# 3. Social determinants of health

3.1 Low income

Low income and lack of work are causes of rural poverty and contributing factors to poor health and wellbeing (Asthana et al, 2002). Research indicates that rural deprivation and poverty tend to be the consequences of low pay, self-employed, part-time and seasonal work rather than long-term unemployment (Asthana et al, 2002). However, robust, routinely collected data are not available for these factors. Data is available for receipt of income support, job seeker's allowance and pension credits and these are illustrated below. The figures are based on actual claimants, but there are lower levels of benefit uptake in rural areas, further accentuated by generally higher costs of living (Asthana et al, 2002). Thus, the figures are likely to be higher than illustrated for rural areas.

Fig. 5: Percentage receiving income support in 2003 amongst working age population (16-59) in rural areas

Legend:
- Above 10%
- 5% to 10%
- Under 5%
- Urban areas
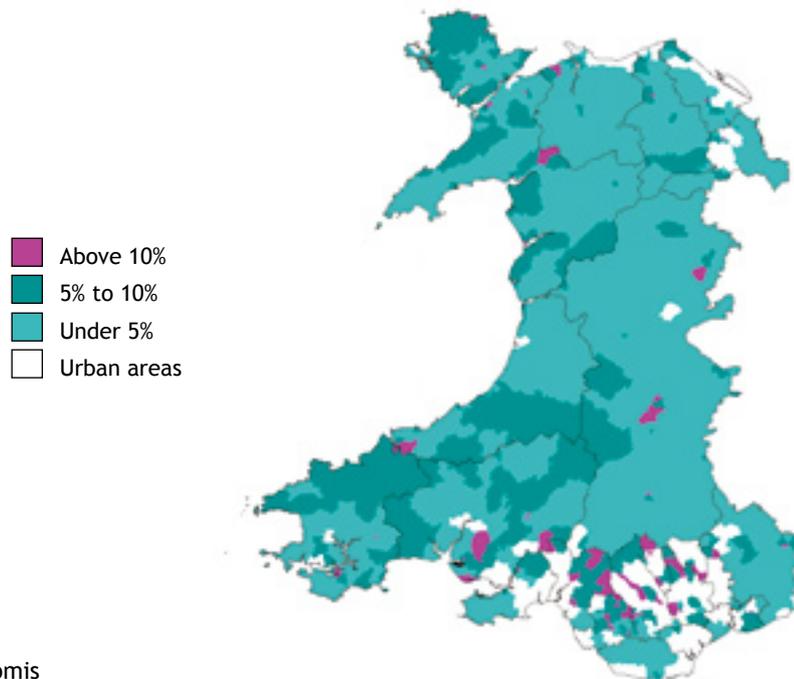
Source: DWP Nomis

Table 2: Percentage receiving income support - an indicator of low income

	Range lower	Range upper	Average [95%CI]
Urban	0.5%	36%	9.2% [9.1%;9.2%]
Rural less sparse	0.5%	31.9%	6.7% [6.6%;6.8%]
Rural sparse	1.5%	20.9%	5.5% [5.4%;5.6%]
Wales			8.2% [8.1%;8.2%]

Source: DWP Nomis

The map in Fig. 5 shows the percentages of people receiving income support, which is an income-related benefit and indicator of poverty. Income support can be claimed by persons aged 16 to 59 who work less than 16 hours per week (and/or with a partner working under 24 hours) and are not required to be available for full-time employment. The main eligible groups are lone parents, the long and short term sick and people with disabilities. Although average percentages of receiving income support are lower in rural areas compared to urban areas, there are rural areas particularly in rural less sparse areas with significantly higher percentages than the Welsh average.

Fig. 6: Percentage receiving pension credits in 2003 amongst 60+ population

Above 20%
15% to 20%
10% to 15%
Below 10%
Urban areas
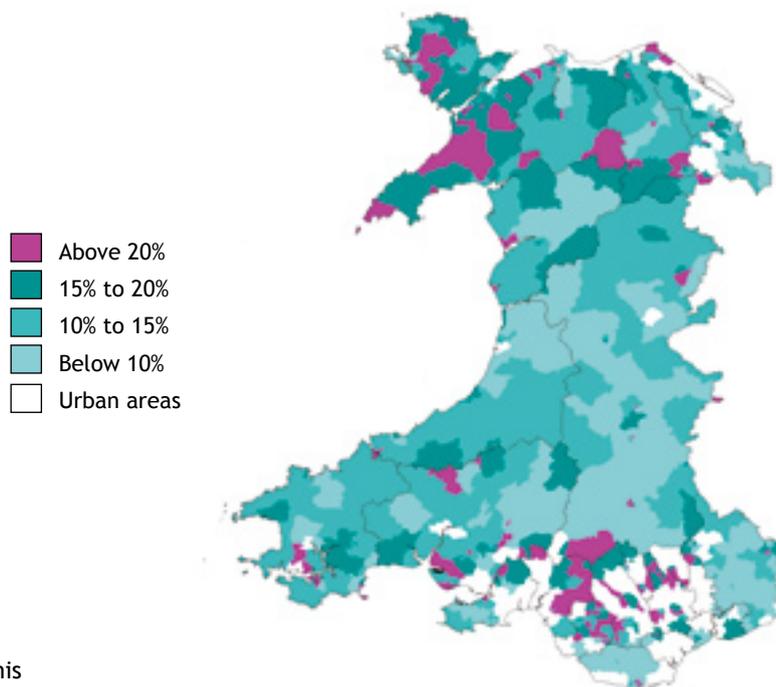
Source: DWP Nomis

Table 3: Percentage receiving pension credits - an indicator of low income in older people

|	Range lower	Range upper	Average [95%CI]
Urban	1.3%	71.4%	20.4%[20.3%;20.5%]
Rural less sparse	2.6%	44.1%	16.7% [16.5%;16.9%]
Rural sparse	2.6%	31%	14.4% [14.1%;14.6%]
Wales			18.6% [18.5%;18.7%]

Source: DWP Nomis

The map in Fig. 6 shows the percentage of older people in rural areas receiving pension credits, which is a means tested benefit. There are two elements to pension credits, the 'guarantee credit' element for age 60 and over which guarantees a minimum income for low income pensioners, and also a 'savings credit' element for age 65 and above. The areas coloured in pink show the areas where over 20% of the eligible population receive pension credits. Levels of benefit uptake are lower in rural areas compared to urban areas (Asthana et al, 2002) and the data and map are illustrating pockets with high levels of known poverty. True levels are therefore likely to be higher than illustrated and the difference between rural and urban at least narrowed.

