

# THE VALUE AND FUTURE OF BIRTH COHORT STUDIES FOR SOCIAL SCIENCE AND POLICY

Summary of Round Table meeting at the British Academy, July 10th 2017

## 1. Introduction

1.1 The British Academy hosted a half-day round table meeting on 10<sup>th</sup> July 2017 to examine the future scientific and policy need for birth cohort studies in a rapidly changing environment. This includes the increasing availability of a wide range of new types of data, innovations in data collection methods, and potential restrictions on public funding for research.

1.2 The meeting was convened, with the support of ESRC, in the context of its Longitudinal Studies Review, 2017, which was nearing the end of its evidence-gathering phase at the time of the meeting.

1.3 Thirty participants in total were from government departments, funding bodies, the third sector, and from a range of academic disciplines and perspectives. They included the Chair of the ESRC's Longitudinal Studies Review, Pam Davis-Kean. A list of delegates is appended (Appendix 1).

1.4 The central focus of the meeting was to consider the scientific and policy case for birth cohort studies and how best to take forward the programme established following ESRC's previous review in 2006. Discussion was informed by a short reference paper setting out the scientific features of birth cohort studies, which is also appended (Appendix 2).

## 2. Structure of the meeting

The meeting was organised into two sessions.

2.1 The first session *Scientific and Policy Need for Cohort Studies* was chaired by David Willetts. The aim of this session was to identify key social science and policy questions of the future, for which birth cohorts are valuable. The topics for discussion were introduced by:

- Leon Feinstein, on the rights and interests of children
- Louise Arseneault, on child and adolescent mental health and development
- Laura Gardiner, on the changing life course across successive generations.

2.2 The second session, *Implications for Birth Cohorts – Present and Future* was chaired by Jane Falkingham, and considered options for design and measurement in existing and future birth cohort studies. The topics for discussion were introduced by:

- Alison Park, on developing our existing cohorts to address these needs
- Heather Joshi, (standing in for Peter Elias) on new cohorts: feasibility and design
- James Williams, on multiple vs single cohort designs
- Lorraine Dearden, on administrative data linking childhood and adult life: 'LEO' – promises and limitations.

2.3 Funders' perspectives were provided by Jane Falkingham for ESRC in opening remarks to the meeting, and during discussion, by Neha Issar Brown (MRC), Mary de Silva (Wellcome Trust) and Tracey Budd (Nuffield Foundation). The Scottish Government's perspective as funder of Growing up in Scotland was provided by Ganka Mueller.

2.4 The Wellcome Trust's new Longitudinal Population Studies strategy (July 2017), and the Nuffield Foundation Strategy 2017-22 were highlighted as particularly relevant new developments.

2.5 The meeting was held under Chatham House rules, and it was recorded and subsequently transcribed to assist the writing of this report.

### **3. Themes arising in discussion**

#### **3.1 Scientific and policy needs**

3.1.1 Scientific and policy needs of the future were discussed, primarily in the first session, but also throughout the meeting. A number of key themes can be identified:

- The need to understand the origins of developmental difficulties and lasting inequalities, which start in infancy and which persist across the whole of life, and on which large scale birth cohort studies, repeated at intervals, uniquely can inform.
- The importance of understanding *heterogeneity* in developmental processes as well as *population averages*, and for both of which nationally representative population data is required.
- Recognition that vulnerable children, including looked-after children, are an important focus of policy, in accordance with the UN convention on the "rights of the child", yet currently are largely missing from the existing cohort studies.
- Recognition that children's interactions with the digital world are becoming increasingly important, and seamless with the non-digital world. These interactions need to be captured in cohort study data to aid understanding of their developmental effects.
- The centrality of both place (where we live) and relationships (who we interact with) as essential components of cohort study data.
- The need for more attention to mental health as one of the most important indicators of a thriving society, which is influenced by a set of complex mechanisms including environmental and biological factors throughout the lifespan, and which birth cohort study design is especially well-suited to identify.

