

Statistical bulletin

Inequality in Disability-Free Life Expectancy by Area Deprivation: England: 2003–06 and 2007–10

Data on the geographical distribution of disability, which the government and private sector can use to make decisions.



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1. Key findings

- From birth, the number of years lived without a limiting longstanding illness or disability (LLSI) decreased between 2003-06 and 2007-10 for males and females; the greatest decrease occurred in the most deprived areas
- Inequality in life expectancy (LE) and disability-free life expectancy (DFLE) between the least and most deprived areas in England grew between 2003-06 and 2007-10 for males and females at birth and at age 65
- At birth, males in the least deprived areas in 2007-10 could expect to live about 15 more years disability free than males in the most deprived areas, for females it is almost 13.5 years
- A greater increase in absolute inequality was seen for females than for males at birth and at age 65 between 2003-06 and 2007-10
- Due to increasing LE and decreasing DFLE between 2003-06 and 2007-10, men and women at age 65 in the most deprived areas could expect to live less than half of their remaining years disability free in 2007-10, down from more than half in 2003-06

2. Summary

Health expectancies add a quality of life dimension to estimates of longevity by dividing expected lifespan into time spent in given states of health. The Office for National Statistics (ONS) routinely publishes two types of health expectancies; Healthy Life Expectancy (HLE), which estimates lifetime spent in 'Very good' or 'Good' health based upon self-perceived general health and Disability-Free Life Expectancy (DFLE), which estimates lifetime free from a limiting persistent illness or disability based upon a self-rated functional assessment of health.

Although designed to reflect different facets of health, estimated durations of HLE and DFLE have been similar at the national scale since 2005-07, when the survey question designed to capture rates of general health changed to improve comparability across EU-member states.

Health expectancies are used by government and the private sector to inform policy, planning and research in areas such as health improvement monitoring, healthcare planning, population change and pensions.

This bulletin presents estimates of DFLE and LE for quintiles of Lower Super Output Areas (LSOAs) defined by the [Index of Multiple Deprivation \(IMD\)](#) 2010, for the periods 2003-06 and 2007-10. The inequality between the quintiles of deprivation is discussed for both genders at birth and at age 65.

3. Background

What are health expectancies?

As life expectancy continues to increase in the UK, it is important to ask what proportion of these additional years of life are being spent in favourable states of health or in poor health and dependency. Health expectancies help us to address this question by adding a dimension of quality of life to estimates of life expectancy. They are summary measures of population health, which estimate the average number of years a person would live in a given health state if he/she experienced the specified population's particular age-specific mortality and health status for that time period throughout the rest of his/her life.

The figures represent a snapshot of the mortality and health status of the entire specified population in each time period. They are not, therefore, the number of years that a member of the specified population will actually live in a given health state, because both mortality and health rates are susceptible to change and the specified population itself changes through migration.

ONS routinely publishes two types of health expectancy estimates; HLE defined, from 2005-07, as the number of years an individual can expect to spend in 'Very good' or 'Good' general health, and DFLE, defined as the number of years an individual can expect to spend free from a limiting persistent illness or disability.

Quality information about ONS health expectancies is available on the [ONS website \(165.5 Kb Pdf\)](#) .

DFLE estimates are, in part, subjective and based upon the following survey question to determine whether the survey respondent has a limiting persistent illness or disability or not:

- '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?' (Yes/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?' (Yes/No) Only if a respondent answered 'Yes' to both of these questions were they classified as having a limiting persistent illness or disability.

The subjective nature of these questions means that responses are influenced by the way individuals perceive their health. Measures of self rated health, including general health and the more functional assessment of limiting persistent illness, are influenced by an individual's expectations with clear differences observed across socio-demographic factors such as age, sex, socio-economic position and area deprivation.

Self-reported general health and limiting persistent illness are linked ([ONS, 2012](#), Manor et al., 2001) and have predictive value in health care need/usage and subsequent mortality. Research evidence indicates people with poor self-rated health (both general health and limiting illness) die sooner than those who report their health more favourably (Mossey and Shapiro, 1982; Idler and Benyamini, 1997; Miilunpalo et al., 1997; DeSalvo et al., 2006; Bopp et al., 2012; Ng et al., 2012).

In terms of morbidity the evidence is more limited however, studies have shown that self-rated health, measured in terms of general health or limiting illness, has some predictive value in subsequent health and social care service use in the form of increased physician visits (Miilunpalo et al., 1997), hospital admission and nursing home placement (Weinberger et al., 1986). Studies have also shown that poor self-rated health correlates well with retirement due to disability/poor health (Pietilainen et al., 2011; Dwyer and Mitchell, 1999) and poor health outcomes (Lee, 2000).

Survey measurements of general health and limiting persistent illness are used globally to identify health inequality between administrative areas, inform health and social care service needs, indicate unmet care needs, and target and monitor health care resource allocation amongst population groups ([Marmot, 2010](#)). International organisations and networks such as the [World Health Organisation](#), [Eurostat](#) and the [Reves network on health expectancy](#) use this information to compare morbidity across countries and to monitor trends over time.

