



UPDATE -

News from the LS User Group

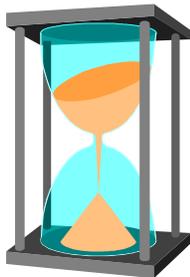
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This newsletter is designed to provide information on the ONS Longitudinal Study (LS) and a forum for the exchange of users' views and comments. It is produced by the LS User Support Programme at the Centre for Longitudinal Studies (CLS), Institute of Education. All comments and contributions should be sent to Rosemary Creaser, LS User Support Programme, Centre for Longitudinal Studies, Institute of Education, 20 Bedford Way, London WC1H 0AL (tel: 0171 612 6877 email: rc@cls.ioe.ac.uk)

1 Diary



This section highlights forthcoming events of interest to LS Users.

If you are arranging an event and wish to publicise it in *Update* please send details to Dina Maher, the LS Administrator at CLS.

LS Workshop

On October 6th/7th 1999 the LS User Support Programme will be holding a 2-day LS workshop. LS workshops provide detailed information on the ONS Longitudinal Study, and the methods of analysis and software available to LS researchers. They are also an ideal opportunity to meet members of the LS Support Team and to discuss the suitability of the LS for exploring specific research questions.

As part of the hands-on element of the workshop participants are able to specify an analysis of their choice using a small sub-set of variables and a test data-set based on 1% of the LS data.

While LS workshops are open to all, the number of places are limited to ensure that participants get sufficient individual attention and hands-on experience. A non-refundable fee of £50 (£20 for students) is charged to cover documentation, lunch and refreshments. For further details and to reserve a place please contact LS Administrator Dina Maher (tel: 0171 612 6875, email: dm@cls.ioe.ac.uk).

LS User Group meeting on international research

On Tuesday 9th November 1999 the annual LS User Group meeting will be taking place at the Institute of Education. The theme of this year's meeting is international research. We will start with an overview of large-scale national data sources similar to the LS. This will be followed by four half-hour presentations from LS researchers who have used the study for international comparative work. One of the important issues we aim to cover is how researchers negotiate access to other national datasets. The meeting will also include a session reporting on "What's new in the LS?". A non-refundable fee of £25 will be charged to cover lunch, refreshments and documentation. A copy of the programme and booking form for this meeting are reproduced on pages seven and eight. For further information please contact LS Administrator Dina Maher (tel: 0171 612 6875, email: dm@cls.ioe.ac.uk).

2 LS publications

International migration data in the Longitudinal Study

Lin Hattersley, LS Unit, Office for National Statistics

LS User Guide 18 provides an overview of the international migration data included in the ONS Longitudinal Study (LS). Each of the sources of data is clearly described and comparisons are made with the national migration data published for England and Wales. The final section of the guide outlines some of the ways in which LS migration data are currently used: in cohort analysis, in studies using a dynamic population sample and in the examination of inter-censal change.

LS User Guides are available from the LS User Support Programme (price £4). To obtain a copy of this and other LS Guides please contact LS Administrator Dina Maher (tel: 0171 612 6875, email: dm@cls.ioe.ac.uk).

3 Technical Issues

Using the LS to investigate the changing fertility of different ethnic groups over time

Marian Storkey, London Research Centre, 81 Black Prince Rd, London SE1 7SZ

The London Research Centre has been developing a population projections model which projects populations in London boroughs by ethnic group, age and gender. As part of the model it has been necessary to calculate age specific fertility rates for each of the ten ethnic groups in the model. At present births within the vital registration system are only recorded by the mother's country of birth. The base populations of women by age and country of birth are available every ten years from censuses. Therefore it is possible to calculate age specific fertility rates by country of birth of mother for 1991.

However, the projections model projects the populations of ethnic groups as a whole, and not just the proportion born overseas. Births by ethnic group are not recorded and it has proved extremely difficult to reallocate births by country of birth of mother into different ethnic groups. As the LS links vital registration records with Census data, and an ethnic group question was included in the 1991 Census, it should be possible to trace back the births born to women who were in the sample and had their ethnic group recorded in 1991, and this would provide the only known national source for calculating fertility by ethnic group.