- The importance of early years' experience in laying the foundations for developmental outcomes throughout the life course, including those associated with the ageing process.
- The importance of family background and gender in career and other metrics of 'life chances'.
- Rapid technological change, including artificial intelligence, and robotics. These present future opportunities, as well as challenges, and may have profound implications for the nature of work, and how skills are rewarded in the workplace, the family, and the distribution of wealth and living standards in the future.
- The related challenges of globalisation, mass migration, economic and political instability, urbanicity, and population and climate change, to which longitudinal data needs to be deployed.
- The shift in patterns of earnings and the accumulation of wealth witnessed in younger generations, compared to preceding ones, as evidenced by the halving of wealth of those born in the 1980s compared with those born 15 years earlier. Longitudinal data is needed to further uncover causes and policy remedies.
- The role of the welfare state, and the role of families, in risk-sharing, and thus determining lifetime distribution of wealth and living standards now and into the future. The importance of intergenerational transfers – both in vivo and through inheritances – in explaining future inequalities.
- The life course changes of today will have major impacts on the life courses of the next generations of children, including those yet to be born. Longitudinal data investments need to be directed at capturing the circumstances of tomorrow's children, given the high degree of social change currently being witnessed, and major structural transformations anticipated.

### **3.2 Informing policy**

A number of challenges were raised at the early stage of the meeting especially in relation to how birth cohorts inform policy:

- There is less need now for basic demographic descriptive uses of cohort study data because there are many other sources, such as administrative data that help meet this need. However, there are major gaps in administrative data, which for example are largely missing from the early years of childhood, and for large groups of vulnerable children. Furthermore, administrative data is not always consistent across the different

jurisdictions of the UK. The need to identify particular population groups cannot always be predicted in advance, suggesting population follow-ups while expensive, are still needed. There are also gaps in terms of what administrative data information can cover, for example on attitudes, activities and expectations, in any age group (see Sections 3.3.7 and 3.3.8).

- The importance of place and the data needs of local areas and their administrations need to be taken into account e.g. explaining the ‘London-effect’ in school attainment. Building longitudinal data collection capability in local areas should be a priority.
- The ability to raise and investigate policy options is highly influenced by the availability of data. Where there is no data on a topic it is hard to get the issue into the public debate.
- The birth cohort study design to date entails data collection concentrated within specific birth years. This can lead to ad hoc comparisons, if there happens to be variability in outcomes or relationships, between birth cohorts, and suggests coverage of a spread of birth years may be desirable. This could also aid timeliness, which is of importance to policymakers.
- Simple study designs would enable more government analysts to work with the data with the prospect of enhancing policy use.

### **3.3 Administrative data opportunities and challenges**

3.3.1 ESRC’s Longitudinal Studies Review is considering novel ways of collecting longitudinal data including consideration of a ‘survey spine’ with administrative data linkages, or an ‘administrative data spine’ with survey linkages. While it was not spelled out exactly what these would consist of, a number of developments within government were discussed that are of relevance.

3.3.2 ONS is currently planning major changes to its census and survey sampling procedures including the potential introduction of a compulsory large scale continuous population survey. This would make it possible to draw on a very rich sample frame at the individual level for future cohort studies and engagement with ONS on this initiative was encouraged.

3.3.3 ESRC’s Administrative Research data network (ADRN) will be moving to a data re-use model of administrative ‘data packages’ and there will be greater transparency in what has been linked (with ONS as the pathway to them).

3.3.4 There have been new developments in administrative data linkage initiated and led by the Department for Education (DfE). The new Longitudinal Educational Outcomes ('LEO') dataset consists of the National Pupil Database (NPD) linked to the Individual Learner Record (ILR), the Higher Education Statistics Agency (HESA) data, and is further linked to records from Her Majesty's Revenue and Customs (HMRC) on employment and annual earnings (with self-assessment data soon to be added) and Department for Work and Pensions benefits records. Such data is linked for every person in England who finished Year 11 since 2001-02. For one cohort (students in 2014/15) linkage has also been achieved to parental income via parents HMRC records, as a trial. A DfE consultation is now underway with a view to the parental link being extended.