Fig. 7: Percentage receiving jobseeker's allowance in 2003 amongst working age population (16-59) in rural areas

Above 3%
2% to 3%
Below 2%
Urban areas
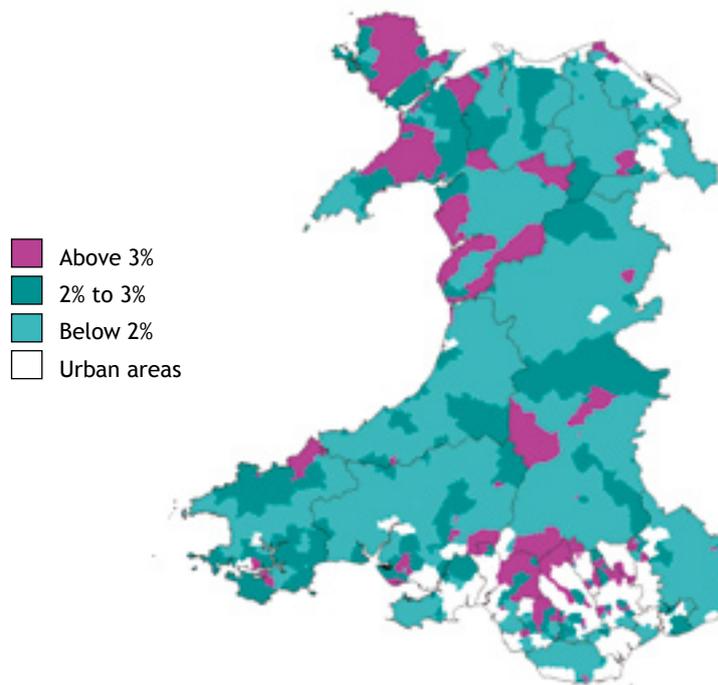
Source: DWP Nomis

Table 4: Percentage receiving jobseeker's allowance - an indicator of lack of work

	Range lower	Range upper	Average
Urban	0.3%	15.6%	3% [3%;3.04%]
Rural less sparse	0.4%	8.1%	2.44% [2.4%;2.5%]
Rural sparse	0.4%	8.5%	2.26% [2.2%;2.3%]
Wales			2.79% [2.77%;2.82%]

Source: DWP Nomis

Although the average percentage of people receiving job seeker's allowance is relatively small, there are some pockets of higher percentages in rural areas, shown in pink on the map Fig. 7. Caution is advised in interpreting these figures as an indicator of lack of work. People may choose not to register as unemployed, for reasons such as stigma (Deaville et al, 2002). There may be differences in registration behaviour and the local labour market between rural and urban areas (Asthana et al, 2002). It may therefore not be appropriate to draw firm conclusions from the difference between the urban and rural claimant figures. This indicator is included here to illustrate actual claimant patterns, particularly as claimant data are also used in the Welsh Index of Multiple Deprivation (National Assembly for Wales, 2005).

The summary table (Table 5) below shows the raw proportions for three different benefits described earlier. All three display a tendency to higher percentages for the urban areas, lower percentages for the rural less sparse areas and lowest percentages for the rural sparse areas. The limitations of interpreting job seeker's allowance as an indicator of lack of work are described above.

Table 5: Summary table - Percentage receiving benefits indicating low income and lack of work

	% receiving income support [95%CI]	% receiving pension credits in ages 60+ [95%CI]	% receiving job seeker's allowance in ages 16-59 [95%CI]
Urban	9.2% [9.1%;9.2%]	20.4% [20.3%;20.5%]	3% [3%;3%]
Rural less sparse	6.7% [6.6%;6.8%]	16.7% [16.5%;16.9%]	2.44% [2.4%;2.5%]
Rural sparse	5.5% [5.4%;5.6%]	14.4% [14.1%;14.6%]	2.26% [2.2%;2.3%]
Wales	8.2% [8.1%;8.2%]	18.6% [18.5%;18.7%]	2.79% [2.77%;2.82%]

Source: DWP Nomis

Fig. 8 below shows the percentage of LSOAs in each tenth, as defined by the income section of the Welsh Index of Multiple Deprivation (WIMD). It appears to show a similar pattern to that observed above for other indicators. More urban areas fall into the three most deprived tenths compared to rural LSOAs according to the WIMD income domain scores, and also very few rural sparse areas. The rural sparse areas are predominantly classed into the fifth to eighth tenth. Although urban areas tend to fall into the more deprived tenths, the rural less sparse areas are also of concern with significant proportions in the most deprived tenths. The rural sparse areas appear not to contain as wide a spectrum as the other two classes, as proportions in the two most deprived and the least deprived are comparably very low. There is some

uncertainty in the data for the least deprived tenths and caution in the interpretation is advised. The difference between rural sparse and rural less sparse areas overall is not entirely clear without further analysis, but certainly the rural less sparse areas in the three most deprived tenths are of concern. This may reflect some of the observations made on high levels of income support and pension credits in the few areas with high upper ranges in less sparse areas.

