National Survey for Wales, 2014-15

Material deprivation of households

Mae'r ddogfen yma hefyd ar gael yn Gymraeg.

This document is also available in Welsh.

National Survey for Wales, 2014-15:
Material deprivation of households

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Background

The Welsh Government's Child Poverty Strategy provides a framework for improving the outcomes of low income households in Wales. It aims to reduce poverty, especially persistent poverty amongst some of our poorest people and communities, and also to reduce the likelihood that people will become poor.

In 2014-15, the National Survey included a series of questions on the material deprivation of households and of children as a way of measuring poverty and in particular capturing the consequences of long-term poverty on households, rather than short-term financial strain.

For each of nine items, each respondent was asked if they could afford it, didn't need it, or would like it but could not afford it.   For example:

- Do you and your family/partner have household contents insurance?
- Do you and your family/partner replace any worn out furniture?
- How well are you keeping up with your bills and credit commitments at the moment?
- In winter, are you able to keep this accommodation warm enough?

Respondents with dependent children[1] living in the household were asked an additional series of questions regarding child specific measures of deprivation, e.g.:

- Does/do your child/ren have a warm winter coat?
- Does/do your child/ren do a hobby or leisure activity?
- Does/do your child/ren go on school trips?

Households lacking several items on the first list were classed as being in "household material deprivation"; and those lacking several items on the second list were classed as in "child specific material deprivation".

Method

To understand which factors best predicts whether households will be in material deprivation, we used a statistical technique that allows us to isolate the effects of each factor while controlling for a range of other factors. This is important because just looking at each factor on its own can give a misleading picture.

For example, more people who live in social housing are in material deprivation than people who rent privately; and more people who rent privately than owner-occupiers are in material deprivation. But the makeup of these groups differs in various ways (e.g. age,

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[1] Dependent children were classified as all those under 16 and 16-19 year olds in full time education where the respondent was the parent, legal guardian.

employment status, education) and so it is difficult to know whether housing in itself is linked with being in deprivation. The technique we used allows us to control for the differences in the makeup of the groups. Once we have controlled for these differences it became clear that being an owner-occupier is linked with being less deprived than people who rent or are in social housing, but being in social housing is not in itself linked with being more likely to be in material deprivation than renting privately.

Key findings[2]

The factors with the strongest link to households being material deprivation, while controlling for a range of other factors, were:

- Being in private rented or social housing
- Being divorced
- Having no qualifications
- Being in a workless household
- Being younger
- Not being retired
- Living in an area with lower average income
- Not having internet access
- Having a limiting long-term illness
- Being in poor health
- Being female
- Being a single parent household
- Having children

The factors are listed in descending order of importance, so for example tenure type has the strongest link with household material deprivation.

For this report, factors that could be affected by the experience of material deprivation, such as personal well-being, (i.e. the experience of material deprivation could affect levels of well-being, rather than the other way around) were not included. However, the relationship between personal well-being and material deprivation is explored separately to other factors. It was found that those experiencing material deprivation reported lower levels of wellbeing and higher levels of anxiety.

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[2] Please note, there are some differences in the list of predictors identified in this report compared with the separate short report "Who is likely to be in material deprivation?". Although both reports were based on 2014-15 results from the National Survey, the present report uses a different way of calculating material deprivation and is based on a much more in-depth analysis. It also excludes factors from the analysis where it is difficult to be sure about the direction of causality. This means that although the two reports identify some similar predictors of material deprivation, there are also differences.

Households with children

This report also explores the factors associated with the overall household material deprivation of households containing children, as well as the factors associated with child-specific material deprivation.

On the whole, parents appeared to work to protect their children from the effects of child-specific material deprivation: child-specific material deprivation was less common than household material deprivation, even when the household as a whole was found to be experiencing deprivation.

For households with children, the factors with the strongest link to experiencing **household material deprivation**, controlling for other factors, were the respondent:

- Being in private rented or social housing
- Not having internet access
- Having no qualifications
- Being in a workless household
- Being divorced
- Being female
- Having a limiting long-term illness

The factors with the strongest link to experiencing **child-specific material deprivation**, controlling for other factors, were:

- Being a younger parent
- Being in a workless household
- Being divorced
- Being in poor health
- Living in an area with lower average income
- Living in an area with poor access to services
- Having younger children
- Not having internet access
- Having a limiting long-term illness
- Having no qualifications
- Being in private rented or social housing
- Having a greater number of children

For each set, the factors are again listed in descending order of importance: so for example tenure type has the strongest link with household material deprivation and being a younger parent has the strongest link with child-specific material derivation.

1 Introduction

1.1 National Survey for Wales

The National Survey for Wales 2012-15 was a face-to-face survey that gathered information from a large number of people across Wales. Each year over 14,000 people aged 16 and over were asked for their opinions on a wide range of issues affecting them and their local area. Respondents were selected at random to ensure the results were representative of the wider Welsh population.

The aims of the survey were to help the Welsh Government to:

- monitor trends in the concerns and needs of people in Wales;
- assess views and experiences of public services;
- identify areas or groups that would benefit from extra support; and
- make decisions and target resources based on sound evidence.

The survey covered a wide range of topics to help meet these aims, including:

- demographics and identity;
- family, household and relationships;
- health and health services;
- well-being and satisfaction with services;
- work and finances;
- neighbourhood and area; and
- transport and active travel.

Pertinent to this report, the survey also collected information on household and child material deprivation / financial inclusion. Survey results from 2014-15 are used in this report to explore the relationships between material deprivation and the topics listed above.

In 2016-17, the National Survey was re-launched covering a substantially wider range of topics. More information about the survey is available on the survey web pages.

1.2 This project

The Welsh Government's Child Poverty Strategy provides a framework for improving the outcomes of low income households in Wales. It aims to reduce poverty, especially persistent poverty amongst some of our poorest people and communities, and also to reduce the likelihood that people will become poor.

One way of measuring poverty is through asking questions on material deprivation (that is, whether a household is able to afford things like keeping the house warm enough, make regular savings, or have a holiday once a year). Material deprivation questions are designed to capture the consequences of long-term poverty on households, rather than

short-term financial strain. McKay & Collard (2010) make the distinction between direct and indirect measures of poverty, which can be thought of in a similar way. Material deprivation questions measure the living standards of individuals which can be taken as both a long-term and direct measure of poverty. Income, on the other hand, is seen as an indirect reflection of (possibly) short-term poverty.

In 2014-15, the National Survey included a series of questions taken from the Family Resources Survey[3] (FRS) on the material deprivation of households and of children (see Section 2.1 for a list of these questions). The National Survey is different from the FRS in terms of methodology and the information it collects. Whilst the FRS combines measurements of income with the material deprivation indicators it collects, the National Survey in 2014-15 did not collect income information. Rather, the National Survey used the material deprivation indicators to try and capture the long-term, direct effects of poverty. The implications of this difference are that results between the two are not directly comparable.

