



Designing Comparative, Longitudinal Mixed-Methods Research: Learning from Young Lives

Jo Boyden, Gina Crivello, Andrew Dawes and Catherine Porter

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Jo Boyden, Professor Emeritus, was based at Oxford University's Department of International Development and was Director of Young Lives from 2005 to 2019. Her research has mainly focused on child labour, children and political violence, and childhood poverty – particularly in bringing together academics, practitioners and policymakers to develop effective models and methods for supporting children, their families and their communities in situations of adversity.

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Introduction

This report describes the merits, challenges and learning involved in designing comparative, longitudinal cohort research in low- and middle-income countries (LMICs). It focuses on the experience of Young Lives, a study set up in 2001 to examine the effectiveness of the Millennium Development Goals (MDGs) in reducing childhood poverty in Ethiopia, India,¹ Peru and Vietnam. Young Lives has published a number of technical reports and papers summarising its conceptual framework, research design, methodology and methods. This report complements these publications by reflecting on some of the most important decisions involved in shaping the Young Lives research agenda over 20 years of implementation. It forms part of a programme of methodological and operational learning, funded by the Economic and Social Research Council (ESRC), which seeks to strengthen the capacity and effectiveness of longitudinal research in LMICs and contribute to a growing community of practice. The report is one of four companion papers, each focusing on a core area of methodological reflection: the others cover research ethics, research leadership, governance and impact, and data governance and management. These papers aim to inform the work of researchers who are planning or already engaged in longitudinal cohort research in LMICs, and also to explore the opportunities and constraints of comparative, mixed-methods longitudinal work.

Longitudinal research is complex, costly, and requires considerable commitment from study participants, researchers and donors; given funding shortfalls, capacity constraints, logistical and other challenges, there are only a limited number of such studies in LMICs. Yet longitudinal evidence is vital for advancing scientific understanding and knowledge and for developing more effective policies and interventions, especially in resource-poor settings. This has been shown during the coronavirus pandemic, with longitudinal research able to respond swiftly to the need for information on its impact on well-being and inequalities, due to having extensive background data on, and established relationships of trust with, respondents.

The relevance of longitudinal evidence increased significantly following the launch of the Sustainable Development Agenda, given the importance attached to deploying high-quality data to track the well-being and development outcomes of diverse populations, and to ensuring equity, accountability, sustainability and effectiveness in interventions (Crivello, Morrow, and Wilson 2013; Feeny and Knowles 2016). Longitudinal cohort data are particularly valuable for tracking human development and well-being across the life course, for example, explaining the cumulative effects of life experiences and how early factors in children's lives shape later outcomes (Boyden and Dercon 2012). Where samples are diverse in terms of location and social and economic status it is possible to discern group-based distinctions in how children fare over time, identifying when disparities between groups open up and why some groups do better than others. This ensures the relevance of cohort data for the Sustainable Development Goal (SDG) focus on equity and social justice.

With the need for more longitudinal evidence in LMICs in mind, this report reflects on the strengths and limitations of the Young Lives design, and its implications for both scientific knowledge and policy and intervention planning.² The report centres on the more strategic features of research design, as the practical aspects, such as the logistics of data collection and management, are covered in a companion report (Boyden and Walnicki 2020), and ethical

1 In the states of Andhra Pradesh and Telangana.

2 For a synthesis of Young Lives methodological approach, see https://www.younglives.org.uk/sites/www.younglives.org.uk/files/YoungLivesSynthesis_Online.pdf

considerations in a separate report (Crivello and Morrow 2021). It briefly outlines the key features of the Young Lives research model and then explores the principal considerations arising from this model, focusing on three key design features, highlighting their merits, and challenges and lessons learned. The three key features are the longitudinal design; the multi-disciplinary, mixed-methods research framework; and cross-national comparisons, where challenges in the assessment of latent psychological constructs are addressed.³ The conclusion summarises key learning points from Young Lives experience, reflecting on the opportunities and challenges of longitudinal cohort research in LMICs.

3 Other Young Lives publications have concentrated on the challenges of designing cognitive measures in comparative research (see Dawes 2020) with a forthcoming technical note (Porter et al forthcoming 2021) detailing the comparative measures of psychosocial well-being used by Young Lives.

1. The Young Lives research model

1.1. The study design

The Young Lives multi-disciplinary model follows a tradition employed by many cohort studies in LMICs, the aim being to expand the scope, depth and explanatory power of longitudinal evidence. However, while most of these studies are geared towards health and nutrition, Young Lives draws on a general-purpose conceptual framework. The research encompasses a range of human well-being and development indicators, from nutrition and health, to cognition and psychosocial traits, as well as social and economic outcomes such as migration, family formation, entrepreneurship and work. This holistic approach allows the examination of the synergies between different developmental domains and aspects of young people's lives, and shows how they interact with each other in shaping their trajectories and outcomes. Young Lives multi-disciplinary make-up allows for multiple conceptualisations of human development in the context of child poverty.

In line with ecological systems theory, Young Lives acknowledges the centrality of an individual's circumstances, relationships and experiences to their development and their social and economic outcomes (Boyden et al. 2019). It understands human development to be a dynamic process that involves progressively more complex reciprocal interactions between an individual and the interconnected environmental contexts, or ecological systems, in which she resides (Bronfenbrenner 1979). These systems operate at multiple levels in society, from the most proximal micro system, to the more distal macro system, the 'chronosystem' comprising the environmental events and transitions that occur across the life course. The systems have varying impacts on human development and functioning at different points in the life course, their effects being either direct, or mediated through their influence on significant others.

The study's core sample comprised around 12,000 boys and girls in roughly equal numbers. Reflecting its aim to examine the causes and consequences of childhood poverty and diversity of childhood experiences, participants were selected through a multi-stage sampling process, beginning with 80 rural and urban sites chosen purposively to oversample communities in poor areas (Wilson and Huttly 2004). Children of the correct ages were selected randomly at site level. The initial sampling has been discussed elsewhere (Escobal and Flores 2008; Kumra 2008; Nguyen 2008; Outes-León and Sánchez 2008) and attrition in the final round examined by Sánchez and Escobal (2020). As a cross-national sentinel site study, Young Lives is not nationally representative in any of the four countries; nonetheless, the large cross-national sample increases the likelihood of findings being generalisable to other settings.

The sample was divided into two groups, with an Older Cohort of approximately 4,000 children born around 1994 (now young adults) and a Younger Cohort of some 8,000 children born around 2001 (now in their teens and early twenties). This cohort-sequential design permits analysis of cohort effects: the extent to which findings are shaped by either the characteristics of the cohorts or the particular features of the environment when the data were gathered. Information about both the children and their caregivers was collected in the early survey rounds; since many of the participants now have children of their own, this allows the processes of transmission across three generations to be examined.

Most longitudinal cohort studies in LMICs are based on repeat questionnaire surveys of individuals and their households, commonly supplemented by self-reported modules designed to test or assess specific attributes in health, development and/or well-being. The Young Lives design is broadly in keeping with this tradition, though its hybrid model is distinctive in integrating

both longitudinal and cross-sectional research, together with a mix of quantitative and qualitative methods.⁴ The model is operationalised through five key components:

- Household-based surveys administered every 3-4 years to all children/young participants in the core sample, as well as their caregivers and community representatives. These amalgamate multipurpose household and community questionnaires with child/youth questionnaires and a range of health and well-being measures and cognitive and psychosocial tests.
- Longitudinal qualitative research conducted regularly with a nested sub-sample of over 200 child participants selected from the household sample, together with their caregivers, peers and community members. The topics covered echo those in the surveys and are consistent across research waves and countries.
- Longitudinal school-based surveys administered at the school, principal, class, teacher and pupil levels involving questionnaires and child-development measures. These surveys incorporate around 30,000 pupils in total and are administered either in the schools attended by a selection of children from the household sample, or in selected schools in the sentinel sites.
- Discrete cross-sectional qualitative sub-studies administered with a sub-sample of child/young participants drawn from the household sample. These permit detailed investigation of specific topics arising from analysis of the longitudinal data. Research sites and participants are selected purposively according to the topic under investigation.
- Phone surveys with all the young people in the household sample, conducted during the COVID-19 pandemic as a follow up to the fifth survey round.

