Healthy migrants? Limiting Long Term Illness and long distance migration in England

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Research question

Is health a predictor of long distance migration in England, and are prosperous regions associated with the long distance migration of healthy individuals?

Background

Migration, the relocation from one place of residence to another, has intrinsically different meanings depending on the distance moved. Long distance moves impose comparably greater costs on the individual than short distance moves: the abandonment of social ties and greater financial costs. Thus long distance migration is a selective process where degrees of social disadvantage decrease the propensity to migrate over long distances. Poor health, one such measure of social disadvantage, is consistently associated with lower rates of long distance migration in the literature (e.g. Boyle, Norman, & Rees, 2002). We aim to assess whether health status is a significant predictor of long distance migration after overcoming three shortcomings in previous research. First, existing research is primarily based on census data from 1991 and 2001, these datasets are now over a decade old. We expect that the relationship between health and migration distance has changed since the time of the 2000/01 census. Estimates of the proportion of individuals moving and the distance moved are lower in the 2010/11 census than in 2000/01, whilst the proportion of the population with a Limiting Long Term Illness (LLTI) has fallen. Second, previous research have not accounted for the clustering of migrants in destinations. Third, previous research has not assessed whether long distance moves tend to be into specific types of areas. This paper contributes to the literature by overcoming these shortcomings; utilising the latest release of census microdata (2010/11), modelling the health differences in long distance migration through a multilevel perspective and assessing residual patterns by area typology.

The majority of residential moves are over short distances (Champion, 2005), often individuals are tied to their local area, for example parents of school-aged children are discouraged from long distance moves, opting to avoid their children changing schools. Long distance migration can affect the demographic make-up of origin and destination areas, for example the health profile of California improved considerably in the 1990s as a result of the out-migration of older adults out of the state and the in-migration of young healthy workers into the state. Research from the 1991 and 2001 Censuses suggest that good health raises the likelihood of moving long distance, as long distance migrants tend to be healthier than short distance migrants. Boyle *et al* (2001) using microdata from the 1991 census found those moving 50km or further to be less likely to report a LLTI, this relationship was independent from several independent and area level variables. Boyle *et al* (2002) found long distance migrants (10+km) moving in the year preceding the 2001 census to be comparably healthy than short distance migrants. If those in good health are more likely to move long distance and are more likely to move into prosperous areas these flows may shift the geographic distribution of health.

Methods

This analysis uses data from the 2011 CISS, a ten percent sample of individuals who responded to the UK Census living in England and Wales, providing a large sample adequate for analysing migration behaviour. In view of analyses that we will report elsewhere using the indices of deprivation, we excluded the sample living in Wales as the English and Welsh deprivation indices are not directly comparable. Individuals younger than 16 and older than 65 were also excluded as they are less likely to move independently (e.g. children who move are often not making the decision to migrate themselves). For similar reasons we exclude those living in communal establishments e.g. care homes. The final sample size is 3,383,188 of which 413,390 (12.2%) moved in 2010/11, 278,939 (67.5%) moved less than 10km and 134,451 (32.5%) moved 10km or more. The data was accessed via the secure Virtual Microdata Laboratory at the Office for National Statistics in Titchfield.

The data are used to assess whether being free of LLTI is associated with long distance migration, we expect long distance migrants to be relatively healthy. The census measures a residential move as a change in address between the 27th March 2010 and 27th March 2011. Addresses are then linked to postcodes at which point straight line distances between the residential postcode of previous and current addresses for movers are calculated by the data provider, individuals who reported moving within the same postcode were assigned a distance of 0.1km. Straight line distances are convenient measures of driving time, with a correlation of .93 estimated by a previous study in England (Jordan *et al*, 2004). The distribution of distance moved is heavily right skewed therefore in line with Boyle *et al* (2002) we dichotomise distance moved, with short distance migrants moving <10km and long distance migrants moving 10+km. LLTI was measured by the question "are your day-to-day activities limited because of a health problem or disability which has lasted, or is expected to last, at least 12 months? Include problems related to old age" (recoded as 0= no and 1= yes, limited a little or yes, limited a lot). To isolate the effect of LLTI models also control for several predictors of long distance migration: age, sex, ethnicity, employment status, education, car access, tenure, family status, marital status and whether the individual moved as part of a wholly moving household as measured by the census.

Fully-random multilevel logistic modelling is used to control for key factors influencing long distance migration and assessing whether health effects on long distance migration persists. Our design includes individuals at level one and LAs (326 areas within England with an average of 120,000 individuals in each). Including random intercepts allows the proportion of long distance movers to vary across LAs; including random slopes for LLTI allows the effect of health on long distance migration to vary across LAs. Models were estimated in STATA 12.1. Model fit was assessed using the Bayesian Information Criterion.