3.3.5 The transformative nature of this linkage, in particular the joining of administrative records on parents with those of their children, was recognised as a tremendously exciting development, and DfE is committed to making these linked data available to researchers.

3.3.6 It was recognised by the group that the size of LEO is huge, but the depth of information available in a resource such as LEO, even when it is potentially extended in future to other administrative records (such as birth registrations, justice, health), still falls far short of the depth of information which is captured in survey-based cohorts and does not cover the other countries of the UK. Numerous examples of what sort of depth is missing were discussed, both in specific and in more general terms.

3.3.7 At a specific level, for example, LEO will have annual earnings, but not hours, or full-time or part-time status. It will have industry code but no occupation. If someone is not in employment or on benefits, we would not know what they are doing. At the intergenerational level, we may link to parental income, but not to other measures of socio-economic status, such as parental education or occupation.

3.3.8 More general examples of the breadth gained from cohort studies was raised in discussion: "administrative data is great when it covers what you want it to cover but it is still relatively thin... it is not just early years. It is everything to do with family working, relationship[s]"; "There are lots of great ys but there are not very many xs." This is in stark contrast to the household panels or the cohort studies where there is a very rich array of data both on the subject of the individual but also on other people in the household. One of the key values of the cohort studies is to provide additional information regarding values, motivation, agency, and family experience as the mediators and moderators of family circumstances are not available in administrative data. Similarly, non-cognitive outcomes are not covered by them.

3.3.9 The research agenda must be driven by good science and by relevant and important research questions, rather than by what data that it is possible to link. When data are designed by government, for government, there is a danger that research is limited to

topics that are seen as politically important for a number of years, while other areas are neglected or missed.

3.3.10 Ministerial control of access to and use of linked administrative data is fraught with risk, particularly the risk of withdrawal of permissions on use, or the addition of restrictions on use. There is therefore a need for data that is not owned by government, and can be accessed irrespective of government.

3.3.11 The potential for embedding periodic cohort studies within continuous administrative data collection of the whole population was recognised as a major long-term strategic project – laden with practical and ethical issues - that requires careful join-up between the longitudinal data communities and DfE and other government departments. The research and policy need for a new cohort study means that this should not wait until the administrative data issues are resolved, which is likely to take some years.

### **3.4 Developing existing cohorts**

3.4.1 Data coverage needs to be scientifically driven. The difference between hypothesis-driven protocols vs social survey (taxonomic and explanatory models driven) research questions was discussed, as was balance between depth and breadth, and the ability to harmonise and compare across studies.

3.4.2 Data generation. Much interest was expressed in:

- The move to online data collection, recognising the trade-offs between the flexibility and potential to improve survey response rates that it offers on the one hand, and the possible downsides that it might result in (e.g. mode effects, item non-response, and lower consent to record linkage).
- Technology that facilitates more frequent contact with cohort members could reduce the four-year gap between survey sweeps in a way that does not prove too burdensome.
- The potential for other forms of data collection e.g. via sensors and wearables, and linkage to other forms of data such as from social media, and geographical-level data.

3.4.3 Targeting population groups with specific characteristics, via sub-studies, was a recurring theme – for example these could target vulnerable groups, or be triggered by life events.

3.4.4 Data use: within some scientific and policy areas cohort data remains an untapped resource and there is more use that could be made of it. Issues relate to capacity to analyse, and support of interdisciplinary working.

3.4.5 The missing cohort between 1970 and 2000 is another challenge that could be more systematically tackled, for example through the provision of advice to potential users on

best practice for using Next Steps, Understanding Society and ALSPAC, depending on the research question.