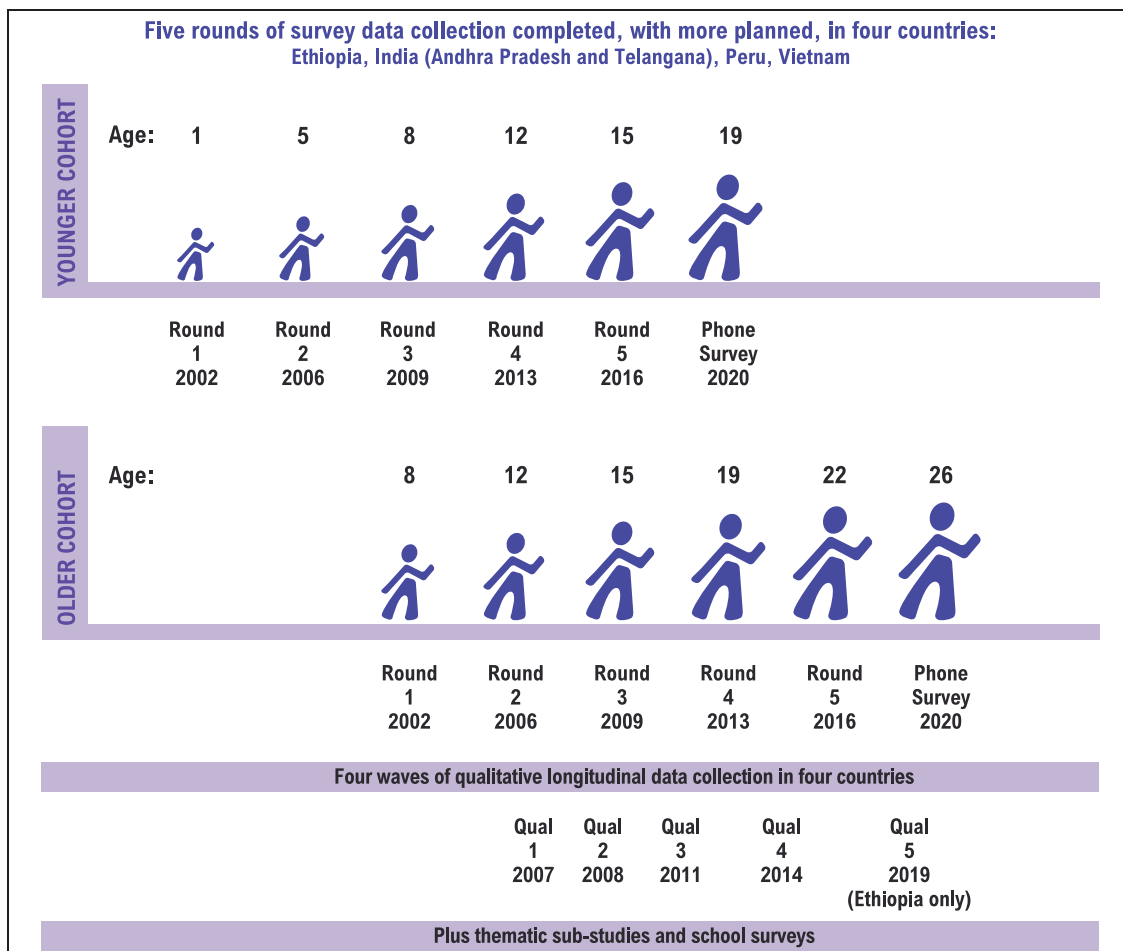
So far, the study has administered five rounds of household-based surveys with the full sample, followed by three phone survey rounds during the COVID-19 pandemic when in-person research was not feasible (Figure 1).⁵ There have also been four waves of qualitative longitudinal research (five in Ethiopia) and multiple waves of longitudinal school-based surveys, together with at least 17 cross-sectional sub-studies. As a cohort study, children and young people in the core household sample comprise the primary unit of observation and analysis, with the time-series qualitative and survey data gathered sequentially through repeated observations of these individuals.⁶ The sample is very diverse in terms of socio-cultural background, making it possible to distinguish differences and intersecting inequalities in participant's trajectories and outcomes that are due not just to household economic status and location, but also to gender, ethnicity, language, religion and (in India) caste.

4 While the intention had always been to ground the study in mixed-methods research, the qualitative enquiry was not introduced until 2005.

5 The household and school survey data are archived publicly and have been used extensively by both Young Lives staff and external researchers. There are more than 1,000 papers on the Young Lives website based on the survey and/or qualitative data by staff and research associates.

6 Schools are the unit of observation and analysis in the school surveys.

Figure 1: Young Lives study design



The various datasets derived from the different components are planned, as far as possible, to work together iteratively to facilitate linking, pooling and comparison of data across country samples, research methods, data types, and data rounds. Comparison is further facilitated by administering (whenever feasible) the same instruments and questions in all four countries simultaneously – while adjusting for seasonal differences and school schedules. Links between the household data and other datasets are made through the use of individual, community and school identification codes and GPS coordinates, with data collected in one round and via one method contributing to data collected in subsequent rounds and through other methods.

1.2. Key features of the quantitative research

The household and child questionnaires have been kept as consistent as possible across rounds and between countries, while also evolving to reflect the different stages of childhood and youth development as the children have aged. In the first two rounds, both questionnaires were aimed at the primary caregiver, asking about the child's characteristics and activities, as well as household economic and social status. Children have gradually become the primary respondents as they aged – answering the child survey themselves from the age of 8, and becoming the sole respondent at age 19.

The original household questionnaires were loosely based on World Bank Living Standards Measurement Surveys (LSMS). To capture socio-economic status the survey has asked questions about ownership of assets, housing characteristics and access to services, allowing the compilation of a wealth index that is comparable across countries and over time (Briones 2017).

From Round 2, a household expenditure/consumption module was introduced, as well as questions on livelihoods, caregiver's attitudes, economic shocks and access to government and non-governmental programmes.

The child survey includes core modules on health, education, anthropometrics, nutrition, time use and well-being. As children aged, labour market activities were added. Child cognitive achievement is measured by international standard tests adapted to the language and environment, as well as the age of the children, including the Raven's test, Cloze test, Peabody Picture Vocabulary Test (PPVT), reading and mathematics. Non-cognitive or socio-emotional/psychosocial competencies have been captured using a variety of self-reported Likert-scale type measures, including pride, agency, self-esteem, and self-efficacy, as well as in later rounds measured based on the 'Big-5' personality inventory (Costa and McCrae 1992), grit (Duckworth and Quinn, 2009), and ROPELOC measures of leadership and teamwork (Ogando and Yorke 2018). Self-reported questionnaires in Rounds 3, 4 and 5 covered sensitive topics including alcohol and substance use and experiences of interpersonal violence.

Data have been validated and checked by both study country and Oxford research and data teams, a process that improved with the introduction of CAPI in Round 4 (Escobal and Benites 2013). They are then anonymised (names, date of birth and GPS removed, with location only available at a higher administrative level) and archived with the UK Data Service. For each round, the questionnaires, fieldworker manuals, and justification documentation are also made available on the Young Lives website as part of the public archiving of the data.⁷ Finally, from Round 4 onwards, Young Lives has created a 'constructed dataset' which harmonised as many variables as possible across rounds, for each cohort and country, which have been released along with a technical note explaining the process (Briones 2018).

1.3. Key features of the qualitative research

The design of the Young Lives qualitative research originated in participatory and ethnographic work with adults and children in a wide range of contexts globally (Johnston 2009; Morrow and Crivello 2015). The data comprise a mix of participants' first-hand accounts and researchers' observations, the former generated through various semi-structured methods, primarily individual interviews, focus groups, and creative elicitation activities – such as body maps, daily activity diaries, and life-history timelines – that yield written and visual data on specific topics. Analyses commonly assimilate multiple forms of qualitative data, often supported by descriptive survey statistics on relevant participants or topics. All qualitative methods are adapted to suit the research contexts and participants' ages.