Fig. 8: Percentage of LSOAs in WIMD income domain tenths
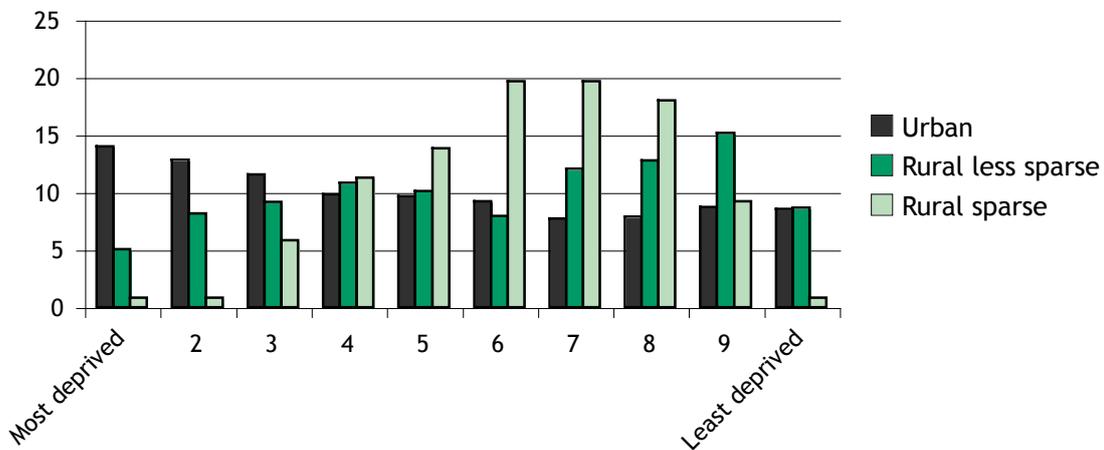
Source: WIMD 2005 income domain

3.2 Housing

The quality of housing can impact on the health of individuals. Poor housing can cause and aggravate chronic diseases such as respiratory disease and can also affect an individual's mental health. The impact is especially felt amongst the elderly and the younger populations (Shelter, 2000).

Fig. 9: Percentage of A & B Council Tax Valuation Bands

79.6 to 99.7
59.7 to 79.6
39.8 to 59.7
19.9 to 39.8
0.1 to 19.9
Urban areas
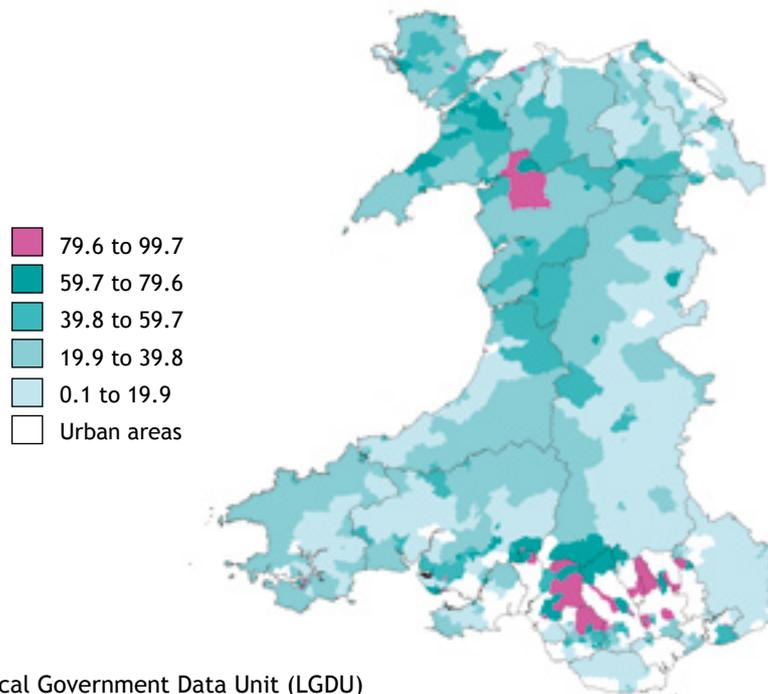
Source: Local Government Data Unit (LGDU)

The council tax valuation bands (CTVB) are a categorical assessment of UK property values and amenities governing local tax levies. The bands in the data used range from A to H, where A has the lowest value properties and H has the highest values. Caution should be exercised however, when interpreting these data as the distribution of bands varies according to Local Authority and an additional band I has since been introduced in Wales. Research has been undertaken in the past to link CTVB with specific determinants of health and causes of pre-mature death (Beale et al, 2002). Research suggests that those living in CTVB A and B suffer worse health outcomes than the other bands. Also, CTVB has been identified as a marker for deprivation, and correlations have been made between CTVB and Jarman scores in England (Beale et al, 2001).

The map (Fig. 9) shows CTVB for A and B by 2001 LSOA across rural areas in Wales. There are relatively low proportions of CTVB A&B in the rural areas of Wales. However, the pattern is influenced by the poorer South Wales valleys where deprivation is comparably high. There are rural areas in North and Mid-West Wales with relatively high proportions of A and B CTVB houses, however, these are dispersed and therefore do not form clusters.

Fig. 10: Housing Deprivation: WIMD housing deprivation

Most deprived
Next most deprived
Medium deprived
Next least deprived
Least deprived
Urban areas
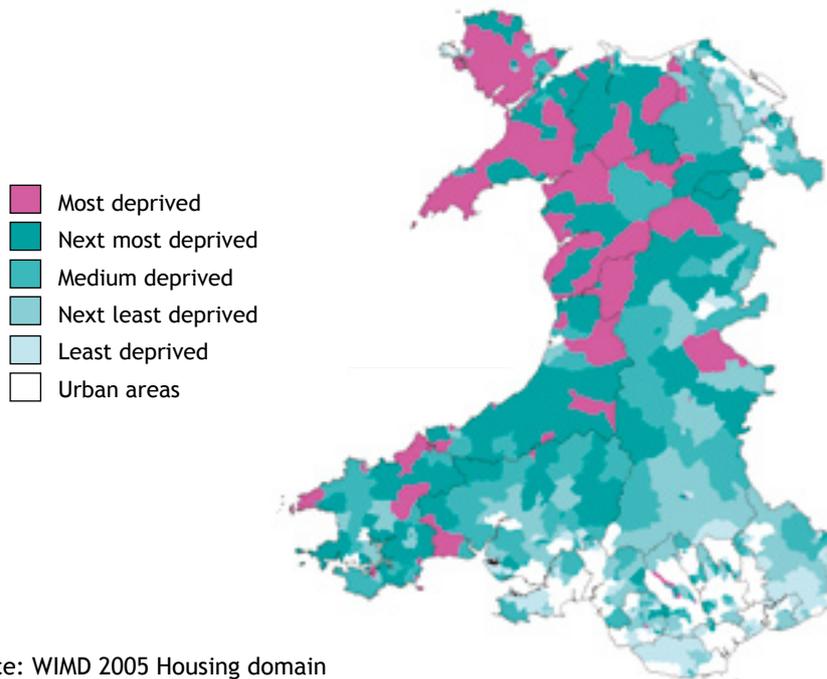
Source: WIMD 2005 Housing domain

The map in Fig. 10 shows the fifths according to the housing deprivation domain from the WIMD by LSOA. This domain is made up from those households with a lack of central heating and those households classed as overcrowded, excluding student households (National Assembly for Wales, 2005). The map suggests that poorer housing domain scores tend to be in the more rural areas of North and East Wales.

