

What Can Longitudinal Research Tell Us about Children's Life-Chances?

Young Lives Methods Guide • June 2015

Most research used to gather household-level information in low-income countries is cross-sectional, collecting information on individuals at one point in time. Cross-sectional research monitors the magnitude of phenomena or problems, and who is affected, but is limited in its capacity to evaluate how and why problems persist. Studies like Young Lives go a step beyond this by collecting information about the same children over time as they grow up and on the different elements that affect their lives: moving from a snapshot of children's lives to a filmstrip. This brief describes how longitudinal research like Young Lives adds value for policy debates.

Cohort surveys: using numbers to establish patterns and relationships

There are two key benefits to longitudinal cohort studies:

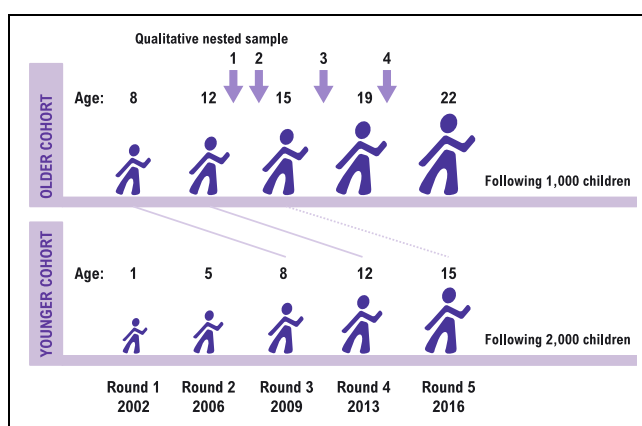
- Cohort studies allow researchers to identify links between earlier circumstances and later outcomes
- Cohort studies show how persistent particular circumstances are, and thus enable evaluation of the differing impacts of continuing circumstances (or one-off changes) on later well-being.

Taken together, these advantages allow for policy-relevant insights into *which* children face particular disadvantages, how children develop, what matters, when it matters, and how policy can support children more effectively.

In a cohort study, a group of individuals sharing a common characteristic, often age, are followed over time. Cohort samples are sometimes representative of the group studied (for example, a random sample of children of a particular age) but that is not necessarily the key focus, since the primary aim is to study links between early experiences or characteristics and later outcomes, rather than to measure the scale of something within a given population. Observational cohort and panel studies form an important part of the data that social scientists analyse in order to understand social problems and to inform public policy, especially in high-income countries, and increasingly, in middle- and low-income countries.

Young Lives is following the lives and experiences of around 12,000 boys and girls in four low- and middle-income countries from early life and into adulthood. Young Lives uses an observational cohort design, set out in Figure 1. The study has two cohorts of children, born seven years apart, sequenced to collect information at the same age points (age 1, age 5, age 8, age 12, age 15 and age 19). This makes it possible to explore the relative contributions of age and historical time. Where cohort-sequential analysis is available, we can show the effects of events or policy changes that have affected one cohort rather than the other.

Figure 1: Young Lives study design



Identifying *when* differences emerge

Young Lives cohort design enables analysis of children's physical, cognitive, or psychosocial developmental trajectories, and so by extension the timing of when inequalities emerge between children distinguished for example, by gender, ethnicity or economic status. A range of approaches can be used to identify how early factors shape later outcomes – for example, identifying how long particular groups of children typically stay in school, how different groups of children perform in cognitive tests by particular ages, and so on. Such analysis can make it possible to identify which children most need support as well as the timing of potential interventions. Where information is available through childhood and into adulthood, this can be used to inform policy debates, for example, about the extent of social mobility, equality of opportunity and the intergenerational transmission of poverty.

Analysing *what* shapes later well-being

Background contextual information – such as parental education, socio-economic status, risks experienced, or services received – can be linked to children's development trajectories. For example, regression analysis enables researchers to 'control' for multiple possible relationships, and so identify underlying associations. Such techniques contribute to identifying

how poverty shapes children's opportunities and development. The use of data from different points in time reduces the problem experienced in cross-sectional studies of 'reverse causation' where, for example, low cognitive test scores seem to result in early school leaving, not the other way around. So-called 'natural experiments' (such as a new road, or a new public policy intervention) often arise during the course of longitudinal research and their effects on children's well-being/outcomes can be explored. And 'quasi-experimental' techniques can be used to compare similar households, where only some are affected by a particular change, and with evaluation of the resulting differences between groups. Quantitative approaches identify statistical links and who is typically affected. Such knowledge can then inform analysis of qualitative research which seeks to understand the processes and mechanisms which shape well-being/outcomes.