The questions on material deprivation were asked primarily to allow users of the National Survey results to cross-analyse other topics on the survey by whether the respondent's household is experiencing material deprivation, and so to understand better the circumstances of materially deprived people in Wales[4]. This report goes further. The main analytic technique used allows the material deprivation to be investigated controlling for other characteristics of respondents. Relationships that appear to be substantial at a descriptive level may reduce or even disappear once other factors have been controlled for. One of the strengths of the National Survey was the volume and variety of information collected about each respondent and their household. The main analyses used throughout this report take into account the richness of this data to examine what characteristics best explain the material deprivation of households and children.

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[3] The Family Resources Survey is a UK-wide survey which collects detailed information on income and benefits, savings and investments, occupation and employment, pension participation, disability, housing tenure and carers.
[4] The 2014-15 results of can be found in the Statistical First Release Headline Results 2014-15
http://gov.wales/docs/statistics/2015/150914-national-survey-wales-2014-15-headline-results-revised-en.pdf

2 Methodology

2.1 Material deprivation indicators

Information on respondents' level of material deprivation was collected in the National Survey using a series of questions about the affordability of various items. For each item, each respondent was asked if they had it, didn't need it, or would like it but could not afford it[5].

Household indicators:

- Do you and your family/partner have a holiday away from home for at least one week a year, whilst <u>not</u> staying with relatives at their home?[6]
- Do you and your family/partner have enough money to keep your home in a decent state of decoration?
- Do you and your family/partner have household contents insurance?
- Do you and your family/partner make regular savings of £10 a month or more for rainy days or retirement?
- Do you and your family/partner replace any worn out furniture?
- Do you and your family/partner replace or repair major electrical goods, such as a refrigerator or washing machine, when broken?
- Do you have a small amount of money to spend each week on yourself, not on your family?
- How well are you keeping up with your bills and credit commitments at the moment?[7]
- In winter, are you able to keep this accommodation warm enough?[1]

Respondents with dependent children[8] living in the household were asked an additional series of questions regarding child specific measures of deprivation. For each indicator, parents were asked whether their child/ren had it, whether their child/ren did not need it, or whether their child/ren would like it but they could not afford it.

Child specific indicators:

- Does/do your child/ren have a warm winter coat?
- Does/do your child/ren eat fresh fruit and / or vegetables every day?
- Are there enough bedrooms for every child of ten or over of a different sex to have their own bedroom?[9]

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[5] Creating a distinction between choice and constraint. See Hick, R. (2015). Material poverty and multiple deprivation in Britain: The distinctiveness and multidimensional assessment. *Journal of Public Policy*

[6] Respondents who did not have a holiday away from home <u>not</u> staying with relatives, were subsequently asked whether they had a holiday away from home, whilst staying with relatives.

[7] For analysis, responses to these questions were classified into a binary can afford / cannot afford response as it is considered that no one would logically not want or need to do either of these things.

[8] Dependent children were classified as all those under 16 and 16-19 year olds in full time education where the respondent was the parent or legal guardian.

[9] Only asked of respondents with children of different sexes over the age of 10.

- Does/do your child/ren have leisure equipment such as sports equipment or a bicycle?
- Does/do your child/ren have celebrations on special occasions such as birthdays, Christmas or other religious festivals?
- Does/do your child/ren attend at least one regular activity a week outside school, such as sport or a youth group?
- Does/do your child/ren do a hobby or leisure activity?
- Does/do your child/ren have friends round for tea or a snack once a fortnight?
- Does/do your child/ren go to a toddler group / nursery / playgroup at least once a week?[10]
- Does/do your child/ren go on school trips?[11]

2.2 Material deprivation thresholds

2.2.1 Household material deprivation threshold

The National Survey uses a prevalence weighted approach, as used in the Family Resources Survey. Rather than base material deprivation on a simple sum measurement of the number of items missing from those listed in 2.1.1, this approach allows for the fact that the absence of some items is more uncommon, and so may be considered to represent a greater severity of deprivation than others[12]. Items that are more uncommon are given a higher weighting, reflecting the severity of deprivation that the lack of that particular item represents. The prevalence weighted approach gives each case a score between 0 and 100 that measures the extent of their material deprivation; a score of 0 represents no items missing, with a score of 100 representing all items were reported as unaffordable. Although tempting to consider it as such, this measure is not strictly continuous; it is a sum of a fixed set of weights with a limited (although extended) number of possibilities. It is also not normally distributed with a highly right skewed distribution. The 'continuous' material deprivation was used as a tool to establish a threshold from which cases could be determined as either being or not being in material deprivation.

Previously a threshold sore of 25 out of 100 has been used to distinguish between those who are and are not in deprivation, with those scoring 25 or over being classed as in deprivation. This follows the Family Resources Survey (FRS), who set this level so that roughly the same proportion of children were classified as materially deprived as are in low income households. Whilst the items used to assess material deprivation are taken from the FRS, the design and content of the National Survey is very different. In particular, the National Survey in 2014-15 did not collect information on income and so material deprivation could not be combined with income but was used as a stand-alone

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[10] Only asked of respondents with children under 6 and not in primary school.

[11] Only asked of respondents with children over 6 or under 6 and in primary school.

[12] Although arguably prevalence weighting does increase complexity and decrease transparency (McKay, S. (2010). Using the new Family Resources question block to measure material deprivation among pensioners. Department for Work and Pensions, working paper no. 89.).

measure. Therefore material deprivation as measured in the National Survey arguably has more of a focus on long-term deprivation rather than the snap-shot picture that current income provides.

As the cut-off point chosen to classify households as deprived in the FRS and National Survey is a relative, rather than an absolute, measure of deprivation it was considered appropriate for the purposes of this analysis that the threshold could be altered. This approach is further supported by Pantazis et al.'s (2006)[13] finding that people living in Wales are generally less likely than those living elsewhere to consider particular items as necessary. This highlights the subjective and comparative nature of the material deprivation items. Therefore, for this report, the threshold used was one that identified approximately the bottom quintile (i.e. the bottom 20%) of the most deprived cases. This threshold was a score of 20; those with a score of 20 or higher were considered to be in material deprivation (which actually identifies 21.5% of households). To be in the bottom quintile of deprivation a household must have been missing at least two items[14].

2.2.2 Child material deprivation threshold

As well as household level material deprivation measures, the National Survey collects information on child-specific material deprivation (see Section 2.1.1). Respondents were asked if they had children for which they were responsible living in the household. If they had, they were then asked a series of questions about the affordability of child-specific goods, services and activities (see section 2.1.1).

Child level material deprivation can be investigated in a similar fashion to household level material deprivation, using a prevalence weighted approach may be used where all household and child level material deprivation measures are included and the same cut-off score is used (i.e. 20 in this case) to determine those child-bearing households that may be considered materially deprived.