Employing multiple qualitative methods offers different angles into and levels of understanding of the phenomena of interest (Crivello, Morrow, and Wilson 2013). So, for example, interviews and focus groups may examine children's general experiences and perceptions of poverty, whereas daily activity diaries uncover their time use: this combination allows exploration of how poverty shapes children's everyday lives – specifically, their engagement in school, leisure, work and household responsibilities. In keeping with the ecological framework, individual biographies are contextualised within household, school, generational and community data and may also be compared with other individual case studies, research contexts and/or time periods (Morrow and Crivello 2015) Where the more generalised longitudinal qualitative research is less suited to address topics of particular interest, it is supplemented by cross-sectional sub-studies that can provide more detailed and tailored accounts.

⁷ For more details, see <https://www.younglives.org.uk/content/use-our-data>

Young Lives qualitative data are cleaned, anonymised, and coded according to a meta-framework (see Section 2.4) that elucidates core research topics and concepts, which allows systematic content analysis throughout (Crivello, Morrow, and Wilson 2013).⁸ The authenticity of the study's qualitative data depends on procedures applied during research planning, data collection, data cleaning and translation and analysis, rather than implementing statistical benchmarks around construct validity or significance testing, as in the validation of quantitative data (c.f. Hammersley 2007). The quality of the data depends in part on developing research protocols that are systematically applied to all countries and research waves, keeping records that demonstrate adherence with this protocol, and coming together in workshops where team members can cross-check each other's interpretations, query data, and arrive at common understandings of the evidence. Another measure entails reflection around the likelihood of any biases that may influence findings, whether researchers' personal biases, or biases in the sampling strategy or methodological tools. Since the longitudinal qualitative research entails regular visits to the same participants and households, the team can check the accuracy of data collected in previous waves and make corrections as appropriate. Given that the full Young Lives dataset is derived from multiple research components and multiple forms of data drawn from different sources, this facilitates regular triangulation of data, further enhancing the credibility of the research.

8 Interviews are audio-recorded, transcribed and translated into English (except in Peru, where the dataset is in Spanish).

2. Longitudinal design and analysis of temporal data

2.1. Principles of quantitative panel survey design and dataset construction

Temporal design refers to the timing, frequency, and spacing of observations in a longitudinal study (Dawes 2020). The longitudinal multi-disciplinary survey approach has involved two key practical tensions that have been carefully balanced throughout Young Lives. The first has been between the desire to keep the survey broad enough to allow for a wide range of research questions and disciplinary approaches, contrasted with the ethical concern of placing too much burden on respondents with lengthy surveys, which may seem intrusive and lead to attrition or refusal in future rounds. The second tension has centred on the desire to maintain comparability across rounds and countries but also to include information which is age and context appropriate. Anthropometric (height and weight) data can be collected in each round with full comparability across rounds and countries, despite children aging, and each country having different averages. However, designing cognitive achievement tests to ensure comparability over time and space has been much more challenging. For example, test results from Vietnam and Ethiopia have been increasingly hard to compare given the disparity in mathematics knowledge in these countries, with the gap having widened as the cohorts have aged (Dawes 2020). The survey has evolved over time to include new topics as the cohorts aged, with the Older Cohort serving as a test ground for the Younger Cohort.

Questions and measures that have been consistently administered over time without change include anthropometrics and items in the wealth index (Briones 2017). Consumption and expenditure measures inspired by the World Bank LSMS were introduced in Round 2 (2006), and have allowed an assessment of monetary poverty. One of the unique aspects of the survey has been that a complete vector of time use (covering the full 24 hours) has been asked in all rounds. Schooling information, and economic and environmental shocks have also been asked in each round.

Topics and questions that have evolved over time include cognitive achievement, which was first asked in Round 1 and then adapted at each subsequent round (Dawes 2020).⁹ Psychological characteristics (also known in economics as non-cognitive skills) were first collected in Round 2, with questions referring to shame and trust. This has since been expanded to include several validated measures used in the psychology literature (Yorke and Ogando Portela 2018). In addition, the team has endeavoured to collect information relevant to the local policy context – for example, the *Juntos* programme in Peru, the Productive Safety Net Programme (PSNP) in Ethiopia, and the National Employment Guarantee Scheme (currently called MG-NREGA) and school feeding programmes in India.

A very useful output from the Young Lives team since Round 4 of the survey has been the constructed dataset – a cleaned, harmonised and appended dataset for both cohorts across all rounds. This includes variables that have been addressed in all rounds, as well as some that are only in one round but serve as useful background information. Examples include calculated

9 For details of Young Lives psychometric analyses of cognitive skills, see Cueto et al. (2009); Cueto and León (2012); León (2020); León and Singh (2017).

anthropometric measures (height- and weight-for-age z-scores) and calculated consumption per capita. In some cases, where data were missing for key variables (e.g. father's education) in early rounds, the survey team asked the question in a later round, and the constructed dataset includes the most recent version. Using only the constructed dataset, it is possible to answer several research questions or produce descriptive statistics comparing rounds, across cohorts, between socio-economic groups, or by sex of the participant.¹⁰

2.2. Approaches to analysis of panel survey data

Since the Young Lives survey data are publicly archived, only a fraction of the studies conducted over the years with these data have been produced by the Young Lives team.¹¹ This section briefly describes some of the different methods used by researchers both inside and outside the team, highlighting the most common approaches as well as some very innovative uses of the data.

Krutikova and Glewwe (2017) outline the reasons why Young Lives data are so well suited to studying the dynamics of child development in LMICs. They cite: cross-national samples with comparable data; relatively large and diverse samples in each country; following children from a very young age through crucial developmental stages, including early childhood, adolescence, and (for the Older Cohort) early adulthood – with extensive tracking effort and low attrition rates; and rich data on both the environment in which the children are growing up and multidimensional measures of child outcomes.

Approaches to analysis of the panel data include:

- **Descriptive analysis of changes over time which** allow for comparison between sub-groups, such as male or female respondents, rural or urban outcomes (note that the Young Lives pro-poor design does not fully capture socio-economic inequalities in any of the countries).
- **Associations between early and later life circumstances.** Studies assessing the nutritional outcomes of the Young Lives cohorts over time have been particularly influential (e.g. Crookston et al. 2013), challenging the idea that stunting is irreversible, and rather have found evidence that there has been some 'catch up growth' during adolescence in the four study countries.
- **Value-added models** exploit the panel dimension of the data to uncover how certain policies or investments improve outcomes between rounds, for example the productivity of a year of schooling compared between countries, or between types of schools (Singh 2015, 2020).
- **Life-course analysis** incorporates a variety of panel data approaches, including structural modelling (e.g. economics) and structural equation modelling (SEM, e.g. psychology). These methods take advantage of the richness of Young Lives data to include many confounders, and use lagged values to avoid reverse causality (Boyden et al. 2019). They do, however, make many assumptions about the underlying relationships in child development. Structural modelling of human capital development builds on the economics literature in developed countries on skills development pioneered by Heckman and co-authors (e.g. Heckman and Lochner, 2000; Heckman and Rubinstein, 2001; Heckman et al, 2006). The earliest example studying multidimensional skills measurement in a developing country, by Helmers and

10 See Briones (2018) and Marion (2018) for explanations of the datasets.

11 While the Young Lives team have undertaken many types of analysis, external researchers have been free to do whatever they like. Creating a global public good with extensive variables, and clean data with good documentation has allowed researchers to know what the capabilities of the data are and exploit them accordingly.

Patnam (2011), used Young Lives Rounds 1–3 data from India. With more rounds, more complex models can be estimated (see, for example, Attanasio, Meghir, and Nix 2020; Attanasio et al. 2017; Mitchell et al. 2020; Sánchez 2017).

