

Explaining regional health variations - The relative contribution of socio-demographic, socio-economic and health behavioural factors

Pia Wohland¹ pia.wohland@ncl.ac.uk, Phil Rees² & Carol Jagger¹ for the InHALE project
¹IAH, Newcastle University ²School of Geography, University of Leeds

Introduction

Life expectancy (LE) in the UK is increasing and shows no sign of slowing down. Historically life expectancy was the main indicator of population health but attention has shifted to the quality of these extra years, particularly in terms of whether they are years in good or poor health. Also, variations found in health expectancies are often larger than those in LE, suggesting that health inequalities are underestimated by simply looking at LE.

In another part of the InHALE project we quantified the impact various socio-demographic factors have on LE and disability free life expectancy (DFLE) variation across UK local areas. But what about health behaviour factors? Here we explore variations in DFLE for men and women across English regions in 2001 and the contributions of socio-demographic, socio-economic and health behavioural factors to explaining these differences.



Question: Do differences in health behaviours (smoking, alcohol consumption, obesity) explain the variations in 2001 and are they more, or less important than socio-demographic and socio-economic factors?

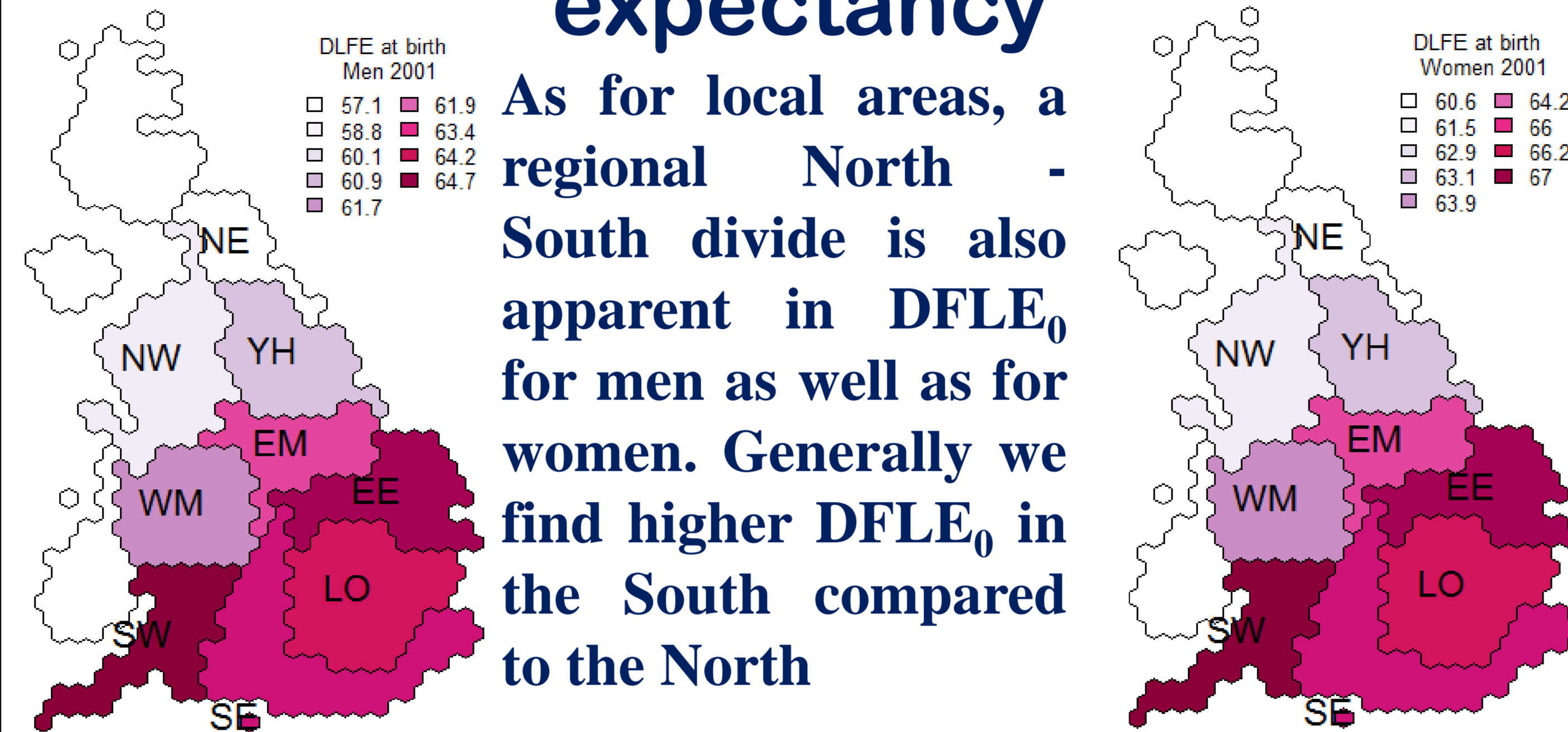


Answers to this question are important for policy makers to plan where to target scarce resources to reduce inequality and ensure the extra years of life are healthy ones.