However there are issues with using this prevalence weighted approach for the child material deprivation measures. Part of this relates to the focus of the items. As can be seen in Section 2.1.1 the majority of the items appear to be applicable mainly to primary school aged children although they can be asked of any child in the household for which the respondent is responsible[15]. This means that, when using a prevalence weighted approach, children within this age range have a greater opportunity to be flagged as

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[13] Pantazis, C., Gordon, D. and Levitas, R. (2006). *Poverty and Social Exclusion in Britain*. Bristol: The Policy Press.

[14] This was the threshold suggested by the discriminant function analysis conducted by Gordon et al. (2000) to determine the appropriate number of items that needed to be lacking to appropriately classify an individual as materially deprived. The only exception to this is where a respondent indicates that they cannot afford a holiday and cannot afford to replace furniture. If this is the case they will not reach the deprivation threshold (but will if they also cannot afford a holiday staying with relatives).

[15] All children under 16 years of age and any 16-19 year olds in full time education.

materially deprived. Additionally those households with children of multiple ages have a greater chance of a higher score. The calculation does not take into account how many children of different ages may be in the household, so that a household with a wide range of ages may be classified as more materially deprived. This is due to multiple items applying to their children than households with the same level of poverty but with a narrower age range of children. This is most apparent when considering the extreme score of 100. To obtain this score the household must be deprived of all items but this is only possible if there are children both of school and pre-school age as well as children over 10 of opposite sexes[16]. Because of these issues, consideration was given to alternative approaches to identifying and classifying material deprivation.

Using the criteria of the previous section to establish a material deprivation threshold, 32% of households with dependent children were in deprivation. Of the fifth of households participating in the National Survey that were classed as being in material deprivation, less than a quarter of those with dependent children indicated that they were missing any of the child specific items (22%)[17]. This supports McKay and Collard's (2004)[18] findings and indicates that parents are generally protecting children from some of the adverse effects of deprivation.

Households not in material deprivation rarely indicated any deprivation on child specific items (2%). The very fact that some did, raises some interesting questions about these particular households. Indeed, the relationship between household and child specific material deprivation is not as strong, nor as linear, as one might assume. When considering simply the number of items deprived of, one would expect to find that as the number of items deprived of at household level increases so would the number of child specific items children are deprived of. Although the correlation for this does show a positive relationship, the correlation is only modest ($r = 0.41$).

For this report, cases were classified as experiencing child specific deprivation if both the household was in deprivation *and* there was at least one child specific item missing. 7% of households containing children were considered materially deprived using this latter measure. Separating out those households experiencing material deprivation but not child specific deprivation from those who experience both household and child specific deprivation allows further investigation into the differences and similarities of these two groups.

The material deprivation of households with children was therefore considered to be one of three possible outcomes:
- experiencing no material deprivation;

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[16] Whilst it may be possible to account for the make-up of children in the household to control for these kinds of characteristics, this is beyond the scope of this report.

[17] For details of individual indicators, see section 3.

[18] McKay, S. and Collard, S. (2004). Developing deprivation questions for the Family Resources Survey. London: DWP Working Paper No. 13.

- in household material deprivation only; or
- in child specific deprivation (which necessarily includes household deprivation).

2.3 Analysis

Unless otherwise stated analyses were conducted using Stata/IC version 13.

2.3.1 Correlations

The relationships between the individual indicators of material deprivation, as described in sections 2.1 and 3, were examined using correlational analyses. Although respondents could respond in one of three ways as to the affordability of each item, the responses were dichotomised for the purposes of this part of the analysis into whether they could afford or could not afford the items. Those who responded that they could afford the items were grouped together with those who declared they did not want or need a particular item. Thus the correlations investigated the strength of relationships between inability to afford items.

Due to the dichotomous nature of the measurement, latent correlations (otherwise known as tetrachoric correlations) were conducted. Although often used as a precursor to factor analysis, latent correlations can be useful in and of themselves. The main assumption of the analysis is of underlying ('latent') continuous variables[19]. This assumption can be accepted when consideration is given to the nature of material deprivation. If we imagine material deprivation can be measured on a scale of 0 – 100, with 0 as no experience of deprivation and 100 as complete deprivation, it is reasonable to assume that people experience deprivation at various points along this scale rather than at the two extremes. The analysis returns a correlation matrix whose coefficients, ranging from -1 to 1, can be interpreted in a similar way to more common Pearson's coefficients; with -1 indicating a strongly negative association, 0 indicating no association, and +1 indicating a strongly positive association. As well as providing this information on the strength of associations, the correlation matrix can also be used to analyse the multivariate relationships between the dichotomous indicators[20].

Three correlation matrices are provided in Section 3.2 which examine the strength of relationship between household indicators, child specific indicators, and between household and child specific indicators.

2.3.2 Descriptive statistics

The descriptive statistics throughout the report provide proportions of material deprivation in various subgroups of the sample. These proportions are (generally) presented as bar charts with accompanying error bars representing the upper and lower bounds of the confidence interval. Confidence intervals reflect the fact that estimates produced by the

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[19] And normally distributed, although this assumption can be relaxed. See http://john-uebersax.com/stat/tetra.htm
[20] Using factor analysis. http://www.stata.com/manuals13/rtetrachoric.pdf

sample have an element of uncertainty when extrapolating to the population from which the sample was drawn. Whilst we cannot be sure that the population proportion is the same as that which we found in our sample, we can be confident that in 95% of samples of the population, the proportion would lie somewhere between the upper and lower bounds of the confidence interval. Where error bars are not provided in the Figures, they can be found in the relevant Appendix table.

Error bars have the additional benefit of indicating whether or not a difference between two or more estimates is statistically significant. Although not as rigorous as formal statistical testing, if the error bars do not overlap we can conclude that there is more than likely a real difference between the groups. To be more precise, a statistically significant result indicates that there is a less than 5% chance of finding a difference in the sample if such a difference does not exist in the population. Although formal statistical testing is a more precise approach, the error bar rule of thumb has the advantage of being a conservative estimate which reduces the increased chance of finding a false positive (finding a difference when there is not one) associated with conducted multiple comparisons.

To further improve the accuracy of the estimates produced, a weighting variable[21] was applied that adjusted the sample to better reflect all-Wales characteristics. The survey weight used does this by adjusting the sample so that it has the same age and sex profile of those in the population. In addition, the stratified nature of the sample was taken into consideration when producing descriptive statistics and proportions. The National Survey is stratified by local authority, with different sampling probabilities for people in different authorities. Such stratification can lead to larger standard errors (which are used to calculate confidence intervals) than would be found if a simple random sample was used. If stratification is not taken into account then confidence intervals can appear smaller than they should. This has ramifications both in assessing the accuracy of estimates produced and if error bars are to be used to assess statistical significance.

Proportions reported are based on (weighted) valid percentages; missing values (i.e. those who refused to answer, stated that they didn't know) were excluded from the analyses.

