

Disability free & healthy life expectancy



- do they tell the same story?



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Introduction

England is renowned for health inequalities, in particular a pronounced North South divide, and studies suggest that this gap is widening. This study explores health inequalities in disability free live expectancy (DFLE) and healthy life expectancy (HLE) across local authorities in 2001, the first year in which both measures could be computed at the local area level.

Questions: Are the variation in DFLE and HLE explained by the same socio-economic and socio-demographic factors? Do these factors affect DFLE and HLE the same way?.

Question: How does inequality within a local area affect the overall health expectancy of an area? **Hypothesis:** unequal areas are more health disadvantaged than more equal areas.

Methods

- Health expectancies DFLE and HLE for English local areas in 2001 were calculated combining vital statistics and Census 2001 information on self reported health and disability using the Sullivan method.
- Inequality within local areas was determined by the range of the Index of Multiple Deprivation (IMD 2004) for MSOAs within areas.
- The relationships between socioeconomic factors and health expectancies were first established with univariate linear regression. Only univariate significant factors were included in the final model. Factors investigated but not included in the final model were: Percent of lower and highly educated in an area, percent of people born outside the UK.

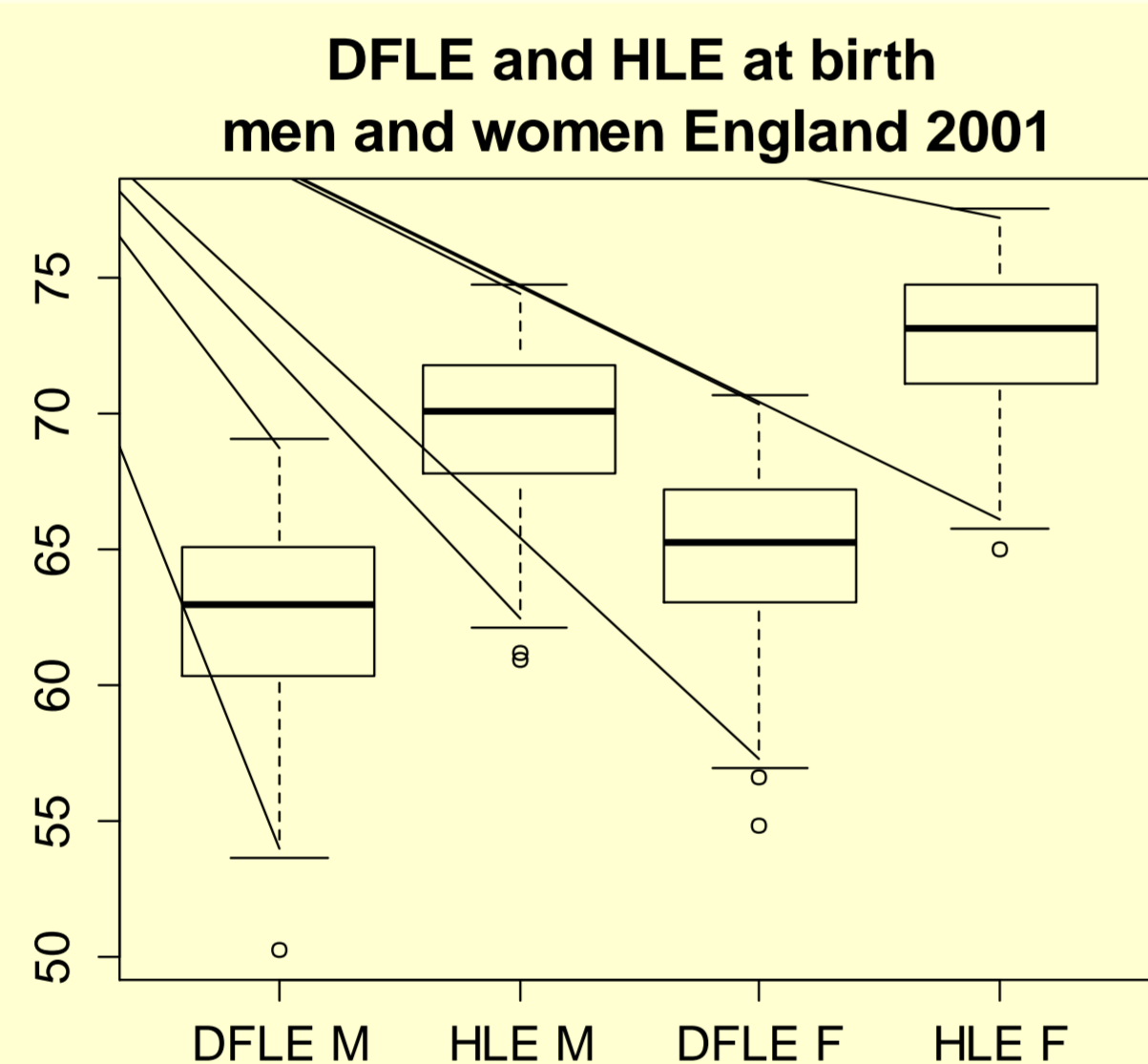
Results

Variation in DFLE and HLE across local areas in England

In 2001 DFLE across local areas was in general lower compared to HLE for both men and women. The average DFLE at birth for men was 62.4, with a range between the 10th and 90th percentile (90/10 range) of 8.7. The average DFLE at birth for women was 64.9, with a 90/10 range of 7.8. The average HLE at birth for men was 69.6, with a 90/10 range of 7.6. The average HLE at birth for women was 72.7, with a 90/10 range of 6.9.

Figure 1

Boxplot of disability free life expectancy (DFLE) and healthy life expectancy (HLE) for men (M) and Women (F) across English local areas in 2001



Socioeconomic factors affecting DFLE and HLE variation

Unemployment rate in an area, combined with the % of people in a lower social class, the % of people without a qualification, the % of non White population and population density, explain about 77% of the variation in DFLE and

Discussion

