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The International Conference on Methodology of Longitudinal Surveys (MOLS), 12-14 July 2006

Peter Lynn

Report from The International Conference on Methodology of Longitudinal Surveys (MOLS)

- 1 The MOLS Conference attracted just over 200 delegates to the University of Essex, UK, in July. Delegates were academics, government statisticians and survey professionals, and came from 26 different countries.
- 2 An underlying theme of the Conference was the impression that growth in demand for longitudinal data, and consequently in the number and complexity of longitudinal and panel surveys carried out, has not been equalled by expansion of our knowledge of how best to design and implement such surveys. On the one hand, several papers described new or planned longitudinal surveys – often with rather complex and demanding objectives. On the other hand, several papers reviewed a particular aspect of methodology and concluded that very little research had been carried out into that aspect in a longitudinal context. Consequently, researchers can only speculate about how findings based on cross-sectional surveys will translate to longitudinal surveys: In some cases the translation may be simple, but in many cases it probably is not. Between them, the Conference presenters identified a large methodological research agenda!
- 3 Topics discussed at MOLS included sample design (including, for example, how to identify the optimal level of clustering at wave 1 when the sample is geographically mobile), rotating panel designs, the role of interviewers (and particularly the effects of interviewer continuity over waves), dependent interviewing, mixed mode methods, tailoring approaches to respondents (for example, in terms of mode, incentives or timing), data linkage, ethics, and modelling and estimation methods. An omnipresent

issue was attrition, with many papers treating methods to minimise it, research to understand the nature of it, and methods to deal with it in analysis, including imputation and weighting methods.

- 4 Around 75 papers were presented, including 22 invited papers, which will form the chapters of a monograph book to be edited by the Conference Organiser, Peter Lynn, and published by Wiley. Most of the papers can be downloaded from the Conference Web site, www.iser.essex.ac.uk/ulsc/mols2006. A prize for best student paper was generously sponsored by Wiley and was awarded to Mario Callegaro, a PhD student at the University of Nebraska-Lincoln, for his paper, "Seam effects in panel data collected with Event History Calendar methodology: The case of labor force transitions in the PSID". Two short courses were also offered the day before the Conference and were well attended with almost 100 participants in total. The courses were "Handling incomplete data in longitudinal surveys", presented by Joop Hox and Edith de Leeuw, and "Multilevel modelling for longitudinal survey data", presented by Sophia Rabe-Hesketh and Anders Skrondal.

Peter Lynn

MOLS Conference Chair

- 5 (source: *ISI Newsletter*, vol. 30, n. 3 (90), November 2006; ISI Section - International Association of Survey Statisticians (IASS), p. 24; <http://isi.cbs.nl/Nlet/NLet063-sections.htm#5-d-ReportIntConfMOLS>)

MOLS2006 Web Site Material

- 6 <http://www.iser.essex.ac.uk/ulsc/mols2006>

- * MOLS2006 Home
- * Welcome
- * Aims
- * Student Paper Prize
- * Conference Venue
- * Scientific and Social Programme
 - o Short Courses
 - o Conference Programme (Summary)
 - o Conference Programme (Full)
 - o Conference Papers
 - o Social Programme
- * Registration and Information
- * Publications
- * Scientific Committee
- * Organising Committee
- * Latest News
- * Exhibitors and Sponsors
- * Pictures

- 7 The conference was organised by the UK Longitudinal Studies Centre (ULSC) at the University of Essex, in association with the International Association of Survey Statisticians (IASS). MOLS 2006 was aimed at anyone involved in the design,

implementation or analysis of longitudinal surveys. It was a memorable event, with a stimulating scientific programme and - equally important - an enjoyable social programme. Over 200 delegates came. They were from government, private and independent organisations as well as universities. The issues involved in longitudinal surveys transcend national boundaries and this was reflected in the origins of the delegates: 27 different countries, of which 17 European and 10 outside Europe.

- 8 The day prior to the conference there were two short courses. Both were popular, with over 80 participants in total. The courses were supported by the ESRC National Centre for Research Methods, to whom we are grateful.
- 9 Now the conference is over, but we are keeping these Web pages here for information. For example, you can find downloads of many of the conference papers.
- 10 I would like to express my gratitude to everyone who helped to make MOLS 2006 a great success. That includes all the participants - especially presenters, discussants and chairpersons - and the scientific committee, the local organising committee, and so many people at ISER and at the University of Essex. Many thanks!
- 11 Peter Lynn
Chair of the MOLS2006 Scientific and Organising Committees