2.3.3 Regressions

The nature of sociological phenomena such as material deprivation is multi-faceted and complicated. Although descriptive statistics provide a general picture of the relationships between variables, they are limited in their ability to unpick the nuanced relationships that

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[21] For details of how the weights were calculated, see Hanson, T. & Sullivan, S. (2015). National Survey for Wales 2014-15 Technical Report. http://gov.wales/docs/caecd/research/2015/151005-national-survey-2014-15-technical-report-en.pdf

can occur. Material deprivation, for example, may be explained by many area, household, and individual characteristics (henceforth referred to as 'explanatory variables[22]').

These relationships should first be explored at the univariate level (i.e. between material deprivation and just one explanatory variable). Univariate analysis is the formal statistical testing that is more rigorous than examination of error bars, highlighted in section 2.3.2. It assesses whether the difference between groups seen in the sample is likely to be a 'true' difference found in the population.

Whilst this is useful to a certain extent, it neglects the complicated relationships between the explanatory variables themselves. Multivariate analysis allows for the relationships between explanatory variables and the outcome variable to be examined whilst taking into consideration other explanatory variables that have an effect on the outcome.

As the outcome variable in this instance is binary, i.e. the household is either in or not in material deprivation, the multivariate analysis used in the following analyses was logistic regression. Whilst the specific regressions used to model household material deprivation and child material deprivation were slightly different from one another, the procedure to identify explanatory variables of interest was the same throughout.

The following describes the procedure used to identify explanatory variables important in explaining household material deprivation, along with examining the effect that these 'important' variables have. Given the large number of potentially significant variables in the dataset, a block approach was taken in the initial stages of analysis. Variables were chosen that related to the following 'blocks':

- demographics and identity;
- family, household and relationships;
- health and health services;
- work and finances;
- neighbourhood and area; and
- internet services and transport.

Descriptive statistics and univariate analyses were run to examine the relationship between these variables and material deprivation. Where statistically significant relationships were found, at a higher than usual level of 10%, variables were retained for multivariate analysis. Those variables that had a non-statistically significant relationship with material deprivation were excluded from further analysis. Other variables were excluded from analysis for substantive, rather than statistical reasons. Although cross-sectional analysis of this kind does not lend itself to identification of directional relationships, the regression models built do imply this. Therefore, a nuanced approach to

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[22] Explanatory is used here as the regression models are using these characteristics to 'explain' or account for variance in the model. Equally valid is referring to these explanatory variables as 'predictors', as the model predicts the probability of a 'success' (in this instance equal to being in material deprivation) based on the characteristics described by the explanatory variables.

deciding which variables are unsuitable for inclusion needs to be taken. Where variables were excluded on a substantive basis, but the relationship is of interest, the descriptive and/or univariate analysis is reported.

Once variables were identified as having a statistically significant relationship (at the 10% level) to material deprivation, multivariate analyses were conducted. For household material deprivation this multivariate analysis took the form of logistic regression. Many potential explanatory variables were identified at the univariate stage, so a block approach was taken for the first stage of multivariate analysis. All variables identified as significant within each block were included in a regression model. A backwards step-wise approach[23] was taken to identifying the final model, with the 10% level of significance remaining as the threshold for inclusion at this stage. Variables were sequentially removed from the model if their *p*-value[24] exceeded this threshold, with the variable with the highest *p*-value removed first. Once all block models had variables with statistically significant variables, the final stage of multivariate analysis to identify variables of importance was conducted. This final stage consisted of combining all block models so that a regression was conducted that included all variables identified in the previous stage. A similar, backwards step-wise approach was taken to identify the final model, with the more usual threshold of 5% used to identify variables of statistical significance. Once this final model had been identified, the strength of these relationships was assessed.

The usual practice when a logistic regression is used is to report odds ratios[25] as a measure of the association between an explanatory variable and the outcome variable. However, in this report it was decided that a measure of the predicted probability of experiencing material deprivation would be used to more easily convey the size of effect. For each variable of significance, the change in predicted probability[26] of being in material deprivation was reported. These are reported as percentage point changes in likelihood of experiencing deprivation for each level of the explanatory variable compared with the reference category, whilst holding all other variables in the model at their mean. With binary explanatory variables the predicted probability change is the difference in the two levels. For example, for gender a 6 percentage point increase in the predicted probability

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[23] Significance levels of variables depend on other variables already in the model. Whilst both backwards and forwards selection methods have failings, backwards selection is often considered more preferable to forwards selection. This is due to the nature of forwards selection where important variables are more likely to be missed due to other variables being entered into the model first.

[24] The *p*-value refers to the level of statistical significance the variable has. A *p*-value of 0.10 (i.e. 10%) or lower indicates that we can be 90% confident that the relationship identified from the sample data does exist in the population and has occurred due to chance.

[25] Odds ratio reports the odds that a certain level of an explanatory variable will experience a success in terms of the outcome variable compared to the odds of success given an absence of that level of explanatory variable. For example, say we conducted an analysis that identified gender as a statistically significant predictor of experiencing material deprivation. The odds ratio would provide the ratio of odds of experiencing material deprivation for women compared to men. If the ratio was 1.5, this would mean that for every woman not in deprivation, 1.5 times as many women will be in deprivation than the number of men in deprivation for every man not. This is clearly neither intuitive nor straightforward to convey.

[26] Using stata's margins command.

of experiencing household material deprivation was found for women when compared with men. This can just as easily be thought about conversely, with men having a 6 percentage point lower likelihood of being in material deprivation than women. Interpretation of variables with multiple levels is slightly more complicated. For example, the reference category for working status of the household was set to 'all working' and so the percentage point change reported for 'some working' and 'none working' were both calculated in reference to 'all working'. The predicted probability change does allow for comparisons across these additional levels, however, as one can infer the differences. Holding the other explanatory variables at their mean allows the effect of the variable of interest to be isolated and interpreted.

The same procedures were used to identify and explore variables that best explained child material deprivation. Because of the way that deprivation was conceptualised for households with children, at three binary levels (see Section 2.2.3), the logistic regression model needed to be extended. This conceptualisation of material deprivation suggests an ordinal relationship: not being in material deprivation is less severe than experiencing household material deprivation, which in turn is less severe than experiencing child specific deprivation. This would suggest using an ordinal logistic regression model. However, such a model assumes proportional odds between the levels of the outcome variable. This assumption was tested and found violated for this data. Substantively, this suggests that these differing levels of deprivation are very different from one another. Practically, it meant that an ordinal logistic regression model could not be used. Hence, the alternative multinomial logistic regression (which makes no assumption of proportional odds) was used to explore both the univariate and multivariate relationships between explanatory variables and material deprivation of households with children. The results are interpreted in an almost identical way as for household material deprivation.