It was decided to explore period fertility. Tables were requested which gave numbers of births by age (5 year age group 15-49) and ethnic group of mother, as well as the numbers of women by age and ethnic group in the LS as a whole, for 1991, 1981 and 1971. In each case the births covered a three year period around the Census date, i.e. 1990-1992, 1980-1982 and 1971-1973. (The LS only records births from the 1971 Census).

Age specific fertility rates were calculated for each of the ethnic groups by taking an average of the three years of births, and relating that to the number of women in each five year age group in the base populations.

Results:

Total period fertility rates (TPFRs) calculated from age specific fertility rates for 1971, 1981 and 1991 are shown in Table 1. The total period fertility rate measures overall fertility at a particular point in time (usually a calendar year). It relates to the number of children a woman would have in her lifetime, if she had the average fertility rates of all women in a population at a given time.

The overall fertility levels for England and Wales from the LS compare with TPFRs from vital registration records of: 1971 - 2.37; 1981 - 1.80; 1991 - 1.82.

Therefore the LS figures underestimate overall fertility by around ten per cent. The overall pattern of a fall between 1971 and 1981, and a slight rise between 1981 and 1991 is shown in both data sets.

We would expect the figures for the White group to match those of the total population quite closely as around 95 per cent of the population recorded themselves as White in the 1991 Census.

The Black Caribbean figures seem fairly reasonable given that the fertility of Caribbean born women is low. In 1991 the TPFR for Caribbean born women was 1.9. If as is thought fertility of British born Caribbean women might be lower, this would produce an overall fertility rate lower than the overall rate for England and Wales. However, the Black African figures seem very low: it would be very surprising if the fertility of this group had fallen below the average England and Wales figure for all ethnic groups.

Table 1: Total period fertility rates for 1971, 1981 and 1991			
	1971	1981	1991
White	2.10	1.67	1.73
Black Caribbean	2.33	1.82	1.51
Black African	2.33	1.59	1.20
Indian	3.33	1.69	1.50
Pakistani	5.88	3.13	2.39
Bangladeshi	3.22	3.61	1.80
Chinese	3.04	1.90	1.56
Black Other	1.42	1.46	1.36
Other Asian	2.20	1.33	1.89
Other	2.74	1.77	1.54
All ethnic groups	2.13	1.68	1.73

The low “Black Other” figures are very difficult to judge as the majority of this group were born in the UK and there are no comparable figures.

The Indian and Pakistani TPFs for 1971 seem reasonable, although the decline over time looks very steep. The Bangladeshi figures look low, especially for 1971 and 1991.

Figures for the Chinese group also seem reasonable.

Many of the slightly questionable figures may be due to the small number involved in calculating the rates. The sample sizes of women in each ethnic group in each year are shown in Table 2:

Table 2: Sample sizes of women aged 15-49 for 1971, 1981 and 1991			
	1971	1981	1991
White	92,175	96,696	107,913
Black Caribbean	704	863	1214
Black African	74	92	220
Indian	793	880	2,218
Pakistani	207	215	829
Bangladeshi	20	25	164
Chinese	63	63	229
Black Other	43	146	339
Other	74	88	440
Other Asian	144	215	287
All ethnic groups	94,297	99,283	113,853

This shows that the samples for some of the groups such as “Black African”, “Bangladeshi”, “Chinese”, “Black Other” and “Other Asian” groups are too small, particularly in 1971 and 1981, to provide robust fertility rates for many of the ethnic minority groups. The small sample size is due to smaller numbers actually in the population in the past, and also the fact that the sample can only include women who are in the LS in 1971/1981 and 1991.

The sample sizes for 1991 are bigger, and it is hoped that with the extra data provided by the 2001 Census link, that this exercise could be repeated then to give us more insight into the changing fertility rates of different ethnic groups over the 1990s.

Analysis of LS data using PC based software

As reported in the February 1998 version of *Update* procedures are now in place that allow analysis of LS data using PC-based software. The PC based computing facilities available to the LS at ONS have recently been enhanced by the addition of a very high specification NT workstation with over 1MB of memory. This hardware facilitates the analysis of very complex multi-level models. The example we include below provides a graphical illustration of the type of analysis that may now be undertaken. This used a combination of the SAS, MLn and MapInfo packages. The maps summarise some preliminary output from analysis carried out as part of the ESRC Health Variations project 'Dimensions of health variation over persons, time and place'. Map1 shows the rate of limiting long-term illness in the LS sample at local authority level. These data were aggregated using SAS and then exported into MapInfo. The results from an analysis using a three-level model in MLn are displayed in Maps 2 to 4. The model included data at the individual, ward and local authority district levels. The areas highlighted in Map 2 are those that had significantly higher or lower rates of limiting long-term illness after data at all three levels had been included in the model. Map3 displays residuals at ward level in one of the outliers while Map 4 shows the distribution of one of the ward-level variables (a measure of affluence/poverty) used in the Model.