How do we assess area deprivation?

The analysis in this article assesses the inequality in DFLE by area deprivation by grouping Lower Super Output Areas (LSOAs) into five deprivation categories (quintiles) based on their [Index of Multiple Deprivation](#) (IMD) score. IMD is a measure of area deprivation, produced by the Department of Communities and Local Government, measuring aspects of deprivation experienced, such as in income, education, employment, health and crime amongst others. In this analysis, the LSOAs grouped into quintile 1 represent the least deprived areas across England while those in quintile 5 are the most deprived.

Small area deprivation indices, such as IMD, have frequently been used to measure health inequality. Several studies have reported a linear relationship between health and relative deprivation, however defined (Bajekal 2005; Rasulo et al., 2007; Olatunde et al., 2010; Smith et al., 2010a, 2010b). Due to the body of evidence, it is widely accepted that analyses of health inequality using area deprivation are as important as analyses based on socioeconomic position (Macintyre et al., 1993; Bajekal, 2005; White et al., 2005).

What are the measures of inequality?

When comparing the least and most deprived areas two measures are routinely used, the range between the least and most deprived area quintiles and the Slope Index of Inequality (SII). The use of the range between the least and most deprived area quintiles can mask the scale of inequality as it ignores the inequality present between the intervening quintiles. The SII better represents the magnitude of the absolute inequality in DFLE between the least and most deprived population groupings, as it reflects the experiences of the whole population. It is therefore, more sensitive to changes in the socioeconomic profile of all areas (Low and Low, 2004).

4. Key comparisons: inequalities at birth

2003-06

The inequality in DFLE between the least and most deprived areas exceeded that of LE. This means that there are larger differences in health states experienced between the most and least deprived areas than there are in mortality.

In the least deprived areas, males born between 2003-06 could expect to live for over 80.4 years, some 7.9 years or 9.8% longer than their counterparts in the most deprived areas. For females, LE in the least derived areas was 83.6 years, some 5.4 years or 6.5% longer than those who live in the most deprived areas.

The gap in LE between males and females is substantial, across all levels of deprivation. This gap, however, was narrowest in the least deprived areas (3.2 years) and widest in the most deprived (5.7 years). Males living in the least deprived areas have higher life expectancy than females living in the most deprived areas.

For DFLE, the contrast between the least and most deprived areas is greater for both genders compared to LE. DFLE for males in the least deprived areas was 70.2 years in 2003-06, representing an additional 13.4 years (almost 20%) of life free from LLSI compared to males in the most deprived areas. For females, DFLE was 71.1 years in the least deprived areas; 11.0 more disability-free life years (around 15%) than in the most deprived areas. Males and females living in the most deprived areas are not therefore, on average, reaching their respective state pension ages disability-free; for males there is more than an eight year short-fall.

The gender gap in DFLE was narrower than for LE; just 0.9 years in the least deprived areas, but 3.3 years in the most deprived areas.

The absolute inequality in LE and DFLE, as measured by the Slope Index of Inequality (SII), exceeded the observed absolute difference between the least and most deprived quintiles, as measured by the range. For males, the SII at birth in 2003-06 was 9.6 years for LE and 15.6 years for DFLE. For females the figures were 6.6 years and 13.3 years, respectively.

2007-10

In general, LE increased and DFLE decreased for males and females at birth in 2007-10 from 2003-06. For LE, increases were relatively consistent across areas and there was, therefore, little change in inequality between the least and most deprived areas; 0.3 years wider for males and 0.4 years for females. DFLE decreased unevenly across areas: a slight rise for males occurred in quintile 2, and the greatest fall of 2.8 years occurred for females in the most deprived quintile. These changes resulted in more substantial increases in inequality in DFLE between the least and most deprived areas; an increase of 1.3 years for males and 2.4 years for females in the range.

The [inequality between males and females narrowed slightly for LE between 2003-06 and 2007-10](#) across all levels of deprivation, consistent with the national trend. For DFLE however, this narrowing was more pronounced. Previously, in 2003-06, DFLE was significantly lower for males than for females in all but quintiles 4 and 1; however, in 2007-10 there were no quintiles where DFLE was significantly lower for males than females.

Interestingly, taking into account change across all levels of deprivation, the SII of LE indicates an equivalent increase of 0.3 years for males and increase of 0.4 years for females between 2003-06 and 2007-10. For DFLE the SII increased by 1.3 years for males and 2.2 years for females. The inequality in DFLE, taking into account all levels of deprivation, was greater for males at 16.9 years in 2007-10 compared with 15.5 years for females.