Full Scientific Programme

Wednesday July 12

- 12 9.00-9.20 plenary. Welcome and Introduction - LTB 6
- 13 9.25-10.40 *Parallel 1. Non-Response (contributed papers)*
Chair: Doug Currivan (RTI International, USA)
Michel Ferland, Michelle Simard and Normand Laniel (Statistics Canada)
Dealing with nonresponse in longitudinal social surveys
Ben Anderson (Chimera, University of Essex, UK)
Non-response and attrition in a multi-method longitudinal household panel survey
Paula C Baker (Ohio State University, USA)
Nonresponse in a multi-mode national longitudinal survey of children
- 14 *Parallel 2. Interviewers (contributed papers)*
Chair: Lorna Hall (AC Nielsen Australia)
A Rupa Datta (National Opinion Research Center, University of Chicago, USA)
Estimating the Value of Interviewer Experience: Evidence from Longitudinal and Repeated Cross-Section Surveys
Sigrid Haunberger (University of Berne, Switzerland)
The effects of interviewer and respondents characteristics on response behaviour in panel surveys - a replication analysis
Annette Scherpenzeel and Oliver Lipps (Swiss Household Panel, Neuchâtel, Switzerland)
Interviewer effects in the Swiss household panel survey
- 15 *Parallel 3. Spatial effects (contributed papers)*
Chair: Karl Ashworth (Office for National Statistics, UK)
Kelvyn Jones, Min-Hua Jen, George Leckie, Ron Johnston and Jon Rasbash (University of Bristol, UK)
The longitudinal career of places: applying the random-effects, latent group trajectory

model

Randall J. Olsen, Curtis Eberwein and Patricia Reagan (Ohio State University, USA)

Intracluster Correlation and Complex Sampling: The effect on variance of estimators over waves of a panel

James R Spletzer and Vinod Kapani (US Bureau of Labor Statistics)

Business Employment Dynamics

16 10.40-11.00 Coffee and Tea

17 11.00-12.40 *Parallel 1. Modelling of longitudinal data (monograph papers)*

Chair: Gillian Raab (Napier University, UK)

Discussant: Roderick Little (University of Michigan, USA)

Georgia Roberts, Qunshu Ren [1] and J.N.K. Rao [2] (Statistics Canada, [1] Carleton University and Statistics Canada, [2] Carleton University, Canada)

Marginal mean models with complex longitudinal survey data: some advances in methods
Peter Smith, Ann Berrington and Patrick Sturgis [1] (University of Southampton, UK, [1] University of Surrey, UK)

A comparison of graphical models and structural equation models for the analysis of longitudinal data

18 *Parallel 2. Attrition (contributed papers)*

Chair: France Bilocq (Statistics Canada)

Moh Yin Chang (University of Nebraska-Lincoln, USA)

Assessing and Reducing Attrition Bias in Longitudinal Survey Data with Informative Sampling Design

Ian Plewis, Heather Joshi and Charles Ketende (Centre for Longitudinal Studies, Institute of Education, University of London, UK)

Attrition Bias in the Millennium Cohort Study: The Contribution of Family Mobility

David R Johnson (Pennsylvania State University, USA)

Estimating Attrition Bias with a Comparison Sample in a Long-term Panel Study

Marjo Pyy-Martikainen and Ulrich Rendtel [1] (Abo Akademi University and Statistics Finland, [1] Freie Universität Berlin, Germany)

Ignorable or Nonignorable? Survey Nonresponse and Attrition in the Analysis of Unemployment Spells

19 *Parallel 3. Imputation (contributed papers)*

Chair: Maria Iacovou (University of Essex, UK)

Joachim R. Frick and Markus M. Grabka [1] (DIW Berlin and IZA Bonn, Germany, [1] DIW Berlin, Germany)

Item-non-response and Imputation of Income in Panel Surveys: A Cross-National Comparison of its Impact on Inequality and Mobility in BHPS, HILDA and SOEP

Rosslyn Starick and Nicole Watson [1] (Australian Bureau of Statistics, [1] University of Melbourne, Victoria, Australia)

Income Imputation in the Household, Income and Labour Dynamics in Australia (HILDA) Survey

Julian Buxton (London School of Hygiene and Tropical Medicine, UK)

Imputation In The 2001 Census: Implications For Analysis Using The ONS Longitudinal Study

20 12.40-13.45 Lunch

- 21 *13.45-15.00 Parallel 1. Rotating panel designs (contributed papers)*
 Chair: Paul Smith (Office for National Statistics, UK)
 Hans Kiesel and Andreas Narr [1] (Institute for Employment Research of the Federal Employment Agency, Nuernberg, Germany, [1] German Federal Statistical Office, Wiesbaden, Germany)
 A CATI Rotating Panel Design for the German Labour Force Survey
 Paul Knottnerus and Arnout van Delden (Statistics Netherlands)
 On variances of growth rates estimated from rotating business panels in the presence of population births and deaths, mutually changing strata, and nonresponse
 Guillaume Osier, Jean-Marc Museux, Paloma Seoane and Vijay Verma [1] (Statistical Office of the European Communities (Eurostat), Luxembourg, [1] University of Siena, Italy)
 Cross-sectional and longitudinal weighting for the EU-SILC rotational design
- 22 *Parallel 2. UK longitudinal surveys (contributed papers)*
 Chair: Nick Buck (University of Essex, UK)
 Roeland Beerten and Kate Foster (Office for National Statistics, UK)
 The UK Wealth and Assets Survey: origins and development
 Helen Borgerson (Office for National Statistics, UK)
 Development of an Integrated Household Survey for the UK (the Continuous Population Survey)
 John Bynner and Jean Martin [1] (Longview, UK, [1] University of Oxford, UK)
 Challenges and Opportunities for UK Longitudinal Research: Findings from The ESRC Panel and Cohort Studies Review
- 23 *Parallel 3. Longitudinal survey design (contributed papers)*
 Chair: Bob Tortora (Gallup Europe)
 Marjorie Hinsdale, Brian J. Burke and Craig A. Hill (RTI International, North Carolina, USA)
 Following an Adolescent Cohort into Adulthood: Reestablishing a Longitudinal Study for an Unanticipated Add-on Wave of Data Collection
 Elke Moons and Geert Wets (Hasselt University, Diepenbeek, Belgium)
 Setting up a Continuous Panel for Collecting Travelling Information: Discussion on Methodological Issues
 Susan M.B. Morton and Elizabeth Robinson (University of Auckland, New Zealand)
 Methodological challenges in the design of a new longitudinal study of New Zealand children and their families
- 24 15.00-15.20 Tea and Coffee
- 25 *15.20-17.00 Parallel 1. Longitudinal survey design (monograph papers)*
 Chair: Nancy Bates (US Census Bureau)
 Discussant: Steven Cohen (Agency for Healthcare Research and Quality, USA)
 Dave Elliot, Peter Lynn [1] and Paul Smith (Office for National Statistics, UK, [1] University of Essex, UK)
 Sample Design for longitudinal surveys
 Lisa Calderwood and Carli Lessof [1] (Centre for longitudinal Studies, Institute of Education, University of London, UK, [1] National Centre for Social Research, UK)
 Enhancing longitudinal surveys by linking administrative data
- 26 *Parallel 2. Analysis of longitudinal survey data (monograph papers)*
 Chair: Joop Hox (Utrecht University, Netherlands)