Despite the limitations of some of the data sources used in this domain, the WIMD highlights the poorer housing conditions that exist in rural areas.

Fig. 11: Percentage of LSOAs in WIMD housing domain by tenths

■ Urban
■ Rural less sparse
□ Rural sparse
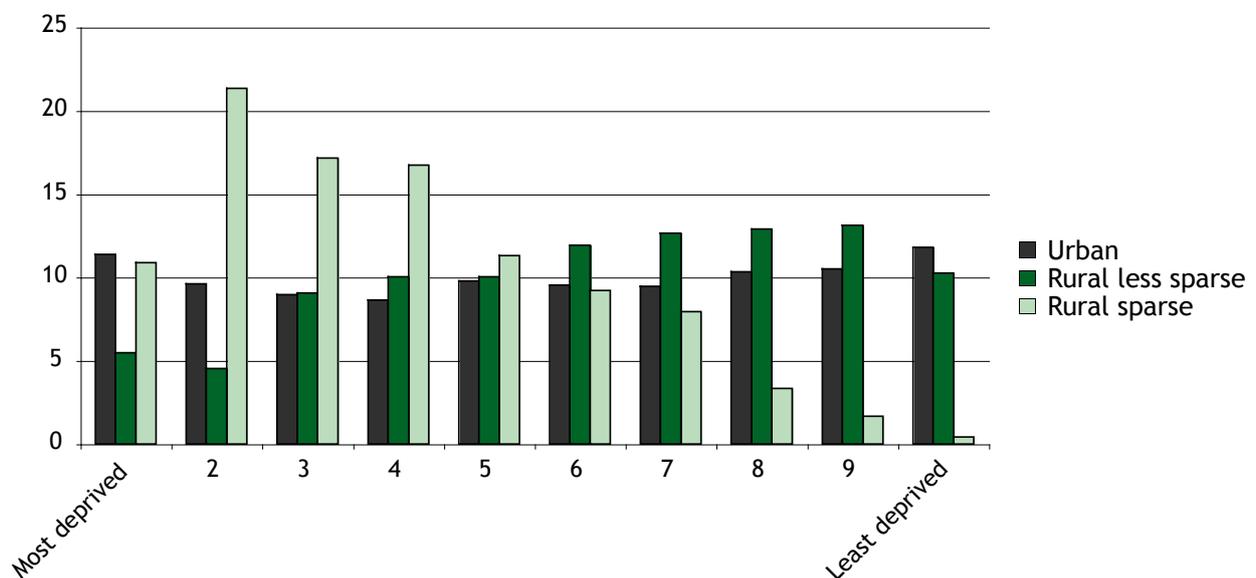
Source: WIMD 2005 housing domain

Fig. 11 shows the percentage of LSOAs by tenths of deprivation according to the WIMD housing domain results. The chart illustrates that urban housing domain scores are evenly distributed across the tenths. This is not the case in rural areas. There is a general increase in the percentage of LSOAs in the tenths as deprivation decreases amongst the rural less sparse areas. The rural sparse areas show a high number of LSOAs in the most deprived tenths, indicating poor housing conditions in some of the most rural areas.

3.3 Education

Fig. 12: Percentage of people with 5 or more GCSEs (A* - C)

Legend:
- 23% to 40%
- 20% to 23%
- Below 20%
- Urban areas
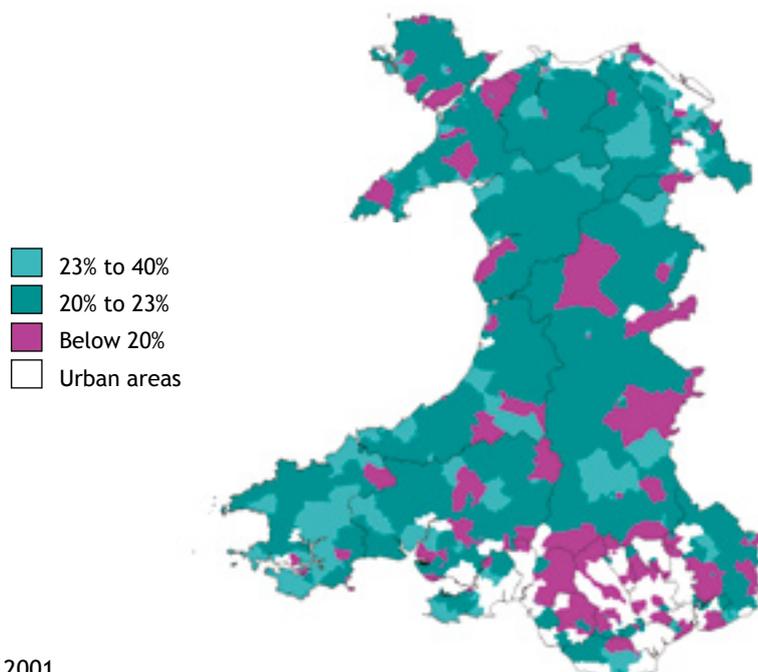
Source: Census 2001

Table 6: Percentage of the population with 5 or more GCSEs (A* - C)

	Lowest	Highest	Average [95% CI]
Urban	5.8%	31.4%	19.3% [19.2%;19.4%]
Rural less sparse	10.7%	28.3%	20% [20%;20.2%]
Rural sparse	14.5%	27.9%	21.7% [21.5%;21.9%]
Wales			19.8 [19.7%;19.8%]

Source: Census 2001

The map in Fig. 12 shows the proportion of people with qualifications of 5 or more GCSEs (grade A* - C). It has to be noted that qualifications are dependent on the population structure and that areas with fewer older people or fewer children under 16 may have higher proportions than areas with other profiles. The rural averages as displayed in Table 6 show slightly higher proportions, particularly in the rural sparse areas. This indicates that slightly more people in rural areas tend to have 5 GCSEs and higher compared to those in urban areas.

