

# **Inequalities in disability-free life expectancy by area deprivation; England, 2001-04 and 2005-08**

Mike Smith, Olugbenga Olatunde, Chris White, 2011

# Inequalities in disability-free life expectancy by area deprivation: England, 2001–04 and 2005–08

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## Abstract

### Background

The reduction of health inequalities is a long-standing public health priority. Accurate and timely measurement of the magnitude of health inequalities over time is complex, often relying on data available from a decennial census to conduct detailed analyses of social and geographical inequalities. While inequalities in mortality rates and life expectancy are well-established, the scale of inequality in health expectancies has been reported to be even greater. This study examines changes in inequality in disability-free life expectancy (DFLE) over time between Lower Super Output Areas (LSOAs) in England, grouped into quintiles of an area-based measure of relative deprivation.

### Methods

Life expectancy (LE) and DFLE for males and females at birth and at age 65 were estimated using a combination of survey, mortality and population data; survey data provided an estimate of the prevalence of limiting long-standing illness or disability (LLSI) used in the DFLE metric. An estimate of the inequality in DFLE between area-based quintiles of relative deprivation (using the Index of Multiple Deprivation 2007) in the periods 2001–04 and 2005–08 enabled the measurement of change in equality over time between advantaged and disadvantaged areas.

### Results

- Background
- Methods
- Results
- Conclusions

# Background

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- Substantial health inequalities across England
- 3 million person years gained if the health of the population matched the health of those living in the least deprived areas – Marmot 2010
- Clear need to monitor population health to assess the impact of interventions
- Analyses previously restricted to census years or large aggregations of survey data

# Data

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- General Household Survey Data
- 73,253 people in 2001-04
- 77,030 people in 2005-08
- Combined with mortality and population data
- Data mapped to Lower Super Output Area (34,482 areas - each of 1500 residents) and assigned to ranked quintile of deprivation according the English Index of Multiple Deprivation, 2007
- DFLE calculated according to the Sullivan Method

# Limiting long-standing illness or disability?

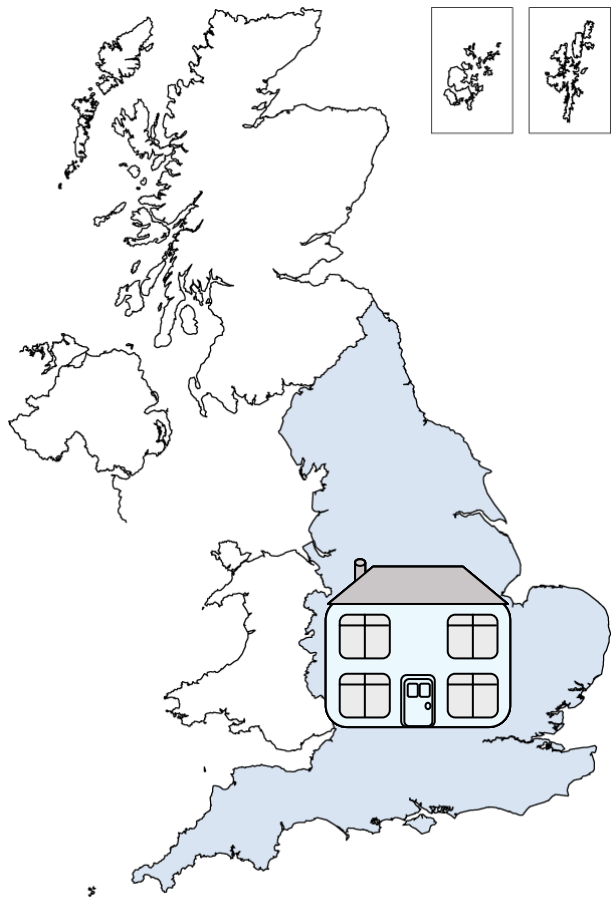
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- **‘Do you have any long-standing illness, disability or infirmity – by long-standing I mean anything that has troubled you over a period of time or that is likely to affect you over a period of time?’**
  - (1) *Yes*
  - (2) *No*

