

# Explaining regional health expectancy variations: **the relative contribution of socio-demographic, socio-economic and health behavioural factors**

Pia Wohland ([pia.wohland@ncl.ac.uk](mailto:pia.wohland@ncl.ac.uk))

Carol Jagger

*Newcastle University, UK*

Fiona Matthews

Vikki O'Neill

*MRC BSU, Cambridge, UK*

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Workshop: Health expectancy: an overarching population health outcome indicator  
for health policy

# Where you live or how you live?

## Healthy life expectancy along the Newcastle Metro Line for adults aged 55



Healthy life expectancy along the Newcastle Metro for adults aged 55  
Metro system map courtesy of Nexus

# Where you live or how you live?

## Britain's 'oldest smoker' dies after puffing on cigarettes for 95 years

A pensioner, Winnie Langley, who smoked for more than 95 years and only gave up because she could no longer see the end of a match, has died a month short of her 103rd birthday.



By **Andrew Hough**

6:30AM BST 13 Aug 2010

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The great-great grandmother, who loved a good party, took her first puff aged seven, just after the First World War started.



Throughout her life it is thought the defiant OAP, who outlived her husband, son and all of her 10 stepchildren, smoked more than 170,000 cigarettes.

Mrs Langley, who made headlines at her 100th birthday after being photographed lighting a cigarette with a candle, began smoking to calm her nerves during the war.

The pensioner, of New Addington, Croydon, south London, was recently persuaded to give up her

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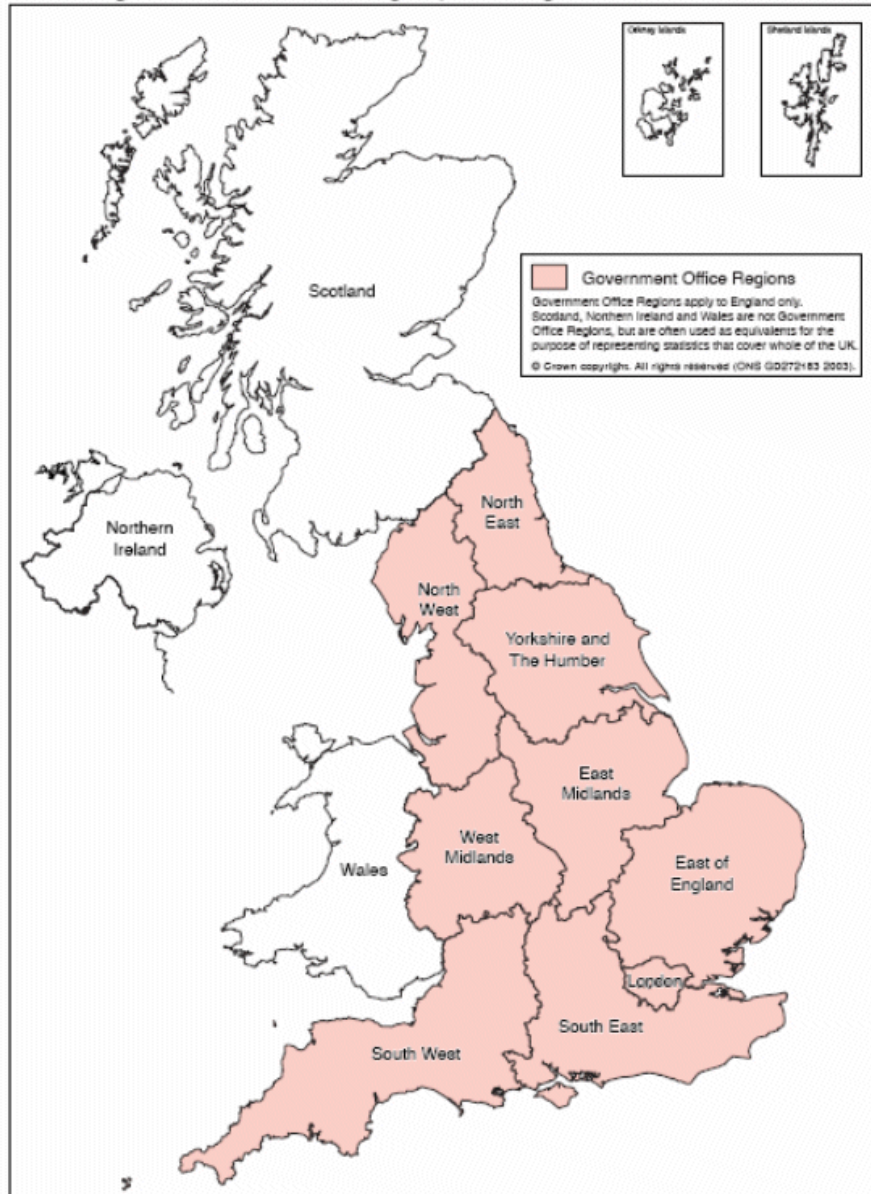
[Andrew Hough »](#)

