



3MOONS

METHODOLOGY DIRECTORATE
LEADING THE DEVELOPMENT OF STATISTICAL METHODS

What do you think of 3MOONS?

Competition

3MOONS recently ran a survey of readers' opinions. The questions included the length, frequency, content, best and worst things about 3MOONS. The last question asked readers to rate 3MOONS – very good, good, average, poor or very poor. By assigning scores 2, 1, 0, -1, and -2 respectively to these categories, multiplying the number of responses within each category by the score and dividing by the total number of responses, we can calculate an average score. What is your estimate of this? The closing date is 31 August 2006. The winner will be the reader whose estimate is closest to the one we calculate.

If you would also like to share your views of 3MOONS, please email:
3moons@ons.gov.uk.

Summer issue

This is the fourth issue of Methodology Directorate's (MD's) quarterly overview of methodological issues in the Office for National Statistics (ONS). The last issue included topics such as: minimising respondent burden, changing MD directors, small-area estimation, and statistical quality measurement.

Read on for the latest news from MD.



MD GSS forum meeting

Suggestions for topics are welcomed for the next meeting of the National Statistics Quality and Methodology Programme Board (hosted by MD) in London on 5 October 2006.

Please email suggestions to David.Matthewson@ons.gov.uk.

Advisory committee meetings

On 17 November, MD will host the eleventh meeting of the National Statistics Methodology Advisory Committee. The agenda is yet to be decided. See:

www.statistics.gov.uk/methods_quality/nsmac for past meetings and further details.

MD and Census will jointly host the fourth meeting of the UK Census Design and Methodology Advisory Committee on 18 October in Titchfield. Topics will be:

- paper questionnaire design
- postal provider competence
- coverage assessment/adjustment (under-coverage, over-coverage, adjustment method, use of visitor information)
- disclosure control policy

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Farewell to Marta Haworth

Marta Haworth begins a well-earned retirement

Time Series Analysis Branch

The Time Series Analysis Branch in Newport has recently doubled its capacity from one to two staff with the arrival of Craig McLaren on secondment from the Australian Bureau of Statistics

Statistical Training Unit courses

STU offers different levels of statistical training across all ONS sites:

- RSS Ordinary Certificate
- ONS Methodology Workshop Programme
- MSc in Official Statistics

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Your questions answered

In this issue, we answer the question, 'What colour am I?' Last time, we asked for a name for the colour of the spring newsletter. Thanks again for all your entries, from home and abroad. I'm glad to announce we have a winning name – not original, but apt – 'Blue Moon'. Again the prize is shared between two winners, both from MD: Carole Abrahams, from Statistical Disclosure; and Rachael Viles, from Quality.

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Marta Haworth – a Fond Farewell

Marta Haworth recently retired from MD after a distinguished career in the UK Government Statistical Service. She will now spend more time pursuing her hobbies, but will remain actively involved in international statistical work, as well as working with the Royal Statistical Society in this country

Marta began her career studying mathematical statistics in Charles University, Prague in her native Czechoslovakia (as it was then, now the Czech Republic). 'I moved to the UK in 1969, and after briefly working as an Operations Research scientist for British Steel, returned to studying at Cardiff University, to teach and carry out research.'

From Cardiff it was a short step to the new Business Statistics Office in Newport, where Marta worked for 11 years. 'Eventually, I moved to London, and after seven years in policy departments, at the Treasury and the Department for Trade and Industry, I returned to statistics – this time at the Central Statistical Office (CSO).'

Marta was ideally placed when ONS was formed in 1996 (from the CSO and the Office for Population Censuses and Surveys), and in 2000 joined the rapidly expanding Methodology Group. 'I had spent most of the 1990s leading two quite tough business areas in succession, Consumer Prices and General Inflation Division, and then Labour Market Division, but was very attracted to Methodology. In 2000 ONS set up a centralised Methodology Group,

and I was lucky enough to join at this seminal time. There was a lot of enthusiasm, and some of the many challenges on my "patch" included Quality, Statistical Methodology and Geography. We were very lucky to attract so many talented and very committed people.'



Marta with grandson Jacob.

Over the next few years, Marta oversaw the growth of methodology into a Directorate; the centralisation of ONS methodological expertise, and a necessarily rapid expansion in staff numbers. 'The increased demand for our services and the growing importance of the support we provided, to ONS initiatives such as Neighbourhood Statistics, meant we had to create new centres of expertise

to concentrate specialist skills. This meant recruiting and retaining many graduates, also postgraduates, as well as maintaining strong links with academia. During this period I managed the Southampton University consultancy contract, and was for some years chair of the NS Methodology Advisory Committee.'