Discussant: J.N.K. Rao (Carleton University, Canada)

Ian Plewis (Centre for longitudinal Studies, Institute of Education, University of London, UK)

Statistical Modelling For Structured Longitudinal Designs

Roderick Little and Guangyu Zhang (University of Michigan, USA)

Robust likelihood-based analysis of longitudinal data with missing values

27 *Parallel 3. Analysis of longitudinal categorical data (contributed papers)*

Chair: Norberto Pantoja-Galicia (University of Waterloo, Canada)

Ann Berrington and Peter W.F. Smith (University of Southampton, UK)

Multilevel analysis of repeated ordinal data: Practical issues in the application of alternative estimation techniques using MLwiN and gllamm

Andreas Hadjar and Frank Schubert (University of Bern, Switzerland)

Education and Subjective Well-Being in Temporal Change, 1984-2002: A Comparison of Two Analytical Methods

Michele Haynes and Mark Western (University of Queensland, Brisbane, Australia)

Evaluation of Methods for Analysing Categorical Longitudinal Survey Data

Tim Futing Liao (University of Illinois, USA, and University of Essex, UK)

A Method for Analyzing Categorical Data with Panel Attrition

Thursday July 13

28 *9.00-10.40 Parallel 1. Seam bias and dependent interviewing (monograph papers)*

Chair: Joachim Frick (DIW Berlin, Germany)

Discussant: Mario Callegaro (University of Nebraska-Lincoln, USA)

Annette Jäckle (University of Essex, UK)

Dependent interviewing: a framework and application to current research

Jeffrey C. Moore, Nancy Bates, Joanne Pascale and Aniekan Okon (US Census Bureau, Washington DC, USA)

Tackling seam bias through questionnaire design

29 *Parallel 2. Temporal association and gross flows (monograph papers)*

Chair: Stephen P. Jenkins (University of Essex, UK)

Discussant: Patrick Sturgis (University of Surrey, UK)

Norberto Pantoja-Galicia, Mary E. Thompson and Milorad Kovacevic [1] (University of Waterloo, Canada, [1] Statistics Canada)

Assessing the Temporal Association of Events using Longitudinal Complex Surveys

Francesca Bassi and Ugo Trivellato (University of Padova, Italy)

A Latent Class Approach for Estimating Gross Flows in the Presence of Correlated Classification Errors

30 *Parallel 3. Non-response (contributed papers)*

Chair: Michel Ferland (Statistics Canada)

Alison Aughinbaugh and Rosella M. Gardecki [1] (US Bureau of Labor Statistics, [1] Ohio State University, USA)

An assessment of unit non-response among participants in the National Longitudinal Survey of Youth 1979

Rebecca Taylor (National Centre for Social Research, UK)

Using item non-response to predict future unit-nonresponse: ELSA as a case study

Danna Basson and Michael Chronister (University of Wisconsin-Madison, USA)

Refusals in longitudinal surveys – does listening to digital recordings help or hurt participation rates?