### **3.5 Extending the series of birth cohort studies**

3.5.1 Although there is no commitment of resources for future investment in a new cohort or cohorts, the group debated how they might hypothetically be deployed. Key considerations included:

- Making the reasons for initiating a new cohort very clear (rather than just because people ‘want one’). The scientific considerations discussed, see Section 3.1, were highly relevant to this.
- Defining what content any new study should have - for example determining the extent of integration between biomedical and social science data so that the design serves a well-rounded, national strategy, as for example the inclusion of biomedical sweeps in NCDS and BCS70.
- Avoiding overly complex study designs, recognising that simplicity would be key to getting any new cohort off the ground.

3.5.2 Defining the type of study, was also a recurring theme: at one end relying entirely on an administrative data infrastructure, described by one participant as ‘lean and mean’ (for limitations see Sections 3.3.7 and 3.3.8), and at the other end on undertaking full face-to-face surveys.

3.5.3 Setting out an optimal time gap between cohorts needs to be driven by scientific considerations, rather than by funding constraints, though pragmatism about funding is also required. One underpinning to the twelve-year intervals between the birth cohorts of 1946, 1958 and 1970 was that this broadly defined major stages such as early adolescence and the beginning of parenthood. In response to rising age at first birth, there is a case for lengthening the interval to 15 years.

#### **Sample frame for a new cohort, and recruitment**

3.5.4 A representative sample requires a sampling frame across the whole target population, with names, addresses and ideally other details enabling stratification and clustering of a sample, and identification of response bias.

3.5.5 It is easier in principle to sample a cohort once they have been born than to sample before or during pregnancy, since there is no national sample frame from which to draw in pre-pregnancy or of pregnant women. It is also thought to be particularly difficult to recruit pregnant respondents as witnessed in the experience of Life Study, and the US National Children’s Study.

3.5.6 Administrative authorities who hold registers from which samples can be drawn are obliged by law to protect confidentiality and to operate procedures ensuring informed consent. If these procedures only permit the release to fieldwork of people who have *opted in* via written consent, it is well established that response rates are likely to be low, as proved to be the case in the Life Study pilot of an opt-in consent procedure. Opt-out approaches (used in the Millennium Cohort Study) lose far fewer respondents.

3.5.7 Since the Life Study pilot an alternative route to using an *opt-out* approach to access the national birth register has been identified. Under section 251 of the NHS Act 2006, it is possible in principle to base a sampling frame on registered births linked to NHS records, for research that includes a medical component (at least in England and Wales). It should therefore be possible to recruit a national sample of infants during their first year, despite the experience of the Life Study.

### **Single or dual new cohort**

#### **3.5.8 *One or two cohort+ design***

There is a window of opportunity to make up for the loss of the scheduled 2012 birth cohort by initiating a new cohort in 2021 (probably the soonest it would be practical to launch a new cohort) and splitting this study into two (or more) ‘quasi sequential cohorts’.

3.5.9 The first cohort would comprise babies in the first year of life. The second would comprise children born earlier – engaging them in the study for the first time at age 5 or age 9.

- Age 5 would map roughly onto the birth cohort born in 2016, around when the birth cohort study that was to be the population sample component of Life Study was set to run.
- Age 9 would map onto the birth cohort born in 2012, 12 years after the starting year of the Millennium Birth cohort study, thus restoring the 12-year interval between studies in the original cohort studies series. Growing up in Ireland was a dual cohort design, sampling infants at 9 months and children at age 9.

In either case the missing data for the period in the cohort members’ lives back to birth would be partially made good retrospectively from administrative data sources (including birth and later health records) and parental recall.

Alternative ages, that would improve comparability with previous UK cohorts, should also be considered.



3.5.10 Apart from bridging the gap in the cohort study series the advantage of the two-cohort approach is the immediacy of policy relevant data for the older children: at the end of pre-school and beginning primary for five year-olds; or middle childhood prior to adolescence and secondary school for nine year olds.

3.5.11 This advantage needs to be set against the effective halving of sample size for the new birth cohort and the added complexity of managing simultaneously two cohorts of different ages. But the experience of Growing up in Ireland, which uses the two-cohort approach - along with most other millennial cohort studies - gave much reassurance on both fronts.