**If ‘Yes’ the respondent is then asked**

- **‘Does this illness or disability (Do any of these illnesses or disabilities) limit your activities in any way?’**
  - (1) *Yes*
  - (2) *No*

**People responding ‘Yes’ to both questions were identified as having a limiting long-standing illness or disability**



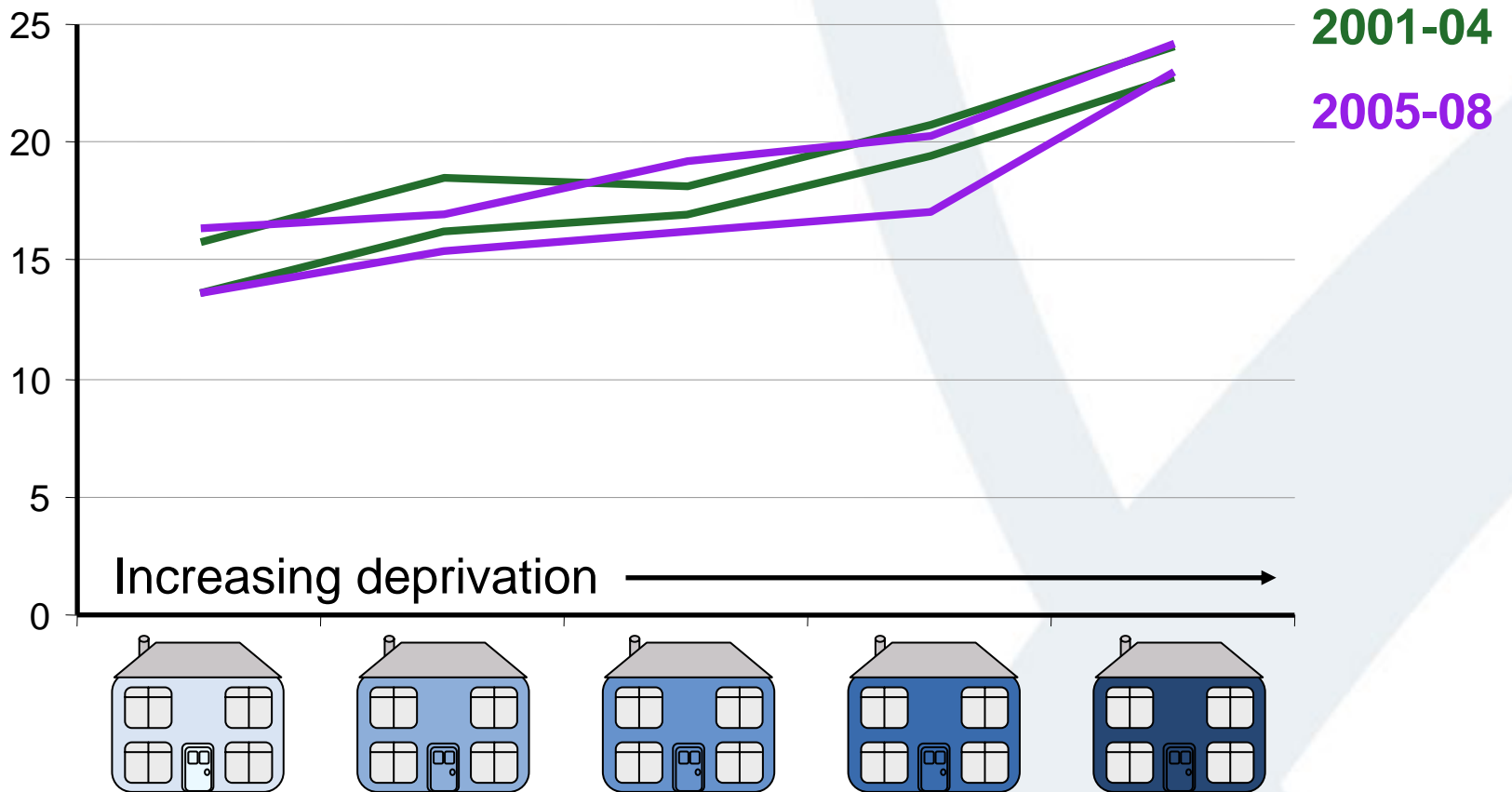
Least deprived households

Contains Ordnance Survey data  
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Most deprived households