Testing the 'dynamics' of well-being

Cross-sectional research (the Demographic and Health Surveys or other studies such as UNICEF's Multiple Indicator Cluster Surveys, for example) can show how many or which households are poor, and (for example) which children are stunted, but cannot show whether households remain poor or move in and out of poverty over time, or whether children remain stunted. Such dynamics – whether they reveal persistence or change – are substantively important, both because prolonged chronic poverty may matter more than short-term dips in and out of poverty, and because a study of dynamics also shows how earlier factors shape which households become poor. Identifying which groups become poor also enables analysis of the risk and resilience factors associated with disadvantage. For example, analysis has shown that some children can recover physically from early malnutrition, while others falter in their growth. This analysis has also linked relative height gain among children who were previously stunted with better-than-expected performance in cognitive tests.

Triangulating research approaches to inform policy

A weakness of observational studies is that not everything is measured, and so analysis risks so-called 'omitted variable bias'. The statistical models are only as good as the data collected and if key information is missing, then results might be misleading. This is an important concern for analysis of observational data. This risk is reduced by collecting a wide range of relevant background indicators and analysing them with statistical techniques such as regression analysis which control for multiple factors.

Comparisons are sometimes made between observational longitudinal studies, and randomised control trials (RCTs), where an intervention (for example a new health promotion programme) is applied to one group randomly, and parallel information is collected from similar groups who do not experience the programme (a control group).

Observational longitudinal studies that collect data on many aspects of children's lives can be used to inform a wide range of policy questions, while RCTs can be used to give precise answers to specific questions – evaluating the specific changes in well-being attributed to a particular programme. Because RCTs rely on a random allocation of participants to an intervention and control groups, such an approach overcomes the problem of 'omitted variable bias' (since it is expected the impact of any unknown factors apply equally to intervention and control participants). Experimental approaches therefore contribute further to evidence-based policy, but suffer the weakness that while they can give precise answers to specific questions, they can only answer the question posed by the trial.

The key for evidence-based policy, therefore, is not to see observational or intervention approaches as competing methodologies, but rather to employ each to triangulate between methods, and to use one to inform the other, using multi-purpose observational cohort studies, for example, to identify areas worth examining in greater detail with experimental techniques or qualitative research.

Qualitative longitudinal research – deepening understandings

Young Lives is unusual in including qualitative longitudinal research with a nested sample of children – enabling qualitative analysis to be combined with analysis of the household survey data. Repeat visits to the same children show how experiences, circumstances, motivations and perceptions change with age and experience.

Qualitative research enables us to:

- **explore children's experiences**, their agency, their priorities, and their interpretations and understandings of their situations, and how these change over time. This helps to explain the dynamics of childhood poverty. Findings from qualitative longitudinal research show how children and families are vulnerable to economic difficulties that accumulate over time, and how changing circumstances (at home, work or in policy) affect everyday lives over time.
- **capture the links** between differing aspects of children's lives. This enhances theory-building related to the life-course, showing the intersections between social determinants/structural factors - such as availability of resources, including economic, educational, health, etc. – and individual lives over time, from children's point of view (Morrow and Crivello 2015).
- **explain** diverging experiences and trajectories. Using mixed-methods approaches has been vital for policy and communications purposes, adding richness and depth. It also enables us to question and challenge dominant assumptions about children as passive recipients of social change, by exploring how children actively navigate their way through childhood in resource-poor settings.

Research example: Understanding migration in childhood

Qualitative longitudinal research deepens insights from the survey about children's movements across place and time. The complexity of these movements is difficult to study through large-scale cross sectional surveys. For example, Elmer, in Peru, had migrated from his place of birth to and Lima at the age of 12 to help his sister look after her children while she and her husband worked. In exchange, she paid for Elmer's upkeep and schooling. The following year, Elmer returned to the village. His parents had moved to a village where they had purchased a plot of land, and the children, including Elmer, moved to a different village to attend school. Each weekend the children walked three hours to help their parents in the fields. In 2013 we found Elmer still living in the village, but by 2014 he had returned to his sister in Lima. Comparing cases across multiple rounds of data means we can explore children's mobility and migration histories in greater depth by tracing their biographies (Crivello 2015).