Iain Noble, James Halse, Andrew Ledger and Tim Thair (Department for Education and Skills, UK)

First cut is the deepest? Attrition and non-response bias over the initial waves of two longitudinal surveys of young people

31 10.40-11.00 Coffee and Tea

32 11.00-12.40 *Parallel 1. Sample attrition (monograph papers)*

Chair: Annelies Blom (ZUMA, Mannheim, Germany)

Discussant: Michael Pergamit (National Opinion Research Centre, USA)

Nicole Watson and Mark Wooden (University of Melbourne, Victoria, Australia)

Identifying factors affecting longitudinal survey response

Mick Couper and Mary Beth Ofstedal (University of Michigan, USA)

Keeping in contact with mobile sample members

33 *Parallel 2. Dependent interviewing (contributed papers)*

Chair: Annette Jaeckle (University of Essex, UK)

Britta Matthes, Maike Reimer [1] and Ralf Künster (Max-Planck-Institute for Human Development, Berlin, Germany, [1] Bavarian State Institute for Higher Educational Research and Planning, Munich, Germany)

Collecting event histories with TrueTales: techniques to improve retrospective self reports in standardized interviews

Anna Y. Chan and Jeffrey C. Moore (US Census Bureau, Washington DC, USA)

The Impact of a Confidentiality Protection Policy on the Use of Dependent Interviewing in a Longitudinal Household Panel Survey: The Case of the Survey of Income and Program Participation

Hayley Cheshire, Alice McGee, Michelle Gray and Joanne Pascale [1] (National Centre for Social Research, UK, [1] US Census Bureau, Washington DC, USA)

Using Behaviour Coding To Understand The Effect Of Dependent Interviewing On Data Quality

Alison Aughinbaugh and Charles Pierret (US Bureau of Labor Statistics)

Capturing Complex Event-History Data Using Dependent Interviewing: Dating, Cohabitation, and Marriage in the National Longitudinal Survey of Youth 1997

34 *Parallel 3. Modelling (contributed papers)*

Chair: Francesca Bassi (University of Padova, Italy)

Stephen Bennett, Trevor Cox and Raj Bhansali [1] (Unilever Research and Development, UK, [1] University of Liverpool, UK)

Dynamic Multidimensional Scaling - a new approach to analysing longitudinal panel data
Marc Callens (Population and Family Research Centre (CBGS), Brussels, Belgium)

Cross-National Poverty Dynamics: Random Effects Modelling of Multiple Poverty Spells and Changing Household Membership

Tim Croudace, George B. Ploubidis [1], Rosemary A Abbott [1], Diana Kuh [2], Peter B. Jones [1], Michael E.J. Wadsworth [2] and Felicia A Huppert [1] (Department of Health and University of Cambridge, UK, [1] University of Cambridge, UK, [2] Royal Free and University College Medical School, London UK)

Latent variable modelling of longitudinal data: applications of Mplus methodologies (latent class growth and growth mixture models) in epidemiological cohort studies and household panel data

P.A.V.B. Swamy, Jatinder S. Mehta and I-Lok Chang [2] (US Bureau of Labor Statistics, [1] Temple University, Philadelphia, USA, [2] American University, Washington DC, USA)
An Efficient Method of Correcting for Nonsampling and Sampling Errors in a Panel Data Analysis

35 12.40-13.45 Lunch

36 13.45-15.00 *Parallel 1. Data linkage (contributed papers)*

Chair: Lisa Calderwood (Institute of Education, UK)

Karl Ashworth and Peter Martin (Office for National Statistics, UK)

Linking claimant count unemployment data to the Longitudinal Study

Louisa Blackwell and Peter Martin (Office for National Statistics, UK)

The LS-Census Link: 2001 experiences and lessons for 2011

Dean Lillard and Eamon Molloy [1] (Cornell University, USA and DIW, Berlin, Germany, [1] Cornell University, USA)

Not Quite the Best Thing Since Sliced Bread (but almost): A New Method to Enhance Longitudinal Data Using Place of Birth to Impute Place of Residence Histories

37 *Parallel 2. Analysis of sequences and changes (contributed papers)*

Chair: Kimberly Fisher (University of Essex, UK)

Peter Martin, Ingrid Schoon and Andy Ross (City University, London, UK)

Ideal sequences: A systematic approach to the classification of life trajectories

Gary Pollock (Manchester Metropolitan University, UK)

Multiple Sequence Analysis: a contextualized narrative approach to longitudinal data

38 *Parallel 3. Study design (contributed papers)*

Chair: Annette Scherpenzeel (Tilburg University, Netherlands)

Mario Callegaro (University of Nebraska-Lincoln, USA)

Seam effects in panel data collected with Event History Calendar methodology: The case of labor force transitions in the PSID

Takis Merkouris (Statistics Canada)

On the Inter-Stratum Mover Problem in Longitudinal Household Surveys

Jörg Bätzing-Feigenbaum, Brian Rice, Till Bärnighausen, Caterina Hill, Christian Kyony, Frank Tanser, Tanya Welz, Victoria Hosegood, Kobus Herbst and Marie-Louise Newell (Africa Centre for Health and Population Studies, kwaZulu Natal, South Africa)

Results and methodological challenges presented from a large longitudinal population-based HIV survey in rural kwaZulu-Natal, South Africa (2003 to 2006)

39 15.00-15.20 Tea and Coffee

40 15.20-17.00 *Parallel 1. Panel conditioning/ Consumer panels (monograph papers)*

Chair: Dirk Sikkel (Sixtat, Netherlands)

Discussant: Robert F. Schoeni (University of Michigan, USA)

Patrick Sturgis, Nick Allum and Ian Brunton-Smith (University of Surrey, UK)

Attitudes over time: the psychology of panel conditioning

Bob Tortora (Gallup Organization, USA and Gallup-Europe, Belgium)

Recruitment and retention for consumer panels

41 *Parallel 2. Causality/Non-ignorable non-response (monograph papers)*

Chair: Peter W. F. Smith (University of Southampton, UK)