Figure 1: LE and DFLE for males at birth by area deprivation quintile, 2003-06 and 2007-10

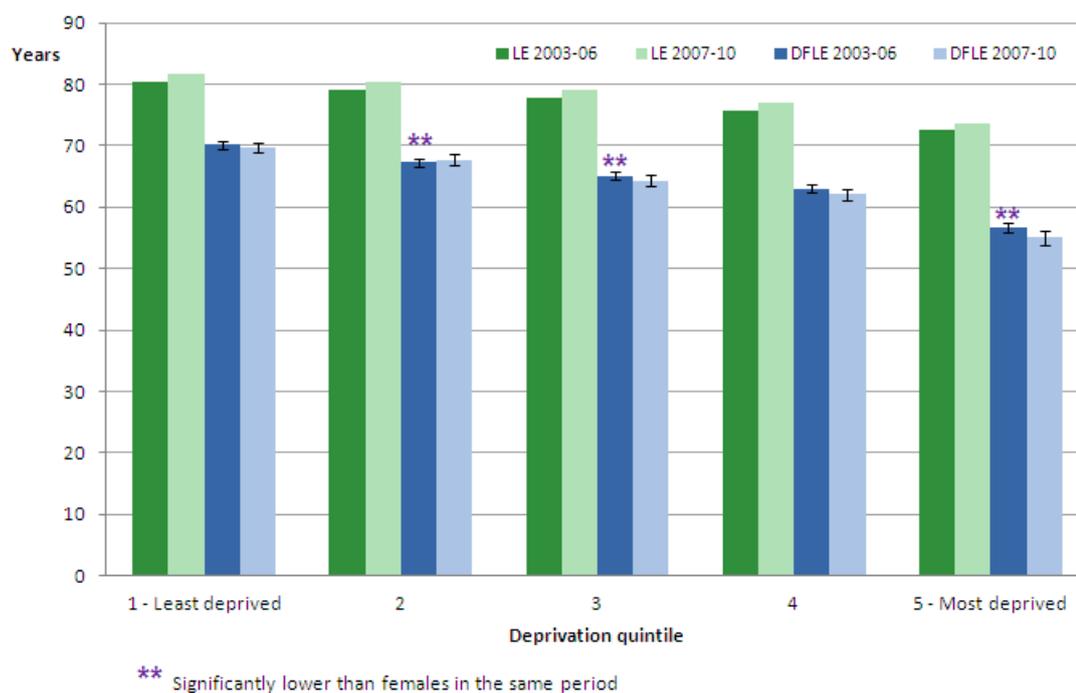


Table 1: Inequality in Life expectancy (LE) and Disability-free life expectancy (DFLE) for males at birth by area deprivation quintile, 2003-06 and 2007-10

	England									
	Years, Percentages									
	2003-06					2007-10				
	LE	DFLE	DFLE lower 95% CI	DFLE upper 95% CI	Proportion of life disability free (%)	LE	DFLE	DFLE lower 95% CI	DFLE upper 95% CI	Proportion of life disability free (%)
1-Least deprived	80.4	70.2	69.6	70.9	87.3	81.8	69.8	69.0	70.7	85.3
2	79.0	67.3	66.6	68.0	85.2	80.4	67.7	66.8	68.6	84.2
3	77.7	65.1	64.4	65.8	83.8	79.1	64.3	63.3	65.2	81.3
4	75.7	63.0	62.4	63.7	83.2	76.9	62.1	61.2	63.1	80.8
5 -Most deprived	72.5	56.8	56.0	57.6	78.3	73.6	55.1	53.9	56.2	74.9
Range	7.9	13.4	..	..	..	8.2	14.7	..	..	..
Ratio	1.11	1.24	..	..	..	1.11	1.27	..	..	..
SII	9.6	15.6	..	..	..	9.9	16.9	..	..	..
RII*	1.12	1.22	..	..	..	1.12	1.24	..	..	..

Source: ONS

Notes:

1. For the period 2003-06 in the table above, this shows a 22% excess in disability free life years experienced by those living in the least deprived areas compared to the most deprived areas. When examining the difference in the health gap between discrete time periods, the RII is not sensitive to underlying changes in the prevalence of LLSI and mortality rates and therefore represents a more reliable measure of the health gap

Figure 2: LE and DFLE for females at birth by area deprivation quintile, 2003-06 and 2007-10

