



**Centre for Longitudinal Studies**  
Institute of Education



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## **Tracking sample members in longitudinal studies**

**EUCCONET International Workshop Thursday 1<sup>st</sup> and Friday 2<sup>nd</sup> July 2010  
London, UK**

**Organiser:** Lisa Calderwood, Senior Survey Manager, British Birth Cohort Studies  
(Centre for Longitudinal Studies, Institute of Education, UK)

### **Scientific Report**

#### **Summary**

Minimising sample attrition through failure to locate sample members who move is a major concern for all longitudinal studies. The dynamics of residential mobility, and the processes related to it such as relationship and employment change, are of substantive interest to most studies and the failure to locate sample members who move may lead to biased estimates of change in these and other important domains.

The workshop brought together around fifty participants from child cohort and household panel studies around the world to share experiences and best practice in relation to tracking sample members in longitudinal studies. The rationale for inviting participants and presenters from panel studies as well as cohort studies in the workshop was that the location problem is a common problem in all longitudinal studies.

There were twelve presentations from longitudinal studies based in Europe, three from studies based in USA and two from studies based in Australia. The workshop also attracted delegates, who travelled at their own expense, from studies in Japan and New Zealand.

The workshop provided a forum for different types of longitudinal studies from around the world to learn from each other's tracking procedures and showcased some of the most recent methodological research on this topic (Calderwood, 2010; Fumagalli, Laurie and Lynn, 2010; McGonagle, Couper and Schoeni, 2010). The broad range of countries and types of study represented highlighted the different institutional and legal contexts and the diversity of approaches on different studies, in particular between local area and national studies.

The main impact of the event was to globalise best practice in tracking procedures. All participants went away from the workshop with ideas about how to adapt and improve their own study's tracking procedures as a result of what they had heard

from other studies. A secondary impact of the workshop was to enhance awareness of the survey methodological literature among survey practitioners and to encourage survey practitioners to evaluate their practice and to publish the results of their evaluations in order that enhance and broaden the knowledge base in this area.

## **Scientific background**

One of the main analytic benefits of longitudinal surveys is that they offer researchers the opportunity to study change over time. Attrition from longitudinal surveys can lead to bias in the findings from the study if sample members who drop out over time are systematically different to those who remain in the study. A particular concern is that if the factors associated with sample loss are themselves associated with the substantive processes which the study is aiming to measure over time, this can lead to biased estimates of change. Lepkowski and Couper (2002) distinguish between three different sources of attrition: failure to locate, failure to make contact having located and failure to co-operate having contacted.

This workshop focused on the challenge of minimising sample attrition due to failure to locate. The problem of locating sample members in longitudinal surveys is related to an individual's propensity to move and, conditional on moving, to be located. One of the main reasons longitudinal studies aim to track sample members who move is that the dynamics of residential mobility, and the processes related to it such as relationship and employment change, are of substantive interest and failure to locate sample members who move may lead to biased estimates of change in these and other important domains.

The scientific motivation for this workshop came primarily from a paper by Couper and Ofstedal (2009) which was originally presented at the International Conference on the Methodology of Longitudinal Studies at the University of Essex in 2006. The authors offer a general model to help understand the location process which hypothesises that the main factors affecting the propensity to move are person-level factors such as age, family circumstances, employment and housing situation, and societal-level factors such as the general level of mobility and degree of urbanisation. The propensity to be located, on the other hand, is influenced by survey design factors, such as the interval between waves and tracking procedures and structural factors, such as the availability of population registers, mail forwarding rules and the portability of phone numbers.

Couper and Ofstedal provide a review of the literature in relation to the likelihood of moving showing that mobility rates vary both within and between countries and that a variety of demographic and socio-economic factors are associated with mobility. They also discuss the structural or societal-level factors and survey design factors which are likely to be associated with the ability to locate sample members who move. This includes a useful review of tracking procedures commonly employed on longitudinal surveys which distinguishes between retrospective tracking, designed to find sample members with whom contact has been lost and prospective tracking, designed to prevent the loss of contact by keeping details up to date and between office and field based tracking. The substantive focus of the paper is an examination of the location problem in the context of two long-running longitudinal studies: the Panel Study of Income Dynamics and the Health and Retirement Study. The authors

note that although most longitudinal surveys devote considerable resources to tracking mobile sample members and have developed highly successful procedures for minimising attrition through failure to locate, there is relatively little methodological evidence on the relative success, and cost-effectiveness, of different tracking procedures.