Many of the variables collected in the National Survey are correlated with one another. Whilst every effort was made not to include highly correlated items in the first instance, the variables included in the final model were subject to a formal test of multicollinearity. Multicollinearity (or collinearity) is where one or more explanatory variables in a regression model are highly correlated, violating a key assumption of multivariate regression. High multicollinearity can be assessed using the variance inflation factor (VIF) statistic. There is differing advice on what constitutes an acceptable degree of multicollinearity, with a conservative guide of 2.5 indicating cause for concern and a more liberal, widespread, rule of thumb approach of anything under 10 being acceptable. The VIF statistic was calculated for the final models with the values for all variables under 5. This was taken as a satisfactory result so no amendments were made to which variables were included.

As well as assessing the suitability of the explanatory variables included in the final regression model through statistical and substantive interpretation and tests of multicollinearity, the goodness of fit was assessed. Goodness of fit can be assessed in

multiple ways; in this instance, the R^2 statistic along with the Hosmer-Lemeshow[27] test statistic were examined. The R^2 statistic is the coefficient of determination for multiple regression models and measures how well the data fits the model. It is reported as a percentage of the variation of the outcome explained by the variables included. In social science research R^2 can appear to be low but due to the complex nature of outcomes being investigated this is to be expected. When calculating R^2 statistics, of which several are calculated, the svy function (as used for estimating proportions) cannot be used. This means that the estimates do not take into consideration the stratified, nor weighted, nature of the data.

For household material deprivation, the estimated R^2s were between 0.22 and 0.36 indicating that the explanatory variables in the final model accounted for between 22% and 36% of the variance in material deprivation. However, R^2 statistics must be treated with extreme caution when using weighted survey data.

An alternative goodness of fit measure for binary data is the Hosmer-Lemeshow test. This test compares the predicted probabilities of cases with the observed data. The test returns a statistic that assesses the lack of fit of the model to the data. In this case the test indicated no lack of fit in the final model, i.e. the model adequately predicted membership of material deprivation group ($\chi^2(9)= 9.97$, $p > 0.05$). Figure 2.1 is a graphical representation[28] of the comparison of predicted probabilities to a moving average of cases that have a probability of one. Essentially, the closer the red line is mapped onto the green, the better the model fit. Figure 2.1 indicates that the final model does a good job of accurately predicting whether or not a household is in material deprivation.

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[27] Hosmer, D. W., & Lemeshow, S., (2000). *Applied Logistic Regression.* 2nd ed. New York: Wiley.
[28] Following the example given in Long & Freese (2006).

Figure 2.1: Household material deprivation goodness of fit

bandwidth = .8
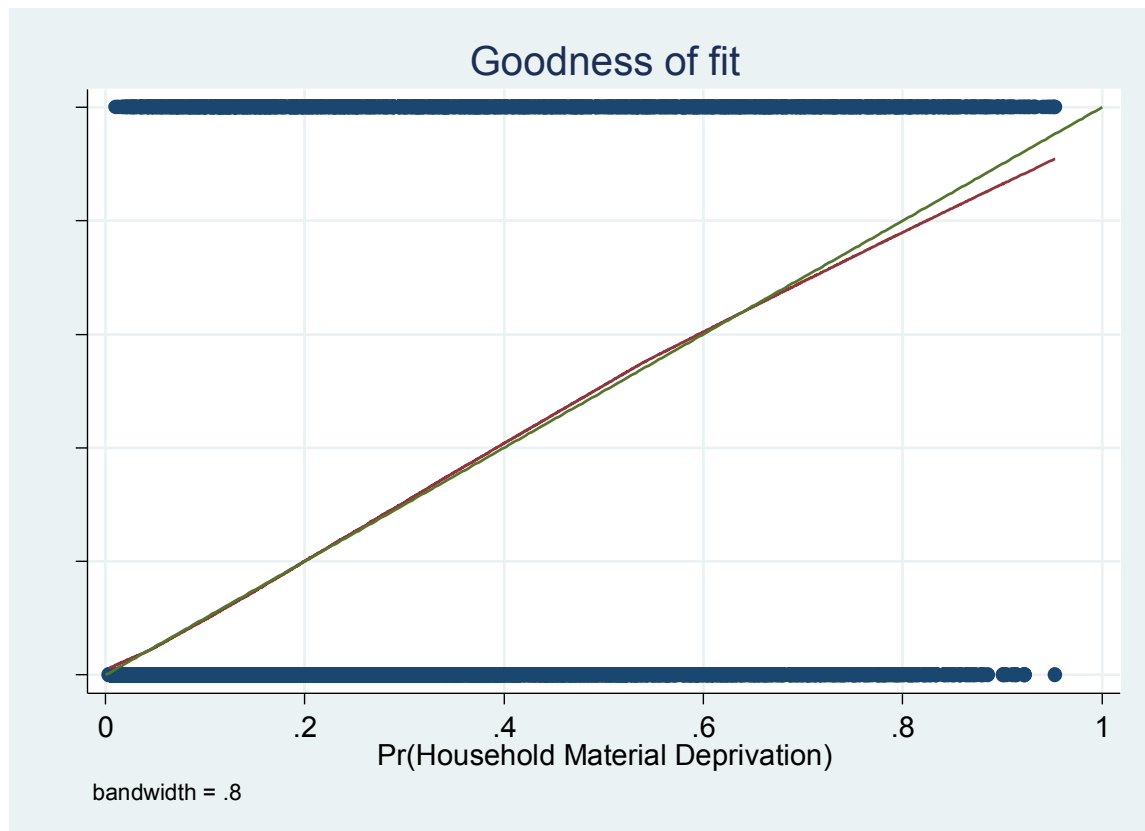
A similar procedure was used to examine the goodness of fit of the regression model for households with children. As with the above, caution must be used when interpreting the coefficients of determination for survey data. However, as a general guide, the regression model for households with children had associated R^2s of between 0.15 and 0.34. This can be interpreted such that the model was explaining between 15% and 35% of the variance in material deprivation. Whilst this is a broad range, with quite a low minimum, it was taken as satisfactory.

Multinomial logistic regression requires that all levels of the outcome are predicted using the same explanatory variables. Necessarily, some explanatory variables will be more important for some outcomes over others (and therefore better at predicting some outcomes over others) leading to reduced power in explanation of variance in the overall model. This discrepancy can be seen in the results presented in Section 5. Whilst it could be considered a limitation, this can actually aid in understanding the differences between different levels of the outcome.

3 Material deprivation indicators

3.1 Individual indicators

Respondents were considered to be materially deprived of an item if they responded that they would like but could not afford an item. Considering the household material deprivation questions, 48% of respondents indicated that they were missing at least one item. Of these, over half were deprived of just one or two of the items (32% and 21% respectively). Fewer than 5% of the sample indicated that they were deprived of 7 or more items. Figure 3.1 and Figure 3.2 detail the number of items households experience deprivation on more fully.