Discussant: Ian Plewis (Institute of Education, UK)

Andrea Piesse, David Judkins, Graham Kalton (Westat, Maryland, USA)

Measuring Causal Effects in Longitudinal Surveys

Abdulhakeem Eideh and Gad Nathan [1] (Alquds University, Palestine, [1] Hebrew University of Jerusalem, Israel)

Joint Treatment of Nonignorable Nonresponse and Informative Sampling for Longitudinal Survey Data

42 *Parallel 3. Weighting (contributed papers)*

Chair: Ulrich Rendtel (Free University, Berlin)

Leroy Bailey (US Census Bureau, Washington DC, USA)

Assessing Selected Weighting Adjustment Alternatives For Longitudinal Nonresponse and Attrition

Clinton Hayes (Statistics New Zealand)

Non-response Bias and Weighting in the New Zealand Survey of Family, Income and Employment

Gillian M. Raab and Susan McVie [1] (Napier University, Edinburgh, UK, [1] University of Edinburgh, UK)

Comparing imputation and weighting for a longitudinal study: results based on the Edinburgh Study of Youth Transitions and Crime

Steven B. Cohen and Trena Ezzati-Rice (Agency for Healthcare Research and Quality, Maryland, USA)

The Impact of Survey Attrition on Health Insurance Coverage Estimates in a National Longitudinal Health Care Survey

Friday July 14

43 *9.00-10.40 Parallel 1. Missing data and weighting (monograph papers)*

Chair: Heather Laurie (University of Essex, UK)

Discussant: Dave Elliot (Office for National Statistics, UK)

Dirk Sikkel, Joop Hox [1] and Edith D. de Leeuw [2] (Sixtat, Netherlands, [1] University of Utrecht, Netherlands, [2] MethodikA, Amsterdam and University of Utrecht, Netherlands)

Planning for handling missing data in longitudinal surveys

Ulrich Rendtel and Torsten Harms (Freie Universität Berlin, Germany)

Weighting and calibration in household panels

44 *Parallel 2. Comparability across modes / ethical issues (monograph papers)*

Chair: Roeland Beerten (Office for National Statistics, UK)

Discussant: Bob Tortora (Gallup Europe)

Don A. Dillman (Washington State University, USA)

Achieving comparability across visual and aural modes in longitudinal surveys

Carli Lessof (National Centre for Social Research, UK)

Ethical issues in longitudinal surveys

45 *Parallel 3. Non-response (contributed papers)*

Chair: Jeff Moore (US Census Bureau)

Doug Currivan and Lisa Carley-Baxter (RTI International, North Carolina, USA)

Nonresponse Bias in a Longitudinal Follow-up to a Statewide Random-Digit Dial Survey

France Bilocq (Statistics Canada)

The battle to minimize attrition – National Population Health Survey

Hari R Lohano (University of Bath, UK)

Forgotten but not lost: Methods for tracing longitudinal households after 15 years in a developing country

Bola Akinwale, Karl Ashworth, Louisa Blackwell, Brian Johnson and Alec Ross (Office for National Statistics, UK)

Tackling 'loss to follow-up' to improve mortality estimates in the ONS Longitudinal Study

46 10.40-11.10 Coffee and Tea

47 11.10-12.25 *Parallel 1. Incentives (monograph papers)*

Chair: Edith de Leeuw (Utrecht University/ Methodika, Netherlands)

Discussant: Don Dillman (Washington State University, USA)

Peter Lynn and Heather Laurie (University of Essex, UK)

The use of respondent incentives on longitudinal surveys

Annette Jaekle and Peter Lynn (University of Essex)

Respondent Incentives in a Multi-Mode Panel Survey: Cumulative Effects on Non-Response and Bias

48 *Parallel 2. Modelling (contributed papers)*

Chair: Louisa Blackwell (Office for National Statistics, UK)

Marcel Vieira and Chris Skinner (University of Southampton, UK)

Estimating Panel Data Models with Complex Survey Data

Vinod Kapani and David Talan (US Bureau of Labor Statistics)

Designing a Next Generation Database: Longitudinal and Cross Sectional Analysis of Business Employment Dynamics (BED) Estimates

Stephen Horn (Australian Government Department of Family and Community Services)

Longitudinal Estimation – a balanced view of the applicability of panel data for social policy research

49 *Parallel 3. Non-response (contributed papers)*

Chair: Jean Martin (University of Oxford, UK)

Cheti Nicoletti (University of Essex, UK)

Decomposition of contact and co-operation rate differences

Richard Dorsett (Policy Studies Institute, London, UK)

Using matched substitutes to adjust for nonignorable nonresponse: An empirical investigation using labour market data

Marilyn M Seastrom, Christopher Chapman, J. Michael Brick [1] and Thanh Lê [1] (National Center for Education Statistics, USA, [1] Westat, Maryland, USA: paper presented by Andrea Piesse, Westat)

Measuring Nonresponse Bias in the US Early Childhood Longitudinal Study: Cohorts Kindergarten through 5th Grade

50 12.30-13.00 plenary. Prize-giving, final announcements and farewells

51 13.00-14.00 Lunch

Descriptions / Abstracts of Monograph Papers

52 Since several monograph papers were either not for citation or did not have a formalized abstract, the material below has often been summarized by the *BMS* from what was available on the MOLS 2006 Web site.

