Trends in Life Expectancy in the UK:
How have inequalities changed for local areas in the UK and what can we expect for the future?

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with Phil Rees and Paul Norman

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Background

Project:
What happens when international migrants settle? Ethnic group population trends and projections for UK local areas –

Phil Rees, Paul Norman, Pia Wohland and Peter Boden

Population projection model for local areas and ethnic groups
http://www.geog.leeds.ac.uk/projects/migrants/

Components:
Ethnic fertility (PN)
Ethnic mortality (PW)
Internal migration (PR)
International migration (PB)

Developing mortality/survival scenarios by analysing past and present development in life expectancies of the UK population
Life expectancy at birth, UK, from period life tables, 1980-82 to 2005-07

![Graph showing life expectancy at birth for males and females in the UK from 1980-82 to 2005-07.]

http://www.statistics.gov.uk/cci/nugget.asp?id=168

UK Local Areas

Local government authorities (as in 2001 Census)

**England** 354 districts, unitary authorities and London boroughs

**Wales** is divided into 22 unitary authority areas

**Scotland** is organised through 32 unitary authorities

**Northern Ireland** is divided into 26 districts
Method

- Data:
  
  Population and deaths data for local authorities for the whole of the UK for five year age groups

  → abridged life tables for local authorities for a 17 year period, from 1991 to 2007
Trends: no change, divergence or convergence?

Inequality measures:

**Standard measures:**
- Minimum and maximum values
- Inter-quartile ranges
- 10-90 ranges
- Standard-deviation, Variance, Variation coefficient
- Index of mortality inequality

**Convergence measures:**
- Beta, sigma and gamma convergence measures

**Classification into groups**
- Townsend deprivation index
- Generic local classification
Descriptive statistics


Absolute and relative changes in mean life expectancy by age for the UK and the home countries
Index of mortality inequality (IMI) - UK

\[ IMI = \frac{1}{100} \sum_{i=1}^{n} \frac{E_i}{P_i} \]

Convergence measure (1)

- Beta convergence: if LAs with lower life expectancy at births \( (e_0) \) at the beginning of the period improved life expectancy more than the ones that had higher \( e_0 \)

- Sigma convergence: if standard deviation across LAs is falling over time.
Convergence measure (2)
Sigma convergence & life expectancy at birth - UK

Adapted from Boyle and McCarthy (1997)

Convergence measure (3)
Beta convergence & life expectancy - UK

If beta (slope) is negative and Significant beta convergence is observed
Convergence measure (4)
Gamma convergence & life expectancy at birth - UK

Adapted from Boyle and McCarthy (1997)

Deprivation and mortality – UK (1)

Townsend deprivation index and mortality
Townsend score (Townsend et al. 1988)
i. % households with no car
ii. % households not owner occupied
iii. % persons unemployed
iv. % households overcrowded

Least deprived     Most deprived
Townsend deprivation quintiles

**Conclusion**

Life expectancy increased over the last decades across local areas and different classification.

Movement between the ranks of local area

Likely to be caused by changing occupants of the area (inner London), invasion and succession.

Even though improvement throughout, inequality seems to increase and not decrease.