

# Numbers that Count: The Changing World of Official Statistics

by Joanne Lamb

No. 9, January 1997

---

Open government, globalisation, the information society and economic pressures have all influenced the demand for official statistics and the way they can be disseminated. National and regional statistical offices are using advances in Information and Communication Technologies to improve their procedures, and make statistical information more widely available than ever before. Developments in official statistics now offer exciting possibilities for the ordinary citizen as well as for businesses, the research community, and public bodies but to take full advantages of the benefits it can bring, the users of this information need to be competent in using and interpreting it.

---

- **Government** and citizens are requiring different types of services from statistical offices. Factors such as the commitment to open government, the global market, and new technology have created a demand for more sophisticated and varied statistical products.
- **Statistical** offices are responding to these challenges by utilising Information and Communication Technology to improve their efficiency and delivery of statistical information in a variety of formats to meet customer needs.
- **Statistical** offices must find ways of delivering an enhanced service to customers without compromising their standards for high quality and confidential data, and so are engaged in research to address these issues.
- **Once** these problems are solved, exciting opportunities will be opened up for citizens, public bodies, the research community and businesses to tap into, analyse and interpret the wealth of information that will become available from all over the world.
- **Users** will need to acquire the skills in using and interpreting data if they are to be able to exploit these opportunities to the full.

## Changing demands for statistics

National statistical offices today are facing pressure from a number of sides:

- the need to be efficient in the production of statistics;
- the commitment to open government;
- the impact of the European Union;
- the needs of business and public bodies;
- the effect of Information & Communications Technology.

Statistical offices are seeking to reduce the time taken to collect and process statistical data, and to improve the quality of the data they collect. A balance has to be struck between collecting information that reflects the changing aspects of society and the need for data to be compatible with earlier surveys. Costs, both to the statistical office and to those who provide the information, must be minimised.

There is a commitment by the European Union and by most Western democracies to open access to statistics. In the UK, for example, the Government has published a Code of Practice on Access to Government Information which includes commitments to supply facts and analysis with major policy decisions and to respond to requests for information.

The European Union has had a major impact on the production of statistics. EUROSTAT, the Statistical Office of the European Union, is required to produce tables of comparative data for all member states. Eurostat itself does not collect data but receives it from the statistical offices of the member states. It has the formidable task of reconciling the different practices of the different countries, and the different circumstances of those countries. The European Union has therefore highlighted the problems of dealing with comparative data.

Businesses and public bodies also need to perform comparative analysis. They require data for performance indicators, evaluation and monitoring and also to enable them to make projections and to compare themselves with other players.

New technology has brought significant changes. Customers who have access to powerful

personal computers, and more recently to the Internet, are no longer satisfied with published tables. They are demanding more sophisticated forms of output including data files that they can further analyse themselves, and in particular, access to more detailed records of data on individuals.

## Changing opportunities

Advances in technology have given statistical offices opportunities to respond to these demands, in respect of:

- data processing;
- dissemination;
- the use of the Internet.

Statistical offices have already been using information technology to move from a traditional method of collecting data, where separate departments were involved in different parts of the collection process, to an integrated environment. Previously the data was collected in a “production line system”. In this arrangement, information about the methods and procedures used in one part of the process could be lost as the data moved from one step to another. Now these procedures have been brought together. As personal computers and notebooks became available, questionnaire design and data collection have come together in CAPI (Computer Aided Personal Interviewing) and other packages. Collecting statistical data is more integrated and is now managed using database technology.

Customers have also benefited from the advances in Information and Communication Technology (ICT). It is their experience of the new opportunities offered by ICT that drives the demand for more sophisticated forms of output. They expect electronic data to be available either on CD-ROMs or via the Internet. Statistical offices are moving to meet these challenges.

EUROSTAT has been active in promoting the use of advanced ICT techniques, for itself and in the national statistical offices. It has recently announced the publication of a journal *Research in Official Statistics*, and is overseeing a number of research projects known collectively as DOSIS (the Development of Statistical Information

Systems), covering areas such as Statistical Confidentiality, Data Analysis, Statistical Processing Systems, and the use of the Internet.

The Internet is currently a topic of discussion almost everywhere. Public awareness of the existence of the World Wide Web has grown much more suddenly than, for example, the desk top micro computer. Every producer of information - commercial, academic or official - feels obliged to publish information on the Internet, and statistical offices are no exception. To date, the information available from Statistical Web pages is mainly concerned with publications, press releases and electronic copies of published tables but statistical offices are working on ways of supplying entire datasets via Web sites. However, there are some issues to be addressed first.

### **The issues for statistical offices**

National statistical offices are committed to high standards of quality. In particular, they have to ensure the protection of individuals and businesses that contribute to their data. They must also ensure that their data truly represents the circumstances they are describing. The release of computerised data makes both these tasks much more difficult. Published tables are open to misinterpretation but there is a much greater scope for misunderstanding if basic computer files are made available.