### In Health News



# The English Regions

United Kingdom: Government Office Regions, as at 3 August 1998



**9 English regions**  
**=NUTS 1 regions**

North East

North West

Yorkshire and The  
Humber

East Midlands

West Midlands

East of England

London

South East

South West

# Data and Methods

## Disability Free Life Expectancy by region

### Sullivan method

- Vital statistics – mortality for life table calculation
- Self-reported limiting long term illness (LLTI) from Census 2001 – LLTI prevalence rates

### Variables to explain variation

**Socio-economic /  
Socio-demographic  
variables – Census 2001**

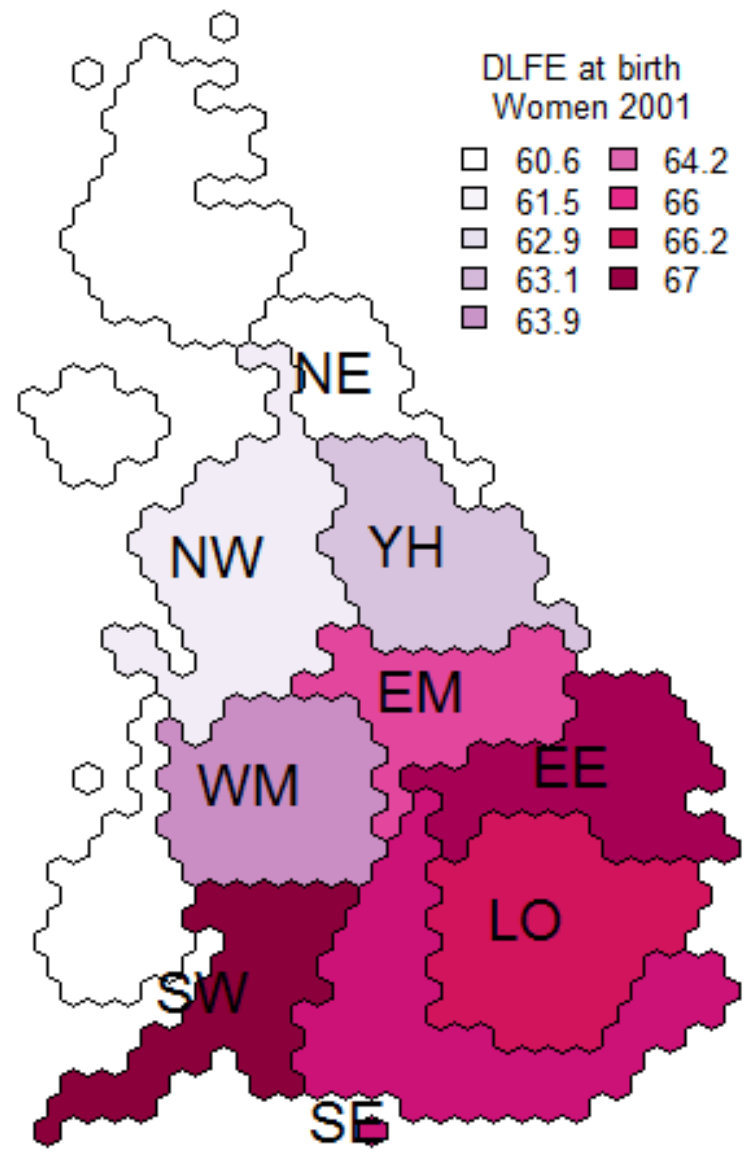
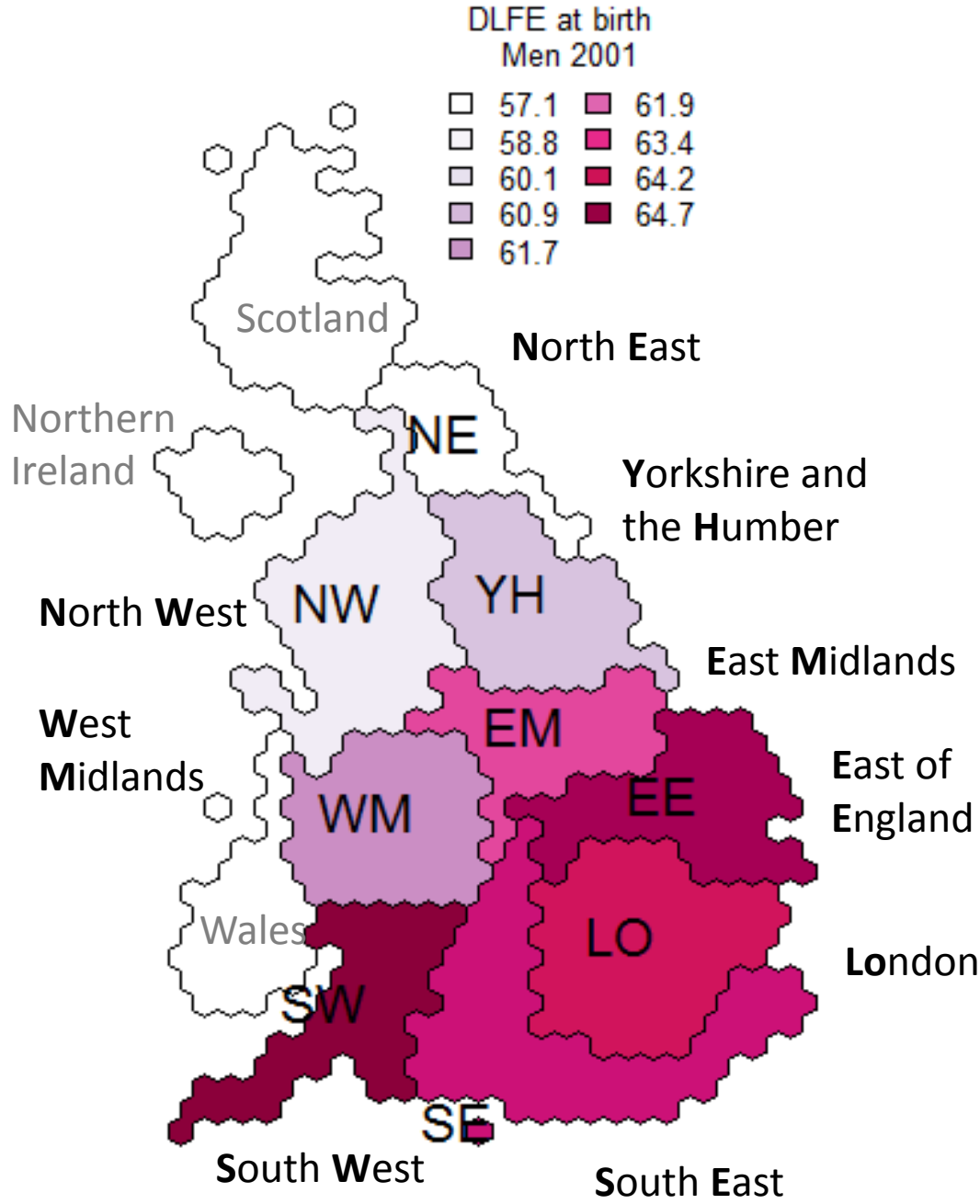
Unemployed (%)  
Low social class (%)  
Non White (%)  
Population density