3.5.12 Comments included “I would have it in legislation that we do a cohort study every 15 years and we should just be getting on with it.”; “We need to escape from the kind of sad loss of 2012. I think the community should be organising itself to have a strong pitch for some kind of cohort study for 2020”. “In the light of this afternoon’s discussion, I am persuaded by the two-cohort idea. We should get on with it”.

#### 3.5.13 *Understanding Society (USoc) births*

Another possibility that was suggested would be to build on the births occurring currently to families in USoc. An estimate of 800 per year was mentioned in the meeting, which applies to new births in Wave 3. At each successive wave the number of new births has fallen and in Wave 6 the number of new births was 526. Birth cohorts comprising much larger numbers of contemporary births remained the focus of the discussion.

### **National and international collaboration**

3.5.14 There is an aspiration to add a new cohort to Growing Up in Scotland around 2020 which could be considered together with any plans for a new UK cohort, though discussions are still in their infancy and no decisions have been taken yet on such an aspiration.

3.5.15 The possibility of initiating, via international collaboration, a new set of birth cohorts across a series of countries was discussed. The SHARE (Study of Health and Retirement in Europe) collaboration funded by the US National Institute on Aging comprises multiple EU countries. There would be many benefits, particularly given major migration of populations between countries.

3.5.16 However, the complexities arising at the funding, scientific and operational levels introduced by tackling such collaboration at an international level, and from scratch, were recognised as posing formidable challenges. In general the need to avoid excess complexity would suggest a national rather than an international approach for the next UK birth cohort study.

## Conclusions

4.1 The context of a pressing science and policy need, together with the prospect to embrace innovations in data collection methods, and linkage to new and transformative longitudinal administrative datasets were acknowledged.

4.2 In summing up the meeting, there appeared a general agreement that, within such a context, the time is ripe, if not running out, to initiate further investment in the series of birth cohorts as a key feature of the social science infrastructure.

4.3 The idea of starting two new cohorts, following a design being successfully pursued in Ireland, received support. Such a proposal, if it could be in the field in 2021 could cover a cohort of newborns and a cohort of, for example, five or nine year-olds, who having been born in 2016 or 2012 could constitute, for some purposes, a repair for the 'missing cohort' after the Millennium. The newborn cohort could then benefit from the design work done for the pilot population sample component of Life Study. A task force should be established by ESRC to agree the design parameters as the basis of the specification for the new study.

4.4 We should learn from the physical sciences in how to stake a claim for the scientific resources needed to create a cutting edge social science infrastructure. A birth cohort would fulfil this aim, enabling understanding of the changing life course under transforming socioeconomic and technological conditions. Birth cohort study data supply particularly rich insights into the consequences of early adversity for life chances and wellbeing throughout the life course. Analysis also supplies the pointers to the means of optimising policy solutions.

The overall sense of the meeting was that this strategy should be taken forward, by an appointed taskforce, and in close consultation with relevant stakeholders, as a priority case for capital funding within the new UKRI.

## **APPENDIX 1: THE VALUE AND FUTURE OF BIRTH COHORT STUDIES FOR SOCIAL SCIENCE AND POLICY:**

### **DELEGATE LIST**

The meeting was convened by the Centre for Longitudinal Studies ((UCL Institute of Education), which is home to four long-standing UK national cohorts.

#### **Chairs**

David Willetts	Executive Chair, Resolution Foundation
Jane Falkingham	Dean of the Faculty of Social, Human and Mathematical Sciences, University of Southampton

#### **Speakers**

Louise Arseneault	Professor of Developmental Psychology, King's College London
Lorraine Dearden	Professor, Quantitative Social Science, Institute of Education and Institute for Fiscal Studies
Peter Elias	Professor, Institute for Employment Research, University of Warwick
Leon Feinstein	Director of Evidence, Children's Commissioner's Office
Laura Gardiner	Senior Research and Policy Analyst, Resolution Foundation
Alison Park	Director of CLOSER, UCL Institute of Education
James Williams	Director of Growing Up in Ireland and Research Professor, Economic and Social Research Institute, Dublin