In this example MapInfo is used purely to create thematic maps to illustrate results produced by other analysis packages. Different formats of thematic mapping are available depending on the nature of the data to be illustrated. Bar or pie charts of categorical data can be mapped for each geographic area, continuous data can be mapped using ranges (as in this example) or as dot densities. Two or more layers can be combined in one illustration. As an analytical tool for geographic data it has extensive uses. It can be used to produce new geographies by layering existing ones, by selecting areas based on proximity to other areas or point locations e.g. group wards in the South East by their distance from central London, and by calculating statistics within areas such as population densities.

For information on using MapInfo and MLn with the LS please contact Kevin Lynch (tel: 0171 612 6876, email: kl@cls.ioe.ac.uk).

References

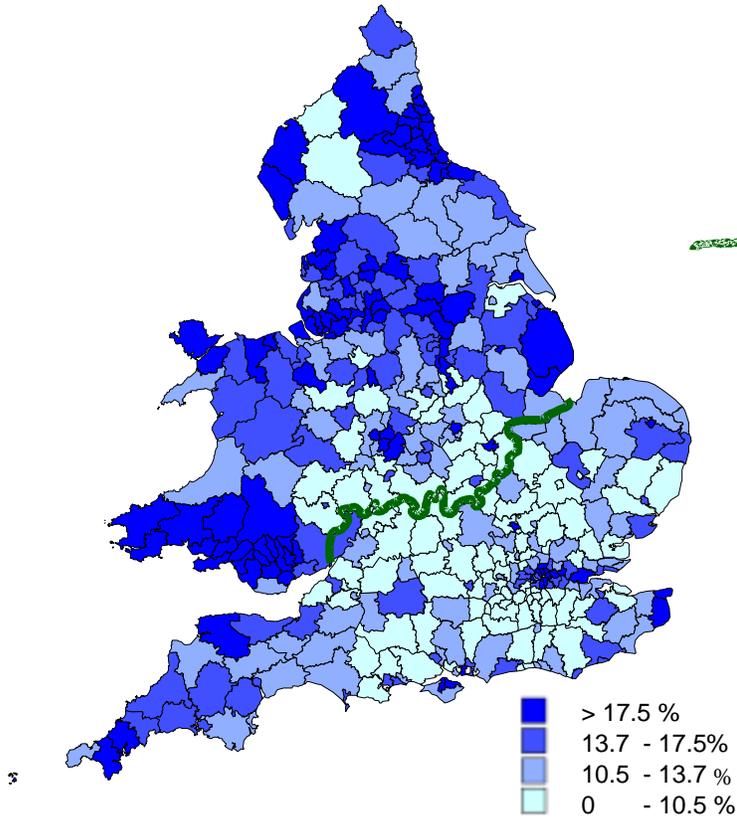
Gleave, S, Wiggins, R, Bartley, M, Joshi, H, Lynch, K and Mitchell R (1999) 'Health, Area and the Individual: a multilevel analysis of reported long-term illness for men and women in the ONS Longitudinal Study', paper at the Second International Conference on Multilevel Analysis, World Trade Centre, Amsterdam. March 30-31 1999