Fig. 13: Education, Skills and Training Deprivation WIMD 2005
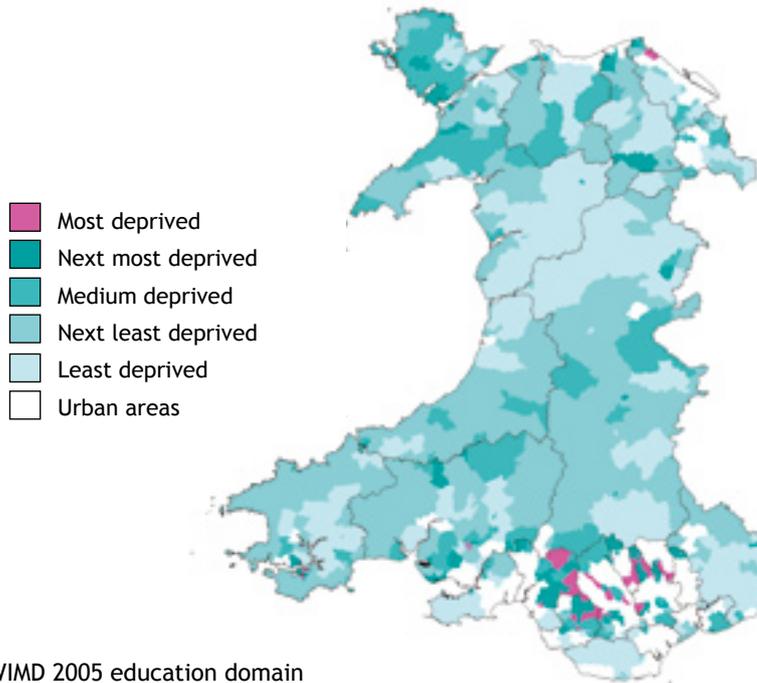
Source: WIMD 2005 education domain

Fig. 14: Percentage of LSOAs in WIMD 2005 education, skills and training domain tenths
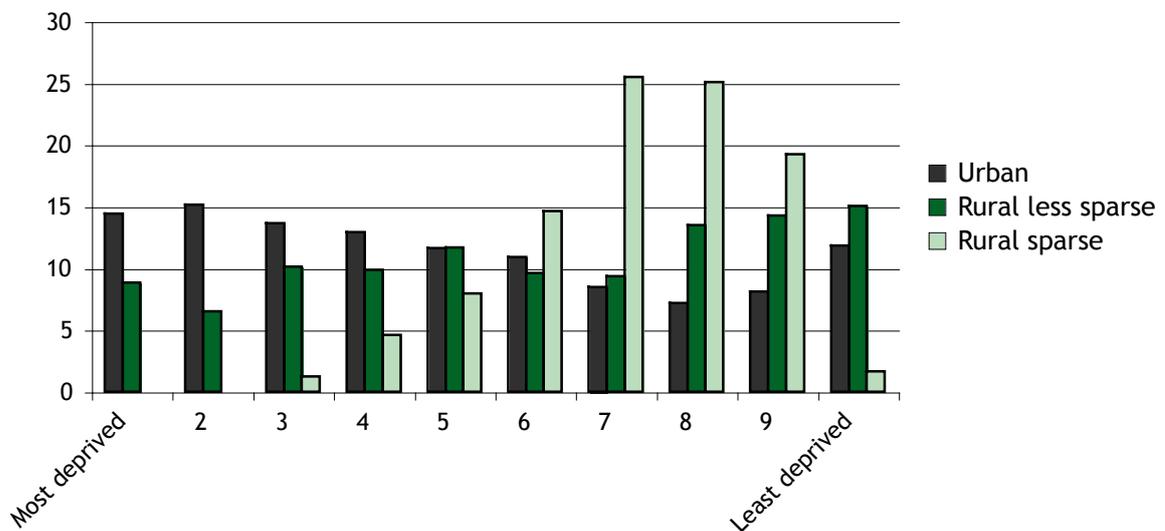
Source: WIMD 2005 education domain

The map in Fig. 13 shows the fifths in the WIMD 2005 education, skills and training domain. It is calculated from the average point scores in key stage 2-4, proportion of adults with low or no qualifications, proportion of 17 and 18 year olds not entering further or higher education and secondary school absence rates. The areas coloured in pink indicate the most deprived areas according to the index, i.e. those with the lowest levels of education, skills and training. The most deprived fifth in the rural LSOAs tend to be predominantly in the South Wales Valleys area. This is also the case for the urban South Wales valley areas, although this is not shown on the map. Rural areas in the next most deprived fifth are scattered more widely. The graph in Fig. 14 shows the percentage of LSOAs falling into

tenths according to the WIMD 2005 education, skills and training domain scores. The data is shown in tenths, rather than fifths as in the map, to show the data in more detail. More urban areas fall into the four most deprived tenths compared to rural less sparse areas. None of the rural sparse areas fall into the two most deprived areas, and they show the highest percentages in the sixth to ninth tenth. It appears that rural sparse areas tend to have higher education levels compared to urban and rural less sparse. It has to be noted that education levels are dependent on the population structure, as for example areas with a large student population are likely to have higher education levels in the relevant age groups than areas without.

3.4 Access to services

Access to healthcare services is particularly topical with recent media reports on hospital closures in rural areas and associated loss of access to those services.