Figure 3.3: Number of items deprived of, by total number of households
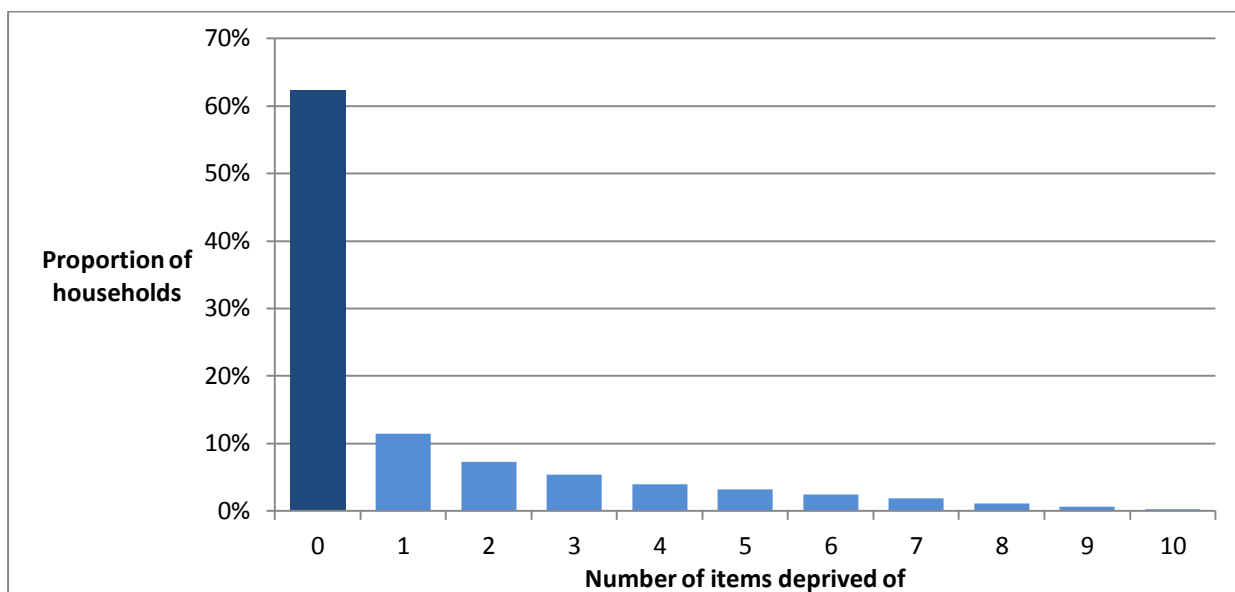
Figure 3.4: Number of items deprived of, by households lacking at least one item
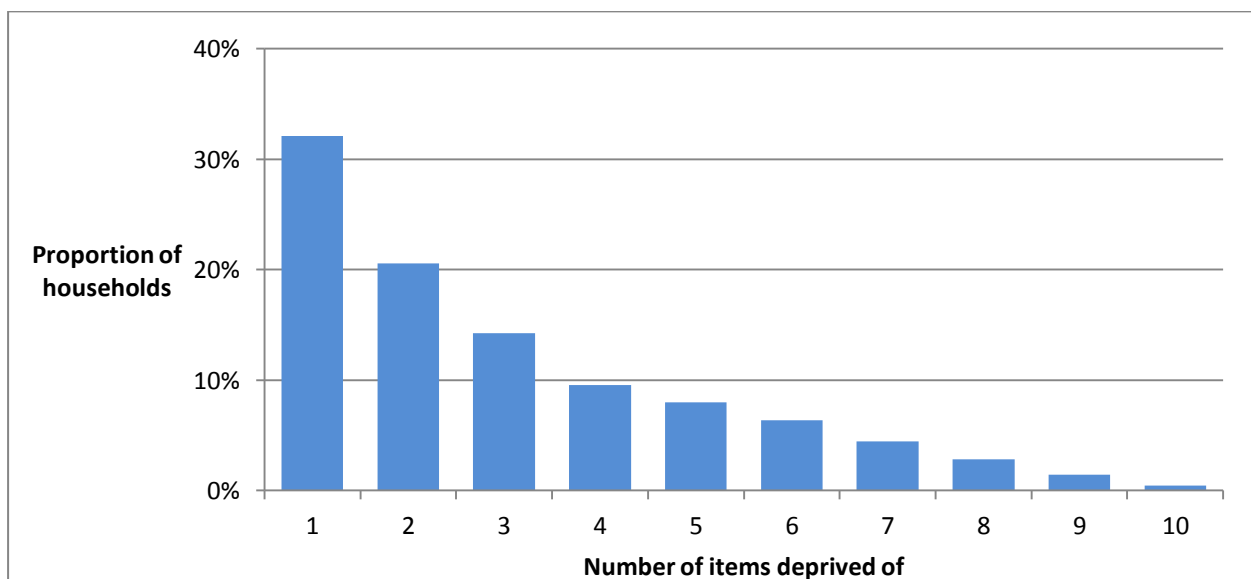
Figure 3.5 provides the response proportions for each household material deprivation item. As can be seen, the most common item that respondents indicated that they could not afford was a holiday away from home (not staying with relatives). Almost a quarter of people indicated that they could not afford this type of holiday, with a similar amount stating that they could not afford regular savings each month. These two items highlight an interesting aspect of this type of analysis with the responses indicating different levels of perceived necessity. A holiday away from home is considered far less essential, with 15% stating that they do not need this, than making regular savings, with 8% considering they do not need this. This aspect of the response pattern was taken into consideration when calculating the overall material deprivation score.[29]