### **Health behaviours**

**- General Household Survey  
2001**

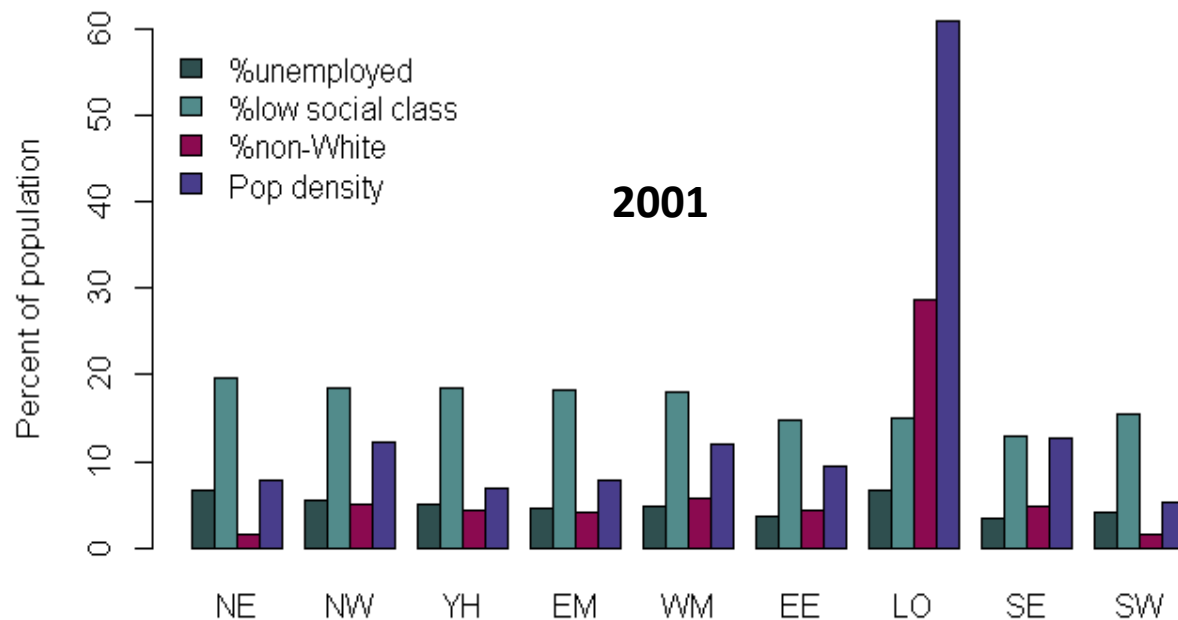
Binge drinking (%)  
Drinking > recommended (%)  
Smoking (%)  
Obesity (%)