- **Causal analysis of impact of ‘exogenous’ factors** – such as the weather, economic shocks, and social policies. This is also known in the literature as natural experiments. The premise is that it is beyond people’s control whether certain things happen to them, and therefore being exposed to a certain policy, or ‘shock’, can be thought of as almost random. For example, Chang, Favara, and Novella (2020) examine weather data for India to see the effects on cognitive skills and psychosocial attributes, while Fan and Porter (2020) use weather as an instrumental variable (for parental financial resources), to observe whether parents invest more in disadvantaged children.
- Agüero et al. (2021) use a **regression discontinuity design** to examine the effect of the extended school day programme in Peru on learning outcomes, exploiting the (somewhat arbitrary) fact that to be eligible, the school needed to have at least eight form classes. Another innovation is to combine school survey data with individual and household panel information. For example, Glewwe, Krutikova, and Rolleston (2017) examine whether schools reinforce or reduce learning gaps between students of different socio-economic status in Peru and Vietnam.

Box 1: Analysis of policy using Young Lives data

Several policies have been analysed using the Young Lives dataset, taking advantage of the fact that the programmes have been introduced between rounds, and only some of the cohort were enrolled or beneficiaries.

Productive Safety Net Programme (PSNP): Introduced in Ethiopia in 2005, this rural food/cash for work programme is the second-largest in sub-Saharan Africa. Findings include a positive impact on nutrition (Porter and Goyal 2016), and on cognitive outcomes (Favara, Porter, and Woldehanna 2019), though with negative effects on time use (Woldehanna 2010).

Juntos (‘Together’): This conditional cash transfer programme was introduced in Peru in 2005. It was found to have positive effects on nutrition (Sánchez, Melendez, and Behrman 2016), though qualitative analysis found that it had a negative effect on non-beneficiaries (Streuli 2012).

Midday meal scheme: Singh, Park, and Dercon (2014) found that this programme improved the health outcomes of children in India, and also had a protective effect for those whose families suffered a drought shock.

2.3. Principles for qualitative longitudinal research design

Young Lives qualitative research is conducted with a nested sample of participants selected from the larger survey sample, making it possible to link child, household and community information across qualitative and quantitative data sources. Involving both the Younger and Older Cohorts, qualitative longitudinal research – following the same sample of children (and their families) since 2007 – enables detailed exploration of the impact of poverty and intersecting inequalities on children’s daily lives and on the underlying mechanisms that influence and determine their outcomes later in life, as adolescents and young adults. It examines the extent to which young people exercise agency in the choices, decisions and actions influencing their poverty trajectories and life courses, as well as the effects of environmental and social factors, policies and programmes, on children’s life trajectories (Crivello, Morrow and Wilson 2013). The

qualitative field manuals are developed collaboratively by the international research team and made available for other researchers via the Young Lives website (Camfield, Crivello, and Woodhead 2013a, 2013b; Crivello, Morrow, and Streuli 2013; Crivello and Wilson 2016).

Several principles guided the initial design of Young Lives qualitative longitudinal research:

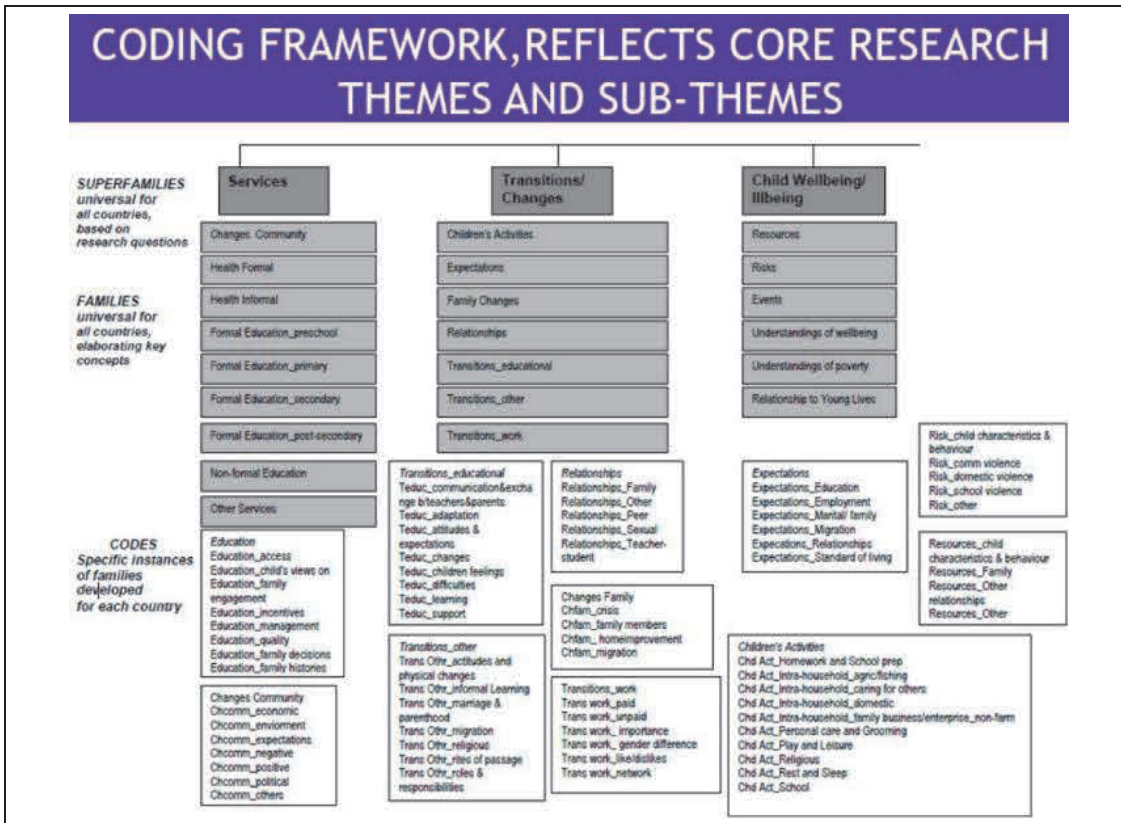
- **Emphasis on everyday experiences** of poverty and ‘ordinary childhoods’ (i.e. not sampling for ‘extreme’ cases).
- **Prioritising individual narratives** of children/young people about what has contributed to shaping their circumstances and well-being, their aspirations and goals, as well as realistic expectations for future outcomes.
- **Eliciting multiple perspectives** (children, parents/caregivers, peers, teachers, and service providers) to build a rich picture of children’s relationships, households and contexts.
- **Sampling diversity** to understand what inequality means for children, and the implications of disparities in risk exposure and deprivation by social group and locality.
- **Generating temporal data** that can aid understanding of what shapes children’s development and well-being over time and what matters most at which ages, and of poverty dynamics across the life course and between generations.
- **Ensuring comparability across data collection waves** (creating temporal data by repeating methods and questions with the same sample at each wave), balanced by flexibility, so as to respond to emerging issues and questions.
- **Seeking contextual understandings** while retaining the potential for cross-context and cross-country comparison (similar methods used in the four countries).
- **Aligning with the quantitative survey** to facilitate mixed-methods research.

2.4. Approaches to analysis of qualitative data

A coding framework was co-produced in 2007 by the international qualitative research team, reflecting core research themes and sub-themes relating to child well-being/illbeing, life-course transitions and experiences of schooling and other services. The framework applies the same higher-level codes (at the family and super-family levels) as consistently as possible across all qualitative research waves, data types and countries, although individual researchers can construct their own codes for lower levels of the framework according to their particular interests. Some researchers are more inclined to manual analysis but will extract coded data in the initial phases of analysis to identify broad themes and individual cases of interest.

The application of software programmes, mainly Atlas ti, and NVivo in Vietnam, in coding allows researchers to process an extremely large volume of qualitative data of many different kinds. The codes are multidimensional, permitting analysis that covers multiple interconnected themes, concepts and topics. For example, codes on ‘education’ cut across the three core research themes, so different facts of education may be explored, from questions of access and quality to expectations and aspirations, to key transition points in children’s schooling. The codes align with key variables in the quantitative survey, and new codes are added to the original framework to reflect country-specific interests, topics explored in sub-studies, and emerging lines of enquiry (Figure 2). Applying the same set of codes to multiple waves of data aids longitudinal analysis. However, in practice, researchers frequently move between extracts of coded data and the full interview transcripts, since working solely with data extracts risks eliding the temporal and holistic integrity of children’s individual life stories that are at the heart of the dataset.