Methods

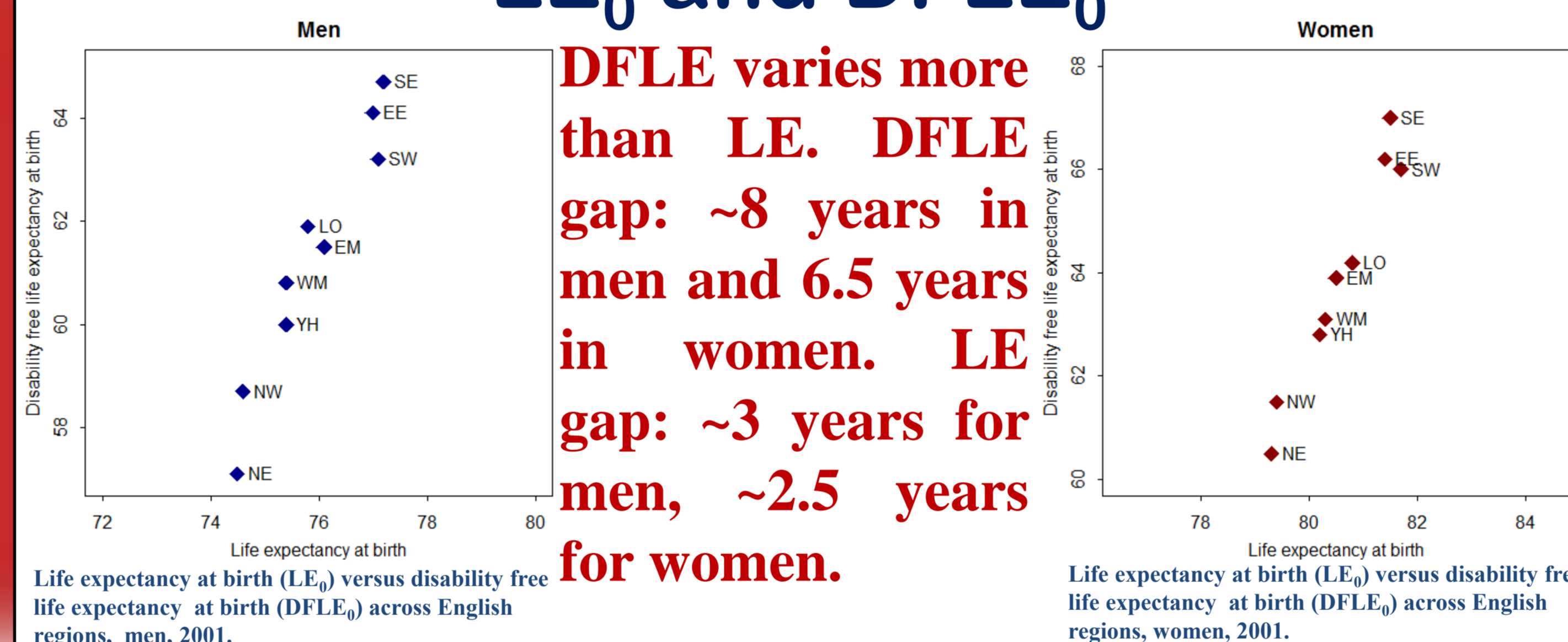
DFLE for GORs are calculated by the Sullivan method, separating total LE at each age into LE with and without disability. To measure the impact of socio-economic and lifestyle factors on the variation of DFLE across English regions uni-variate meta regressions were computed. Socio-economic variables –unemployment, social class and non-White population - are from the 2001 Census; health behaviour indicators were obtained from the GHS.