**Fig. 15: Access to services: WIMD access deprivation**
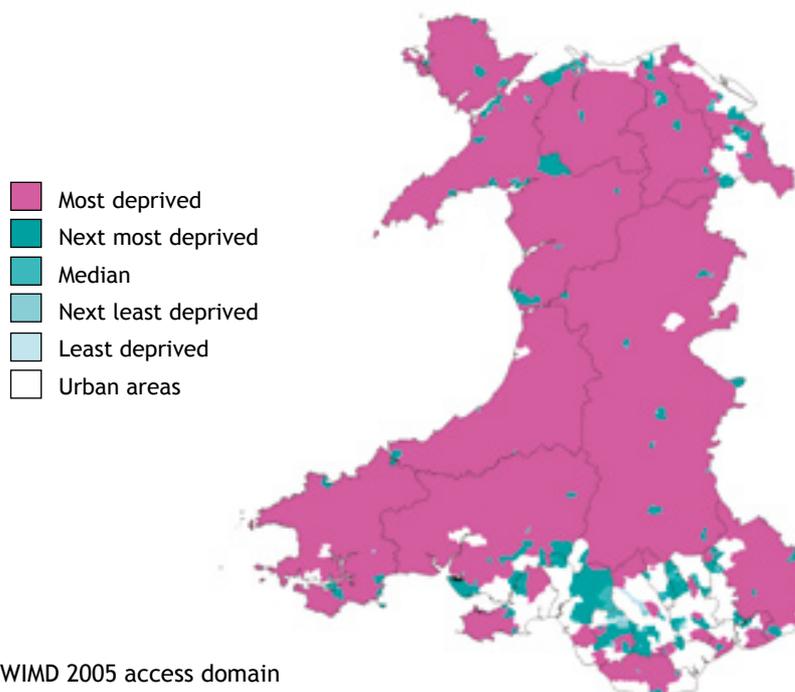
Source: WIMD 2005 access domain

The map in Fig. 15 illustrates how accessibility to services via public transport and pedestrian access score. Since Wales has a comparatively rural environment there are some expected difficulties for people accessing services without a car. The elderly population is the group that is less likely to own, or have access to private transport and yet have some of the greatest need for public transport access to reach services, for example health care services. Distance is an important factor when it comes to maintaining and improving health. Issues that arise include time and distance for cases of heart attacks and the ability to make and keep hospital and doctors' appointments (Gibbon et al, 2006).

The map shows almost uniformly those rural areas, which include parts of the Vale of Glamorgan and Monmouthshire, which have relatively poor access to services via public transport; therefore car ownership is a necessity. Thus indicators using car ownership to calculate deprivation indices, for example in the Townsend index, can mask some of the rural poverty issues.

Fig. 16: Percentage of LSOAs in WIMD access domain tenths
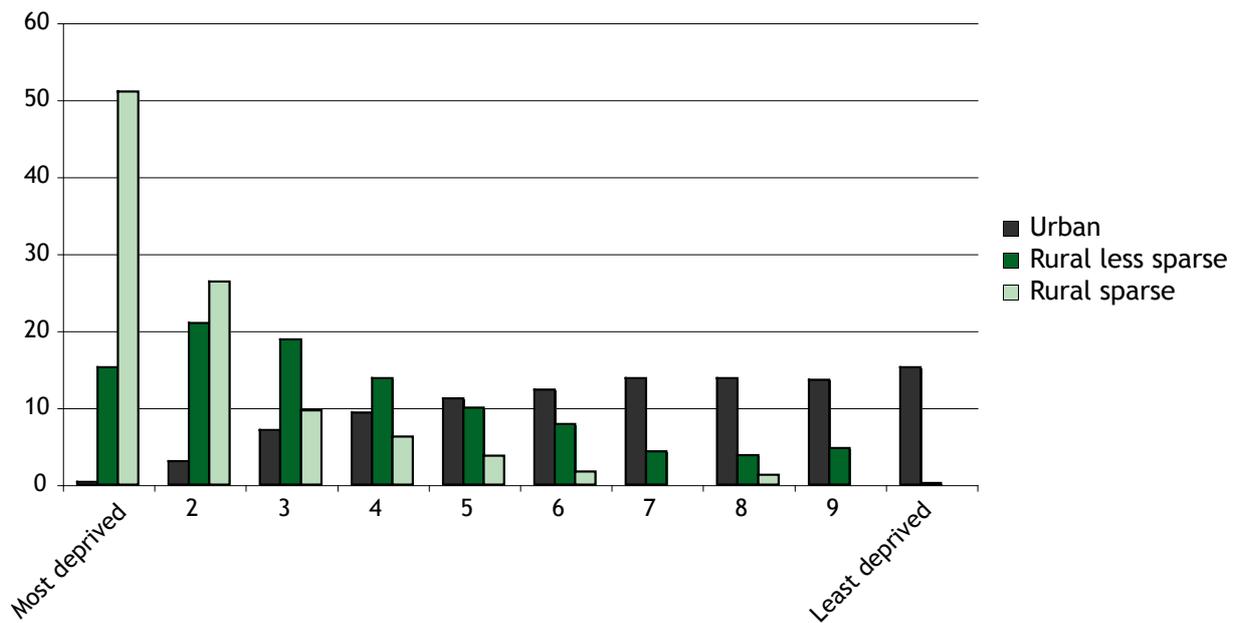
Source: WIMD 2005 access domain

The chart in Fig. 16 shows the percentage of LSOAs based on rural class by tenths of deprivation derived from the WIMD access domain. The chart illustrates that there is a very low proportion of urban LSOAs in the most deprived tenths, whilst rural less sparse and rural sparse areas have a high proportion of LSOAs in the poorer tenths. This reflects the poor access associated with living in rural areas and the necessity therefore to own a car.

Fig. 17: Time and distance analysis to hospitals in Wales

Source: Welsh Assembly Government

The map in Fig. 17 shows a time and distance analysis for access to hospitals across Wales. The darker colours indicate less travel time to the nearest hospital, whereas a lighter colour indicates more travel time to reach the nearest hospital. It is calculated as the amount of time it takes to travel to the hospital from a location using main roads, some of which are shown on the map as 'trunk roads'. The map illustrates that the more central areas of Wales, that tend to be rural, although not uniformly, have poorer access to hospitals. Caution should be exercised as it is difficult to determine the difference between the rural and urban areas due to the difficulty in defining rural and urban boundaries.