Figure 2: Coding framework



Researchers typically combine thematic and biographical analysis, examining both within-case and across cases, and including longitudinal analysis of data generated at different time points. Biographical analysis searches for themes in individual lives, asking what shapes life trajectories and triggers change, and investigating the interplay between agency and structure in biographical processes. Thematic analysis searches for patterns, commonalities, differences and inequalities within the wider sample or a sub-set thereof.

The volume of qualitative data amassed cumulatively in longitudinal research can be immense and may appear intimidating. Effective analysis of large longitudinal datasets requires clear data-management protocols (Boyden and Walnicki 2020) and analysis plans, since re-analysis of the complete dataset is both unrealistic and unnecessary for any one research endeavour/question. Depending on the research question, researchers need to decide which aspects of the qualitative data are required for analysis (i.e. which countries, cohorts, waves, communities, respondent groups, methods). In preparation for selection of cases for in-depth analysis, the Young Lives research team created, and regularly updates, longitudinal profiles of each child participant, based on information from both the qualitative and quantitative data.

3. Multi-disciplinary and mixed-methods research

3.1. Shifting disciplinary emphasis

Young Lives has been running for 20 years, and like any scientific inquiry is based on a particular paradigm, which can be defined as a world view or a set of linked assumptions about the world (Kuhn 1962). A paradigm can also be described as a cognitive perspective or a set of shared beliefs to which a particular discipline adheres. During its first phase, Young Lives was managed by an academic consortium of statisticians and researchers from predominantly health-orientated disciplines, chiefly epidemiology, nutrition, public health and paediatrics. In 2005, it was transferred to a group of researchers at the University of Oxford's Department of International Development. This led to a shift in the team's disciplinary composition towards the social and human sciences – principally, economics, psychology, anthropology, sociology, education and social policy. This transition resulted in numerous changes, for example to the research questions and instrument content, and also led to the introduction of the qualitative research. Yet a positivist perspective has dominated throughout, despite an intention to assimilate diverse ontological (theories of being) and epistemological (theories of knowing) orientations (Guba and Lincoln 1994).

3.2. Differing epistemologies

The foundational premise of a positivist perspective is that there is an objective reality that derives from natural phenomena and manifests uniformly across all contexts, independent of human experience and perception (Guba and Lincoln 1994). Facts and values are regarded as separable, to the extent that the researcher's (etic) view of the world can be taken as a correct and objective interpretation of reality. A positivist epistemology gives primacy to deductive enquiry in which existing theories or hypotheses are tested and verified against real-world observational data. In Young Lives, numeric data from closed survey questions are manipulated to uncover generalisable and predictive correlations between a variety of community, school, household and individual factors and diverse life-course outcomes.

Currently, development microeconomics is the most influential discipline and epistemology within Young Lives, and econometrics the main analytical procedure used. This largely reflects the latest funding for the programme, Young Lives at Work, which has a strong focus on skills and labour markets and excluded funding for qualitative research. Between 2005 and 2020 the quantitative research programme also included a strong component from epidemiology, nutrition, developmental psychology, and educational research which was also positivist in nature.

By contrast, the study's qualitative research is largely shaped by a constructivist–interpretative paradigm, which assumes a predominantly relativist epistemology (Schwandt 1994). The proposition here is that reality is not free from human experience and perception but historically and socially constructed and therefore manifests in different ways in different contexts. In this view, researchers and respondents co-create understandings through the use of naturalistic methods that draw on unstructured, or semi-structured, instruments. Inductive reasoning is applied, to understand research participants' (emic) perspectives, and learn how they experience, understand and explain the world, what matters to them, and what informs their actions; from this process a generalisable theory is developed (Glaser and Strauss 1967).

The co-existence of multiple paradigms in Young Lives makes it possible to combine descriptive and inferential statistics with qualitative data, the former providing a generalised understanding of

prevalence, trends, associations and mechanisms, and the latter, insights into the multifaceted and often subtle social and experiential processes underpinning these patterns (Barnett et al. 2013). A significant degree of complementarity exists in both conceptualisation and analysis (Box 2).

Box 2: An example of combining qualitative and quantitative data to explore children's time use

Heissler and Porter (2013) combined analysis of qualitative and quantitative data to investigate children's time use in Ethiopia. The qualitative analysis generated testable predictions for the quantitative analysis (e.g. that the amount of time spent on work is highly driven by gender and birth order), while the quantitative analysis confirmed or refined findings based on the hypothesis (that boys and girls work quite similar hours though in very different activities, but the oldest girls bear the biggest burden of work). The qualitative analysis also contributed to understanding how boys and girls themselves experienced their working patterns (with a sense of pride, though dislike of non-gender-traditional work).

However, the incorporation of differing epistemological paradigms has not always resulted in unified thinking and collaboration so much as the pursuit in parallel of divergent enquiries drawing on diverse conceptualisations and perspectives. Moreover, given that the survey data are publicly archived, so available for use by external researchers, Young Lives cannot control how the data are used or analysed and for what purpose.

Disciplinary differences within the research team have yielded subtle, yet important, distinctions in research aims that can also be a key source of creativity. The primary goal of the micro-development economists in the team has been to generate insights into the determinants, mechanisms and outcomes of human capital formation and the extent and causes of variations, whereas for the developmental psychologists and educationalists the concern has been with human development and well-being, with greater attention given to issues of equity and justice (Woodhead 2005). A further distinction within the study is the extent to which developmental processes are considered to be universal, such that Young Lives associate Martin Woodhead (2005: 85) has argued:

While identifying universal features of development is an attractive starting point for realizing rights for all children, this approach also has serious limitations. Despite claims to universality, developmental accounts are often very closely tied to cultural assumptions about the developing person, and reflect the context and goals for children's transition from dependency to autonomy within the economically rich, individualistic, Western societies that originate most research.

Hence, the focus on individual characteristics that are thought to have universal applicability is, in effect, a very particular, normative interpretation of the human development process that cannot adequately account for the highly variable relationship between humans and their societies globally.

In this sense, the social constructivist–interpretative approach can aid theory building in areas of the field that have weak or limited *a priori* theory. This is evident, for example, in theorisation around the construct of human resilience, typically defined as the capacity to withstand and 'bounce back' following exposure to adversity (Ryff and Singer 2003; Smith et al. 2008). Resilience is commonly gauged through measures such as rating scales and self-report questionnaires that address various aspects of an individual's sense of how they manage stress or difficult events. According to the social constructivist approach, however, resilience cannot be reduced to individual predispositions and traits, but arises through the interaction between structural and individual factors and in the context of relationships and is heavily influenced by meanings given to experience. A Young Lives study exploring resilience among children growing up in poverty and adverse circumstances in Ethiopia demonstrates this (Crivello, Tiumellisan, and Heissler 2021) (Box 3).

Box 3: The role of qualitative data in theorising resilience within a mixed-method panel study

Drawing on the larger Young Lives survey and qualitative datasets, an initial list of resilience indicators was developed and used to identify example cases for in-depth qualitative analysis (Crivello, Tiunellisan and Heissler 2021). Qualitative data aided context-specific understandings of 'resilience', with this definition being used to adjust the list of cases based on children's outcomes at age 24. The process was iterative and flexible between the quantitative and qualitative datasets.

Ultimately, the researchers used a definition of 'resilience' that was derived from young people's understandings and encompassed two key attributes and temporal orientations. The first was about *personal strength* to confront and find solutions to present-day challenges: the second a future-oriented *capacity to change one's life* for the better. Both girls and boys valued these attributes, although gender mediated the individual, social and systemic factors contributing to resilience as well as the structural constraints they strove to overcome.

Thus, in Young Lives, combining quantitative and qualitative data sources can add both complexity and nuance to analysis of multifaceted constructs such as resilience, and ensure young people's (emic) understandings inform researchers' (etic) accounts.