# Prevalence of LLSI

Per cent LLSI ~~Males~~ ~~Females~~



# Summary – Prevalence of LLSI

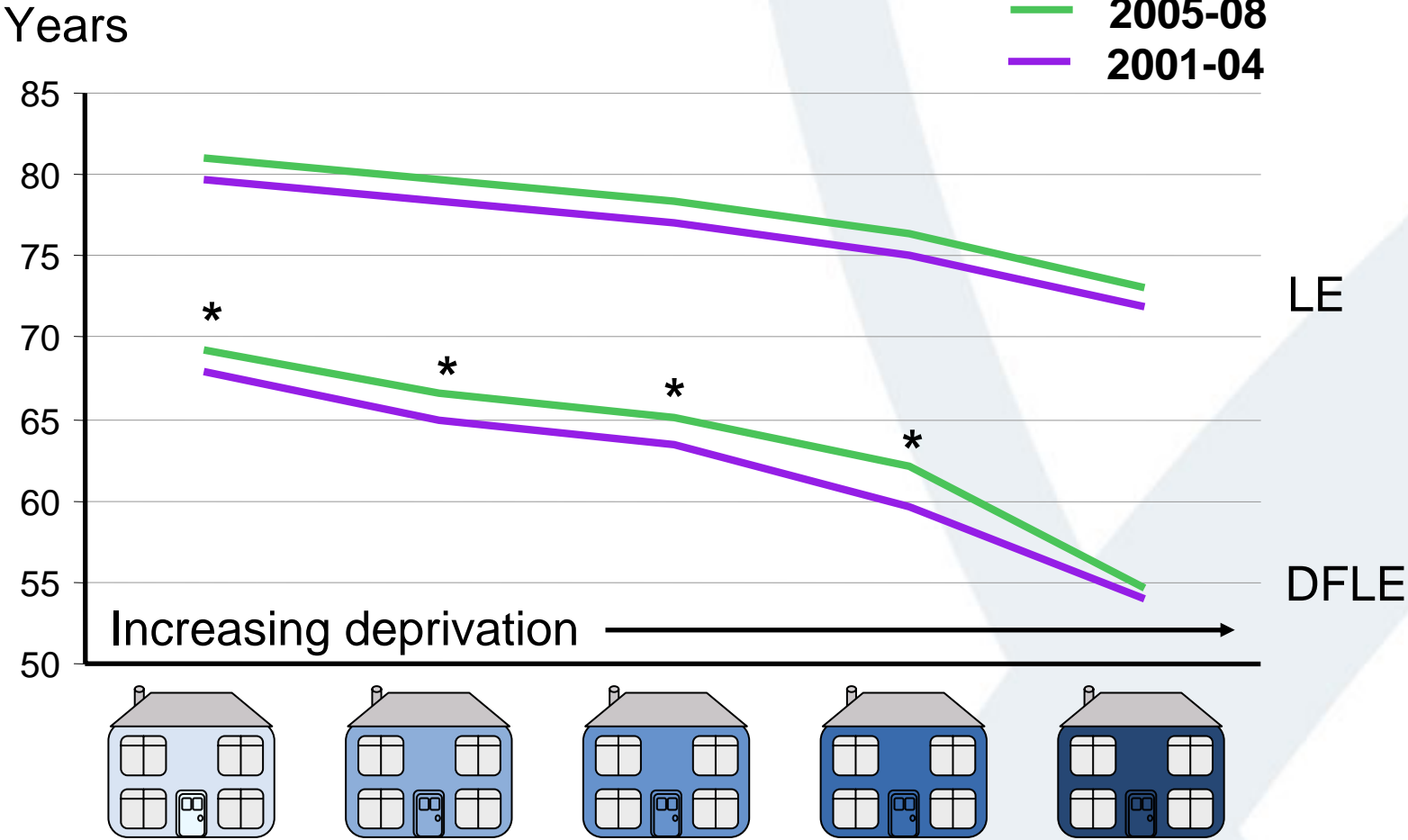
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- Males and females in the most deprived areas were 1.7 and 1.5 times more likely to report LLSI than in the least deprived areas
- Over time LLSI was constant for males and females in least and most deprived areas. Improvements in intervening quintiles for males but mixed for females
- Inequality between males and females doubled over time in quintiles 3 and 4