# DLFE at birth- English regions, men and women 2001

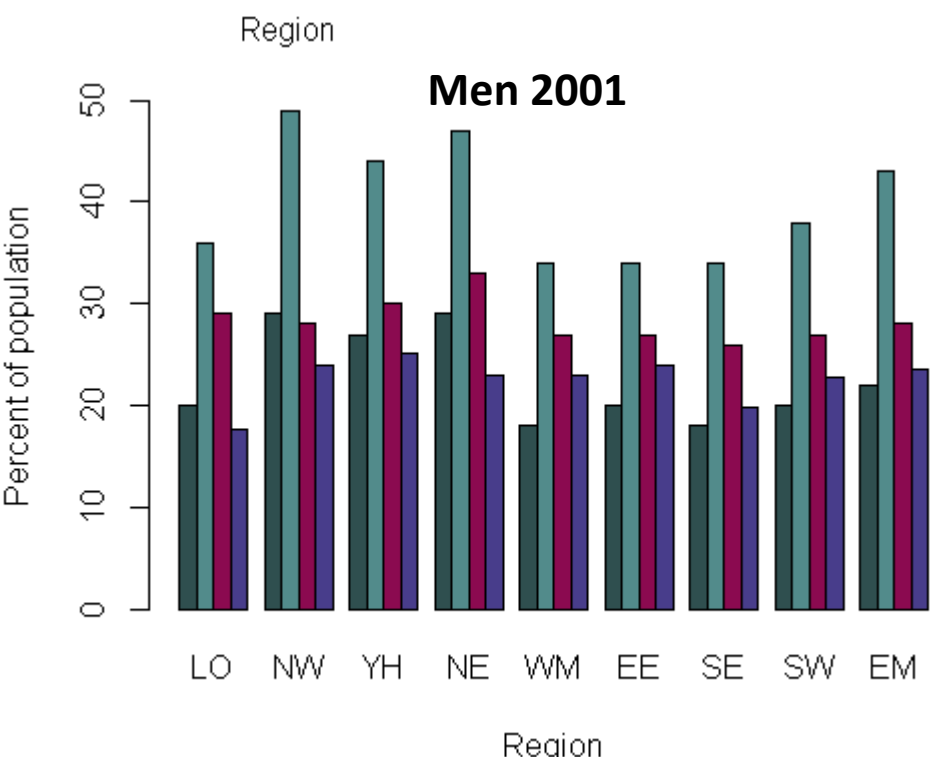
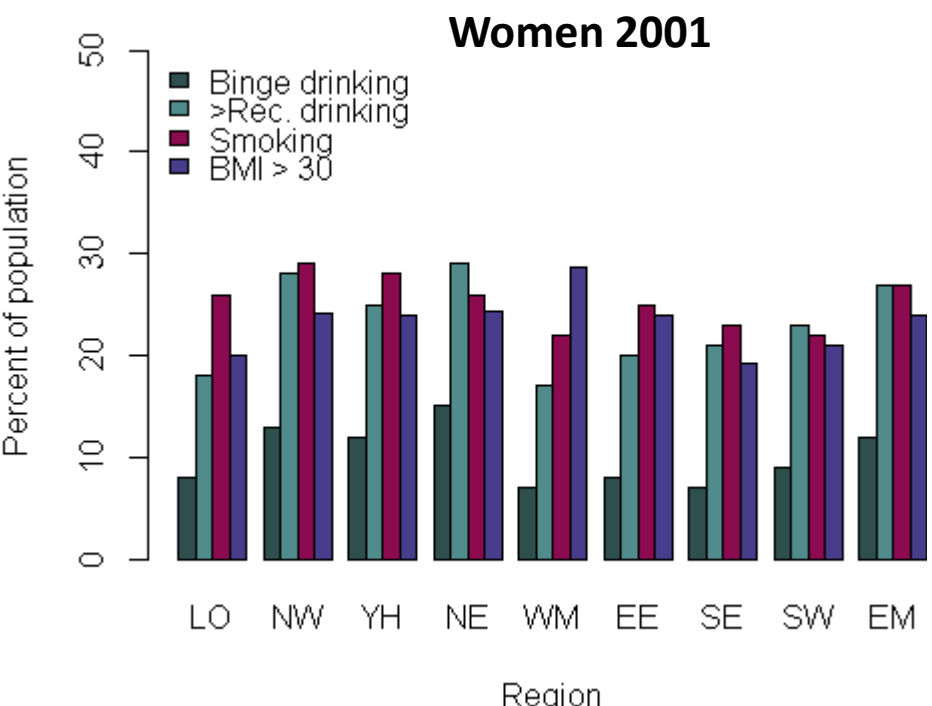


# Regional variation

## Socio-economic, socio-demographic factors



## Health behaviours



## LE and DFLE variation across English regions

- Larger variation in DFLE compared to LE (both genders)
- Larger variation in men compared to women
- No overlap in LE but overlap in DFLE between genders