Figure 3.6: Responses to household material deprivation measures

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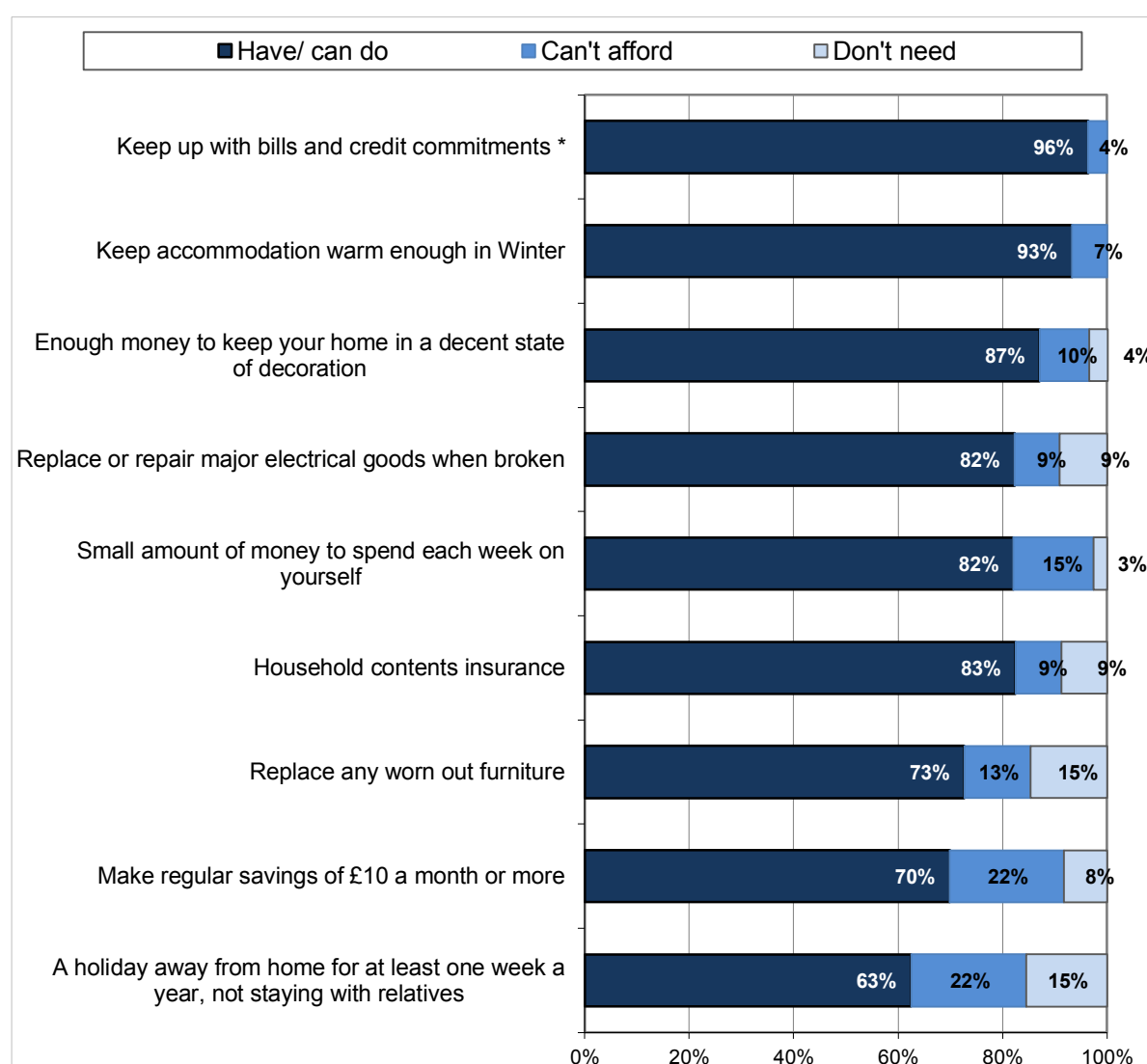
[29] Whilst it is logical to assume that the more items a household is deprived on the greater the level of material deprivation, not all items are given equal weight. If a respondent lacks an item that is very commonly afforded by other respondents, this item is given a higher weight in calculating deprivation. More detail of how the overall material deprivation scores were calculated can be found in Section 2.2.1.

Figure 3.7 gives the proportion of responses to each child specific material deprivation question. These measures are more difficult to compare directly than the household material deprivation items, as different items are specific to different ages of children. This was somewhat accounted for by some questions being asked only of participants who had previously indicated that they had children for whom the question *may* be relevant. However, the high proportions of 'do not need' responses might be due to issues of age-appropriateness of items. This issue, along with the relationship between household and child material deprivation, is explored in more detail in Section 2.2.2. What is striking about Figure 3.7 is the low levels of deprivation reported to be experienced by children on any of the items. Other than the separate bedroom item with a 9% level of deprivation observed, all items had deprivation levels of less than 5% (see Table 3.1).

Figure 3.7: Responses to child material deprivation measures
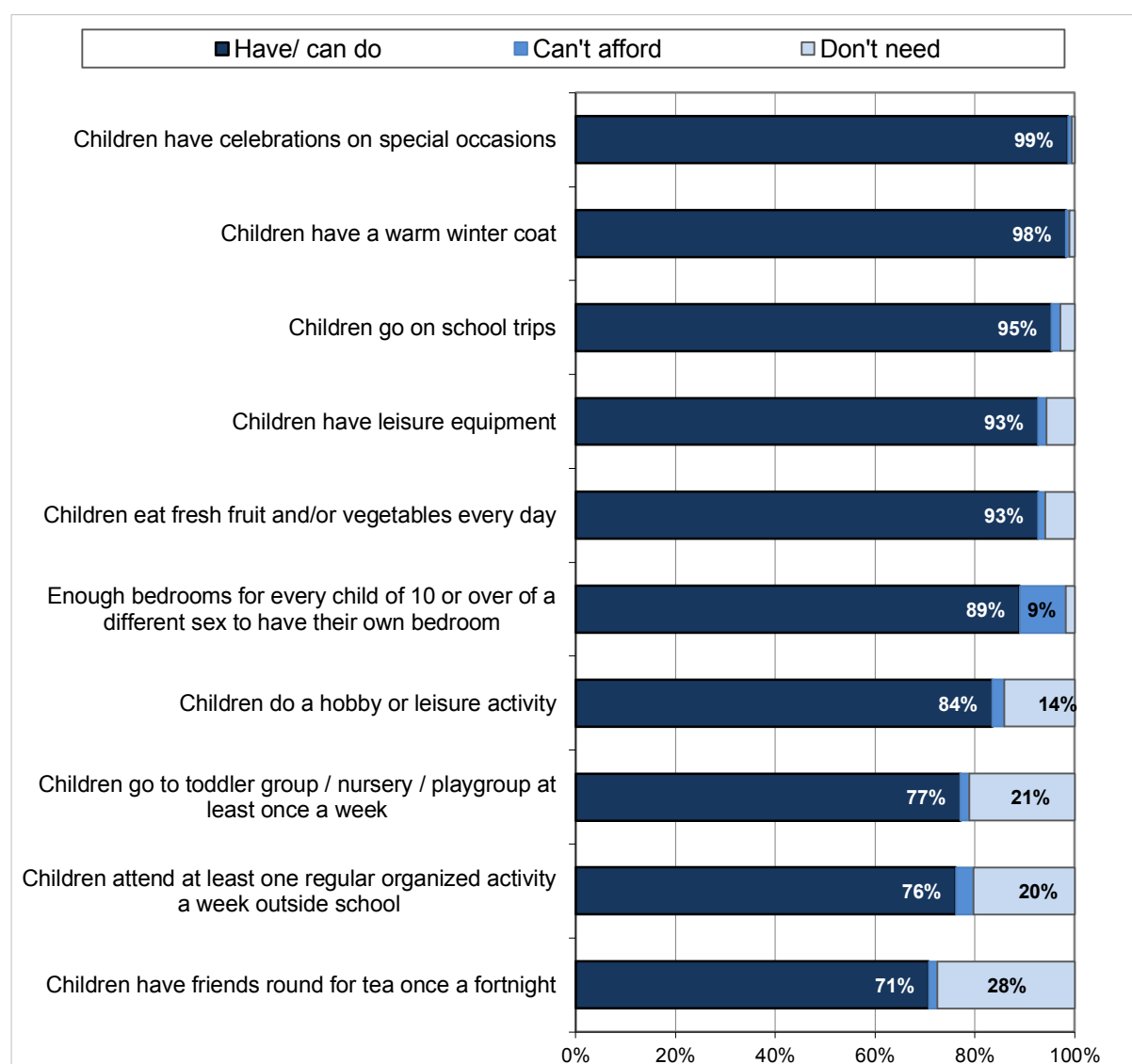
Table 3.1: Deprivation of child specific items by all households with children