3.3. Sequencing and integrating quantitative and qualitative data

Young Lives mixed-methods research reflects a sequential multi-phase design, with the qualitative component embedded within the larger quantitative panel study (Creswell and Plano Clark 2011). Data collection is sequential rather than concurrent, such that qualitative data collection takes place between quantitative survey rounds – ideally with a minimum six-month gap to avoid overburdening research participants. Research design often entails joint meetings involving researchers from across the disciplines and/or opportunities to peer review draft protocols ahead of data collection. The wider research programme is organised around a set of broad themes related to childhood poverty, inequality and transitions to adulthood, to which both single-method and mixed-methods analyses contribute. Most Young Lives mixed-methods research has followed an *explanatory* sequential approach, in which qualitative data seek to explain findings from quantitative data, with fewer exploratory sequential studies which start with qualitative data and build to a second, quantitative phase (Creswell and Plano Clark 2011). The longitudinal nature of the study accommodates multiple approaches to integrating quantitative and qualitative data, across many cycles of design, data collection, analysis and interpretation (see Box 5 in the annex for examples).

3.4. Advantages and synergies

Multidisciplinary mixed-methods cohort studies have the potential to generate evidence of far greater value than would otherwise be possible. Cohort studies based solely on questionnaire surveys face a number of constraints, first and foremost the need to maintain the integrity of the survey panel. This entails repeating the same questions and measures, as far as possible, at each data round and maintaining the cohort by minimising the burden on participants. The panel design limits both the topics such studies are able to cover and their ability to pursue new questions as the research progresses and new priorities emerge (Boyden and Walnicki 2020). Young Lives uses diverse strategies to facilitate fresh areas of investigation and also to accommodate country-specific information needs. For example, core questionnaires for comparative analysis are supplemented by country-specific questions and modules on policies

and programmes, and a section on siblings was introduced in Round 3 of the survey to enhance understanding of intra-household dynamics (Porter, Sánchez, and Nair 2012).

However, closed questions inhibit deeper enquiry; this is where qualitative research adds value with its open-ended questions and capacity for flexible approaches to data collection (Box 4). Qualitative research is more effective than survey questionnaires at capturing intimate topics like marital and family relationships or abstract aspects of human experience and perception, such as hope or uncertainty. Using survey questions alone risks underreporting or reporting bias, and raises ethical concerns which in a longitudinal study can increase attrition.¹² That said, survey researchers can develop techniques for overcoming some of these limitations. For example, in the COVID-19 phone survey, an innovative list randomisation method was introduced to measure the percentage of young people in the sample experiencing an increase in physical domestic violence (from any family member) during lockdowns (Porter et al. 2021). The listing method is a way to elicit information on sensitive topics during phone surveys without directly asking about individual experiences, since the latter raises ethical concerns. Qualitative methods are ideally suited to follow-up on the aggregate findings from the survey, to illuminate young people's experiences, thinking, actions and the relationships and the societal norms that shape them.

Box 4: Qualitative research exploring harmful practices in Ethiopia

Young Lives research in Ethiopia provides an example of the benefits of integrating longitudinal qualitative research within a cohort study centred on questionnaire surveys. Qualitative enquiry into the norms and practices shaping the life course highlighted the significance of female genital cutting as a rite of passage that in many communities secure young women's transitions to adulthood. Aside from its deeply personal nature, female genital cutting is both illegal and highly contested in Ethiopia, such that this evidence would likely not have come to light through the administration of questionnaires. The data revealed the diverse rationales underpinning the practice, as well as the multiplicity of opinions as to its merits and threats, with attitudes and perceptions varying widely across generations, genders, locations and social groups. A number of girls in the sample had been directly affected, as had many of their peers, some with serious adverse consequences for their health and well-being and others with more positive outcomes. The qualitative data included many such narratives that gave a strong sense of the personal and social implications of the practice. By revisiting the topic in subsequent research waves it was also possible to chart changes in attitudes and cutting practices, and to show how decisions on whether or not to be circumcised influenced young women's transitions to adulthood. The evidence generated from this research was used in discussions with policymakers and practitioners in Ethiopia around the most appropriate policy and intervention responses.

See Boyden (2012); Boyden, Pankhurst, and Tafere (2012).

The qualitative longitudinal research is also constrained by the need to mirror the questions and topics in the surveys and to ensure as much continuity as possible in the sample and between countries and research waves. Qualitative longitudinal research generates rich biographical and family histories appropriate for the analysis of life-course transitions and trajectories, but some topics might be more effectively investigated with different samples. Thus, qualitative sub-studies have added considerable value to Young Lives research and can recruit participants from the main survey according to the specific research focus. For instance, survey data in India revealed

12 Young Lives introduced a self-administered module into the Older Cohort survey, with the intention of helping participants feel more comfortable answering sensitive questions, for example around substance use and sexual activity. However, response rates were quite low in some contexts.

an unexpected finding; that primary school children were switching regularly between government and private schools, with the Younger Cohort more likely to do so than the Older Cohort (James and Woodhead 2014). This trend has important implications for children's learning, not least because the language of instruction in government schools is Telugu, while it is English in private schools. The team conducted a qualitative enquiry into the factors underlying schooling decisions with a sub-sample of families whose children had made the switch. This offered new evidence of an increasingly dynamic and more market-driven school system (James and Woodhead 2014).

In addition to mixing methods and undertaking sub-studies, possibly one of the most significant adaptations from the original household panel design was the introduction of nested school surveys using a mix of qualitative and quantitative methods. This innovation stemmed from the household survey finding that low educational attainment, grade repetition and early departure from school were commonplace throughout the sample, despite extraordinarily high educational aspirations and near universal school access. From this evidence it seemed vital to find out more about both children's experiences in school and the effectiveness or otherwise of different education systems and schools with different characteristics in building children's skills. In this component schools, rather than young people in households, are the unit of observation and analysis, though in some contexts and rounds, it is possible to link school data with child and household data from the regular survey rounds (Singh 2015).¹³

3.5. Challenges and hierarchies

The Young Lives research model is complex and its operationalisation involves a number of significant challenges (Morrow and Crivello 2015). At its simplest level, contradictions or discrepancies sometimes arise between quantitative and qualitative data sources. This can be at the individual participant level, such as an age discrepancy, or at a conceptual level, such as differing ways of categorising paid and unpaid work activities in quantitative and qualitative data. It can take time and effort to understand and resolve these discrepancies, and may mean checking on the correct version with study participants.

Multidisciplinary mixed-methods research requires continuous reflection on the divergent theoretical paradigms and constructs used, as well as considerable flexibility and innovation around their application through complementary methods, a common set of questions and a shared conceptual framework. Achieving a true reconciliation of perspectives in cross-disciplinary mixed-methods research is far from straightforward. For instance, while qualitative researchers tend to value and use descriptive statistics summarising key patterns and trends in a sample as important context for their analyses, quantitative researchers are far more invested in inferential statistics – with descriptive statistics treated as a mere step towards more complex analysis that allows for predictions to be made.

The challenge of mixed-methods research is all the greater because of the hierarchy of knowledge that exists within international development and the social sciences more generally. Disciplines such as economics that work with quantitative data consistently achieve greater recognition and accolade than do other social sciences that depend on qualitative research. Many positivist researchers view interpretive approaches as fundamentally flawed, seeing their data as anecdotal and biased, partly attributed to the relatively small sample size that is characteristic of qualitative research. In Young Lives these challenges have often been reflected in the difficulty that team

13 Other innovations intended to expand the scope of the research have included linking records from Young Lives data with records on that same sample held in other datasets (Boyden and Walnicki 2020).

members have encountered in publishing mixed-methods papers in refereed journals. Ultimately, it needs to be recognised that the epistemologies and methodological approaches intrinsic to different disciplines and methods cannot always be reconciled.

Numerous strategies are deployed in Young Lives to address some of the challenges of mixed-methods research, including:

- Collaborative team working, together with sharing and cross-checking analysis with research partners and encouraging co-authorship across disciplines.
 - Sequencing of research and data collection, with insights and questions from the quantitative data informing aspects of qualitative data and vice versa: this requires effective data management and internal systems of communication at the point of key planning phases.
 - Drawing on single-method quantitative and qualitative research publications to generate mixed-methods synthesis reports, policy briefs and research communications.
 - Transparent documentation of methods, experiences, and lessons learned.
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4. The potential and limits of cross-national and cross-cultural comparisons

4.1. Approaches to cross-national research

Sociologist Melvin Kohn (1987: 741) maintained that cross-national studies 'encompass any research that transcends national boundaries' and which 'utilize systematically comparable data from two or more countries'. He identified three categories:

1. The nation is the object of study: for example, the investigator is interested in comparing systems of governance, or welfare provision.
2. The nation is the context of the study: here, the investigator is interested in how, for example, the policy contexts of the countries affect child development and educational outcomes.
3. The nation is the unit of analysis: here countries are compared on some indicator, such as GNP or educational attainment.