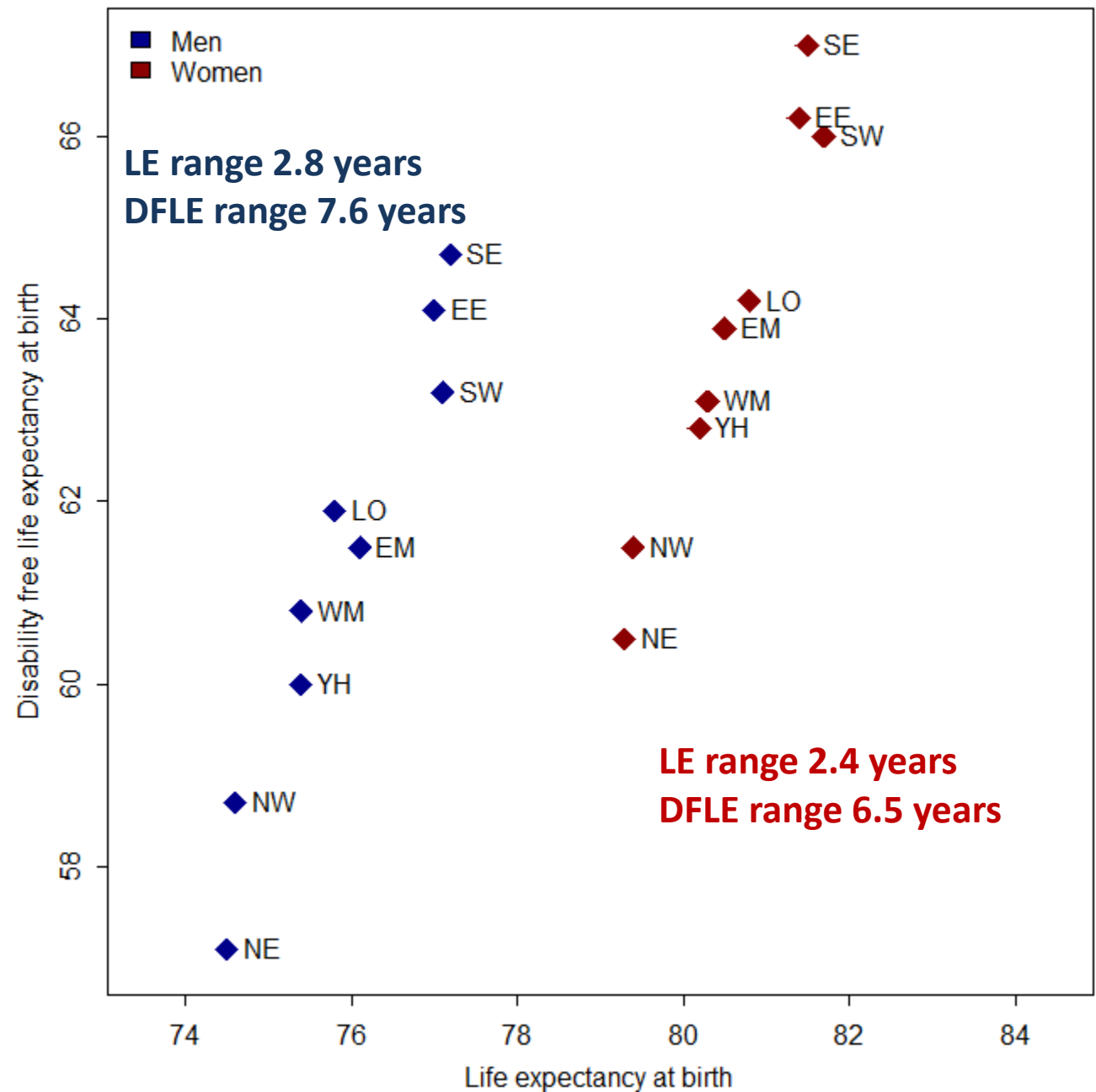


Figure Life expectancy and disability free life expectancy across English regions, men and women



# Meta-regression analysis

What explains variations in DFLE at birth across English regions?

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

# Findings and conclusion

Variation in  $DFLE_0$  exceed those in  $LE_0$

➔ Health expectancies might uncover more pronounced inequalities than LE as a health measure

Causes for variation in  $DFLE_0$


➔ include socio-economic factors as well as health behaviours  
Where we live and how we live

Socio-economic factors

- had a stronger impact on  $DFLE_0$  than health behaviours
- show same trends at a local authority level

## Findings and conclusion

For health behaviours:

- Obesity shows a negative relationship, but not significant on regional level.
- Drinking and smoking were significant negative health behaviours
- Even though fewer women binge drink compared to men, binge drinking impacts DFLE<sub>0</sub> variation more strongly for women than for men.  Policy?

## Caution

This study does not take into account interactions between socio economic circumstances and health behaviours.

## Outlook

Are similar relationships found on an individual level?