Statistical offices have to provide much more contextual information with the computer data than with published tables. To make detailed statistical data available to an unknown public in a way that will minimise their misuse or misinterpretation, statistical offices need to consider three key concepts:

- confidentiality;
- context;
- comparability.

The demand for individual level data particularly raises issues of confidentiality. It should not be possible to identify a person or company in any analysis of variables. This is very hard to achieve but statistical offices must safeguard against disclosure in order to maintain

the trust of both the public and their respondents.

Context addresses the question of supplying sufficient background information with the data to allow the user to interpret it correctly. Where users wish to combine and analyse data from different sources, issues of comparability arise.

Having decided what information they wish to provide, statistical offices then have to decide how it should be provided. How do they ensure that the users pay attention to it? How much information can a user absorb? How much should be in a manual, and how much with the data? What is the role of online help? What information is it reasonable to provide to aid international comparison? How do they prevent the users bringing assumptions about their own environment to a foreign dataset?

### **Implications for users**

These developments in official statistics offer very exciting possibilities for the ordinary citizen. In the not so distant future, anybody with access to the Internet - and that will be most people in the industrialised world - will be able to interrogate statistics from all over the world and perform his/her own analysis on that data. This has tremendous implications for business and for education. No matter how helpful the datasets and documentation are, ultimately the onus will be on the user. Once such data is available, users who are well equipped to use and understand these data will be well placed to take advantage of the information they provide.

For a user to take advantage of these opportunities, there is first the question of access. Currently in the UK some data is available for academic purposes through contracts negotiated at the national level. Commercial users must pay for the data. Undoubtedly ways will be found to bring secure charging to the Internet, but how will this affect the availability of data?

A second question is the skill required. Users will also need to develop skills in the use of the data. They will have to understand basic statistical analysis and interpretation techniques, as well as taking into account the background to the studies in which they are interested. These skills must be used with vision, looking at the data imaginatively and identifying the questions that it can answer.

## Implications for policy and practice

- New technology, especially the World Wide Web, offers exciting possibilities for better access to the information supplied by statistical offices. Some problems need to be addressed, and these are being researched at present. Very soon, however, the information will be available, and this has implications for statistical offices, users and policy makers.
- Some statistical offices are in the forefront of research and their success will create a demand from users. All statistical offices will find themselves under pressure to supply a similar service. Statistical offices will not be able to ignore such developments and need to start planning their response.
- The availability of this information offers an opportunity to gain a competitive edge to those users who can exploit it effectively. Those who wish to benefit from the resource will need to have the necessary skills to access, handle and interpret it. Potential users include industry, public bodies, the research community and individual citizens.
- Policy makers are affected at a number of levels. Firstly, they are themselves potential users. Secondly, a decision needs to be taken about access to and pricing of data: data can be viewed either as a money spinning resource or a public asset that should be available to all citizens. Thirdly, there are education and training issues, since effective use of the data requires skills in statistical analysis and interpretation as well as the use of information technology.

## Further information

For further details contact Joanne Lamb at the Centre for Educational Sociology, Edinburgh University (Tel: 0131 650 4201; Fax: 0131 668 3263; Email: J.M.Lamb@ed.ac.uk).

The views expressed in this Briefing are those of the author.

CES is a partner in three European projects under DOSIS; information on these can be found at:

<http://europa.eu.int/en/comm/eurostat/research/intro.htm>

## Publications

Lamb, J.M. (1996) "Harnessing the Internet: Issues for the Dissemination of Statistical Data". *Conference Proceedings of the Second ASC International Conference on Survey and Statistical Computing*, ASC, London.

Lamb, J.M., Rutjes, J.J., Brannen, K. and Pagrach, K. (1996) "Quality Frames for a European Survey on Transitions in Youth" paper presented at the Third Workshop of the *Network on Transitions in Youth*, La Ciotat, France, Sept 1996.

### ***CES Briefings***

The following *Briefings* are also available, free of charge, from the CES:

No 1: "The Participation of 16-19 Year Olds in Education and Training: Recent Trends" by Paula Surridge and David Raffe.

No 2: "Leaving Home" by Gill Jones.

No 3: "A Curriculum for All?" by Linda Croxford.

No 4: "Guidance in Secondary Schools: The Pupil Perspective" by Cathy Howieson and Sheila Semple.

No 5: "Guidance in Secondary Schools: Careers and the World of Work" by Cathy Howieson and Sheila Semple.

No 6: "Improving Opportunities: Changes in S4 Examination Scores, 1984-1990" by Adam Gamoran.

No 7: "The Early Impact of Youth Credits in England and Wales" by Linda Croxford, David Raffe and Paula Surridge.

No 8: "Making a Move: Next Steps for Women. A follow-up study of Women Onto Work students" by Cathy Howieson.