### **Scientific content and discussion**

The main findings of the workshop were that most studies used a broad range of both retrospective and prospective tracking procedures and as a result had relatively low levels of attrition to due failure to locate. While standard tracking procedures were used widely, there were also some interesting and innovative variations in practice. Most studies evaluate and adapt their procedures and monitor their costs on an ongoing basis. However, there was relatively little formal evaluation of the (cost)-effectiveness of survey practice e.g. through methodological experiments. It was also noted that, with some exceptions, most studies did not gather systematic feedback from participants about their tracking procedures e.g. whether they read newsletters etc.

The broad range of countries and types of study represented at this workshop provided new insights into the range of structural/societal-level factors and survey design factors which may be related to the ability of different studies to locate sample members when they move. This paper reports the content of the presentations and discussion at the workshop using the theoretical framework developed by Couper and Ofstedal (2009) and, in particular, builds upon their discussion of structural/societal-level and survey design factors which may be related to location propensity.

### ***Survey-design factors***

One of the main determinants of differences between studies in their propensity to locate sample members who move is the effort and resources that are devoted to tracking. Most of the studies represented at the workshop used a wide and similar range of both prospective and retrospective tracking methods. Prospective tracking methods include collecting extensive contact information and updating it frequently between waves through change of address cards etc, providing websites, freephone numbers for participants to update their addresses and recording relevant information such as moving intentions at prior interviews. Retrospective tracking methods include attempting to contact study members, current occupiers and neighbours of their last known address and stable contacts multiple times using multiple methods i.e. in person and by post, email and text messages. There were differences between studies in the extent to which they used monetary incentives to promote the return of change of address cards etc. This was standard practice on most household panel studies but less common in child cohort studies, with the exception of those in the United States.

Some of the innovative field tracking methods presented were the use of private detectives on the Fragile Families and Child Wellbeing study in the USA and the use of differential incentives for interviewers to track certain hard to reach groups on the Growing Up in Scotland (GUS) study.

Almost all of the studies represented at the workshop used some kind of newsletter or feedback mailing to disseminate findings (and keep in touch) with participants between waves. However, the content of these mailings varied between studies. Some were almost exclusively focused on results from the study e.g. Millennium Cohort Study (MCS) in the UK. Others focused more on 'news' items and included games and puzzles for study children e.g. *Growing Up in Australia: the Longitudinal Study of Australian Children* (LSAC) and *Growing Up in Ireland* (GUI).

There was also a clear difference between local area studies and national studies in their approach to tracking. Local studies such as Generation R in Netherlands and the Avon Longitudinal Study of Parents and Children (ALSPAC) and Born in Bradford (BiB) in the UK aimed to recruit all children born over a particular time period in a defined geographical area or location. It is widely known that whole generations of the local population are members of the study and the studies are strongly embedded in their local communities. As it is widely known that more or less everyone of a certain age is in the study, there is not a concern about study members revealing to each other or to other people that they are in the study. This fact, coupled with limited geographical scope, means that many additional methods of tracking are open to these kinds of studies which would not be possible, or would be much more difficult, in national studies. They ensure that the study brand has high recognition locally e.g. through local media, branded vehicles and try to ensure that the study has a visible presence at local events their study members are likely to attend. They are also able to use the social networks among the study participants for tracking. For example, both ALSPAC and BiB organise local events such as parties for study members and their families and ALSPAC recently offered study members who brought a friend (who was also a study member) to a clinic visit an additional incentive in order to help them get back in touch with young people who were had previously dropped out. Moreover, ALSPAC maintains a Facebook page for study members and uses this as a method of tracking.