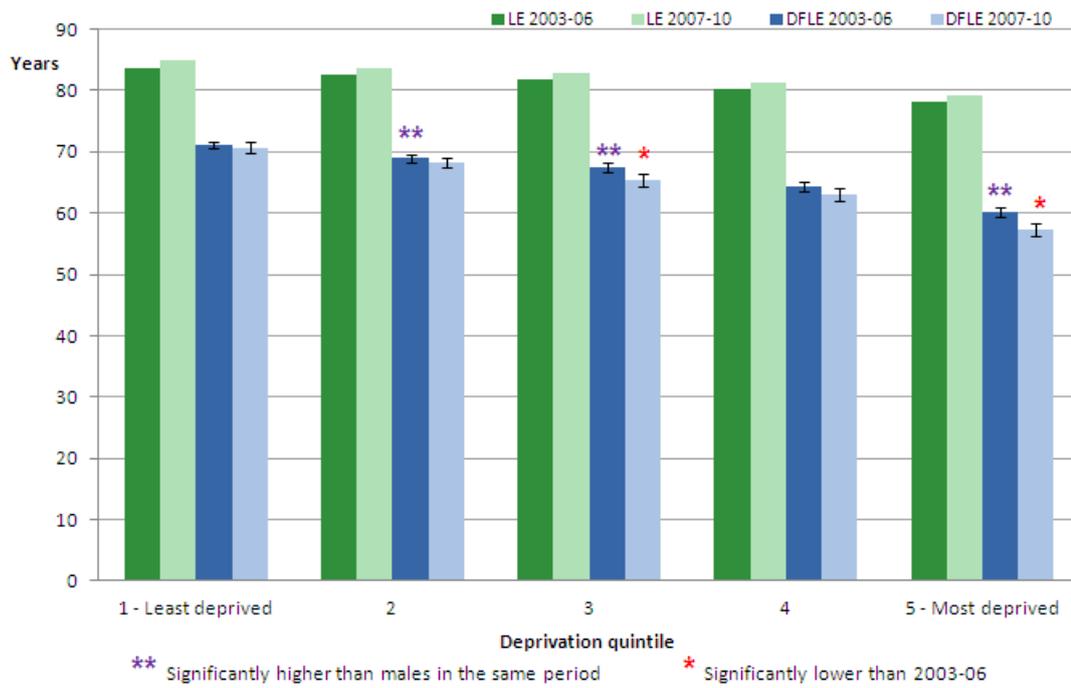


Table 2: Inequality in LE and DFLE for females at birth by area deprivation quintile, 2003-06 and 2007-10

England	Years, Percentages									
	2003-06					2007-10				
	LE	DFLE	DFLE lower 95% CI	DFLE upper 95% CI	Proportion of life disability free (%)	LE	DFLE	DFLE lower 95% CI	DFLE upper 95% CI	Proportion of life disability free (%)
1 -Least deprived	83.6	71.1	70.6	71.6	85.0	84.9	70.7	69.8	71.6	83.3
2	82.6	68.9	68.2	69.6	83.4	83.7	68.2	67.4	69.1	81.5
3	81.7	67.4	66.6	68.1	82.5	82.8	65.4	64.4	66.3	79.0
4	80.3	64.3	63.6	65.1	80.1	81.3	63.1	62.1	64.1	77.6
5 -Most deprived	78.2	60.1	59.3	60.9	76.9	79.1	57.3	56.2	58.4	72.4
Range	5.4	11.0	..	..	..	5.8	13.4	..	..	..
Ratio	1.07	1.18	..	..	..	1.07	1.23	..	..	..
SII	6.6	13.3	..	..	..	7.0	15.5	..	..	..
RII*	1.08	1.19	..	..	..	1.08	1.22	..	..	..

Source: ONS

Notes:

1. The modified relative index of inequality (RII) represents the ratio of the predicted SII value to the LE or DFLE value of the least deprived areas with 1 added to this value. For the period 2003-06 in the table above, this shows a 19% excess in disability free life years experienced by those living in the least deprived areas compared to the most deprived areas. When examining the difference in the health gap between discrete time periods, the RII is not sensitive to underlying changes in the prevalence of LLSI and mortality rates and therefore represents a more reliable measure of the health gap

5. Key comparisons: inequalities at age 65

2003-06

At age 65, men in the least deprived areas in 2003-06 could expect to live for a further 18.7 years, some 3.8 years or around 20% longer than their counterparts in the most deprived areas. For women, LE in the least deprived areas was 21.1 years; 3.1 years or around 15% longer than in the most deprived areas.

As at birth, inequality in DFLE at age 65 between the least and most deprived areas was much greater than in LE. For men, DFLE in the least deprived areas was 13.2 years, approximately 5.1 years or 39% longer than in the most deprived areas. For women, DFLE in the least deprived areas was 13.4 years, some 4.1 years or 31% longer than in the most deprived areas.

The gender gap at age 65 showed a similar pattern to figures at birth; the inequality in LE was greater than the inequality in DFLE. The gender differences in LE were greatest in the most deprived areas, whereas for DFLE a less regular pattern was seen, although the least deprived areas had the narrowest gender inequality of 0.2 years.

Taking into account deprivation across all levels, the SII in LE for males was 4.4 years and for DFLE was 5.8 years. For females these figures were 3.6 years (LE) and 5.1 years (DFLE). For males the figures reveal a greater scale of inequality across the whole distribution using SII (5.8 years) than seen by simply comparing the least and most deprived areas (5.1 years). For females a similar picture is seen with an SII of 5.1 years compared to a range of 4.1 years.

2007-10

Inequalities in LE between the least and most deprived areas were greater for men and women in 2007-10 than in 2003-06, increasing by around half a year in each case; to 4.1 years in 2007-10 for men, and to 3.5 years for women.

DFLE for males decreased in quintiles 5 (most deprived) and 4 by 0.6 years, and decreased by 0.3 years in quintile 1 (least deprived). In quintile 3 DFLE increased by 0.1 of a year and remained constant in quintile 2 between 2003-06 and 2007-10. For women DFLE fell in all quintiles by differing amounts. Quintile 5 (most deprived) fell by 0.8 years, quintile 4 by 0.3 years, quintile 3 by 1.0 years and the two least deprived, quintiles 2 and 1, fell by 0.6 and 0.2 years respectively.