Young Lives data are amenable to all three of Kohn's approaches, depending on one's focus. Young Lives country reports and fact sheets arguably fit the first, and some aspects of the study, such as country comparisons of changes in household wealth over the course of the MDG period, could be included in the third category.¹⁴ But the second category is most applicable to Young Lives. Its cross-national comparative design provides the potential for understanding the influence of family, school, and social and economic policy environments on child well-being and development in four country contexts.

When countries (nations) are units of analysis for comparative purposes, population homogeneity is commonly assumed and possible intranational diversity is (fallaciously) obscured (McSweeney 2009). As Tung (2008: 45) remarks: 'studies that compare cross-national differences without capturing intranational diversity and the dynamics of cultural changes are inadequate.'

This may not matter for some purposes, for example, when comparing high-level indicators such as GDP or labour market participation in early adulthood. However, it does become an issue when national or subnational diversity is likely to be associated with differences on some indicator, for example, literacy levels.

Most papers based on Young Lives data are on one country only. deployed for cross-national comparisons, Young Lives data can be viewed for certain purposes through a cross-cultural lens. The latter is most evident when intra-country ethnic and language differences are considered in analyses.

14 Young Lives country reports can be found at https://www.younglives.org.uk/publications-search/%2A?f%5B0%5D=im_field_document_type%3A16

4.2. Advantages and challenges of cross-national research

Kohn (1987: 713) outlines the key advantage of cross-national research, stating that it:

is valuable, even indispensable, for establishing the validity of interpretations derived from single-nation studies. In no other way can we be certain that what we believe to be social-structural regularities are not merely particularities, the product of some limited set of historical or cultural or political circumstances.

To have this contribution, methods used across the countries have to be of the same design and quality. This applies to both qualitative and quantitative survey approaches as used in Young Lives. When there are variations in method and quality between procedures and instruments used in the countries being compared, observations cannot be validly compared due to methodological artefacts (Smith, Fisher and Heath 2011). Common sources of error in multinational and multi-language household and child surveys such as those used in Young Lives include: differences across study groups in response rates to certain questions; variation in response styles when rating scales are used (e.g. extreme response bias); and measurement errors as a result of variations in translation, fieldworker interview style, and lack of measurement equivalence in translated rating scales and achievement tests (Boer, Hanke, and He 2018; Davidov et al. 2014; Harkness 2007 Poortinga 2015).¹⁵

Establishing measurement invariance when countries and ethnic groups are compared can be a major challenge. An important criterion for valid group comparison is the availability of systematically comparable data. When the metrics are widely agreed and not affected by the characteristics of the groups, cross-national and intranational group comparisons can be appropriate. Examples could include access to household services (electricity and improved sanitation), household income and economic shocks. At the child level, examples of such indicators include anthropometric measures (height and weight), and education metrics, such as age of enrolment and numbers completing high school.

Cross-national or ethnic group measurement of latent psychological constructs is a different matter as their equivalence cannot be assumed. The psychological and anthropological literature has engaged with this issue ever since researchers from the global north first embarked on the study of constructs such as intelligence, language development and personality in new populations in African colonies, and in Australia, Asia, and Latin America (Brislin 1983). This work and later technical advances in the field of psychometrics (Fischer and Poortinga 2018; Van der Vijver 2015) concluded that when the construct being measured varies conceptually across cultures (i.e. conceptual and measurement equivalence are not established), and when the measures differ due to their translation and adaptation, then comparison of national and sub-national groups from clearly differing cultural and language backgrounds is not appropriate (unless such limitations are made clear).

4.3. How do these issues apply in the case of Young Lives?

Young Lives is not a representative cross-national study due to its sentinel site sampling procedure. This was designed to cover nationally specific differences in characteristics such as language, region and ethnicity, while ensuring the possibility of cross-national comparisons through the use of common child and household survey instruments and metrics (e.g. the wealth index: see Briones 2017). Clustering of study participants in communities or sites permits identification of 'group'-based distinctions in children's circumstances and development

¹⁵ Groves (1987) has identified common sources of cross-national survey error; not all apply to Young Lives given that sentinel site sampling methods were used, the samples are pro-poor, and the study does not claim to be nationally representative.

associated with location, ethnicity, socio-economic status, and so on. In this way, Young Lives not only highlights individual trajectories but also disparities among participants due to structural factors; this feature is important for engaging with policy around issues of social justice. It has also permitted descriptive analyses within each country of variation in indicators such as access to household and social services by geography, ethnicity, wealth, language, caste (India), and gender. The study has been able to highlight gendered distinctions in children's experiences, trajectories and outcomes, and in particular, the *intersectionality* of gender with other social determinants as well as location in shaping children's constraints and opportunities.

Kohn (1987) pointed to a key value of cross-national comparative studies – their ability to provide tests of the external validity of findings. One example from Young Lives is observation of common influences on the growth of vocabulary (a proxy for language development) and mathematical abilities from early childhood to adolescence in the four countries (Tredoux and Dawes 2018). Another is the observation of similar patterns of recovery from early growth stunting across the four countries (et al. 2017). Both sets of findings also point to common risk factors for poor outcomes that can be used to inform policy interventions. A country-specific finding that cannot be observed across the countries (because of their different policies), is the contribution to growth recovery of the midday meal scheme provided to the United Andhra Pradesh sample in India (Singh, Park, and Dercon 2014). This finding provides evidence from a particular policy intervention in a single case that has relevance for all countries where children are at risk for growth stunting and associated cognitive deficits. Not all Young Lives quantitative data are appropriate for cross-national comparison, one example being that of children's achievement and grade progression from the school survey component. These data are country-dependent as a function of different education policies and practices in each country (Rossiter et al. 2018). But the school surveys do allow examination of the effects of cross-country disparities in children's exposure to education. For example, ceiling effects in test performance were observed in Vietnam, in contrast with floor effects in Ethiopia. In addition, even in the site in Vietnam where children's performance was the poorest, these children still did better than children in India's best performing site.

Designing instruments that perform well across countries, languages and sociocultural groups while also responding effectively to significant within- and cross-country disparities in children's exposure to education has been extremely challenging. Linguistic and cultural variation meant that all the measures had to be translated, and in some cases adapted so that they could be administered to children in the various languages. This is not an issue for measures that are unlikely to be affected by cultural and language differences, such as the mathematics and aspirations items that were used in all four countries. Where measures have had to be significantly adapted and are now language specific (e.g. the adapted PPVT), only intra-language group and intra-country analyses are appropriate.¹⁶ This is because comparison across languages both within and across countries is only acceptable when measures have been shown to demonstrate measurement equivalence and lack of bias across these groups.

In Young Lives, analyses of predictors of cognitive and psychosocial skills at particular ages and over the course of child development, required that measures of predictors (e.g. ratings of self-efficacy) and dependent variables (e.g. vocabulary scores) had to fulfil these criteria. In addition, where psychometry was not conducted as a group was too small, this has meant its exclusion from certain analyses. For example, the modified vocabulary test for use in Rounds 4 and 5 was based on psychometry conducted on languages of sufficient size for psychometry (Cueto and León 2012). Languages spoken by fewer people in the sample were excluded. For example, in

16 For more detail, see Cueto and Leon (2012); Dawes (2020); Leon et al. (2018).

Ethiopia those included were the three largest languages in the sample, Oromifa, Tigrinya and Amharic. The several other languages spoken in Ethiopia had sample sizes that were too small for analysis and as a result data from these children on this measure cannot be considered valid measures of the children's ability.¹⁷

Unlike the quantitative survey's focus on *measurement*, Young Lives qualitative data are concerned with *meaning* and with experiential aspects across space and time. Nevertheless, cross-national qualitative research can also be challenging, and most analysis of Young Lives qualitative data focuses on a single country rather than multi-country analysis. Concepts like 'well-being' or 'poverty' can mean different things in different contexts so may not be directly comparable. Moreover, single-country analysis may be more impactful in terms of influencing national-level policies, which is a core objective of Young Lives. There are, however, many examples of multi-country analysis and synthesis papers that analyse qualitative data or bring together findings from two or more countries to generate broader research and policy messages, such as Morrow and Boyden's (2018) synthesis report on children's work, and Crivello and Espinoza's (2018) research on children's unpaid care labour drawing on qualitative (and quantitative) data from the four Young Lives countries. It is far more common for qualitative researchers to conduct sub-national comparisons, for example, between different regions or between rural and urban locations.