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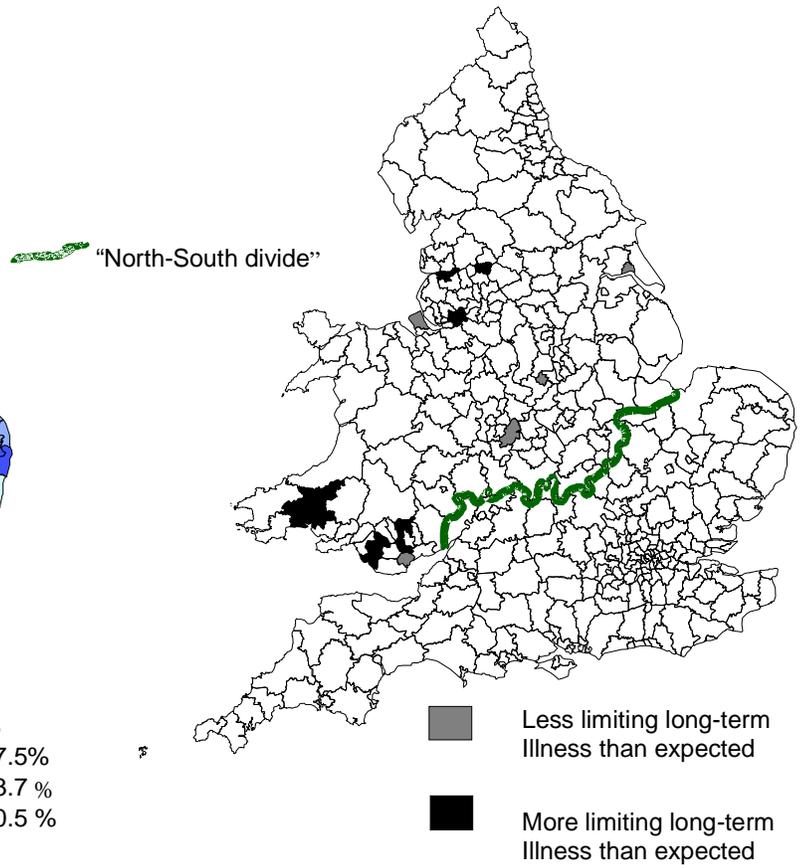
It is possible to download a copy of this book from <http://www.arnoldpublishers.com/support/goldstein.htm>

Johnson, I (1996) 'Understanding MapInfo: a structured guide': Sydney: Archaeological Computing Laboratory, University of Sydney, ISBN 1 8645 1 016 1

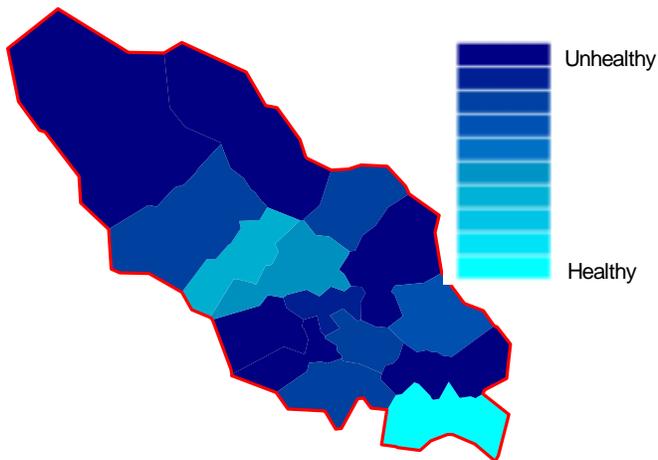
**Map 1: Limiting long-term illness
LS members aged 36-65 in 1991**



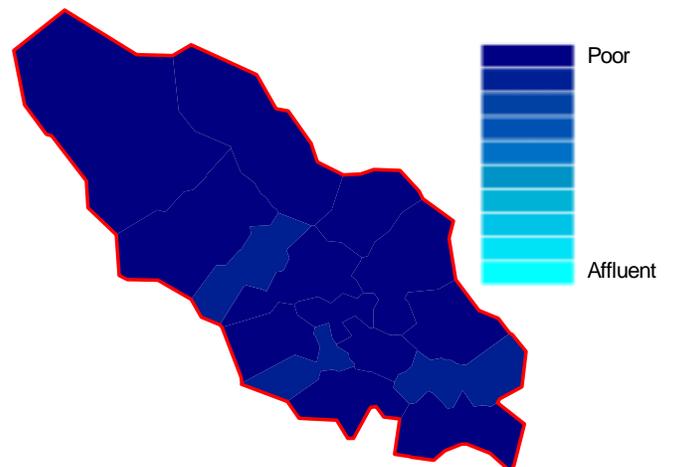
Map 2: Final model



Residual Analysis of a persistent outlier



Map 3: Residuals from final model



**Map 4: Distribution of affluence/
poverty component**