The increase in LE and decrease in DFLE between 2003-06 and 2007-10 has meant that men and women, aged 65 in the most deprived areas, could expect to live less than half of their remaining years without a disability in 2007-10. The proportion of life spent disability free at age 65 in 2007-10 was 47.8% for men and 45.2% for women, in the most deprived areas, down from 54.4% and 51.7% in 2003-06 respectively.

The gender gap in LE and DFLE generally narrowed over time between 2003-06 and 2007-10. The movement of LE was relatively small (a decrease of 0.1 of a year on average) however, the narrowing of the gender gap in DFLE was more pronounced and displayed more variation, between a narrowing of 1.1 years for quintile 3 and widening of the gap by 0.3 years for quintile 4.

The SII of LE increased by around 0.4 years for women to 4.0 years and also increased by 0.4 for males to 4.8 years. For DFLE the SII increased for men by 0.4 of a year to 6.2 years and also increased for women by 0.5 years to 5.6 years. As at birth, inequality in DFLE, taking into account all levels of deprivation, was greater for men than women in 2007-10 by 0.6 of a year when comparing the SII values.

Figure 3: LE and DFLE for men at age 65 by area deprivation quintile, 2003-06 and 2007-10

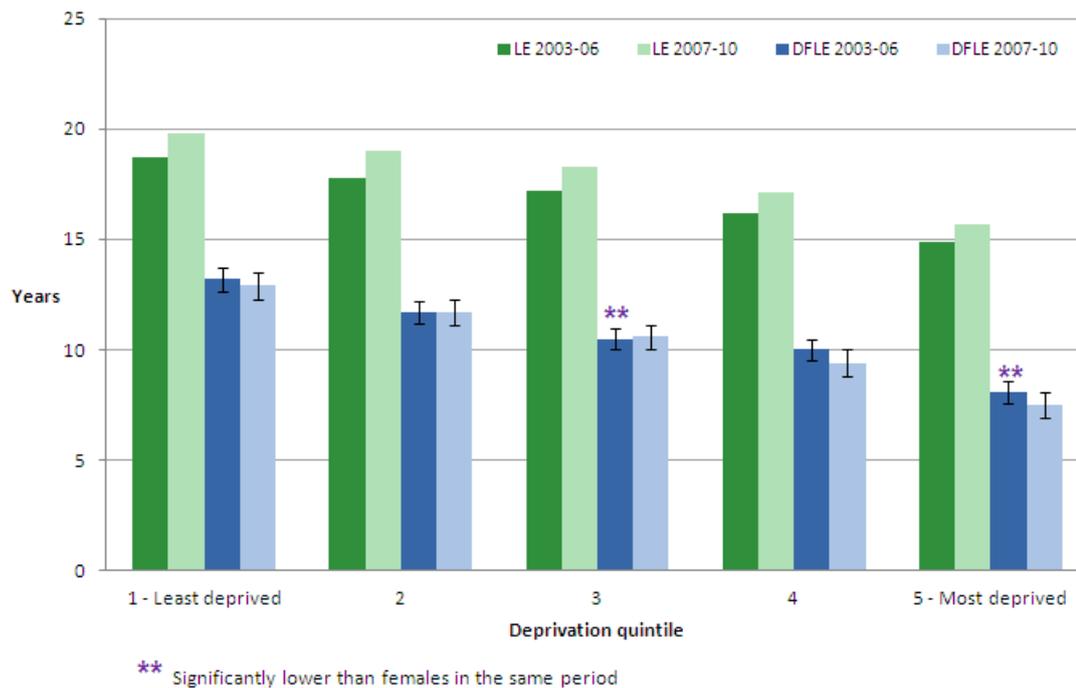


Table 3: Inequality in LE and DFLE for men at age 65 by area deprivation quintile, 2003-06 and 2007-10

England	Years, Percentages									
	2003-06					2007-10				
	LE	DFLE	DFLE lower 95% CI	DFLE upper 95% CI	Proportion of life disability free (%)	LE	DFLE	DFLE lower 95% CI	DFLE upper 95% CI	Proportion of life disability free (%)
1 -Least deprived	18.7	13.2	12.7	13.7	70.6	19.8	12.9	12.3	13.5	65.2
2	17.8	11.7	11.2	12.2	65.7	19.0	11.7	11.1	12.3	61.6
3	17.2	10.5	10.0	11.0	61.0	18.3	10.6	10.1	11.2	57.9
4	16.2	10.0	9.5	10.5	61.7	17.1	9.4	8.8	10.0	55.0
5 -Most deprived	14.9	8.1	7.6	8.6	54.4	15.7	7.5	6.9	8.1	47.8
Range	3.8	5.1	..	..	..	4.1	5.4	..	..	..
Ratio	1.26	1.63	..	..	..	1.26	1.72	..	..	..
SII	4.4	5.8	..	..	..	4.8	6.2	..	..	..
RII*	1.24	1.44	..	..	..	1.24	1.47	..	..	..