By contrast, as most national studies are samples of wider populations, it is not known which members of the population are in the study and hence it is important to ensure that this is not revealed either directly or indirectly. Study members are generally not encouraged to reveal this to each other or other people and this is reflected in the general approach to tracking taken on most national studies which is to ensure that interviewers/office trackers do not reveal that the person they are looking for is in a named study to non study-members e.g. neighbours. In practice, it was recognised that this can cause tensions, particularly when contact is made during tracking with family members and it is unclear whether or not they are aware that their family members is in the study.

The tension between promoting the study brand for retention purposes and doing the opposite for reasons of anonymity was discussed. Among the national studies, there was a considerable range in practice in this area. In some studies e.g. MCS the study brand is used only on materials which are designed to be displayed inside study members' private dwellings e.g. fridge magnets, certificates. Other studies e.g. LSAC, use their branding much more extensively, including on materials which are designed to be used outside the home such as bags. There was also a difference between household panel studies and child cohort studies in their approach to branding which is, at least in part, due to the differences in their study populations.

On child cohort studies much of the study branding used is designed explicitly to be visually appealing to children. This presents a challenge of how the study branding should 'keep up' with the study members as they grow older.

The potential use of on-line digital media and social networking tools for tracking was also discussed at the workshop. As noted above, ALSPAC has a Facebook page for study members. However, for national studies, these tools can only be used in a way that does not compromise the anonymity of study members. The National Longitudinal Survey of Youth (NLSY) had developed a protocol for tracking through on-line social networking sites such as Facebook which involved interviewers/office trackers contacting potential study members privately from a non-branded account.

Most, if not all, of the studies had websites but they had made different uses of them and of on-line technology more generally. For example, the Growing Up in Ireland (GUI) study has video-clips of their report launch on their website and Growing Up in Scotland (GUS) has a YouTube channel and an online quiz aimed at the general public on their website. Both of these studies have an integrated website through which study members can access both material designed for them via a 'study members area' and material designed for other stakeholders. Other studies e.g. MCS has separate websites for study members. Most studies gave participants the opportunity to update their contact details via the study website. In some studies, participants were able to directly access and edit their details in the contact database. In most, contact databases were updated clerically with information entered via websites. There was some discussion about whether more extensive use could be made of study websites. In particular, there was some discussion about whether it would be possible or desirable for studies to provide their own secure on-line forum similar to Facebook which was only accessible to study members using a password. Some participants expressed concerns about anonymity i.e. facilitating the interaction of study members with each other. Other participants felt that it would be very difficult to stimulate and maintain interest among young people in a closed network and to 'compete' with Facebook as a vehicle for social networking. There was also discussion about making websites more interactive and appealing to children and young people e.g. including games and quizzes. The Danish National Birth Cohort (DNBC) study is collecting data from 11-year olds via the web and has designed an interactive, visually appealing website for this purpose.

In addition to tracking effort, the choice of data collection mode and timing between waves are other survey design factors which are major determinants of tracking success rates.

In relation to time between waves, there was a clear contrast between household panel studies, which tend to have fixed intervals between waves, and child cohort studies in which the interval between waves is driven primarily by the developmental stage of the study member. However, even among child cohort studies, there is considerable variation in study design. The main contrast is between studies such as MCS, LSAC, GUS and GUI which have a longer interval between waves e.g. two years and use more extensive and expensive face-to-face data collection and studies like Norwegian Mother and Child Cohort (MoBa), DNBC, Generation R, ALSPAC, BiB which tend to have much shorter intervals between data collection waves and use shorter and less expensive postal data collection methods.

The choice of data collection mode clearly has implications for tracking. Studies using face-to-face data collection made extensive and effective use of field interviewers for tracking. For example, on the Household Income and Labour Dynamics in Australia (HILDA) study, an increasing proportion of their tracking was being done by field interviewers and the study team were increasing the amount of information they make available to interviewers to facilitate them doing this. Most studies using postal or telephone data collection methods are not able, at least not cost-effectively, to carry out face-to-face field tracking. However, local area studies which have a much more limited geographical scope are able to carry face-to-face tracking cost-effectively even when they do not use this method for data collection.