53 Georgia Roberts, Qunshu Ren, and J.N.K. Rao, "Using marginal mean models with data from a longitudinal survey having a complex design: Some advances in methods": This paper shows how the marginal logistic regression model for binary responses – widely

used in biostatistical research – can be extended to the case of design-based analysis of complex survey data. Estimation of the model through survey-weighted estimating equations using odds ratios for describing the working covariance matrix is illustrated. Also, the one-step EF bootstrap approach to variance estimation is extended to this model. Methods for assessing the goodness of fit of the marginal model, taking account of the survey design, are also given. Finally, longitudinal data from Statistics Canada's National population Health Survey are used to illustrate the methods proposed in this paper.

- 54 Peter Smith, Ann Berrington and Patrick Sturgis, "A comparison of graphical models and structural equation models for the analysis of longitudinal data": The authors discuss the similarities and differences of the Graphical chain modelling (GCM) and structural equation modelling (SEM) approaches to modelling univariate recursive systems. They identify the advantages and disadvantages of each approach, for example in terms of their ability to handle a mixture of categorical and interval data, to include latent variables (measurement models), and to cope with measurement error, non-response, sample weights and complex survey designs. From a practical, model fitting perspective, they highlight the current issues in estimation; for example, those relating to potential problems caused by the inversion of the correlation matrix in SEM, and the computer intensive numerical integration required for maximum likelihood estimation. They also discuss the problem of model selection and assessment.
- 55 Dave Elliot, Peter Lynn and Paul Smith, "Sample design for longitudinal surveys": The authors review the considerations that influence sample design for longitudinal surveys, the range of sample design options available, and research evidence regarding some of the key design issues. They attempt to provide practical advice on which techniques to consider for different types of longitudinal surveys, where they are most likely to be effective, and what pitfalls to avoid.
- 56 Lisa Calderwood and Carli Lessof, "Enhancing longitudinal surveys by linking to administrative data": This paper begins by discussing the different types of linkage of administrative with survey data and summarising existing linkages with longitudinal studies in the UK. The main focus of the paper is on discussing the different motivations for linking survey data to administrative data and how these differ for longitudinal surveys compared with cross-sectional surveys. The practical issues involved in linkage are discussed, again with reference to differences between longitudinal and cross-sectional surveys. The final section summarises and concludes.
- 57 Ian Plewis, "Statistical Modelling for Structured Longitudinal Designs": This paper considers how different design features of longitudinal cohort studies can determine the way in which data from these studies are analysed. The suggested models are illustrated by analyses from British birth cohort studies. The paper sets out the basic multilevel model, illustrated by educational attainment data from the National Child Development Study (NCDS, 1958 cohort). It shows how the model can be extended to encompass multiple cohorts, with the illustration extended to bring in data of a similar kind from the 1970 cohort (BCS70). A second extension brings in cohort studies with a multi-stage sample design that enables analyses of spatial variation in both temporal and conditional relations to be explored. The Millennium Cohort Study (MCS) has such a design and will be used to provide an example.
- 58 Roderick Little and Guangyu Zhang, "Robust likelihood-based analysis of longitudinal data with missing values": One approach to the analysis of longitudinal survey data with

missing values is to multiply impute the missing values using draws from their predictive distribution, given the observed data (Rubin 1987; Little and Rubin 2002, chapter 10). An advantage of the method is that predictors that are not relevant or not available for the final analysis model can be used in the imputation model. A robust model-based multiple imputation approach is proposed based on extensions of the work of Little and An (2004). Imputations are based on a model that models the relationship with the response propensity non-parametrically by a penalized spline, and models relationships with other variables parametrically. This approach has a form of double robustness that will be described, and simulation comparisons with other methods suggest that the method works well in a wide range of populations, with little loss of efficiency relative to parametric models when the latter are correct. Extensions to general patterns of missing data and the parameters other than unconditional means are outlined.

- 59 Annette Jäckle, "Dependent Interviewing - A Framework and Application to Current Research": Panel surveys increasingly use dependent interviewing, where substantive answers from previous interviews are fed forward and used to tailor the wording and routing of questions, or to include in-interview edit checks. The main reason for adopting dependent interviewing varies across survey organisations, surveys and items. As a result, a variety of dependent interviewing designs have been developed and comparisons of their effects are anything but straightforward. This article proposes a conceptual framework of the different design options and their effects, in an attempt to further the understanding of dependent interviewing. The framework is used to evaluate the effects of different designs in the "Improving Survey Measurement of Income and Employment" study. The article also clarifies the causes of longitudinal inconsistencies in repeated panel surveys (seam effects) and discusses the extent to which dependent interviewing can reduce these. The article ends with issues yet to be resolved.
- 60 Jeffrey Moore, Nancy Bates, Joanne Pascale and Aniekan Okon, "Tackling Seam Bias Through Questionnaire Design": The authors examine the impact of dependent interviewing procedures on "seam bias", a phenomenon peculiar to longitudinal panel surveys. Seam bias refers to the tendency for estimates of change measured across the "seam" between two successive survey administrations to far exceed change estimates measured within a single interview - often by a factor of 10 or more. The US Census Bureau recently implemented new procedures in the 2004 panel of the Survey of Income and Program Participation (SIPP) in an attempt to significantly reduce seam bias for a wide variety of characteristics. The primary tool for accomplishing this was a more extensive and more focused use of dependent interviewing (DI) procedures, wherein "substantive answers from previous interviews are fed forward and used to tailor the wording and routing of questions" in the next interview. The authors describe such procedures and examines their impact, but even with the improvement, much seam bias still remains.
- 61 N. Pantoja-Galicia¹, M.E. Thompson and M. Kovacevic, "Assessing the Temporal Association of Events using Longitudinal Complex Surveys": The authors begin with an overview of a notion of temporal order along with a formal nonparametric test for a partial order relationship presented by Thompson and Pantoja-Galicia (2002). Estimation of the densities involved in the test is discussed, taking account of the interval censoring nature of the data. The complexities of the survey design are also incorporated. An important element of the nonparametric test is the standard error which is then assessed.