#### **Delegates**

Clare Baker	Head of Performance Tables Development Unit, Department for Education
Richard Bartholomew	Education consultant
Tracey Budd	Programme Head (Justice), Nuffield Foundation
John Bynner	Emeritus Professor, Centre for Longitudinal Studies, UCL Institute of Education
Mike Daly	Analytical External Engagement, Department for Work and Pensions
Pam Davis-Kean	Research Professor, Institute for Social Research and Center for Human Growth and Development, University of Michigan
Mary De Silva	Head of Population Health, Wellcome Trust
Rebecca Endean	Strategy Director, UK Research and Innovation
Emla Fitzsimons	Director of the Millennium Cohort Study, Centre for Longitudinal Studies, UCL Institute of Education
Vernon Gayle	Professor of Sociology and Social Statistics, University of Edinburgh
Alissa Goodman	Director of Centre for Longitudinal Studies, UCL Institute of Education
Neha Issar Brown	Programme Manager for Population Sciences and Public Health, MRC
Paul Johnston	Secretariat Director, Social Mobility Commission
Heather Joshi	Professor Emerita, Centre for Longitudinal Studies, UCL Institute of Education
Ganka Mueller	Growing up in Scotland Project Manager, Scottish Government
Marcus Richards	Programme Leader, MRC Unit for Lifelong Health and Ageing at UCL
Ingrid Schoon	Professor of Human Development and Social Policy, UCL Institute of Education
Patrick Sturgis	Professor of Research Methodology, Department of Social Statistics & Demography, University of Southampton

Alice Sullivan	Director of the 1970 British Cohort Study, Centre for Longitudinal Studies, UCL Institute of Education
Bridget Taylor	Senior Programme Manager, ESRC
Jane Waldfogel	Visiting Professor, Centre for Analysis of Social Exclusion, London School of Economics
Sharon Witherspoon	Head of Policy, Academy of Social Sciences
<b>Observers</b>	
Jennie Blows	Communications and Events Assistant, Centre for Longitudinal Studies
Alun Evans	Chief Executive, British Academy
Erica Pufall	Science Portfolio Adviser, Wellcome Trust
Sandra Tang	Research Investigator, University of Michigan

## Appendix 2 National birth cohort study briefing note

<b>The UK's national birth cohort studies</b>
1946 National Survey of Health and Development <sup>a</sup> , c. 5000 GB births in a single week March 1946
1958 National Child Development Study <sup>b</sup> , c. 18000 GB births in a single week March 1958
1970 British Cohort Study <sup>b</sup> , c. 18000 GB births in a single week in a single week April 1970
2000/1 Millennium Cohort Study <sup>b</sup> , c 19000 UK births across a year 2000/01
<b>Key areas of social science contribution</b>
▪ Education policy and child development
▪ Social mobility
▪ Health inequalities
▪ Gender and ethnic inequalities
▪ Mental health and well-being over the life course
▪ Family formation, partnerships and childbearing
▪ Values and attitudes, social participation and networks
▪ Ageing
<b>Key types of scientific research questions supported</b>
▪ Intergenerational transmission of advantage and disadvantage
▪ Medium- and long-term effects of early (and -earlier) life circumstances
▪ Factors that confer resilience to negative early experience
▪ Returns to investment in, and determinants of accumulation in all forms of capital
▪ Individual change over time and the mapping of lifetime trajectories
▪ The changing experiences of different cohorts
<b>Methodological advantages</b>
▪ National representation
▪ In depth coverage of key life course stages and developmental processes
▪ Causal identification via early life controls, longitudinal, and quasi-experimental methods
▪ Intergenerational dimension: continuities and transfers
▪ Age, cohort and period effects (e.g. via cross-cohort comparison at fixed ages/periods)
▪ Cultural or policy effects (e.g. via cross-national, or within-/across-cohort comparisons)
<b>Methodological limitations</b>
▪ Relative infrequency of data collection: so less strong on short-term life course dynamics
▪ Relative lack of data collected from other members of the family (relational dynamics)
▪ 30-year gap between BCS70 and MCS (Next Steps part-fills this); 17+ year gap after MCS
▪ Lack of immigrant groups in older cohorts (MCS over-samples ethnically diverse areas)
<b>Current methodological/operational priorities</b>
▪ Bio-social enhancements (underway or recently completed in all the CLS cohorts)
▪ Enactment of record linkages via consent
▪ Innovations in data collection, including via online, wearables, etc.
▪ Methodological advancements in missing data, measurement error, and causal inference
▪ Harmonisation, discoverability, access, and training
<b>Future scientific priorities</b>
▪ Generational change, and intra-generational transfers
▪ Inequalities in all dimensions and their life-course mechanisms
▪ Genetic and environmental interactions
▪ Mental health and well-being
▪ Attitudes and identities, social networks, social media
▪ Globalisation and technological change via artificial intelligence and robotics