¹⁷ Psychosocial measures are discussed elsewhere Yorke and Ogando Portela 2018; Porter et al. forthcoming .

5. Conclusion and learning points

This report has positioned longitudinal mixed-methods cohort research as particularly helpful for informing key SDG priorities, especially those focused on human development and well-being, equity and social justice. In doing so, it has drawn on 20 years of Young Lives research with a large and diverse sample of children, young people and their families in Ethiopia, India, Peru and Vietnam. The relevance and utility of such longitudinal research has grown immeasurably since the COVID-19 pandemic, since it provides vital background information on cohorts that are directly affected, ensuring that the full social, financial, educational and health impacts are understood. As the demand for evidence that is tailored to and informs LMIC policies and programmes increases, so the contribution of longitudinal cohort research will grow. The main advantages of such research are outlined below.

- Longitudinal cohort data are vital for tracking human development and well-being across the life course, particularly for assessing the cumulative effects of life experiences, and how early factors in children's lives shape later outcomes.
- Although randomised control trials have become highly prevalent in policy analysis, longitudinal research can complement and add value by studying phenomena that cannot be randomised (such as recovery from negative events), and careful analysis can incorporate the rich set of information on stages of child development.
- The power of longitudinal data can be further enhanced by exploiting 'natural experiments' when policies or programmes are introduced between data collection rounds, allowing a before and after analysis. Combining survey data with other data sources such as administrative or geo-located weather data can further enhance the range of questions that can be addressed.
- Where samples are diverse in terms of location and social and economic status, longitudinal cohort data speak directly to SDG objectives around equity and social justice by highlighting group-based distinctions in how children fare over time, identifying when disparities between groups open up and why some groups do better than others.
- Multidisciplinary mixed-methods cohort research that combines descriptive and inferential statistics with qualitative data has the huge advantage of offering a generalised understanding of prevalence, trends, associations and mechanisms, together with insights into the multifaceted and often subtle social and experiential processes underpinning these patterns. Where closed survey questions inhibit deeper enquiry, qualitative research adds value with its open-ended questions and capacity for flexible approaches to data collection.
- Disciplinary differences can yield subtle, yet important, distinctions in research aims that can also be a key source of creativity.
- Cross-national comparative studies are valuable in testing the external validity of interpretations derived from single-nation studies and provide useful insights for the development of global policies.

However, mixed-methods, multidisciplinary longitudinal cohort research models are complex, and their operationalisation involves several challenges.

- Reconciling differing epistemologies and methodological approaches intrinsic to different disciplines and methods is far from straightforward. Multidisciplinary mixed-methods research requires continuous reflection on the divergent theoretical paradigms and constructs used, as well as considerable flexibility and innovation around their application through complementary
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methods, a common set of questions, a shared conceptual framework, and collaborative teamwork.

- In longitudinal cohort research two key practical tensions have to be carefully managed throughout. The first is balancing the desire to keep the survey broad enough to allow for a range of research questions and disciplinary approaches with the ethical concern of placing too much burden on respondents with lengthy surveys that risk refusal in future rounds. The second centres on balancing the wish to maintain comparability across rounds and countries with the need to include information which is both age and context appropriate.
 - In comparative, cross-national research the methods used must be of the same design and quality across the countries. Designing instruments that perform well across countries, languages and sociocultural groups while also responding effectively to significant within- and cross-country disparities in children's exposure to education is extremely challenging. Core concepts like 'well-being' or 'poverty' can mean different things in different contexts and languages so may not be directly comparable, and such contextual specificities encourage researchers to focus on a single-country rather than multi-country analysis.
 - Despite the importance of continuity, it is imperative for longitudinal research to adapt flexibly to changing circumstances in countries, including questions to assess the impact of newly introduced policies affecting the cohorts or, as recently, pivoting to the use of phone surveys during the COVID-19 pandemic.
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Appendix

Table 1: Examples of mixed-methods research using Young Lives data

Authors	Topic	Integration approach
E. Aurino and V. Morrow (2018)	Household food insecurity and child diets (India)	Multiple rounds of survey data analysed household food insecurity and children's dietary quality. Qualitative information on children's descriptions of well-being and diets were related to their experiences of food insecurity and of social protection.
J. Boyden, C. Porter, and I. Zharkevich (2021)	Changes in children's time use (work and school attendance) across time (Ethiopia)	Compared data from the two Young Lives cohorts at 12 years old (2006 and 2013), examining the role of education aspirations, labour demand and structural factors such as household wealth and composition. The qualitative data explained some of the trends that emerged in the quantitative data.
G. Crivello and V. Morrow (2020)	Factors supporting positive youth trajectories (four study countries)	Quantitative data were used to identify children in disadvantaged households performing better than average on an agreed set of indicators. Longitudinal qualitative data were analysed to understand what influenced and supported the trajectories of a selection of 'exemplar' cases. Qualitative data provided insights into local understandings of well-being and resilience.
P. Iyer, C. Rolleston, and V. Huong (2021)	School effectiveness for ethnic minority students (Vietnam)	Used linked test score data over one academic year (from the Young Lives 2016–17 Vietnam school survey) to identify learning progress at the school level. Assessed whether lower learning outcomes among ethnic minority students reflected their poorer home backgrounds or school-level factors. A qualitative study of an 'effective' ethnic minority boarding school, and example of positive deviance, sought to explain the quantitative findings.
M. Kaffenberger, D. Sobol, and D. Spindleman (2021)	Low learning and school dropout (four study countries)	Survey data from multiple time periods identified the association between test scores and dropout. Findings from a review of published research using qualitative longitudinal data looked at the indirect association between low learning and dropout.
J. León, G. Guerrero, S. Cueto, and P. Glewwe (2021)	Characteristics of effective schools (Peru)	Secondary school survey (2017) identified good performing schools based on maths and reading comprehension scores. A follow-up qualitative case study in two schools identified as high-performance schools by the survey sought to explain the impacts of within-school processes on educational results.
K. Roelen and L. Camfield (2013)	Creating measures of child poverty and well-being (Ethiopia)	Used qualitative data to inform quantitative measures and taxonomies of child poverty and well-being in rural areas.
R. Singh, U. Vennam, J. Narayan, A. Tandon, and G. Crivello (2021)	Educational and work trajectories of children with disabilities (India)	Survey data identified children with self-reported disabilities in the Young Lives sample and the latest survey (2016) reported their educational and occupational outcomes. A follow-up qualitative study (2020) with a sub-sample of the young people with disabilities explored the facilitators and barriers faced in their educational trajectories, together with their related transitions to the labour market, marriage and family formation.
Y. Tafere and T. Woldehanna (2012)	Impacts of the PSNP on children's well-being (Ethiopia)	Initial insights from qualitative research motivated mixed-methods analysis. Quantitative survey data estimated the impact of the PSNP on household welfare/income, and then on children's time use (between work and schooling/studying). Qualitative data illustrated the quantitative findings, describing the children's lived experiences of the PSNP and its impacts on their well-being.
U. Vennam and J. Andharia (2012)	Household poverty trajectories	Quantitative analysis across multiple survey rounds examined household poverty dynamics, raising the question of why some families experienced downward mobility while others improved. Qualitative interviews with caregivers from a sub-sample of households experiencing downward mobility explored the interplay between agency and opportunity structures in shaping poverty dynamics.



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