Source: ONS

Notes:

1. The modified relative index of inequality (RII) represents the ratio of the predicted SII value to the LE or DFLE value of the least deprived areas with 1 added to this value. For the period 2003-06 in the table above, this shows a 44% excess in disability free life years experienced by those living in the least deprived areas compared to the most deprived areas. When examining the difference in the health gap between discrete time periods, the RII is not sensitive to underlying changes in the prevalence of LLSI and mortality rates and therefore represents a more reliable measure of the health gap

Figure 4: LE and DFLE for women at age 65 by area deprivation quintile, 2003-06 and 2007-10

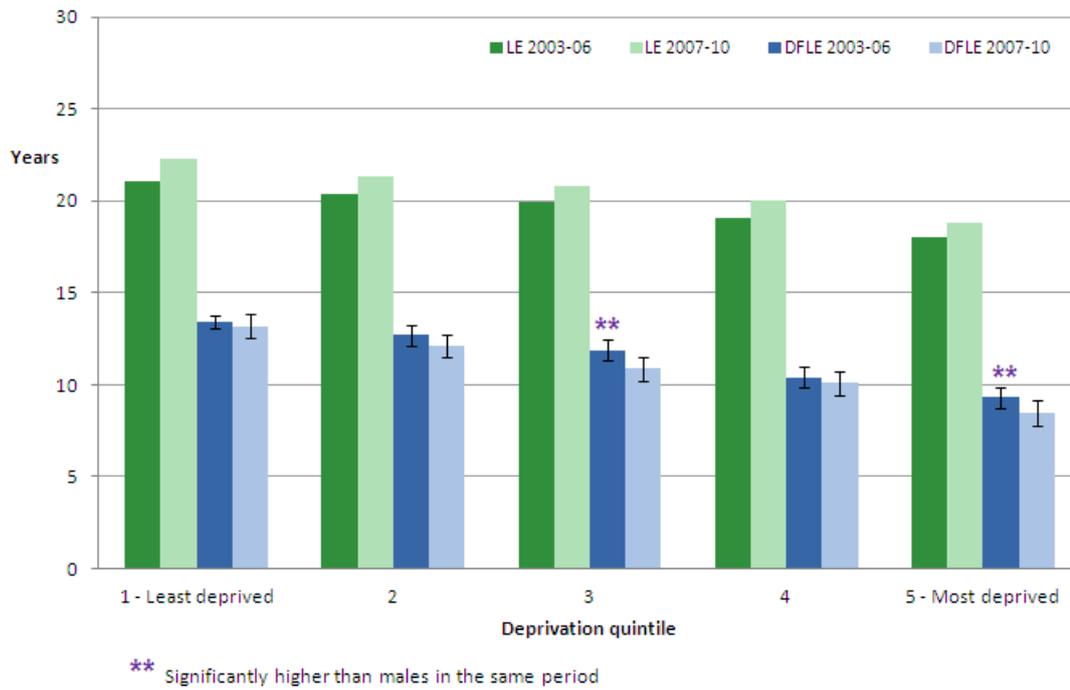


Table 4: Inequality in LE and DFLE for women at age 65 by area deprivation quintile, 2003-06 and 2007-10

England	Years, Percentages									
	2003-06					2007-10				
	LE	DFLE	DFLE lower 95% CI	DFLE upper 95% CI	Proportion of life disability free (%)	LE	DFLE	DFLE lower 95% CI	DFLE upper 95% CI	Proportion of life disability free (%)
1 -Least deprived	21.1	13.4	13.1	13.8	63.5	22.3	13.2	12.6	13.8	59.2
2	20.4	12.7	12.1	13.2	62.3	21.3	12.1	11.5	12.7	56.8
3	19.9	11.9	11.3	12.4	59.8	20.8	10.9	10.2	11.5	52.4
4	19.1	10.4	9.9	11.0	54.5	20.0	10.1	9.4	10.7	50.5
5 -Most deprived	18.0	9.3	8.7	9.9	51.7	18.8	8.5	7.8	9.2	45.2
Range	3.1	4.1	..	..	..	3.5	4.7	..	..	..
Ratio	1.17	1.44	..	..	..	1.19	1.55	..	..	..
SII	3.6	5.1	..	..	..	4.0	5.6	..	..	..
RII*	1.17	1.38	..	..	..	1.18	1.42	..	..	..

Source: ONS

Notes:

1. The modified relative index of inequality (RII) represents the ratio of the predicted SII value to the LE or DFLE value of the least deprived areas with 1 added to this value. For the period 2003-06 in the table above, this shows a 38% excess in disability free life years experienced by those living in the least deprived areas compared to the most deprived areas. When examining the difference in the health gap between discrete time periods, the RII is not sensitive to underlying changes in the prevalence of LLSI and mortality rates and therefore represents a more reliable measure of the health gap

6. Conclusion

This bulletin has reported estimates of LE and DFLE by a measure of area disadvantage for two distinct time periods, enabling the trajectory of health inequality to be monitored. The greater improvements in longevity in less deprived areas are largely responsible for the increase in inequalities in LE. For DFLE, the increase in inequality is being driven by the smaller decreases in the DFLE which occurred in the least deprived areas.