In addition to her UK work, Marta was active at a European level in the fields of statistical disclosure and confidentiality, but especially quality, and further afield in China (labour market) and New Zealand (inflation). She was part of the Quality Leadership Group that developed the European Quality Framework and instigated the biennial Quality and Methodology conference. 'Although I am retired from the ONS, I am committed to continuing my international work. I've made many valued friends at home and abroad through my work, and hope to stay in touch.'

However, retirement will also allow Marta more time for travel and pursuing other interests. 'I love mountain walking and skiing, but to really keep me fit all I need are my grandchildren!'

Time Series Analysis Branch

The Time Series Analysis Branch in Newport has recently doubled its staff from one to two with the arrival of Craig McLaren on secondment from the Australian Bureau of Statistics

The Time Series Analysis Branch (TSAB) now has six time-series experts spread across two sites. Nigel Stuttard (Branch Head), Fida Hussain, Ross Meader and Jim Macey are located in London; while Craig McLaren (Branch Head) and Duncan Elliot are based in Newport. TSAB provides centralised time series support for all clients across the ONS, particularly on seasonal adjustment issues (see the autumn 2005 issue of 3MOONS for more details on TSAB).

The Newport expansion of TSAB has resulted in more face-to-face support for Newport-based clients such as: Short Term Output Indicators; Business Prices and Sales; and Employment, Earnings and Productivity. TSAB personnel on both sites will work together to ensure that clients across ONS receive the best possible support.

TSAB's research programme is expected to become more focused over the next year. Particular emphasis will be on: the use of improved seasonal adjustment methodologies; direct input into the Odyssey programme of modernisation



and standardisation in ONS, ensuring that appropriate methods are being used; and strengthening links with the University of Southampton with targeted research projects.

On secondment

Recent years have seen a trend for overseas appointments to the MD from other national statistical institutes. Among many others, past and present, these have included Susan Linacre from the Australian Bureau of Statistics (ABS), Frank Nolan from Statistics New Zealand,

Mike Hidioglou from Statistics Canada, and of course the current Director of Methodology Directorate, Cynthia Clark from the United States Census Bureau.

Now Craig (left) has continued this trend, joining ONS in May 2006; he is currently on secondment for 18 months. Craig's background includes seven years' experience on time series analysis issues, with an interest in the interaction of sample survey design and time series estimates.

Craig is excited by the opportunity of working in a different organisation in another country, albeit in a similar field. 'It seems great to me that the skills we have as official statisticians are so transferable and easily applied in other government organisations.' He is also hoping to take full advantage of his proximity to continental Europe to visit some other countries.

Craig has settled easily into the Welsh lifestyle – coming from Canberra he is not unused to carrying an umbrella and jacket wherever he goes!



'the programme provides relevant training for professional positions in a wide range of organisations'

The following workshops are offered as part of the Programme.

- Data Collection
- Data Editing and Imputation
- Sample Design and Estimation
- Index Numbers
- Time Series
- Statistical Disclosure Control

MSc in Official Statistics

The MSc programme has been jointly developed by the University of Southampton and the Office for National Statistics. Individual programme modules are taught by experts from both organisations. It is aimed at those currently employed in the UK Government Statistical Service or equivalent organisations overseas. The entry requirement is a good honours degree from a recognised institution. Where the degree does not include statistics, additional evidence of statistical training to a level equivalent to the RSS Higher is required.

The programme provides the specialist knowledge that is central to the conduct of the Government's professional statistical work. Through part-time study, the programme is aimed at enabling postgraduate students to strengthen and update their professional skills and knowledge. The course is pitched at level 3 of the ONS Research Analysis and Statistical job family.

Many of the skills taught on the programme, such as survey methods and data analysis, are in great demand by employers outside government, so the programme provides relevant training for professional positions in a wide range of organisations. Single modules of the MSc are also available as short courses.

Statistical training courses, skill levels and ONS job families

| Competency level | Business operations job family | Research analysis and statistical job family |
|------------------|--------------------------------|--|
| level 4 – expert | | |
| level 3 | | MSc in Official Statistics |
| level 2 | RSS Ordinary | MSc short courses |
| level 1 – entry | | Methodology Workshop Programme |

STU

The Statistical Training Unit at Newport is committed to providing statistical training that meets the needs of all ONS and GSS staff

The Statistical Training Unit (STU) offers different levels of statistical training across all ONS sites. The main courses on offer are the RSS Ordinary Certificate, the ONS Methodology Workshop Programme and the MSc in Official Statistics, all of which are delivered by trained experts.