# Males at birth: Life expectancy (LE) and Disability-free life expectancy (DFLE)

\* Significant difference in DFLE between 2001-04 and 2005-08



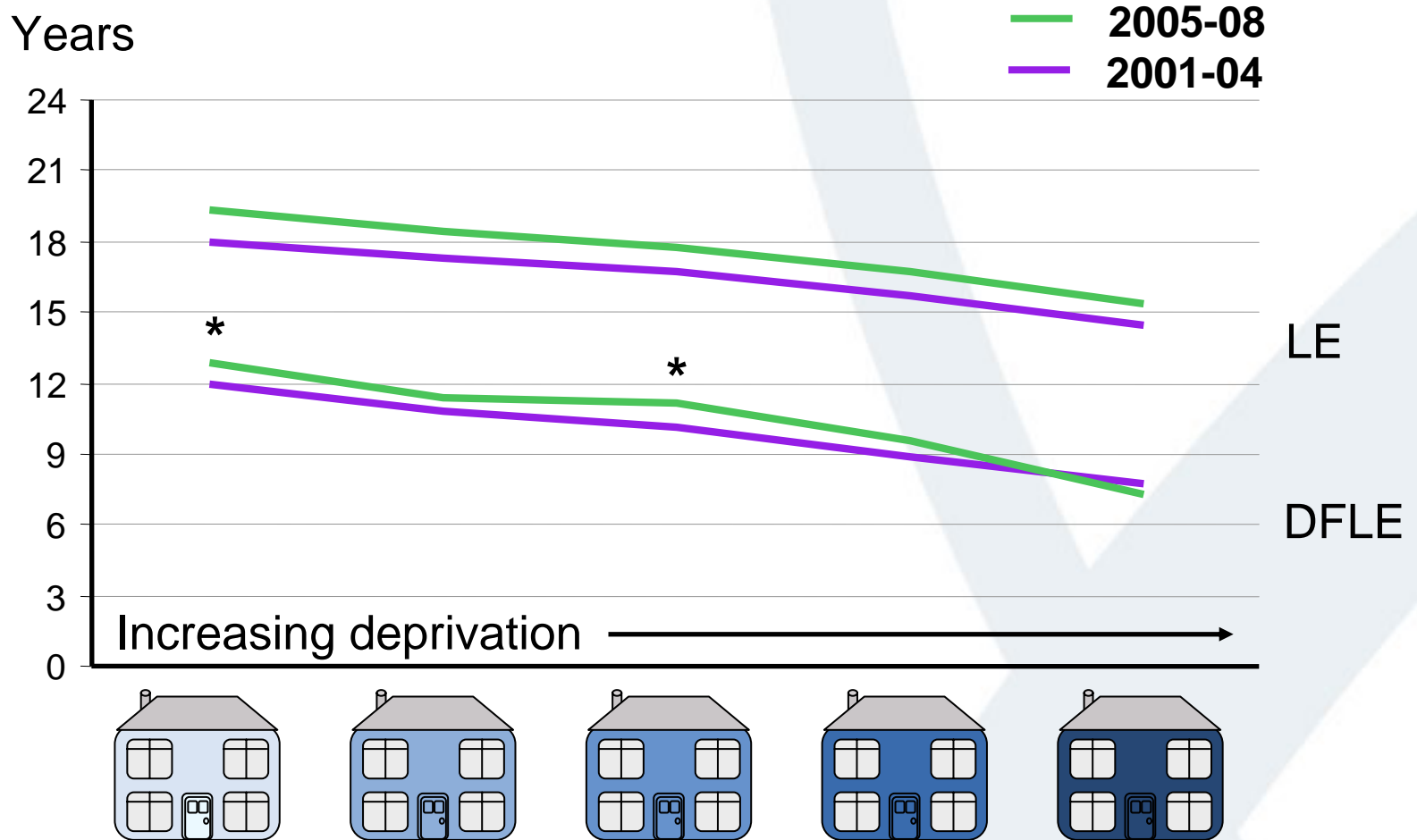
# Summary table

	2001-04
	2005-08

LE	Males at birth	Males at 65	Females at birth	Females at 65
Range	7.8	8.0 ↑		
Ratio	1.11	1.11		
SII	9.4	9.7 ↑		
RII	1.12	1.12		
DFLE				
Range	13.8	14.6 ↑		
Ratio	1.26	1.27 ↑		
SII	16.5	16.2 ↓		
RII	1.24	1.23 ↓		