### ***Structural or Societal-level factors***

In relation to centralized tracking, there were clear differences between countries in the extent to which contact information for study members is available either publicly or commercially. In the UK, the main software used is AFD which contains electoral role information (for those who do not opt out of the public record), phone numbers (for those who are not ex-directory) as well as address listings from the post office.

Some countries such as Norway and Denmark have national population registers which contain the current names and address of the entire population. As a result, loss to follow-up due to failure to locate on the studies based in these countries i.e. the Norwegian Mother and Child Cohort (MoBa) and DNBC were very low. Other studies had used other administrative data sources for tracking. It was noted that the design of some studies means they are able to use administrative data more readily than others. For example, as the BiB study was funded by the National Health Service (NHS) and run from an NHS hospital, they are more easily able to track participants through NHS records than other UK studies. Studies such as MCS and LSAC which had sampled participants through benefit records were, or had previously been, able to track through these methods (more easily than other studies in these countries who had not used these records as a sampling frame).

It was also acknowledged that different countries had different privacy laws under which studies need to operate and that this can impact upon the tracking methods available. In particular, it was noted that the French Cohort Study (ELFE) and the German National Educational Panel Study (NEPS) operated under particularly restrictive privacy laws.

The attitude of different studies, and different data collection agencies, to risk and innovation was also something that varied between countries. In particular it was felt that studies based in the USA were particularly willing to embrace innovation and try new methods to track participants. This may also reflect the fact that, broadly speaking, the financial resources available for tracking on the major US studies was felt to be greater than in many other countries.

### **Scientific impact and future directions**

The main impact of the event was to globalise best practice in tracking procedures. All participants went away from the workshop with ideas about how to adapt and

improve their own study's tracking procedures as a result of what they had heard from other studies.

A secondary impact of the workshop was to enhance awareness of the survey methodological literature among survey practitioners and to encourage survey practitioners to evaluate their practice and to publish the results of their evaluations in order that enhance and broaden the knowledge base in this area. The objective of enhancing awareness was achieved during the workshop as the introduction by the organiser introduced all participants to the Couper and Ofstedal (2009) model and the workshop showcased some of the most recent methodological research by on this topic (Calderwood, 2010; Fumagalli, Laurie and Lynn, 2010; McGonagle, Couper and Schoeni, 2010). It is hoped that some of the workshop participants will feel motivated to produce working papers or journal articles in this area.

In terms of future directions, there is a clear need greater evaluation of the effectiveness and cost-effectiveness of the tracking procedures used on longitudinal studies. In addition, it was felt that gathering systematic feedback from study members about the materials that are produced for them would be beneficial.

## References

Calderwood, L. (2010), "Keeping in touch with mobile families in the UK Millennium Cohort Study", Proceedings of Statistics Canada 25<sup>th</sup> International Methodology Symposium: Longitudinal Surveys: from Design to Analysis (forthcoming).

Couper, M.P. and Ofstedal, M.B. (2009), "Keeping in Contact with Mobile Sample Members", in P.Lynn (ed.) *Methodology of Longitudinal Surveys*, Chichester: John Wiley & Sons, Inc, pp. 183-203.

Fumagalli, L., Laurie, H. and Lynn, P. (2010) "Experiments with Methods to Reduce Attrition in Longitudinal Surveys", ISER Working Paper Series, No. 2010-04

Lepkowski, J.M. and Couper, M.P. (2002), "Nonresponse in longitudinal household surveys", in R.M.Groves et al. (eds.) *Survey Nonresponse*, New York: John Wiley & Sons, Inc, pp. 259-272.