The two final sections present the applications. The authors close with discussion and possible extensions.

- 62 Francesca Bassi and Ugo Trivellato, "A Latent Class Approach for Estimating Gross Flows in the Presence of Correlated Classification Errors (or correlated classification errors)": A convenient framework for formulating our model is provided by latent class analysis. We apply our approach to data on young people's observed gross flows among the usual three labour force states – Employed (E), Unemployed (U) and Out of the labour force (O) – taken from the French Labour Force Survey (FLFS), March 1990-March 1992. The model is shown to correct flows in the expected direction: estimated true transition rates exhibit higher mobility than observed ones. In addition, the measurement part of the model has significant coefficient estimates, and the estimated response probabilities show a clear, sensible pattern. Our approach provides a means of accounting for correlated classification errors across panel data which is less dependent on multiple indicators than previous formulations of latent class Markov models (van de Pol and Langeheine 1997; Bassi *et al.* 2000).
- 63 Nicole Watson and Mark Wooden, "Identifying Factors Affecting Longitudinal Survey Response": The authors examine the factors that influence continued participation by sample members in longitudinal surveys. First, evidence from previous research that has modeled the response process within a multivariate framework is reviewed. Second, estimates of predictors of response from a new national household panel survey – the Household, Income and Labour Dynamics in Australia (HILDA) Survey – are presented. Following other recent treatments in the literature, the estimation model treats survey participation as involving two sequential events, contact and response.
- 64 Mick P. Couper and Mary Beth Ofstedal, "Keeping in Contact with Mobile Sample Members": The authors first offer an overview of the location problem, as distinct from other sources of panel attrition or nonresponse. They then offer a framework for understanding the location propensity to guide fieldwork strategies and identify likely sources of bias. Then they briefly describe two cases studies, examining the extent of the location problem, and correlates of (non)location. They end with a brief discussion of the changing role of technology in facilitating or impeding the ability to locate sample persons who have moved or changed contact information, and offer some thoughts for research and practice.
- 65 Patrick Sturgis, Nick Allum and Ian Brunton-Smith, "Attitudes Over Time - The Psychology of Panel Conditioning": The focus is on panel conditioning with respect to attitude questions. The methodological approach is different from the majority of previous studies in this area in that there is no attempt to estimate biases in marginal and associational distributions through comparison with a fresh cross-sectional sample. Rather, the author's approach is based on testing hypotheses on a single data set, derived from an explicit theoretical model of the psychological mechanism underlying conditioning effects in repeated measures of the attitude. They refer to this as the cognitive stimulus (CS) hypothesis. Specifically, they use a range of empirical indicators to evaluate the theory that repeatedly administering attitude questions serves to stimulate respondents to reflect and deliberate more closely on the issues to which the questions pertain. This, in turn, results in stronger and more internally consistent attitudes in the later waves of a panel.
- 66 Bob Tortora, "Recruitment and retention for consumer panels": The Gallup Poll Panel is a relatively new discontinuous panel (Sudman and Wansink, 2002) that surveys panel

members on a wide variety of topics, including Gallup Polls, market research topics and social research. It is also a useful tool for research testing and evaluation. The interviews are conducted by telephone or are self-administered by mail or web. After a description of the Gallup Poll Panel, the author analyzes the effect of three experiments on panel attrition. The experiments are a long recruit survey introduction versus a shorter introduction, a signature on the part of the recruited member when they return the initial intake questionnaire versus no signature and a comparison of attrition for those members assigned to a totally self-administered survey process versus those members that are interviewed by telephone on every other survey contact.