# Questions?

## Healthy longevity – Where you live or how you live?

**26<sup>th</sup> REVES meeting**

**When: 28-30 May 2014**

**Where: John McIntyre Conference Centre, Edinburgh,  
UK**

**Pre-conference workshop**

**"Methods and software for calculating Health  
Expectancy"**

**27 May 14.00-17.00**

**Call for oral & poster abstracts: open now**

**Deadline: 3rd February 2014**

**Notification of authors: 3rd March 2014**

**<http://tinyurl.com/REVES2014>**

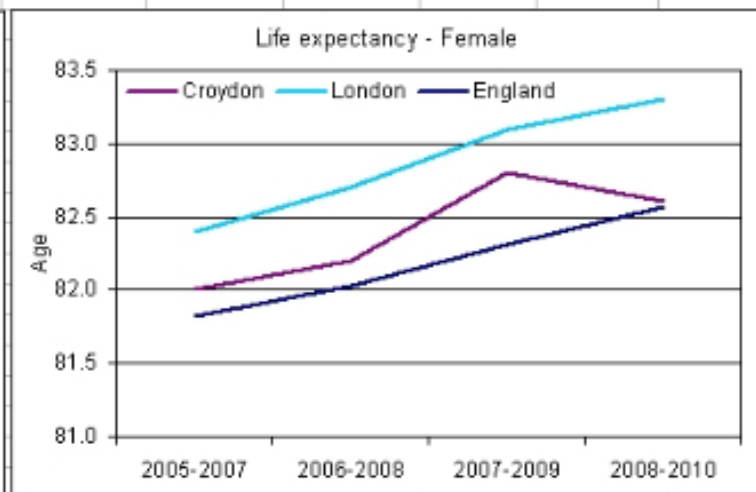
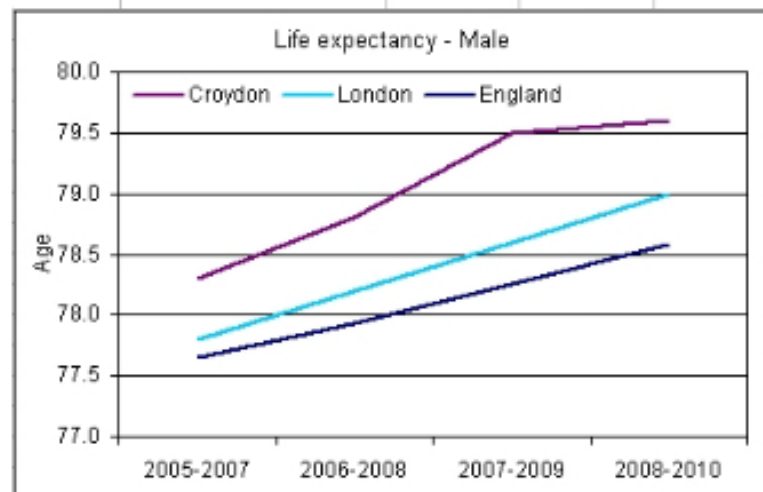
## Life expectancy

Over the earliest and the latest time periods covered, in Croydon the life expectancy at birth for males has increased by 1.3 years compared with a regional increase of 1.2 years.

Similarly the life expectancy at birth for females in Croydon has increased by 0.6 years compared to a regional increase of 0.9 years.

	2005-2007		2006-2008		2007-2009		2008-2010	
	Males	Females	Males	Females	Males	Females	Males	Females
<b>Croydon</b>	78.3	82.0	78.8	82.2	79.5	82.8	79.6	82.6
<b>London</b>	77.8	82.4	78.2	82.7	78.6	83.1	79.0	83.3
<b>England</b>	77.7	81.8	77.9	82.0	78.3	82.3	78.6	82.6

