract from STaTbase for Schools in England
Last Update:
Contacts:

Title	Schools in England 2001
National Statistics product	Yes
Organisation (Sponsor)	Dept for Education and Skills
Type of contents:	Mainly data & analyses
Primary medium:	Hardcopy Publication
Secondary medium/media:	DfES website
Summary description;	Volume of Statistics of Education describing school data for the
	School year 2000/01, collected in January 2001. This is the latest
	In a series of volumes produced annually and its value is as the main source of education statistics for England as a whole allowing comparisons to be made over time
	Whole,
Associated web links	Department for Education and Skills – Statistical Website
	Department for Education and Skills - Schools
Price:	£18.95
Disaggregated by gender	Yes
Main areas for which data is National: **Collected:**	England
	SubNational or Other
	Sub-national:
	Hardcopy is broken down by Government Office Region Website
	Also gives information by LEA area
Associated reference	N/A
Publications:	
Biographical material: **Frequency of release:**	Annual
Most recent year to which contents relate:	2001
ISSN reference:	N/a
ISBN reference:	0-11-271118-9
Type:	Theme specific
Advance announcement of release calendar;	Announced in Schedule of Publications
Pre-release access arrangements:	A Press Release is issued to coincide with publication

CGE A/AS, Highers and Advanced GNVQ qualifications: 2000 - Post 16 Value Added Pilot

Producer: Bridgette Miles

Output	Conclusions from Desk Research	Interview Comments
Targets Users Identified?	No	LEA's and parents to help in choice of school
Purpose - needs of users and uses of data described	The 2000 Post-16 value added pilot measures the progress students made between GCSE/GNVQ and GCE A/AS and Advanced GNVQ in 2000 on the basis of individual students' performance for a sample of schools and colleges.	
Assessment of error/bias	Not mentioned	Needs reference to source data
Fit for that purpose -	Can't access tables without postcode/school name/LEA code	
Evidence of User review/ feedback	Feedback e-mail address in Value Added Explaination section.	Focus of publications
Merits /Shortcomings of data	Can't access tables without postcode/school name/LEA code	Good provision of descriptions (acronyms, pilot details)
Quality of data description in Statbase	None found	New output
Accessibility and Clarity	Can't access tables without postcode/school name/LEA code	Known to users
Completeness – known gaps between key user needs and current data identified	Pilot to determine value and need. (There seemed to be previous pilots [1998] but not referred to)	
Coherence – explanation of revisions , and flagging.	None mentioned	Standalone publication set up for user consultation
Temporal change addressed?	None mentioned	Individual child data collection only started in 1998. Included in future revisions

National Curriculum Key Stages 1, 2 and 3: 2001 Value Added Pilot

Producer: Bridget Miles

Output	Conclusions from Desk Research	Interview Comments
Targets Users Identified?	Not identified	LEA's and parents to help in choice of school
Purpose - needs of users and uses of data described	A pilot of a study that will allow comparison between schools with different pupil intakes and enable the assignment of a value added score to each school	
Assessment of error/bias	Brief mention of how errors will be dealt with in study	Random sample of schools participating
Fit for that purpose -	Provides information about how the study will run, but contains too much jargon	
Evidence of User review/ feedback	Evaluation Questionnaire	Key part of pilot – annual consultation with LEAs includes Value Added Pilot
Merits /Shortcomings of data	A lot of jargon is used and this along with the amount of calculations explained makes pretty hard reading	
Quality of data description in Statbase	Description is of 1998 version	
Accessibility and Clarity	Laid out in clearly defined sections and subsections	
Completeness – known gaps between key user needs and current data identified	N/A	
Coherence – explanation of revisions , and flagging.	Timescale for completion of study provided, but no indication as to where latest information can be found	
Temporal change addressed?	One off release	Standalone publication as part of user consultation process

EXTRACT from STaTbase – formatting lost due to scanning

Product Document
National Curriculum Assessment of 7,11 and 14 year olds in England by Local Education Authority - 2001 (SFR)

Last Updated: 24/4/02

Contacts: Select type then click View   Availability/access enquiries

Title: National Curriculum Assessment of 7,11 and 14 year olds in England by
Local Education Authority - 2001 (SFR)

National Statistics product*:* Yes
Organisation (Sponsor): Department for Education and Skills DfES
Type of contents: Mainly data & analyses
Primary medium: DfES website - see link
Secondary medium/media: First/News/Press Release Data can be provided electronically if requested   .

Summary Description This Statistical First Release provides the latest information on the achievements of 7, 11 and 14 year olds in the National Curriculum standard assessments for each Local Education Authority in England for 2001.
This year most tables will only be published on the Internet so that the hardcopy Publication is more focused and concise.

Price Free
Disaggregated by gender: Not known
Mains areas for which data is collected National England
Associated reference publications: National Curriculum Assessment of 7,11 and 14 years old by LEA, 2000 (early Statistics)
National Curriculum Assessment of 7,11 and 14 year olds by LEA, 1999 (Volume

Bibliographical material:
Frequency of release: Annual
Most recent year to which contents relate 2000/01

ISBN reference N/A
Type: Theme specific
Advanced announcement of release calendar Announced in the Schedule for the Publication of National Statistics

Pre-release access arrangements: None

Printed from the National Statistics web site