# Males at 65 : LE and DFLE

\* Significant difference in DFLE between 2001-04 and 2005-08



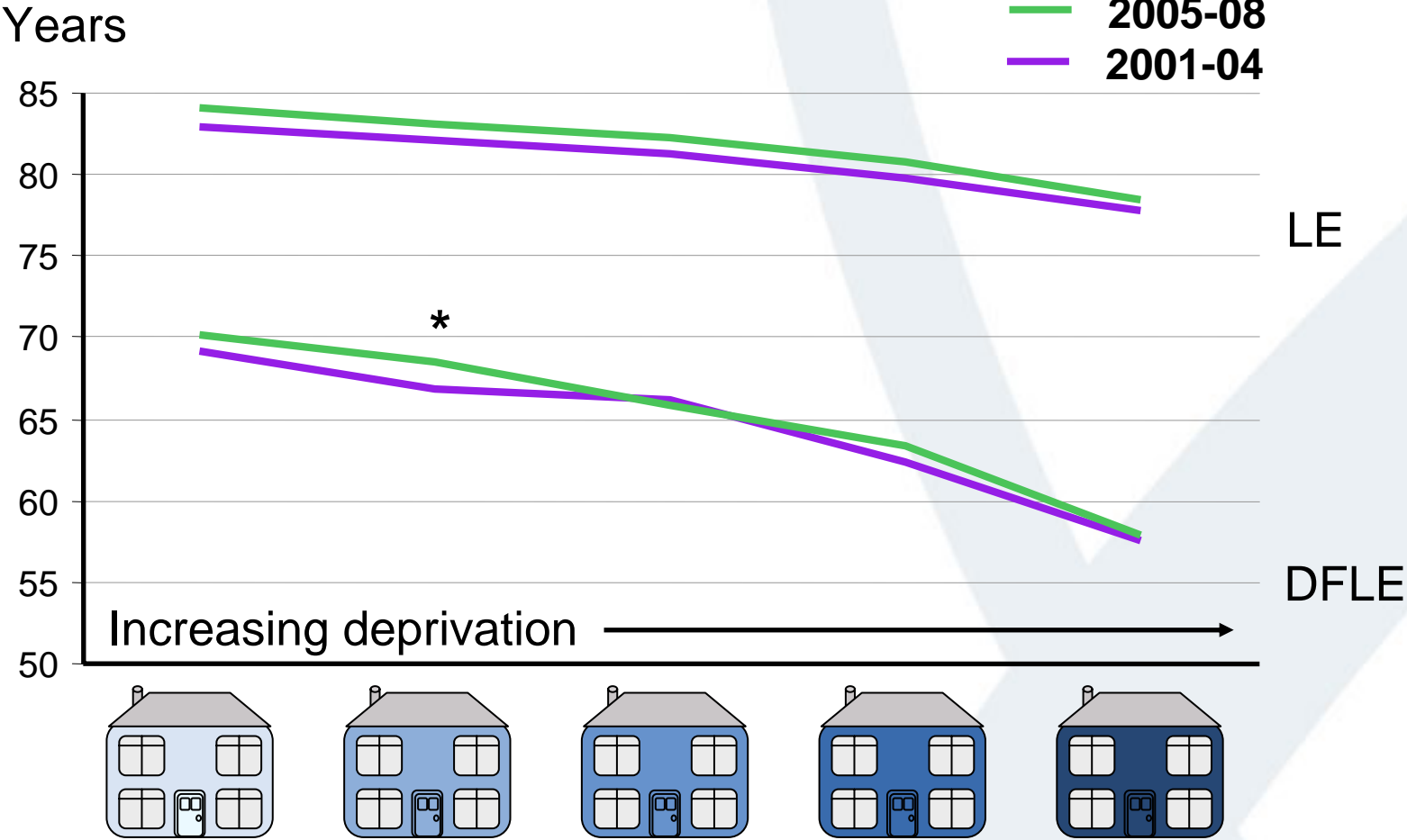
# Summary table

<span style="display: inline-block; width: 15px; height: 15px; background-color: #00FFFF; border: 1px solid black;"></span> 2001-04
<span style="display: inline-block; width: 15px; height: 15px; background-color: white; border: 1px solid black;"></span> 2005-08

LE	Males at birth		Males at 65		Females at birth	Females at 65
Range	7.8	8.0 ↑	3.5	4.0 ↑		
Ratio	1.11	1.11	1.24	1.26 ↑		
SII	9.4	9.7 ↑	4.2	4.6 ↑		
RII	1.12	1.12	1.23	1.24 ↑		
DFLE						
Range	13.8	14.6 ↑	4.2	5.6 ↑		
Ratio	1.26	1.27 ↑	1.55	1.76 ↑		
SII	16.5	16.2 ↓	5.0	6.0 ↑		
RII	1.24	1.23 ↓	1.41	1.46 ↑		