Both DFLE and HLE show pronounced inequality in 2001. The socioeconomic factors explaining variation in DFLE and HLE are more or less the same, but to a different extent.

In all cases, unemployment rate is the most prominent significant factor, followed by percentage lower social class. The evidence is inconclusive for percentage lacking qualifications and areas with higher percentage of non-white populations. Population density of local areas has no significant effect on explaining variation in DFLE or HLE for men, implying no major differences between urban/rural areas.

Health inequalities measured as health expectancy inequalities are strongly related to deprivation inequalities within local areas for both men and women. For men, roughly 62% of the variation in DFLE and HLE at birth is explained by deprivation inequalities using the IMD 2014. The IMD contribution is only slightly lower and less consistent for women, explaining just above 61% of the variation in DFLE and 58.4% of the variation in HLE at birth.

		Coef.	SE	p	r ²
Men DFLE	% low social class	-0.25	0.050	***	0.77
	% unemployed	-0.98	0.084	***	
	% no qualification	-0.08	0.025	**	
	% non White	0.06	0.015	***	
	Population density	-0.02	0.008	*	
HLE	% low social class	-0.26	0.043	***	0.77
	% unemployed	-0.79	0.071	***	
	% no qualification	-0.03	0.021	.	
	% non White	0.04	0.013	**	
	Population density	-0.02	0.006	**	
Women DFLE	% low social class	-0.25	0.000	***	0.73
	% unemployed	-0.73	0.000	***	
	% no qualification	-0.09	0.000	***	
	% non White	0.02	0.237		
	Population density	-0.01	0.123		
HLE	% low social class	-0.22	0.000	***	0.71
	% unemployed	-0.57	0.000	***	
	% no qualification	-0.08	0.000	***	
	% non White	0.00	0.984		
	Population density	-0.01	0.061	.	

Table 1 Multiple regression analysis with socioeconomic factors affecting DFLE and HLE variation across English local authorities in 2001

HLE for men at birth in 2001. For women these factors explain 73% and 71% of the variation. Except for ethnic composition each factor is negatively related to DFLE or HLE. Each % of more unemployment decreases DFLE by almost a year and HLE by 0.8 of a year for men and ¾ of a year and over half a year for women respectively. The % of non-White population, is significantly positive related to DFLE and HLE for men, but not significant for women.

Inequality within areas and DFLE and HLE variation across areas

Figure 2

Cartogram of England showing the range of IMD 2004 within each area. The darker the colour, the larger the range, that is the more inequality in regards to deprivation observed in an area. We see a strong North-South divide, with more inequality in the North compared to the South.