- 67 Andrea Piesse, David Judkins and Graham Kalton, "Using Longitudinal Surveys to Evaluate Interventions": Two of the three examples discussed here are evaluations of on-going public health communication programs (primarily television campaigns). In preparation for the examples, the preceding section provides an overview of types of interventions, types of effects, some issues in the design and analysis of evaluation studies, and the value of longitudinal data. The subsequent sections describe a selection of the analyses employed in three evaluations studies based on data collected in longitudinal studies: the US Youth Media Campaign Longitudinal Survey (YMCLS); the National Survey of Parents and Youth (NSPY); the Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP).
- 68 Abdulhakeem A.H. Eideh and Gad Nathan, "Joint Treatment of Nonignorable Dropout and Informative Sampling for Longitudinal Survey Data": The authors study, within a modeling framework, the joint treatment of non-ignorable dropout and informative sampling for longitudinal survey data, by specifying the probability distribution of the observed measurements when the sampling design is informative. The proposed method combines two methodologies used in the analysis of sample surveys: for the treatment of informative sampling and informative dropout. One incorporates the dependence of the first order inclusion probabilities at the initial time period on the study variable, see Eideh and Nathan (2006), while the other incorporates the dependence of the probability of nonresponse on unobserved or missing observations, see Diggle and Kenward (1994). An empirical example based on British Labour Force Survey data illustrates the methods proposed.
- 69 Dirk Sikkel, Joop Hox and Edith D. de Leeuw: "Using Auxiliary Data for Adjustment In Longitudinal Research": The authors use the term panel to refer in general to any design in which individual subjects are repeatedly surveyed. This includes longitudinal research where subjects are followed for many years, but also access panels whose members agree to respond to a certain number of questionnaires only when their information is needed. Ideally, a panel consists of subjects that are a probability sample of the population that the researcher has in mind, and remains intact during the lifetime of the panel. In reality, many panels are a volunteer panel, which makes it difficult to assess whether it is representative for a larger population, and all panels suffer from panel attrition: panel members who cease to cooperate with the study. If the researcher has auxiliary data on the panel members that can be compared to data from the general population, a number of remedies are possible. The purpose of this chapter is to present and discuss what can be done to prevent or repair the consequences of nonresponse in longitudinal studies.
- 70 Ulrich Rendtel and Torsten Harms, "Weighting and calibration in household panels": The authors present different possible follow-up rules as they occur in some of the largest ongoing panel studies and show that many follow-up procedures can be incorporated into

the estimator of totals as some sort of weighting of the individuals and households. In practice, dealing with follow-up is not the only challenge: As other surveys, panel studies usually suffer from selective nonresponse and attrition, meaning sampled persons choose not to take part at the panel any more. Since follow-up rules can be incorporated into weighted estimators, it seems natural to take one step further to adjust the weights in order to lessen the impact of nonresponse and attrition. This can be done using a calibration approach whose basic principle is to use additional information that is available also for the nonresponding part of the sample. The authors discuss adjustments for nonresponse and how calibration can be carried out in panel studies in general and what effects it creates.

- 71 Don A. Dillman, "Achieving comparability across visual and aural modes in longitudinal surveys": The author compares alternative visual layouts from web surveys with telephone survey results contained in a six panel experiment (3 web, 3 telephone) the aim of which is to determine which results translate best and worst across these aural and visual modes. This study includes 25 experimental comparisons on a variety of questions, ranging from scalar formulations to estimation and forced-choice question formats that have been observed to present particular problems when presented in different visual formats. These data were collected as part of a long-term research program the author directs, the aim of which is to develop better measurement in aural vs. visual forms of surveying.
- 72 Carli Lessof, "Ethical issues in longitudinal surveys": This paper sets out some of the ethical issues that are faced specifically by longitudinal studies. It reviews four of the key ethical principles identified by the ESRC: informed consent, voluntary participation, avoidance of harm and confidentiality and provides illustrations based on particular aspects of the longitudinal survey research process. The first and last issues raised by the ESRC (integrity and quality; resolution of conflicts of interest) are considered more generally in the conclusions.
- 73 Peter Lynn and Heather Laurie, "The use of respondent incentives on longitudinal surveys": The authors review the use of incentives in longitudinal surveys, describing common practices and the rationale for these practices. The features of longitudinal surveys that are unique and the features that they share with cross-sectional surveys in terms of motivations and opportunities for the use of incentives and possible effects of incentives are also identified. Experimental evidence on the effects of incentives on longitudinal surveys is then reviewed. Finally, three experimental studies carried out in the UK are presented. Each addresses a particular issue concerning the effect of changing the way that incentives are used part-way through the survey. Each experiment addressed a different type of change.
- 74 Annette Jaeckle and Peter Lynn, "Respondent Incentives in a Multi-Mode Panel Survey - Cumulative Effects on Non-Response and Bias": No information available.

ABSTRACTS

On 12-14 July 2006, at the University of Essex, Peter Lynn, with the UK Longitudinal Studies Centre and the International Association of Survey Statisticians (IASS), organized the International Conference on Methodology of Longitudinal Surveys (MOLS 2006). The *BMS* has collected material from the Web sites of MOLS 2006 and the International Statistical Institute, of which the IASS is a section, to constitute this conference report.

La conférence internationale sur la méthodologie des enquêtes longitudinales : Du 12 au 14 juillet 2006, à l'université d'Essex, Peter Lynn, avec le « UK Longitudinal Studies Centre » et l'« International Association of Survey Statisticians » (IASS), a organisé la conférence internationale sur la « Methodology of Longitudinal Surveys » (MOLS 2006). Le *BMS* a rassemblé des matériaux des sites Web de MOLS 2006 et de l'« International Statistical Institute », dont l'IASS est une section, pour constituer ce compte-rendu de la conférence.

INDEX

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