Fig. 18: Time and distance analysis to GP surgeries, clinics & health centres
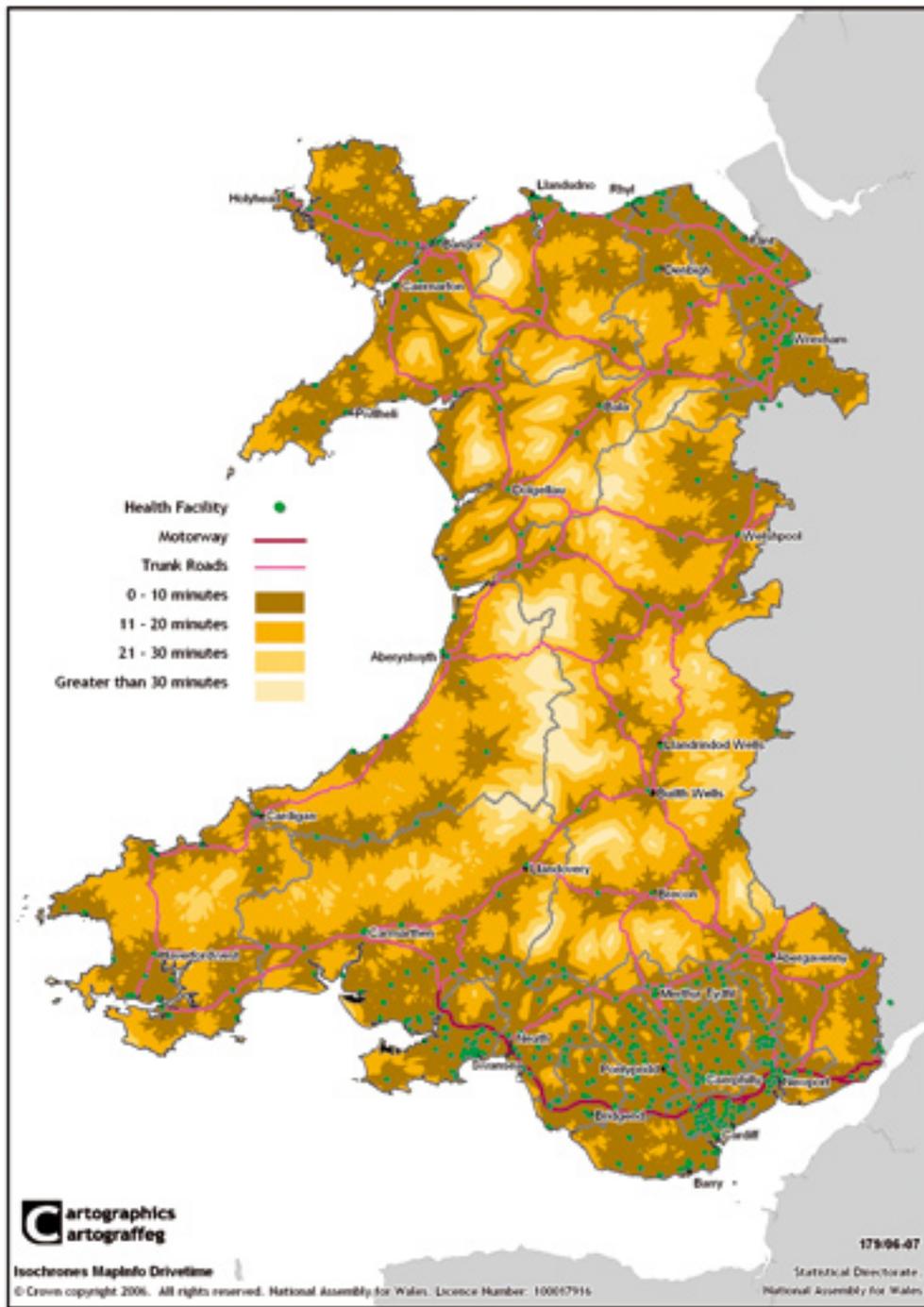
Source: Welsh Assembly Government

The map in Fig. 18 shows a time and distance analysis for access to GP surgeries, clinics and health centres. The darker colours indicate less travel time to the nearest GP, clinics and health centres, whereas a lighter colour indicates more travel time to these services. The map illustrates, in a similar way to the hospital time and distance analysis, that the increased journey times are located towards the central, predominantly rural, parts of Wales. Services are concentrated near the main settlements of South East Wales, and the North and South Wales Coast.

3.5 Rural deprivation

There is some dispute over the suitability of deprivation indices for rural areas, as they generally use indicators which are considered to be more suitable to detect urban deprivation. One of these indictors is car ownership, which in rural areas is considered essential. Also, benefit uptake was found to be lower in rural areas (Asthana et al, 2002) and benefit counts are used to assess for example unemployment or low income. It is therefore argued that such indicators are inappropriate to detect deprivation in rural areas. Different deprivation indices are used for different purposes, such as the Townsend index and the Welsh Index of Multiple Deprivation (WIMD). Although they use different components with the Townsend concentrating on material deprivation, they have been compared here as they are both used in practice to identify deprivation. The chart in Fig. 19 shows the difference in rural areas being classed in deprivation tenths. The Townsend index places more rural areas into the least deprived tenth than the WIMD, whilst the WIMD index places more areas into the sixth and seventh tenth than the Townsend index. The pattern indicates that the Townsend index defines rural areas as less deprived than the WIMD. One reason for this may be the inclusion of the indicator on car ownership in the Townsend index but not in the WIMD. It has to be noted that exact Townsend scores are not available at LSOA level, as employment figures are only available for the age band 16-74 and not 16-59/64 as required. The Townsend scores calculated (Source: NPHS) are therefore an estimate. Also, the exact distribution of the WIMD amongst the five least deprived tenths is less certain due to limitations of the data used.