Key results

Our results indicate that being free of LLTI is not significantly associated with long distance migration, however interaction terms between LLTI and age display significant age-specific health differences in the propensity to migrate long distance (illustrated in figures 1a & 1b). Young adult migrants (aged 26-35) with a LLTI are 0.1 times more likely to have moved long distance than those without a LLTI, whilst elderly adult migrants (aged 56-65) with a LLTI are 0.1 times less likely to have moved long distance. We also uncover area-specific interactions between health and long distance migration: destination areas with high proportions of long distance migrants are associated with relatively high proportions of migrants with an LLTI; indicating that long distance migration is a potential mechanism for the clustering of LLTI in areas with high inmigration flows.

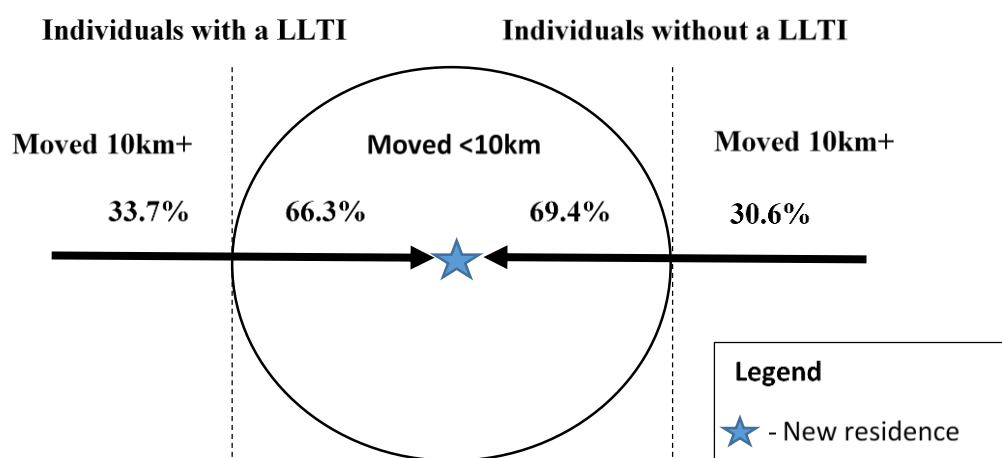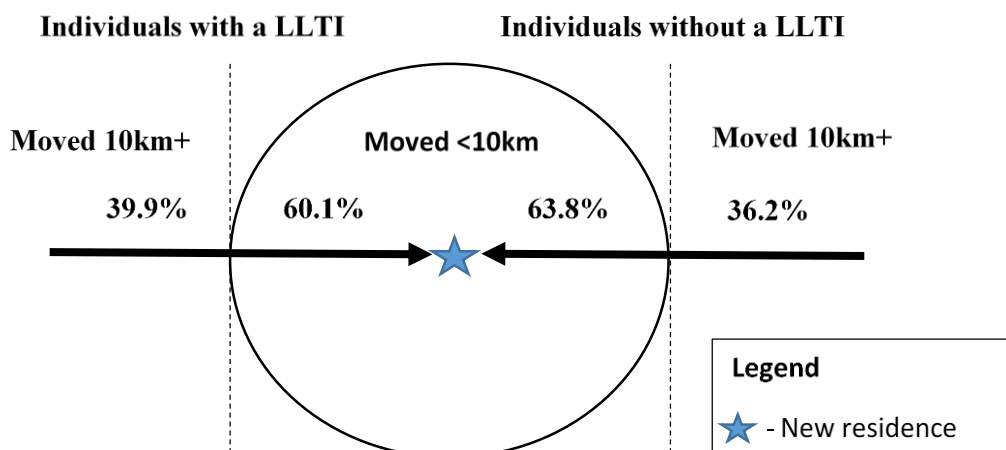**Figure 1a: Probability of migrating long distance by health status at ages 26-35**

Figure 1b: Probability of migrating long distance by health status at ages 56-65

Discussion and implications

Understanding the relatively greater proportion of young adults in poor health moving long distance has implications for health service planning. Healthcare providers can expect unhealthy young adults to be more likely to move further than 10km from their current residence, such long distance moves are more likely to move between catchment areas for Clinical Commissioning Groups. Healthcare providers cannot assume that unhealthy young adults will remain in the same local area and healthcare providers in areas with high inmigration flows can expect relatively high proportions of those migrants to have poor health. Our results also have implications for geographical theories of environmental influences on health. So called 'breeder' theories posit that there are regional variations in poor health because there are certain area characteristics (e.g. urbanicity, access to healthcare) which cause or encourage poor health. Our findings suggest that the elevated presence of long distance migration among unhealthy young people and reduced prevalence among unhealthy elderly working age adults from their area of origin may contribute to regional variations in poor health. As young people in poor health are more likely to move long distances away from their area of origin, we may observe lower concentrations of ill health amongst young adults in their previous region of residence than expected. Conversely, as older working age adults in good health are more likely to move long distances, we may observe greater concentrations of ill health amongst elderly working age adults in their region of previous residence than expected.

References

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