In general, the decreases that were observed in DFLE between 2003-06 and 2007-10 were small and not statistically significant; however, for females at birth in either quintile 3 or the most deprived quintile, the decreases were statistically significant. Interestingly, considering both sexes at birth, females in the most deprived quintile had the greatest decrease in the proportion of life spent disability free, reducing by 4.5 percentage points from 2003-06 despite having the smallest increase in LE at 0.9 years.

Summary measures of population health such as DFLE change only gradually and are relatively stable. The precision of the estimates in this article, as measured by the width of the confidence intervals (see tables 1-4), exceed a year and the extent of changes in DFLE reported here are generally less than a year, meaning the changes are not statistically significant. However, this does not exclude the possibility of meaningful change. These results point to an expansion of morbidity, which is of greater magnitude in the more deprived areas. Expansion of morbidity occurs when increases in LE are not matched or exceeded by increases in DFLE. Expanding morbidity leads to higher levels of dependency as the number of additional years lived are not compensated for by an increase in disability free years. The gain in the number of years in dependency, especially in the most deprived areas, has the potential to put pressure on services and unpaid carers alike.

This analysis has shown the gap in DFLE between the advantaged and disadvantaged areas is widening more for females than for males, which is counter-intuitive given that LE is increasing at a faster rate for males than females, and the increases across deprivation quintiles are unequal. However, significant risk factors to good health and longevity include smoking, drinking and obesity (Marmot 2010). Changes in the incidence and prevalence of these factors may be contributing to the results presented in this bulletin. In recent years there has been a greater decline in patterns of smoking and drinking; although these behaviours remain more prevalent in men (GLF 2013). It is also notable that obesity is more prevalent in women than men in low income households. This suggests the national trend of increasing obesity prevalence (HSE 2011) will be proportionately greater among women in the most deprived areas, and this population will therefore be more likely to experience obesity related health problems now and in the future.

7. Methods

Calculating disability-free life expectancy

The data used in calculating the prevalence of self-reported limiting long-standing illness or disability were obtained from the General Lifestyle Survey (GLF), formerly known as the General Household Survey (GHS). The data were aggregated over two four-year periods (2003–06 and 2007–10) in order to achieve sufficiently large sample sizes to enable meaningful statistical comparison. The prevalence of limiting long-standing illness or disability among males and females resident in private households in England was compared across Lower Super Output Area (LSOA) quintiles of relative deprivation and over time. DFLE was then calculated using the Sullivan method which combines these prevalence data with mortality and Mid-Year Population Estimates (MYPE) over the same periods to calculate estimates of LE and DFLE at birth and at age 65 by sex for each deprivation quintile (Jagger, 1996). MYPEs were adjusted to match the private household population by subtracting numbers resident in communal establishments; however, the mortality data represents the entire population of England.

To obtain the quintiles of relative deprivation, each survey data record was first mapped to an LSOA level geographical boundary using a postcode identifier look-up table. The records were then ranked by the Index of Multiple Deprivation (IMD) 2010 scores for each LSOA and grouped into fifths for subsequent analyses.

The populations of the communal establishments used in this publication to derive the private household populations are from the 2001 census and have been grouped into IMD 2007 quintiles. Communal establishment data by IMD 2010 was not available in the preparation of this publication. Analysis of the migration of LSOAs between quintiles from IMD 2007 to IMD 2010 showed that 83% were in the same quintile. More importantly migration into non adjacent quintiles was infrequent (0.03%). Although a degree of migration did occur it is likely that the majority of LSOAs that moved were close to the quintile threshold before reclassification. Given these considerations, and the fact that quintiles by their nature are a broad measure, the use of the IMD 2007 quintiles was seen to be a good proxy, in the absence of IMD 2010 data for communal establishments, to ensure timely publication of the analysis.

Slope index of inequality for DFLE

Slope and Relative indices of inequality (SII and RII respectively) were used to assess the absolute and relative inequality in DFLE between the least and most deprived quintiles. These indicators use weighted regression to derive hypothetical values of DFLE for deprivation extremes which are then used to measure the gap in DFLE: They have the advantage of incorporating the proportionate influence of each quintile and the inequality between them rather than focusing only on the simple range of DFLE values between quintile 1 and quintile 5.

To calculate the slope and relative index of inequality:

Quintiles were ordered by decreasing area deprivation, that is, from the most to the least deprived. The fraction of the total population in each quintile (f) was calculated. The cumulative frequency (ci), that is the cumulative sum of the population in successively less deprived quintiles, was also obtained and the relative deprivation rank (x) for each quintile was calculated as:

$$x = ci - 1 + (0.5 \times f)$$

The SII (slope of the regression line) was then estimated by regressing DFLE for each quintile against the relative deprivation rank (x), weighted by the population in each quintile.