Source: Neighbourhood Statistics, Office for National Statistics





# Lives on the Line

Life Expectancy at Birth & Child Poverty as a Tube Map

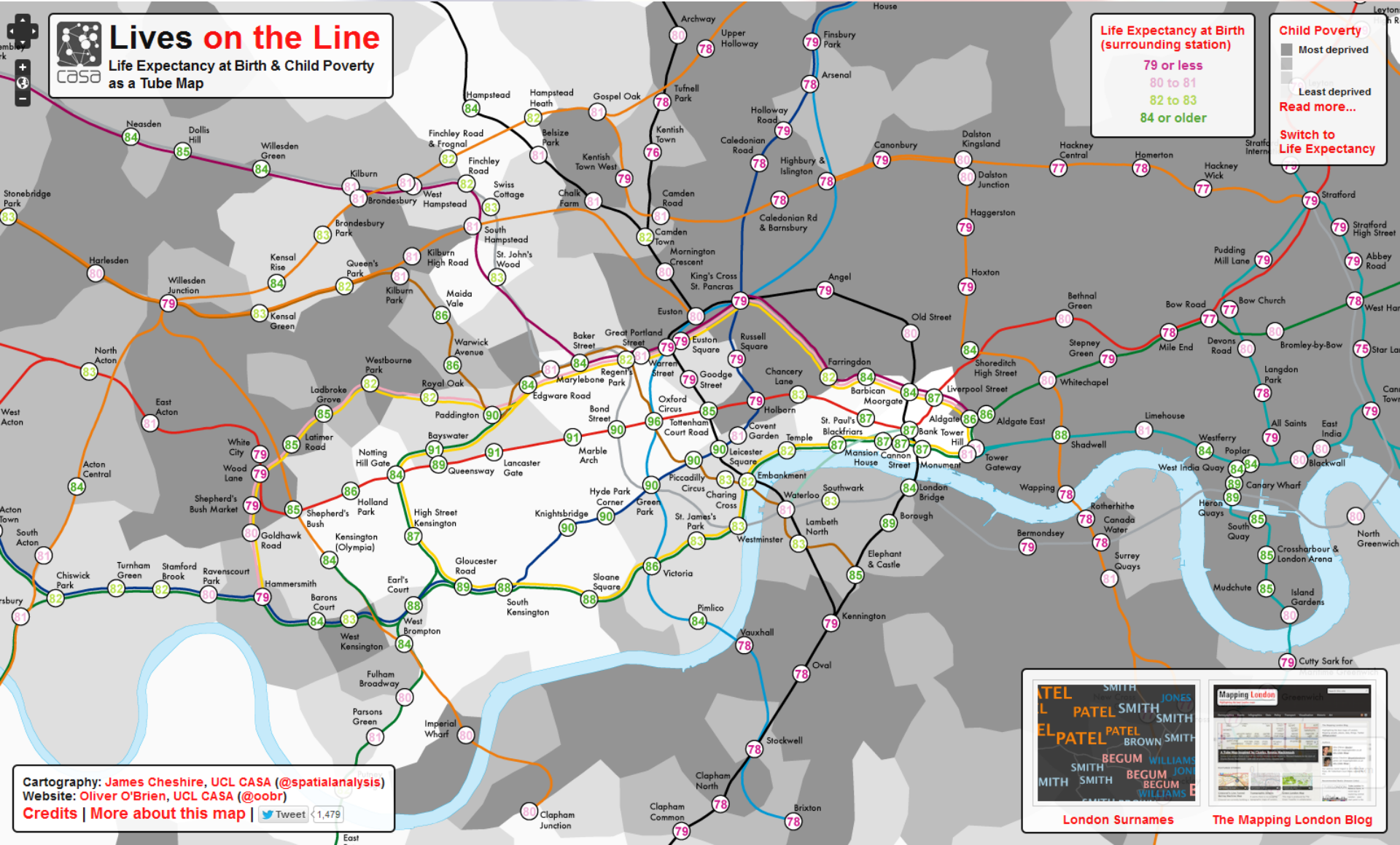
**Life Expectancy at Birth (surrounding station)**

- 79 or less
- 80 to 81
- 82 to 83
- 84 or older

**Child Poverty**

- Most deprived
- Least deprived

Read more...  
Switch to Life Expectancy



Cartography: James Cheshire, UCL CASA (@spatialanalysis)  
 Website: Oliver O'Brien, UCL CASA (@oobr)  
 Credits | More about this map | [Tweet](#) <1,479

**London Surnames**

**The Mapping London Blog**

Thu 14th  
16:00-17:30

Room 215

**Data for Policy**

JA:EHLEIS  
(European Health  
and Life Expectancy  
Information  
System)

**H2. Workshop:**  
**Health expectancy:**  
**an overarching**  
**population health**  
**outcome indicator**  
**for health policy**

*(Code: H2)*