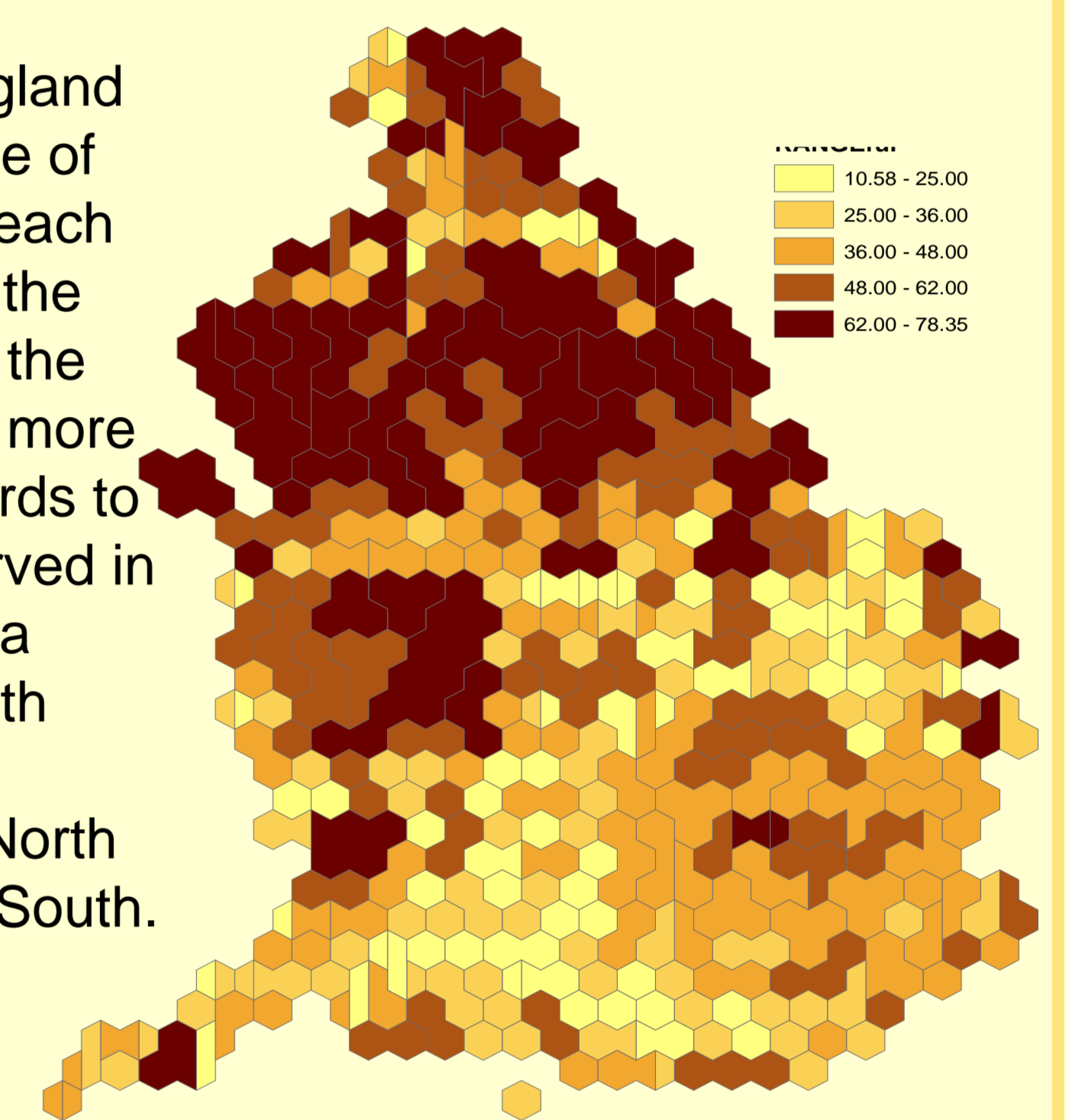
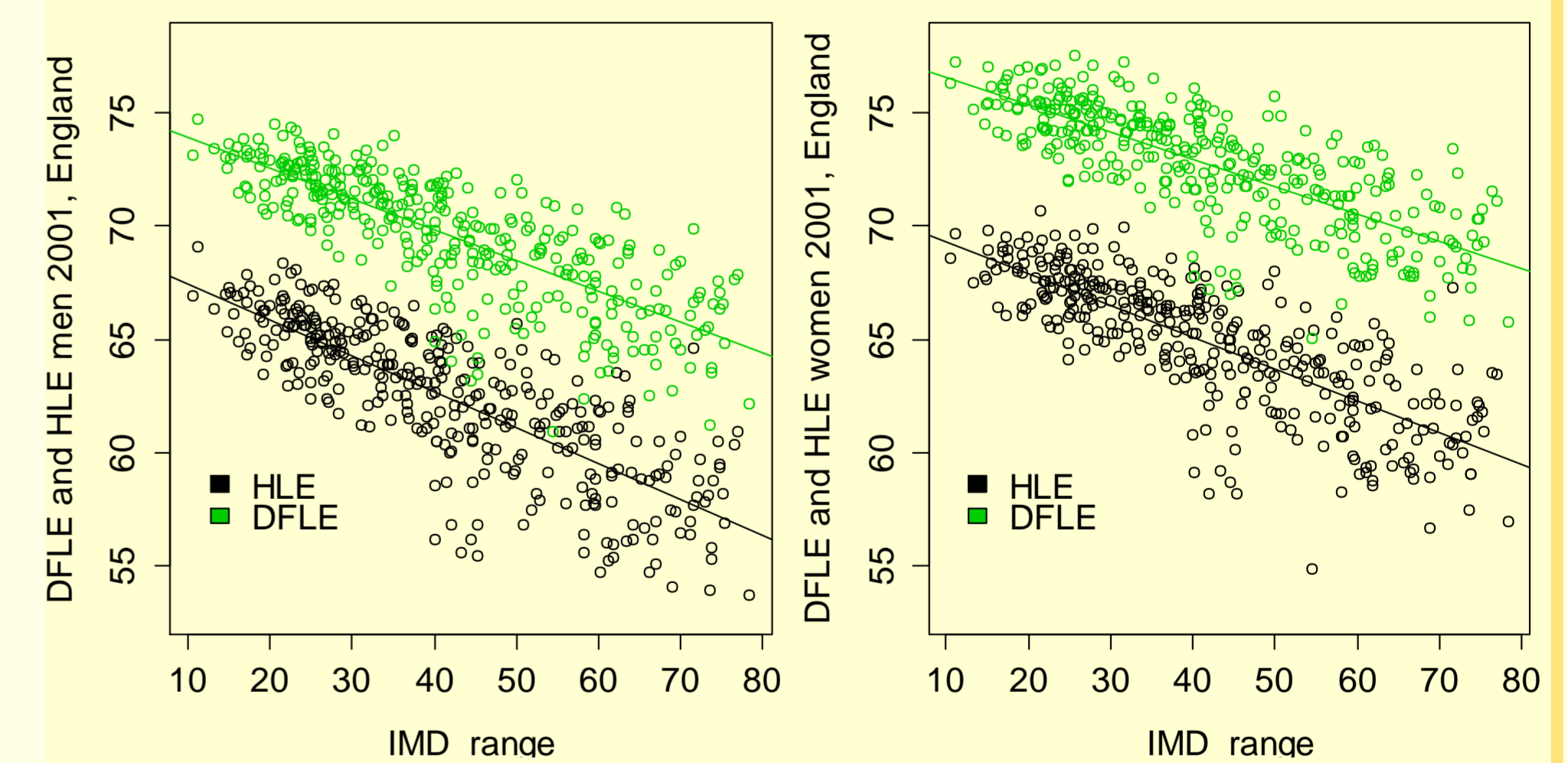


Figure 3

Relationship between deprivation inequality and DFLE/HLE for men and women. Shows significant decrease in health expectancy with an increase inequality. For men, this inequality explains 62.1% of the variation in DFLE at birth and 61.9% of the variation in HLE at birth. Similar, for women, this inequality explains 61.2% of the variation in DFLE at birth and 58.4% of the variation in HLE at birth.



Conclusion and Outlook

- In 2001, In general, men and women could expect to live longer healthier than they could expect to live without a disability. Both HLE and DFLE varied widely across England in 2001.
- The socio-economic factors identified here: unemployment rate, social class composition, education, ethnic composition and population density explain more of the variation for men than for women, at the same time they also impact more on the variation in men than in women and more on the variation in DFLE than HLE.
- The relationship between deprivation inequality and health inequality needs further investigation. Questions that come to mind: What is the reason behind the strong deprivation gradient in the North? Are all social classes in the South less deprived? Are more socially mixed areas less unequal?

References