Geography of disability free life expectancy



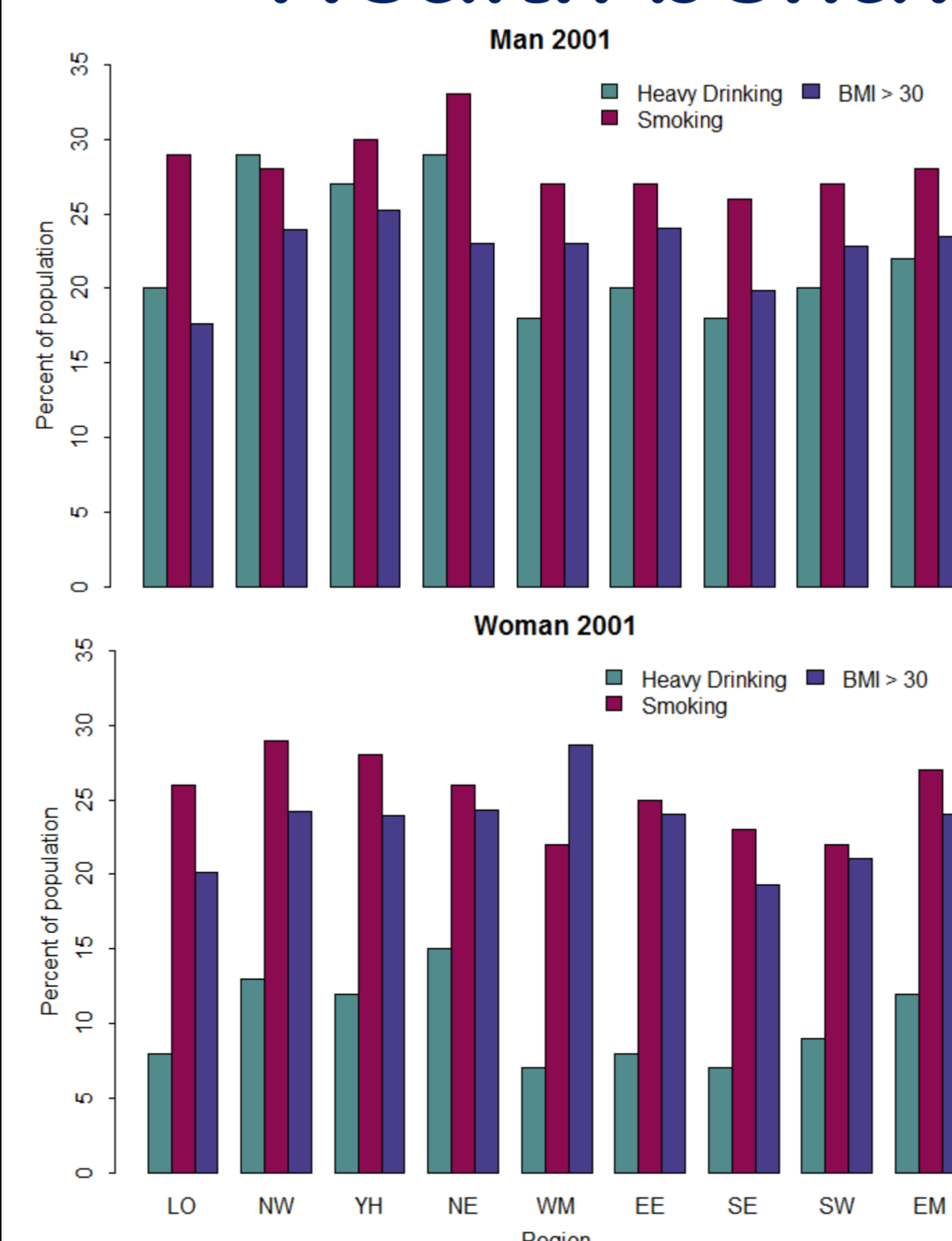
As for local areas, a regional North - South divide is also apparent in DFLE₀ for men as well as for women. Generally we find higher DFLE₀ in the South compared to the North

LE₀ and DFLE₀



DFLE varies more than LE. DFLE gap: ~8 years in men and 6.5 years in women. LE gap: ~3 years for men, ~2.5 years for women.

Health behaviour by region



Per cent of man and women that are heavy drinker (more than 8 units for men, more than 6 for women), smoke, and are obese (BMI>30) in each English region. (LO=London, NW=North West, YH=Yorkshire and the Humber, NE=North East, WM=West Midlands, EE=East of England, SE=South East, SW=South West, EM=East Midlands)

We look at three health behaviours to explain variations in DFLE₀ - drinking, smoking and obesity. These behaviours vary across regions as well as by gender. A higher percentage of people in the Northern regions are obese compared to the South. More women than men are obese, but more men drink over the recommended daily allowance.

Results

Socio-economic indicators (% unemployed, % low social class) in a region are significantly negative associated with DFLE₀, both for men and women. All health indicators, except for obesity and less heavy drinking for women, also have a significant negative relationship with DFLE₀ for both genders. % unemployment has the highest negative effect on DFLE₀ compared to all other indicators in men and women. Heavy drinking decreases DFLE₀ more in women than in men and the opposite is observed for smoking.

	Men			Women		
	Coefficient	SE	p-value	Coefficient	SE	p-value
Unemployed (%)	-1.65	0.496	0.013	-1.46	0.432	0.012
Low social class (%)	-1.01	0.172	0.001	-0.89	0.148	0.001
Non White (%)	0.03	0.111	0.766	0.02	0.099	0.870
Population density	0.01	0.054	0.803	0.01	0.048	0.895
Heavy drinking (%)	-0.47	0.111	0.004	-0.59	0.174	0.012
Drinking (%)	-0.35	0.090	0.006	-0.29	0.154	0.106
Smoking (%)	-0.95	0.263	0.009	-0.50	0.264	0.099
Obesity (%)	-0.37	0.377	0.356	-0.42	0.247	0.130

Results of meta-regression analyses assessing association between DFLE at birth and socio-economic and health behaviour indicators for 9 English regions

Main findings

- Socio-economic factors as well as health behavioural factors are significantly related to the variation in DFLE₀ across English regions.
- Socio-economic factors had a stronger impact on DFLE₀ than health behavioural factors.
- Socio-economic factors that have a negative relationship at a local authority level, show the same trend across regions.
- Drinking and smoking were identified as significant negative health behavioural factors.
- Obesity shows a negative relationship, but not significant.
- Even though less women drink heavily compared to men, heavy drinking reduces DFLE₀ more for women than for men.

Outlook

- Following this analysis we will test whether these relationships are observed at other ages.
- The next step of the InHALE project will study whether factors explaining geographical variation also explain health variation on an individual level.