McGonagle, K.A., Couper, M.P., and Schoeni, R.F. (2009), "An Experimental Test of a Strategy to Maintain Contact with Families between Waves of a Panel Study". *Survey Practice*



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## Tracking sample members in longitudinal studies

**EUCCONET International Workshop Thursday 1<sup>st</sup> and Friday 2<sup>nd</sup> July 2010**

**Venue: Birkbeck College, University of London**

### Programme

#### Thursday 1<sup>st</sup> July

- |                      |  |
|----------------------|--|
| 08:45 – 09:00        | <b>Registration; Tea and coffee</b>  |
| 09:00 – 09:20        | Welcome and introduction<br><i>Lisa Calderwood (Institute of Education)</i>  |
| 09:20 – 10:00        | The Norwegian Mother and Child Cohort Study<br><i>Patricia Schreuder (Norwegian Institute for Public Health)</i>   |
| 10:00 – 10:40        | The Danish National Birth Cohort: Cohort maintenance in Denmark using national registries<br><i>Inger Kristine Meder (Statens Serum Institut)</i>  |
| <b>10:40 – 11:00</b> | <b>Tea and coffee</b>  |
| 11:00 – 11:40        | The Generation R Study: Keeping track of all children and their parents during years of follow-up (Netherlands)<br><i>Rachel Bakker (Erasmus Medical Center)</i>   |
| 11:40 – 12:20        | Born in Bradford: Keeping in touch (UK)<br><i>Pauline Raynor (Bradford Institute for Health Research)</i>  |
| 12:20 – 13:00        | The great 'lost when moved' debate: the ALSPAC experience (UK)<br><i>Jennie Cross (University of Bristol)</i>  |
| <b>13:00 – 14:00</b> | <b>Lunch</b>   |
| 14:00 – 14:40        | <i>Growing Up in Australia</i> , the Longitudinal Study of Australian Children: sample tracking<br><i>Carol Soloff (Australian Institute of Family Studies) and Joanne Corey (Australian Bureau of Statistics)</i> |



- 14:40 – 15:20 Tracking sample members over time: the HILDA survey experience (Australia)  
*Mark Wooden (University of Melbourne)*
- 15:20 – 15:40** **Tea and coffee**
- 15:40 – 16:20 Keeping in touch with mobile families in the Millennium Cohort Study (UK)  
*Lisa Calderwood (Institute of Education)*
- 16:20 – 17:00 We're Back: Locating respondents for an unexpected round of the Fragile Families and Child Wellbeing study (USA)  
*Peggy Daly (Westat)*
- 17:00 – 17:30 Discussion and close
- 19:00** **Dinner (Venue TBC)**

## Friday 2<sup>nd</sup> July

- 08:45 – 09:00      **Tea and coffee**
- 09:00 – 09:10      Welcome and introduction  
*Lisa Calderwood (Institute of Education)*
- 09.10 – 09.50      Cohort Maintenance on the French Cohort Study (ELFE)  
*Nathalia Baltzinger (INED) and Stephanie Vandentorren (INVS)*
- 09.50 – 10.30      Tracking Strategies in the National Education Panel Study (Germany)  
*Hans Walter Steinhauer (University of Bamberg)*
- 10:30 – 10:50      Tea and coffee**
- 10:50 – 11:30      Maintaining a longitudinal panel: the NLSY experience (USA)  
*Kymn Kochanek (NORC)*
- 11:30 – 12:10      Maintaining a Cohort Study: the Growing Up in Scotland Experience  
*Louise Marryat (National Centre for Social Research)*
- 12:10 – 12:50      Cohort Maintenance: the Growing Up in Ireland Experience  
*James Williams (Economic and Social Research Institute)*
- 12:50 – 13:40      Lunch**
- 13.40 – 14.20      The PSID tracking methodologies and results of an experimental design of a new contact strategy (USA)  
*Eva Leissou (University of Michigan)*
- 14.20 – 15.00      Experiments with methods to reduce the costs and increase the effectiveness of between-wave keep in contact efforts on the British Household Panel Survey  
*Laura Fumagalli (University of Essex)*
- 15.00 – 15.20      Tea and coffee**
- 15.20 – 15.50      Provisional results from an experiment to increase the effectiveness of between-sweep cohort maintenance mailings on the Millennium Cohort Study (UK)  
*Lisa Calderwood (Institute of Education)*
- 15:50 – 16.30      Discussion and close



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**Final list of participants**