# Females at birth : LE and DFLE

\* Significant difference in DFLE between 2001-04 and 2005-08

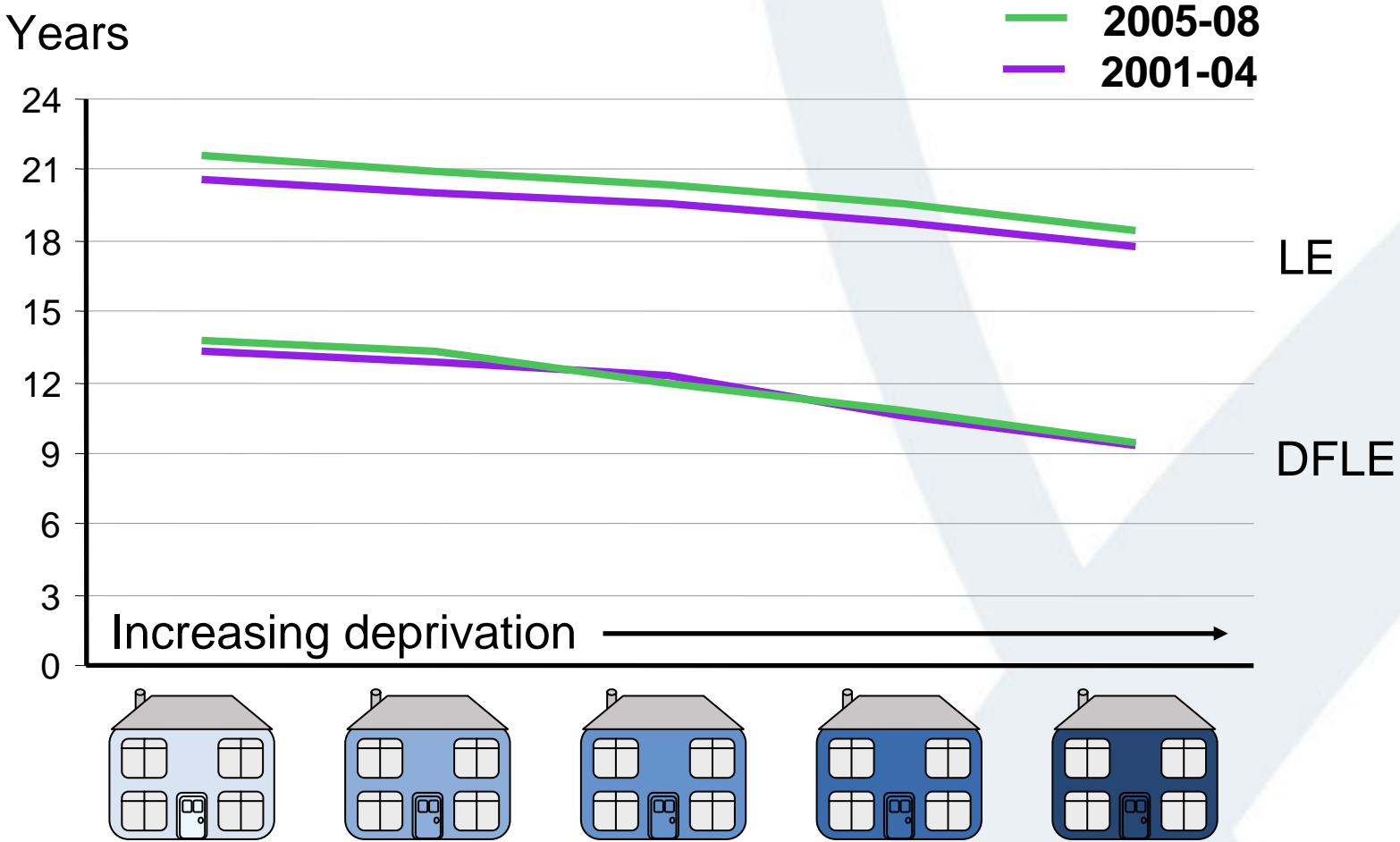


# Summary table



	2001-04
	2005-08

LE	Males at birth		Males at 65		Females at birth		Females at 65
Range	7.8	8.0 ↑	3.5	4.0 ↑	5.2	5.6 ↑	
Ratio	1.11	1.11	1.24	1.26 ↑	1.07	1.07	
SII	9.4	9.7 ↑	4.2	4.6 ↑	6.3	6.7 ↑	
RII	1.12	1.12	1.23	1.24 ↑	1.08	1.08	
DFLE							
Range	13.8	14.6 ↑	4.2	5.6 ↑	11.6	12.4 ↑	
Ratio	1.26	1.27 ↑	1.55	1.76 ↑	1.20	1.21 ↑	
SII	16.5	16.2 ↓	5.0	6.0 ↑	13.7	14.6 ↑	
RII	1.24	1.23 ↓	1.41	1.46 ↑	1.20	1.20	

# Females at 65 : LE and DFLE



# Summary table

	2001-04
	2005-08

LE	Males at birth		Males at 65		Females at birth		Females at 65	
	2001-04	2005-08	2001-04	2005-08	2001-04	2005-08	2001-04	2005-08
Range	7.8	8.0 ↑	3.5	4.0 ↑	5.2	5.6 ↑	2.8	3.3 ↑
Ratio	1.11	1.11	1.24	1.26 ↑	1.07	1.07	1.16	1.18 ↑
SII	9.4	9.7 ↑	4.2	4.6 ↑	6.3	6.7 ↑	3.3	3.7 ↑
RII	1.12	1.12	1.23	1.24 ↑	1.08	1.08	1.16	1.17 ↑
DFLE								
Range	13.8	14.6 ↑	4.2	5.6 ↑	11.6	12.4 ↑	4.0	4.4 ↑
Ratio	1.26	1.27 ↑	1.55	1.76 ↑	1.20	1.21 ↑	1.43	1.47 ↑
SII	16.5	16.2 ↓	5.0	6.0 ↑	13.7	14.6 ↑	4.9	5.5 ↑
RII	1.24	1.23 ↓	1.41	1.46 ↑	1.20	1.20	1.36	1.38 ↑



# Conclusions

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- Substantial inequalities in LE and DFLE across areas for males and females at birth and at age 65
- Inequalities in DFLE much greater than in LE
- Inequality in LE has increased over time
- Inequalities in DFLE increased significantly for males at age 65. Non-significant increases for females at birth and at age 65
- Absolute inequality in DFLE fell slightly for males at birth

# Thanks...

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- Any Questions?



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