EDITORIAL

A medley of methods

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The papers collected in this issue illustrate a good selection of topics addressed in longitudinal research: learning verbal skills in childhood, losing visual capacity in later life, the timing of marriage, motherhood and employment in early to mid-adulthood, and the experience of second-generation immigrants. The geographical settings range from the UK, US, Germany, Chile and Switzerland respectively, and each provides insights from a different methodological perspective.

The first two papers use the UK Millennium Cohort Study. Though contributed independently, each addresses the debate about social divergence in children's cognitive progress sparked by Leon Feinstein's (2003) analysis of children born in 1970. Its critique by John Jerrim and Anna Vignoles (2013) has already been the subject of a Comment and Debate section on 'Social class differences in early cognitive development' in Volume 6 in this journal (2015, see references in the papers below). Here, Katy Sindall, Patrick Sturgis, Fiona Steele, George Leckie and Rob French use growth mixture models (GMM) to reassess 'socio-economic gradients in child cognitive development'. They reproduce Feinstein's contested 'crossover' graph, showing 'bright poor' high starters being overtaken by more advantaged children who started out with low scores, and explain Jerrim and Vignoles' suggestion that this was an artefact of measurement error and regression to the mean. GMM, describing latent trajectories of verbal ability over ages three, five and seven, is offered as a means to avoid reliance on possibly erroneously measured scores. Among the five distinct trajectories, these authors find there are indeed pathways that cross, but they are not systematically related to socio-economic status – measured here in terms of income and social class at the outset.

In 'Household income and sticky floors...', Yekaterina Chzhen and Zlata Bruckauf take a different approach to data on children's cognitive development in the Millennium Cohort. They follow its measures of verbal skills for an additional wave, from age 3 up to age 11 rather than age 7, and they also include income up to that age as a time-varying covariate (among a larger range of circumstances than Sindall et al). Chzhen and Bruckauf dichotomise the ability distribution at the bottom tenth and estimate the chances of a child moving into or out of it, using hazard regression. Both these papers confirm an association of some aspect of social disadvantage with poor chances of escaping the low end of the cognitive ability distribution. Chzhen and Bruckauf find that parental education (not included by Sindall et al) is the most

consistent predictor of moves out of the bottom decile and protection against falling into it. Of the many ways it might be possible to synthesise these two studies, I will suggest just one. There is evidence in Chzhen and Bruckauf's paper that the group distinguished as 'very low improving' in the GMM analysis might be children in ethnic minorities whose parents had low education and did not speak English at home. Other possible comparisons are left to readers – or the authors themselves.

Socially patterned transitions appear in another domain, Hui Liew's 'Explaining disparities in transitions among visual-functioning states'. The deterioration of vision, including the onset of visual impairment and blindness, in a feature of old age world wide. It is also associated with social differentials. This analysis of older Americans in the Health and Retirement Survey quantifies different patterns of transitions across various visual states for males and females; white, black and Hispanic people; and those with and without university education. Multistate life tables provide support for intersectionality (double jeopardy) as well as the hypotheses of cumulated disadvantage and of persistent inequality.

Switching back to the earlier stages of adult life, Nora Müller and Jascha Dräger, in 'Economic independence and marriage timing…', focus on the transition to first marriage by cohorts in Germany, East, West and reunified. The evidence comes from the life histories, reported in monthly spells to the adult cohort of the German National Education Panel (NEPS). Using Cox regressions, they show how women tend to marry younger and sooner after finishing education than men – whose marriage timing (in the West) is more closely associated with progress on the labour market. After reunification, marriage patterns of Germans born in the East converged on those of the West, illustrating the importance of historical as well as geographical context in life-course research.

Historical and geographic context also affect the role of employment in women's early adulthood. Cultures and welfare state structures vary internationally in the patterns of employment women undertake in the prime childbearing years, which have also been changing over recent decades. Ignacio Madero-Cabib, Rosario Undurraga and Cristián Valenzuela contribute a detailed analysis of the dynamics of female employment and family formation over ages 25–39 in Chile. Their evidence comes from the Chilean Social Protection Survey. They distinguish two cohorts, born a decade or so apart, in data collected retrospectively covering 1980 to 2015. Nine states of labour force status are recorded monthly. Sequence analysis sorts the trajectories into 10 or 11 types of pathway. These patterns are analysed in terms of education, partnership and fertility, showing both continuity and change across cohorts. This documentation of gendered experience in the Chilean labour market has implications for employment and pension policies, which also has relevance elsewhere. This is the first paper from Latin America to be carried in this journal. It demonstrates the relevance and potential for life-course studies in that part of the world, from which further contributions are encouraged.

This issue finishes with a Study Profile. This one, from Dario Spini, Nora Dasoki, Guy Elcheroth, Jacques-Antoine Gauthier, Jean-Marie Le Goff, Davide Morselli, Florence Rossignon and Robin Tillmann, concerns a survey of second-generation immigrants in Switzerland. Immigrants tend to be excluded by design in birth cohort studies and to be insufficiently numerous even if included in general panel studies. The LIVES-FORS Cohort Study (LCS) complements the Swiss Household Panel Study, comparing young adults whose parents immigrated as adults with people

whose parents were born or brought up in Switzerland. The Profile describes the network oversampling strategy, the life-history instrument administered in the field, and the content of the first four waves.

While the papers in this issue can be recommended for the variety of their subject matter they are also remarkable to the variety of the methodological armoury deployed in the analysis of longitudinal data. The first research paper uses growth mixture modelling, the second discrete time hazard regression, the third a multistate life table, the fourth Cox's hazard regression and the last one, sequence analysis. Each method is adapted to the form of data available. Students (and more established researchers) may find it instructive to consider this medley of methods.

Finally, to make the point that longitudinal research is not only quantitative, we carry a review of Bren Neale's book, *What Is Qualitative Longitudinal Research?*, contributed by Jane Elliott, a pioneer of mixed methods. This also serves as advance notice that Neale and colleagues are preparing a whole issue on Prospective Qualitative Analysis, for a future volume of this journal. This should provide more of the empirical examples called for in the review.