Run by: <sup>a</sup> MRC's Lifelong Health and Ageing Unit <sup>b</sup> ESRC's Centre for Longitudinal Studies, both UCL

## Addendum: other national and international longitudinal studies resources

**Note: this list is not exhaustive**

### UK

**Next Steps:** Formerly known as the Longitudinal Study of Young People in England (LSYPE), Next Steps began in 2004 and follows the lives of 16,000 people born in England in 1989-90. Recently followed up at age 25. Fills a gap between the BCS70 and MCS and now run by the Centre for Longitudinal Studies.

**Understanding Society: The UK Household Longitudinal Study**

Understanding Society: The UK Household Longitudinal Study (UKHLS) follows the lives of all individuals within (initially, in 2009) 40,000 households over time. Run at the University of Essex.

**Avon Longitudinal Study of Parents And Children**

Established in 1991, the Avon Longitudinal Study of Parents and Children (ALSPAC) charts the lives of 14,500 people born in the former county of Avon between April 1991 and December 1992 as well as the lives of their parents and their children, where applicable. Run at the University of Bristol.

**Born in Bradford**

Born in Bradford is a long term study of a cohort of 13,500 children, born at Bradford Royal Infirmary between March 2007 and December 2010, whose health is being tracked from pregnancy through childhood and into adult life. Run at the Bradford Institute for Health Research (BIHR)

**Hertfordshire Cohort Study**

The Hertfordshire Cohort Study (HCS) follows 3,000 men and women born during the period 1931-1939 and still resident in the English county of Hertfordshire during the 1990s. The HCS was initiated, developed and is maintained by the MRC Lifecourse Epidemiology Unit, University of Southampton.

**Southampton Women's Survey**

The Southampton Women's Survey is the only birth cohort study in Europe in which mothers were recruited before conception of the child. Between 1998-2002, 12,583 women were recruited from Southampton and surrounding areas, and 3,158 of these women were followed through pregnancy and delivered a liveborn child. These children form the child cohort in the SWS. Run by the MRC Lifecourse Epidemiology Unit at the University of Southampton.

**Growing up in Scotland**

Managed by ScotCen Social Research, Growing Up in Scotland is a large-scale longitudinal research project aimed at tracking the lives of several cohorts of Scottish children from the early years, through childhood and beyond.

**Lothian Birth Cohorts**

Members of cohorts born in 1921 and 1936 who took part in the Scottish Mental surveys at age 11, have been traced in old age by the University of Edinburgh, N approx. 500 and 1000 respectively

**Effective Provision of Pre-school, Primary and Secondary Education**

Funded by Dept for Education, EPPSE explored the home, pre-school, primary and secondary school influences on cognitive, educational and social development from age 3 followed to 16 years, 1997-2013. Approx. 3000 children in England.

**The English Longitudinal Study of Ageing (ELSA)**

A multidisciplinary study of 50+ population in England, starting in 2002 with visits every 2 years., funding from the US National Institute of Ageing and several UK government departments., and forms part of a group of NIA funded ageing studies around the world. Run at University College London.