The RII was calculated using the method described by Mackenbach and Kunst (1997). First, the predicted value of DFLE (y) for the least deprived areas, taking into account its relative deprivation rank, was estimated using a linear regression model. Then the SII was divided by the predicted DFLE value, (SII / y). The result obtained represents the ratio of the DFLE of the most deprived areas to that of the least deprived. This was then expressed as a rate ratio by adding 1 to it, giving the modified RII:

$$\text{Modified RII} = 1 + (\text{SII} / y)$$

8. Results on the Office for National Statistics website

The results in this bulletin, including equivalent results for 2001-04 and 2005-08 and also 2002-05 and 2006-09, can be found on the ONS website:

[Inequalities in disability-free life expectancy by area deprivation: England, 2001–04 and 2005–08 \(255.9 Kb Pdf\)](#)

[Inequality in Disability-free life expectancy by area deprivation: England, 2002–05 and 2006–09](#)

Interpretation of DFLE

DFLE at a given age in a given time period for a specified population, such as England, is an estimate of the average number of years a person would live without a limiting long-standing illness or disability if he/she experienced the specified population's particular age-specific mortality and health status rates for that time period throughout the rest of his/her life.

The figures reflect mortality and health status of the entire specified population in each time period rather than those born into the population and their health being followed. It is not therefore the number of years that a person will actually expect to live in the various health states, because the death rates and health status rates of the specified population are likely to change in the future and because some of those in the specified population may live elsewhere for part of their lives.

Health expectancies are indicators of health status that take into account differences in the age structures of populations. Results are comparable by age, sex and between specified populations.

9. Further information

This bulletin updates previous articles that can be found on the ONS website.

[Inequality in Disability-free life expectancy by area deprivation: England, 2002–05 and 2006–09](#) precedes this article with data for 2002-05 and 2006-09.

[Inequalities in disability-free life expectancy by area deprivation: England, 2001–04 and 2005 \(255.9 Kb Pdf\)](#) describes the methodology in detail and presents results for the periods 2001-04 and 2005-08.

10. References

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11. Background notes

1. From 2008, the GLF began to include proxy responses for adults; this subset of the survey population represents less than 10% of the total sample for Great Britain and is included in these analyses.
2. From 2005, the GHS began to follow a four year rotating panel design in which around three-quarters of the survey panel are re-interviewed in each year. From 2008, when the design became fully established, this 're-interviewed sample' accounted for around three quarters of the total survey population. Potentially confounding effects in the data; issues such as 'non-response bias' or attrition of a particular subset of the survey population are corrected for in the survey weighting. As this weighting sufficiently accounts for bias in self-reported limiting long-standing illness (ONS 2009 unpublished data) the complete GLF datasets are used in this study. [Further information about the GLF](#) can be found on the ONS website.
3. The GLF survey data includes respondents from private households only and no adjustment is made here to include residents of communal establishments such as nursing homes. This means that the data is likely to underestimate levels of limiting long-standing illness in the population of England as a whole. Differences in communal establishment populations that may exist across clusters of area deprivation are, therefore, not reflected in this analysis.
4. A [quality and methodology information report for ONS health expectancies \(165.5 Kb Pdf\)](#) is available on the ONS website. Quality and methodology information reports are overview notes which pull together key qualitative information on the various dimensions of statistical quality as well as providing a summary of the methods used to compile the particular output.

5. Enquiries relating to these statistics should be made to:

Disability and Health Measurement team Public Policy Analysis Division Office for National Statistics
Cardiff Road Newport Wales NP10 8XG Tel: 01633 455925 E-mail: hle@ons.gov.uk

6. We welcome feedback on the content, format and relevance of this release. The Health and Life Events user engagement strategy is available to download from the ONS website. Please send feedback to the postal or email address above.

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Details of the policy governing the release of new data are available from the Media Relations Office.

7. National Statistics are produced to high professional standards set out in the Code of Practice for Official Statistics. They undergo regular quality assurance reviews to ensure that they meet customer needs. They are produced free from any political interference.
8. The use of all GLF waves for the period 2007-10 means the 2007-10 estimates are based on a higher proportion of repeat respondents compared with 2003-06, which was predominantly composed of a

traditional cross-sectional sample. Respondents reporting their limiting long-standing illness status at follow-up is known to be associated with their past response and therefore the higher proportion of these types of respondents in 2007-10 may contribute to the fall in DFLE compared with 2003-06 observed in this output based on sampling variation. Interested users can compare the series from 2001-04 using [Inequalities in disability-free life expectancy by area deprivation: England, 2001-04 and 2005-08 \(255.9 Kb Pdf\)](#) and [Inequality in Disability-free life expectancy by area deprivation: England, 2002-05 and 2006-09](#).

9. The UK Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

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Next publication:

As the GLF was discontinued in 2011 this publication is the last in the series and will be replaced, subject to resource, by a bulletin using data from the Annual Population Survey (APS). It is anticipated that data for periods 2006-2008, 2007-2009 and 2008-2010 will be published initially.

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10. Details of the policy governing the release of new data are available by visiting www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html or from the Media Relations Office email: media.relations@ons.gsi.gov.uk