Research example: Why do girls marry early? Understanding accumulated disadvantage

In all the Young Lives study countries, young people say they want to delay marriage until they are in their mid-20s, yet cohort data allow us to compare earlier aspirations with later realities – many of girls in the Young Lives sample in Ethiopia are still marrying below the legal age of 18. Longitudinal analysis demonstrates the complex reasons why some girls marry early and while survey research can show factors that increase the chances of early marriage, it cannot demonstrate how multiple difficulties accumulate to affect girls' lives. For example, Haymanot's mother's ill health meant that Haymanot worked from an early age to support her family and had to miss school. She married at age 15 which meant her family situation improved, she could support her mother with access to better food, and she no longer needed to work so hard. However, her husband divorced her, and she was last reported living with her mother and baby. Disadvantage accumulated over time for Haymanot, but there were key intervention points – at school, or through access to health care for her mother – that could have improved her life and reduced the chances that she would marry young (Morrow and Crivello 2015).

Making longitudinal research useful for policy

Longitudinal research allows exploration of the cumulative experience of particular policies on young people's trajectories – the 'long view' rather than the 'short view'. A key theme in recent years has been in identifying the critical period of early childhood in improving long term outcomes: longitudinal analysis is needed to form such conclusions. Longitudinal studies help separate out groups affected by 'episodic' deprivation from those who experience 'persistent' deprivation, and so both examine which groups are facing chronic disadvantage. By collecting information before change happens, cohort studies can go beyond counting who is disadvantaged to understanding why disadvantage occurs, by identifying earlier factors associated with later disadvantage and by taking a holistic view of how the different domains of children's lives – their health, learning and social development - are shaped. In short longitudinal research reveals key points when policy interventions are most timely and how investments in one area of children's lives, such as nutrition, may support development in another, such as learning, showing the importance of working across social policy silos.

Debates on the Sustainable Development Goals have emphasised the need for a data revolution, with better and more timely statistics to improve monitoring and measurement (UN 2014). Clearly this is crucial, but better policy requires tools to evaluate, not only to measure, social problems – and this is the role that longitudinal analysis can play.

Cohort studies give a powerful sense of what matters in people's lives. There is ongoing interest in funding more longitudinal studies, and plans to start a community of practice (a [Global Longitudinal Research Initiative](#)). Such studies are investments for the future, as their value and the power of the data increases with each round of research. There is also value in longitudinal research maintaining a 'generalist' and general-purpose, broad design – so that data collected today can be used and analysed flexibly to inform future, as yet unknown, policy questions.

Policy knowledge from the UK cohort studies

There are a number of national birth cohort studies in the UK: the National Child Development Study (of children born in 1958), the British Cohort Study (1970), Millennium Cohort Study (2000), all of which provide vital evidence across a range of policy domains.

The UK Academy of Social Sciences has identified contributions from key cohort studies, with examples including:

To bring together a clear evidence base on what mattered for pre-school interventions, motivating a more effective joined-up approach

- To help identify those groups with the highest needs, and thereby focus the attention of organisations aiming to reduce disadvantage towards those groups
- To identify those young people at risk of offending, and work with them to help address the underlying reasons and to prevent offending. To inform the UK's policy approach to child poverty by identifying multiple disadvantages poor children experience.

For example, findings from the 1970 cohort of the British Cohort Study (*inter alia*) about children's cognitive development and socio-economic background informed the introduction of free part-time childcare for under-4-year-olds – and there are numerous other examples of longitudinal research evidence informing social policy in the UK. The latest UK birth cohort study is the Life Study, involving more than 80,000 babies born between 2014 and 2018 and their families.

Source: Academy of Social Sciences 2013

Cohort studies in low- and middle-income countries

Longitudinal birth-cohort studies are unusual in low and middle-income countries, although there are some important ones:

- Cebu Longitudinal Health and Nutrition Survey, The Philippines, established 1983
- New Delhi Birth Cohort Study, India, established 1969-1972
- Pelotas Birth Cohort Study, Brazil, established 1982
- Birth to Twenty (BT20), Johannesburg-Soweto, South Africa, established 1990
- Mauritius Child Health Project, established 1972
- Gansu Survey of Children and Families, China, established in 2000
- Kagera Health and Development Survey 2, Tanzania, established 1991
- Kwazulu-Natal Income Dynamics Study (KIDS), South Africa, established 1998
- Chilean Longitudinal Survey of Early Childhood (*Encuesta Longitudinal de la Primera Infancia*), established 2009
- The Jamaican 1986 Birth Cohort Study.

Further reading and references

This short note is designed to be read alongside a second note on: *What Can Comparative Country Research Tell Us About Child Poverty?* (Young Lives, 2015).

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