**Whitehall II**

Examined the health of 10,308 civil servants aged 35 to 55, was started 1985 to 1988, and has been ongoing for 30 years . Also known as the Stress and Health Study, it has become a study of ageing. Run at University College London.

**ONS Longitudinal Study**

Linked census records of approx. 1% population. Every 10 years since 1971.

## International

**The Longitudinal Study of Australian Children (LSAC)** A major study following the development of 10,000 children and families from all parts of Australia. The study commenced in 2004 with two cohorts - families with 4-5 year old children and families with 0-1 year old infants

**Canada: National Longitudinal Survey of Children and Youth (NLSCY).** Followed children aged 0-11 in 1994 until 2009, and new cohorts aged 0-1 or 0-5, at two year intervals up to age 5 only. No data collection after 2009

**The Danish Longitudinal Survey of Children (DALSC)** Cohort of 6000 children born in 1995. Mainly used for social research, building links to register data

**Danish National Birth Cohort** 100,000 pregnant women recruited over 1996-2002 for this biomedical study

**ELFE: Growing Up in France** Sample selected via maternity hospitals in 2011. Ca 19000 in cohort initially.

**National Educational Panel Study (NEPS)** Germany. The project analyzes educational processes in Germany from early childhood to late adulthood, following 6 cohorts with starting ages ranging from newborn to adults

**Growing up in Ireland** A Government-funded study of children being carried out jointly by the ESRI and Trinity College Dublin. The study started in 2006 and follows the progress of two groups of children: 8,000 9-year-olds (Child Cohort) and 10,000 9-month-olds (Infant Cohort).

**Growing Up in New Zealand** Tracking 7,000 New Zealand children from before birth around 2010. The study is designed to provide unique information about what shapes children's early development, across ethnic groups.

**Dunedin Multidisciplinary Health and Development Study (DMHDS)** in New Zealand is an ongoing, longitudinal birth cohort study of the health, development and well-being of a general sample of 1,037 New Zealanders born in 1972-3.

**Norwegian Mother and Child Cohort Study (MoBa)** 90,000+ pregnant women were recruited from 1998 to 2008.

**Québec Longitudinal Study of Child Development.** Started in 1998 with 2,000 infants, aims to follow to age 25

**Young Lives** 2 cohorts each aged 1 and 8 in four developing countries, started in 2001. Peru, Vietnam, Ethiopia, Andhra Pradesh. Run at University of Oxford

**The Early Childhood Longitudinal Study (ECLS) program**, USA, includes three cohorts that examine child development, school readiness, and early school experiences: ECLS-B is a sample of children born in 2001 and followed from birth through kindergarten entry. ECLS-K (1998-99) follows from kindergarten thru' 8th grade. The kindergarten class of 2010-11 is followed to 5th grade.

**National Longitudinal Surveys (NLS)**, Sponsored by the U.S. Bureau of Labor Statistics, this set of 7 nationally representative surveys follow the same sample of individuals from specific birth cohorts over time (but only in the second generation from birth). The surveys collect data on labour market activity, schooling, fertility, program participation, health, and much else.

**The Panel Study of Income Dynamics (PSID)**, USA Began in 1968 with nationally representative sample of 5000 families, 18,000 individuals. University of Michigan

**Fragile Families and Child Wellbeing Study**, USA Births in 1998-2000. Sampled in birth hospitals in a sample of US cities, over sampling non-marital births.

**The National Longitudinal Study of Adolescent to Adult Health (Add Health)**, USA Started with adolescents aged 12-18 in high school in 1994, fifth follow up in 2016-18 at age 34-42, target N= 20,000

Further details for most of these can be found on <http://www.slls.org.uk/longitudinal-cohort-studies>. Other countries with cohort studies, mostly local, include Brazil, Chile, Cuba, Finland, Japan, Netherlands, Phillippines, South Africa, Taiwan, and Uruguay among others.