RSS Ordinary Certificate

A mathematics O-level, or equivalent, forms the prerequisite of the RSS Ordinary course. It is pitched between GCSE and A-level standard (competency level 2 of the ONS Business Operations job family), and provides training in the following aspects of the survey process:

- data collection
- survey sampling methods
- data editing and validation
- imputation methods
- outlier detection and treatment
- estimation methods
- index numbers and chain linking
- presenting statistical data

The emphasis is on practical work, and holders of the RSS Ordinary Certificate should be able to carry out supervised statistical work of a routine kind, or be able to apply statistical methods at an elementary level.

The STU delivers the RSS Ordinary Certificate through a combination of classroom-based teaching and distance learning.

ONS Methodology Workshop Programme

The ONS Methodology Workshop Programme offers a series of one-off workshops to provide ONS and GSS staff with background knowledge on the diverse statistical methods currently used by statisticians in the ONS and the GSS. The Programme provides further training for those who have passed the RSS Ordinary, or possess a statistical degree and need to apply an ONS or GSS perspective. It also provides the competencies for level 1 of the ONS Research Analysis and Statistical job family.



Inside MD

Small Area Estimation Centre

The Small Area Estimation Centre (SAEC), based at Titchfield, is part of the Analytical Methodology and Research Division of MD. It was formed in 2004 by the merger of the previous Titchfield-based SAE Delivery and Implementation Unit with that part of the London based Spatial Analysis and Modelling Branch concerned with small area estimation research. As part of the office relocation, it is planned that the unit will fully relocate to Titchfield by March 2008.

SAEC comprises:

Phil Clarke – Head of Centre (currently London based)

Sam Poole – Senior Methodologist

Kevin McGrath – Methodologist

Nicholas Misoulis – Methodologist

Samantha Revis – Administrative Support

Small area estimation (SAE) is still relatively new territory for national statistical institutes (NSIs). It is, however, achieving greater prominence in many countries. SAE is concerned with obtaining estimates from sample surveys by using indirect model-based methods when direct survey estimates won't do – due to imprecision from low sample sizes or absence of sample at all. While survey

designs tend to be optimised for national or regional estimation, it would not be economically justifiable to adapt these for local use. Despite this, there is considerable call for such local estimates. This has led to the development of the indirect methods.

The methods are diverse but all share one underlying theme – borrowing strength under a particular model-based framework so that the effective sample size in local areas is increased. This borrowing can take place over several time periods; over spatial neighbourhoods; or by area characteristics as measured by other correlating data sources.

SAE at ONS began in the late 1990s and has currently developed using the third of these methods. Correlating data variables are area values from the most recent census or data obtained from administrative systems, such as numbers of social benefit claimants. The crucial property is that values are known for all areas by virtue of 100 per cent coverage.

As part of methodological development, there has been considerable contact with other NSIs, where the variety of different statistical systems has shown the appropriateness of different SAE methods. This international work culminated in the EURAREA joint project described in the spring edition of 3MOONS.

Currently SAEC has concentrated on

estimating two variables for which there is a high user demand. These are:

- unemployment rate and level for local authorities under the International Labour Organisation definition in the Labour Force Survey. These have achieved National Statistics accreditation and have been released for the period January to December 2005, and will be accompanied by a historical time series
- mean household income for wards drawn from the Family Resource Survey 2001/02. These are currently experimental statistics, available on the Neighbourhood Statistics website.

The future

The plan is to continue development of methods in general – looking at those which borrow strength over time and/or space; those optimised for the measurement of change between time periods, and those for estimating the distribution spread within areas rather than just area means. Within the labour market field, work is progressing on the development of a model which will estimate consistently for all three labour market categories – employed and 'not in the labour force' as well as unemployed.



For more information please contact: philip.clarke@ons.gsi.gov.uk

“Small area estimation (SAE) is still relatively new territory ... It is, however, achieving greater prominence in many countries”

NEWS
continued

Future conferences

17th International Workshop on Household Survey Non-response

The 2006 conference will be held in Omaha, Nebraska from 28 – 30 August.

International Conference of the Royal Statistical Society

The 2006 conference has a general theme, and will be held in Queen's University, Belfast, 10 – 14 September.

Government Social Research Conference

The 2006 conference's theme will be: 'Crossing boundaries: challenging what we know and what we do', and will be held in Cardiff, South Wales, 11 – 13 October.

Your questions answered

What would you like to ask Methodology Directorate? Questions can be on methodology, organisation, plans, or any other topic we can (briefly!) answer.

Please send your questions to 3moons@ons.gov.uk. We will choose one or more to answer in the next issue.