



Harmonising socio-economic data

Claire Crawford

Our remit

- To harmonise measures of socio-economic status across studies
- Which measures?
 - Education, social class, income (of parents and children)
- Which studies?
 - The UK's four national birth cohort studies:
 - NSHD (1946)
 - NCDS (1958)
 - BCS (1970)
 - MCS (2000/2001)
 - Plus ALSPAC and BHPS/Understanding Society

Why harmonise socio-economic data?

- To answer substantive research questions in which some measure of socio-economic status is the outcome or the main control of interest
 - **Educational inequalities:** how much more likely is someone from a high SES background to go to university than someone from a low SES background, and how has this changed across cohorts?
 - **Social mobility:**
 - Intra-generational: how likely is someone who starts working in a particular job or with a particular income level to move up or down the social spectrum as they get older?
 - Inter-generational: how predictive is SES of parents in childhood (variously defined) of SES in adulthood, and how this has changed across cohorts?
- To use as a control variable in studies comparing changes over time in other outcomes, e.g. links between childhood and adult health

What are the issues with harmonisation?

- Examples of conceptual issues:
 - The % of the population falling into each group changes over time
 - Expansion of HE means many more now go to university: is it an equally informative measure when 5% or 50% of people have degrees?
 - Structure of economy has changed dramatically: does it mean the same to have a manual job now as it did 50 years ago? What about female labour force participation?
 - Definitions change over time
 - Is having 5 GCSEs at grades A*-C the same as having 5 O-levels at grades A-C?
 - Different benefits and tax credits are introduced and taken away over time: what should be included in a total measure of family income?

What are the issues with harmonisation?

- Examples of data-related issues:
 - Ideally want measures taken at the same age using the same questions
 - But rarely happens in practice, so need to check what is available when
 - Often means harmonising lowest common denominator
 - Whether that is acceptable depends on your question of interest

Case study: harmonising income

- Want to create a continuous measure of total net family income
- What information do we have? (e.g. at age 16)
- NCDS:
 - Continuous estimate of net earnings from main job
 - Continuous estimate of partners' net earnings
 - Continuous estimate of other income
- BCS:
 - Banded estimate of gross total income
- What can we get from this?

Imputing within band: age 16 BCS data

- We would like to know where within the band each family falls
- Use another dataset in a similar year to learn about this
- Family Expenditure Survey asks respondents for continuous income
 - Also includes a number of covariates which feature in BCS
 - e.g. parents' age, education, work status, social class
- Split FES sample into income bands similar to BCS
- Regress income within band on different combinations of covariates for an 80% sample and use to predict income for other 20%
- Compare prediction to actual income reported to find best fit
- Apply final regression specification to BCS data

Other issues to be overcome

- Removing income of non-family members in household
 - Predict the share of income from non-family members using an alternative dataset and remove
- Imputing missing values of individual components
 - But only where confident about value (e.g. child benefit)
- Top-coding reported values
 - Judgement call; undertake sensitivity analysis to check implications
- Changing gross to net income
 - Impute tax rate using knowledge of tax code each year

Conclusion

- Harmonisation vital to answer some research questions
- Ideally questions would be designed with comparability in mind
 - Trade-off between comparability with past (less good?) measures and better data that could be the starting point for comparability in future
- Is the lowest common denominator sufficient for your purposes?
Could this be bettered?
- Seek advice from researchers who understand underlying measures
 - Medics may be best equipped to harmonise blood pressure measures
 - Sociologists to harmonise social class measures
- Always robustness check your results
- And be upfront about the assumptions and limitations of your choices

ADDITIONAL SLIDES

Education

- Parents' education
 - Age left full-time education (NSHD, NCDS, BCS, MCS)
 - Highest qualification (BCS, ALSPAC, MCS)
- Cohort members' education
 - NSHD, NCDS, BCS, ALSPAC
 - Grade A*-C at O-level/CSE/GCSE in Maths and English
 - Number of O-levels/CSEs/GCSEs at Grades A*-C

Income

- Continuous total net family income
 - When CM was age 10-12 in BCS, ALSPAC, MCS and BHPS/US
 - When CM was age 16-18 in NCDS, BCS, ALSPAC and BHPS/US
 - When CM was age 33/34 and 42 in NCDS and BCS

Social class

- 1990 Registrar-General's social class
- For fathers when cohort member was age 10/11
 - NSHD, NCDS, BCS, MCS
 - (ALSPAC at age 8)
 - (BHPS/US reported by cohort members asked to think back to age 14)
- Cohort members at age 42/43
 - NSHD, NCDS, BCS