**Fig. 19: Percentage of rural LSOAs in deprivation tenths**
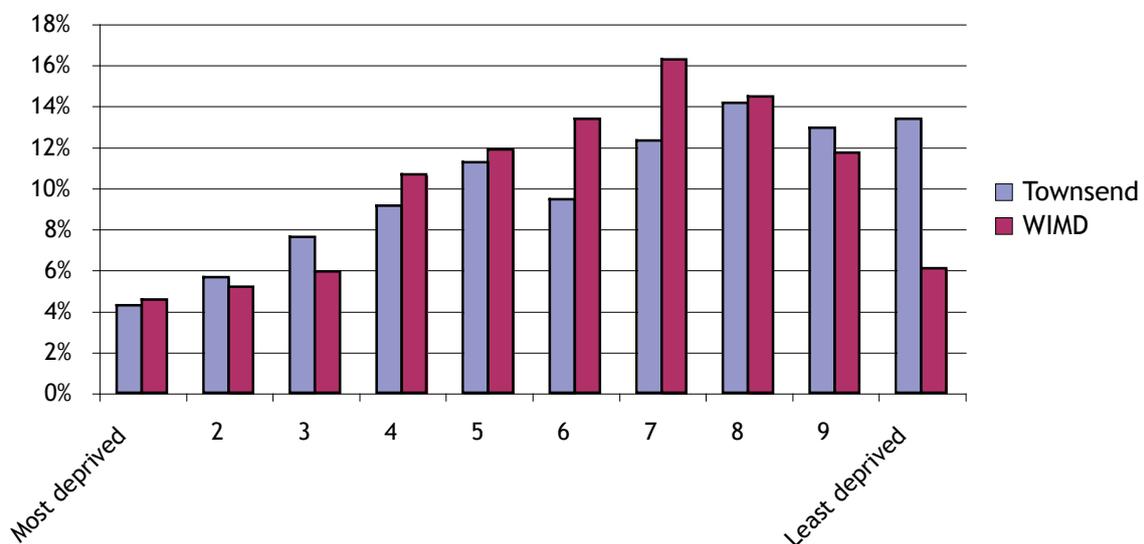
Source: WIMD 2005, NPHS

Fig. 20: WIMD 2005 overall deprivation

Most deprived
Next most deprived
Medium deprived
Next least deprived
Least deprived
Urban areas
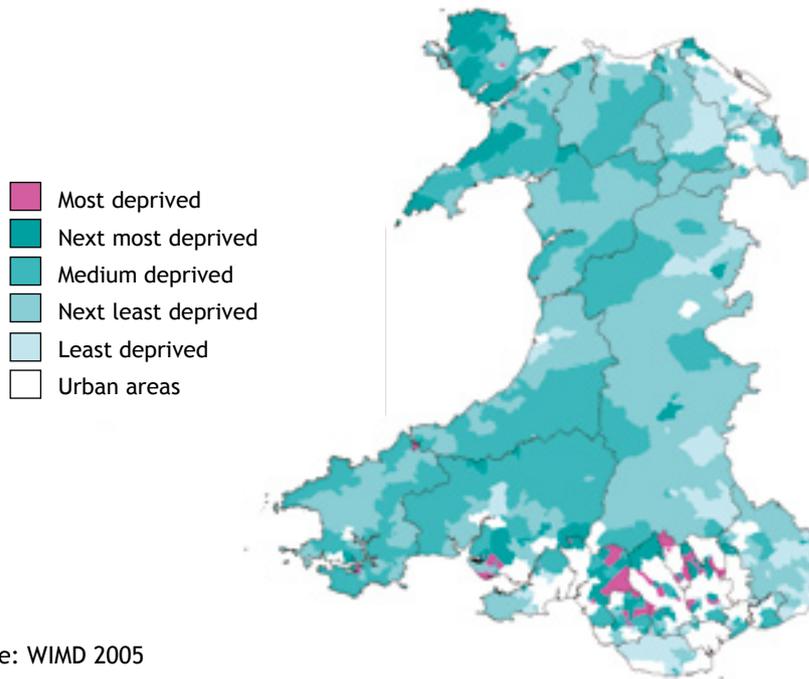
Source: WIMD 2005

Fig. 21: Percentage of LSOAs in WIMD deprivation tenths

Urban
Rural less sparse
Rural sparse
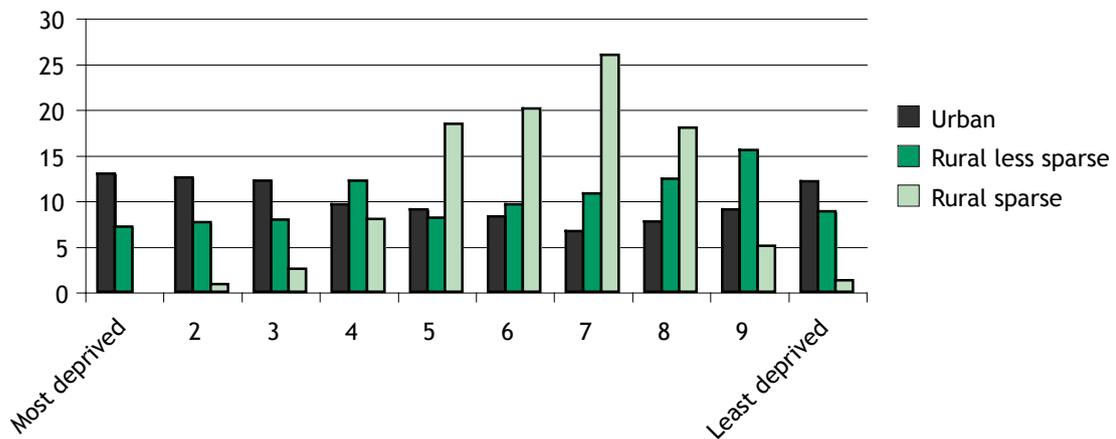
Source: WIMD 2005

The map in Fig. 20 above shows the deprivation fifths according to the Welsh Index of Multiple Deprivation 2005 with the pink colour indicating the most deprived of the rural areas. These are predominantly in the South Wales Valleys area and only a few areas in the South West and on Anglesey. The graph above shows the percentage of urban, rural less sparse and rural sparse areas in each WIMD deprivation tenth. Although the urban areas tend to show higher proportions in the three most deprived tenths, rural less sparse areas in those tenths are also of particular concern. The rural sparse areas tend to have the largest proportions between the fifth and eighth tenth, defining them as less deprived compared to the other two groups.