

## Health selective migration: influences of geographical mobility and changes in socio-spatial contexts on health outcomes. ONS LS Beta test project 401001

Paul Norman, School of Geography, University of Leeds, p.d.norman@leeds.ac.uk

**Background.** People may have (dis-) advantageous socio-demographic characteristics and / or live in (dis-) advantageous places such that there are social and deprivation gradients with health. Selective sorting has a role in changing health relationships over time (Boyle *et al.* 2004; Norman *et al.* 2005; Boyle *et al.* 2009). This Beta test project updates previous ONS Longitudinal Study (LS) projects (10347 & 30033) which investigated the role of health selective migration on changing health-deprivation relationships over time (Norman *et al.* 2005; Boyle & Norman 2009). The evidence suggests that migrants in good health who move to less deprived areas and migrants with poor health who either move to or are 'stuck' in more deprived areas exaggerate the health inequalities between differently deprived areas. Recently, age dimensions have been found which demonstrate that residential moves in mid-life account for the increasing inequalities (Norman & Boyle 2014).

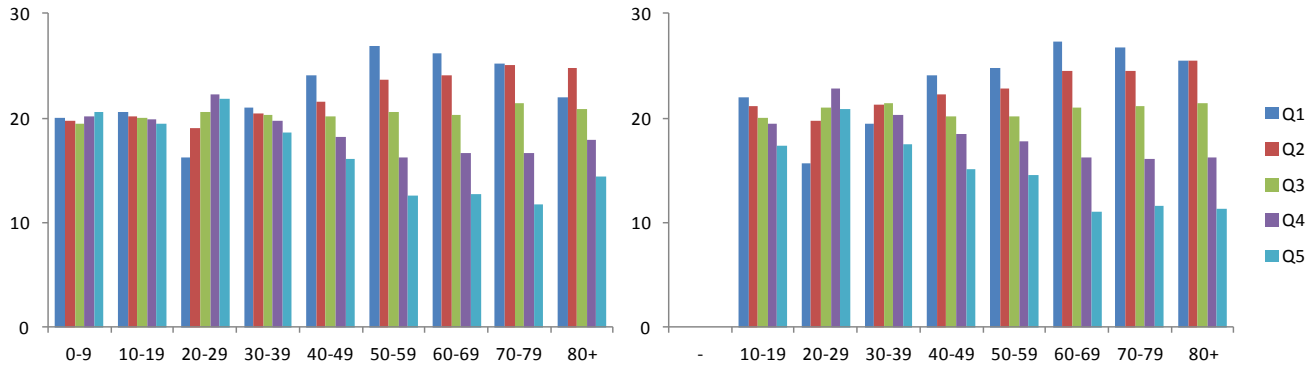
**Achievement #1.** This Beta test had a practical aim: to develop lookup tables for attaching to LS member records which indicate the relative deprivation and population density of residential locations and that provide a geographical coordinate which can be used to link to alternative geographies and to estimate distance moved between censuses. These indicators were also for use in other LS projects: 401003 Kaufmann & Catney; and 401006 Champion & Shuttleworth.

- These lookup tables were incorporated in the LS records by Kevin Lynch (and used in projects 401001, 401003 & 401006) and will be available on an ongoing basis for use by other researchers (e.g. Darlington *et al.* 2014) and for the contemporary and historic Samples of Anonymised Records (SARs).

**Achievement #2.** This Beta test aimed to emulate previous academic work to check the research utility of linkages to 2011 (expecting results to be similar so differences might highlight errors).

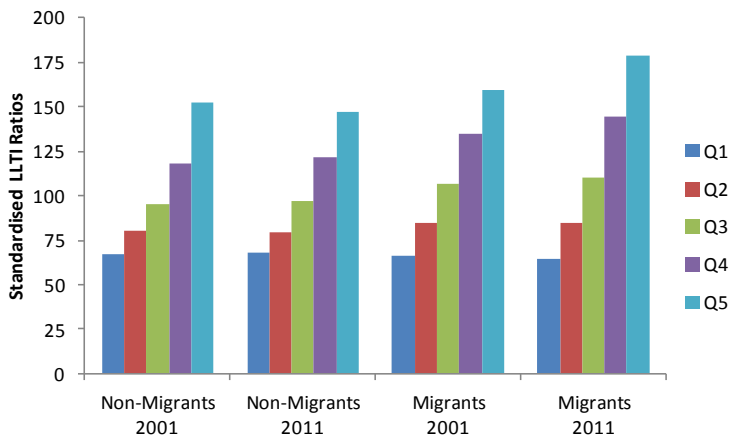
- The first check illustrated here (fig. 1) is that population is distributed distinctively at different ages across population weighted quintiles of Carstairs deprivation and are relocated over the period as survivors become 10 years older. The distributions in 2001 to 2011 are as expected.
- A second check illustrated in fig. 2 shows standardised long-term limiting illness ratios as reported in 2011 stratified by the quintile of people's residence in 2001 and 2011 for both subnational migrants and non-migrants. This approach has shown before that redistributions and changing deprivation lead to changes in the health-deprivation relationship. Whilst changes are small, a larger inequality between most and least deprived areas is shown for migrants which is consistent with previous work.

**Figure 1: Changing distributions of LS members across deprivation: 2001 to 2011**



Note: Those aged 0-9 in 2001 become aged 10-19 in 2011, etc., and there is an accumulation in the 80+ group

**Figure 2: Changing health-deprivation relationships: 2001 to 2011**



## References

- Boyle P & Norman P (2009) Migration and health. Chapter 19 in *The Companion to Health and Medical Geography* Brown T, McLafferty S & Moon G (eds.). Wiley-Blackwell: Chichester: 346-374
- Boyle P, Norman P & Popham F (2009) Social mobility: evidence that it can widen health inequalities. *Social Science & Medicine* 68(10): 1835-1842
- Boyle P, Norman P & Rees P (2004) Changing places: do changes in the relative deprivation of areas influence limiting long-term illness and mortality among non-migrant people living in non-deprived households? *Social Science & Medicine*. 58: 2459-2471
- Darlington F, Norman P & Ballas D (2014) Geographic and social mobility: trajectories of selective sorting by health status and ethnic group over time. ONS LS project 30163
- Norman P & Boyle P (2014) Are health inequalities between differently deprived areas evident at different ages? A longitudinal study of census records in England & Wales, 1991-2001. *Health & Place* 26: 88-93 <http://dx.doi.org/10.1016/j.healthplace.2013.12.010>
- Norman P, Boyle P & Rees P (2005) Selective migration, health and deprivation: a longitudinal analysis. *Social Science & Medicine* 60(12): 2755-2771

**Acknowledgments.** The permission of the Office for National Statistics to use the Longitudinal Study is gratefully acknowledged, as is the help provided by staff of the Centre for Longitudinal Study Information & User Support (CeLSIUS). CeLSIUS is supported by the ESRC Census of Population Programme (Award Ref: ES/K000365/1). The author alone is responsible for the interpretation of the data (LS project clearance number 401001).