No.	Title	First name	Surname	Organisation	Country
1	Mrs	Mar	Alvarez-Pedrerol	Center for Research in Environmental Epidemiology	SPAIN
2	Mr	George	Andrew	Centre for Longitudinal Studies	UK
3	Mr	Cole	Armstrong	National Centre for Social Research	UK
4		Rachel	Bakker	Erasmus Medical Center	NETHERLANDS
5		Nathalia	Baltzinger	National Institute of Demographic Studies (INED)	FRANCE
6		Anne-Claire	Blanchard	INED	FRANCE
7	Mr	Andy	Boyd	University of Bristol	UK
8	Mr	Matt	Brown	Centre for Longitudinal Studies	UK
9	Dr	Jonathan	Burton	Institute for Social and Economic Research	UK
10	Dr	Noriko	Cable	University College London	UK

11	Ms	Lisa	Calderwood	Centre for Longitudinal Studies	UK
12	Dr	Dexter	Canoy	The University of Manchester	UK
13	Ms	Joanne	Corey	Australian Bureau of Statistics	AUSTRALIA
14	Mrs	Jennie	Cross	University of Bristol	UK
15		Peggy	Daly	Westat	USA
16	Mr	Peter	Deane	Centre for Longitudinal Studies	UK
17	Professor	Shirley	Dex	Centre for Longitudinal Studies	UK
18	Mrs	Larisa	Duffy	University of Bristol	UK
19	Miss	Laura	Fumagalli	Institute for Social & Economic Research	UK
20	Professor	Heather	Joshi	Institute of Education, University of London	UK
21		Majanka	Keijer	Generation R, Erasmus Medical Centre	HOLLAND
22	Ms	Kymn	Kochanek	NORC at the University of Chicago	USA
23		Claudia	Kruithof	Erasmus MC, Rotterdam	NETHERLANDS
24	Ms	Eva	Leissou	University of Michigan, Survey Research Center	USA
25	Professor	Peter	Lynn	Institute for Social and Economic Research, University of Essex	UK
26	Ms	Judith	Mabelis	Scottish Centre for Social Research	UK
27	Ms	Louise	Marryat	ScotCen	UK
28		Inger	Meder	Statens Serum Institut	DENMARK

		Kristine			
29	Mrs	Lynn	Molloy	University of Bristol	UK
30	Dr	Susan	Morton	The University of Auckland	NEW ZEALAND
31	Mrs	Caroline	Needham	University of Bristol	UK
32	Miss	Dinh	Phung	NHS Bradford and Airedale	UK
33	Mr	Demetris	Pillas	UCL Institute of Child Health	UK
34	Dr	Lucinda	Platt	ISER University of Essex	UK
35	Dr	Pauline	Raynor	Bradford Teaching Hospitals Foundation Trust	UK
36	Professor	Ana	Santos	University of Porto Medical School	PORTUGAL
37		Yuki	Sato	National Institute for Environmental Studies	JAPAN
38		Patricia	Schreuder	Norwegian Institute of Public Health	NORWAY
39		Peter	Shepherd	Centre for Longitudinal Studies	UK
40	Miss	Nadine	Simmonds	National Centre for Social Research	UK
41	Ms	Kate	Smith	Centre for Longitudinal Studies	UK
42	Ms	Carol	Soloff	Australian Institute of Family Studies	AUSTRALIA
43	Dipl- Volsw	Hans Walter	Steinhauer	National Educational Panel Study (University of Bamberg)	GERMANY
44		Christina	Tischer	Helmholtz Zentrum Munchen, Institute of Epidemiology	GERMANY

45	Ms	Mary	Ukah	Centre for Longitudinal Studies	UK
46	Dr	Wendy	van Rijswijk	Scottish Government	UK
47	Dr	Stephanie	Vandentorren	National Institute of Public Health (INVS)	FRANCE
48	Dr	Jutta	von Maurice	National Educational Panel Study (University of Bamberg)	GERMANY
49	Miss	Natasha	Wood	National Centre for Social Research	UK
50	Professor	Mark	Wooden	Melbourne Institute of Applied Economic and Social Research, University of Melbourne	AUSTRALIA