Item	Cannot afford %
Enough bedrooms	9.3
Regular organised activity	3.6
Hobby / leisure activity	2.4
Toddler group / nursery / playgroup	1.8
School trips	1.7
Leisure equipment	1.7
Friends over for tea fortnightly	1.7
Fresh fruit / vegetables every day	1.4
Celebrations	0.8
Warm winter coat	0.7

3.2 Relationships between indicators

The questions asked of respondents, as described in section 2.1.2, are designed to measure the underlying trait of being materially deprived. As such it is possible to examine the relationship between the material deprivation indicators using latent correlation analyses.[30] This type of analysis takes each variable and calculates the relationship that it has to every other variable in the analysis, returning a matrix of results. Table 3.2,

Table 3.3, and Table 3.4 display the results of these correlational analyses. Table 3.2 shows the relationships between the household material deprivation items. Perhaps unsurprisingly, the relationships between all of these indicators is positive, meaning that those who lack item *A* will also be more likely than not to lack item *B*. Some of the strongest relationships are between those items that are associated with upkeep of the household, i.e. between an inability to afford repairs to furniture and repairing major electrical goods, between inability to afford repairs to furniture and being unable to keep the home in a decent state of decoration, and between inability to repair major electrical goods and repairs to furniture.

Table 3.2: Latent correlations between household material deprivation items

	Holiday	Décor	Insure	Money	Furniture	Repair	£ Self	Heating	Bills
Holiday	1								
Décor	0.63	1							
Insure	0.68	0.64	1						
Money	0.68	0.64	0.68	1					
Furniture	0.66	0.74	0.64	0.74	1				
Repair	0.65	0.70	0.65	0.70	0.87	1			
£ Self	0.70	0.67	0.67	0.75	0.72	0.71	1		
Heating	0.48	0.60	0.48	0.52	0.53	0.52	0.52	1	
Bills	0.60	0.61	0.63	0.67	0.62	0.63	0.68	0.51	1

0.40-0.69	Modest relationship
0.90-0.99	Strong relationship

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[30] These correlation matrices are usually constructed prior to factor analysis

Table 3.3 provides the results of the latent correlations between the child material deprivation items. The question items were taken from the Family Resources Survey under the assumption that they are measuring the underlying material deprivation of households. The resulting matrix sits in contrast to that for household material deprivation (Table 3.2) in that there is a much less clear picture about the relationship between material deprivation items. Generally the relationships between the child-specific variables are weaker than those found with the household measures. In fact, the item measuring whether there are enough bedrooms for all children of differing sexes over the age of ten displays weak to very weak relationships with all of the other items apart from having friends over for tea fortnightly. The correlation between these two items is both modest and negative. The negative nature of the relationship indicates that those who indicate that they cannot afford the appropriate number of bedrooms are more likely to be able to afford to have their child/ren's friends round for tea, and vice versa. This, along with the other negative relationships found in the matrix and the prevalence of weak to very weak relationships, suggests that there may be differing patterns of deprivation in the sample. With reference to the discussion in section 2.2.2, because the child material deprivation measures appear to be targeting differing subsets of children, they are arguably not representing an underlying single dimension of child material deprivation (unlike the EU SILC measures as described in Whelan & Maitre, 2012[31]).

Table 3.3: Latent correlations between child specific material deprivation items

	Coat	Veg	Bedroom	Equip	Celeb	Activity	Leisure	Tea	Playgroup	Trip
Coat	1									
Veg	0.60	1								
Bedroom	0.12	0.23	1							
Equipment	0.59	0.46	0.25	1						
Celebration	0.77	0.62	0.08	0.55	1					
Activity	0.51	0.47	0.07	0.60	0.45	1				
Leisure	0.49	0.37	0.19	0.62	0.51	0.81	1			
Tea	0.36	0.28	-0.54	0.44	0.35	0.53	0.50	1		
Playgroup	-0.39	-0.43	0.18	0.14	-0.47	0.24	0.27	0.20	1	
Trip	0.46	0.29	0.17	0.56	0.41	0.58	0.58	0.48	0.37	1

0.01-0.19	Very weak relationship
0.20-0.39	Weak relationship
0.40-0.69	Modest relationship
0.70-0.89	Strong relationship

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[31] Whelan, C. T. and B. Maître (2012), 'Identifying childhood deprivation: How well do national indicators of poverty and social exclusion in Ireland perform?', *Economic and Social Review, 43: 2*, pp. 251 - 272.

The final table in this subsection (Table 3.4) shows the latent correlations between deprivation of household indicators (along the top) and child specific indicators (along the side). This table shows that the majority of the relationships between these distinct sets of indicators are modest and positive.

Table 3.4: Latent correlations between household and child material deprivation items

	Holiday	Décor	Insure	Money	Furniture	Repair	£ Self	Heating	Bills
Coat	0.42	0.55	0.44	0.49	0.46	0.51	0.38	0.54	0.48
Veg	0.27	0.37	0.35	0.40	0.38	0.44	0.40	0.39	0.42
Bedroom	0.37	0.26	0.36	0.42	0.32	0.38	0.37	0.30	0.34
Equip	0.47	0.62	0.48	0.53	0.48	0.42	0.59	0.60	0.50
Celeb	0.35	0.31	0.39	0.37	0.37	0.40	0.31	0.37	0.40
Activity	0.44	0.48	0.54	0.45	0.50	0.51	0.55	0.51	0.55
Leisure	0.34	0.49	0.49	0.56	0.47	0.48	0.57	0.36	0.53
Tea	0.28	0.48	0.32	0.42	0.41	0.37	0.45	0.29	0.37
Playgroup	0.27	0.31	0.28	0.32	0.26	0.19	0.41	0.17	0.23
Trip	0.37	0.46	0.41	0.55	0.37	0.34	0.50	0.47	0.48

0.01-0.19	Very weak relationship
0.20-0.39	Weak relationship
0.40-0.69	Modest relationship

The stronger the relationship, i.e. the closer the correlation coefficient is to 1, the greater the indication that the two items are measuring the same thing. The moderate relationships between the items in the above matrices suggest that whilst the child and adult indicators are measuring something similar, they are (as intended) measuring different aspects, or types, of material deprivation.

4 Household material deprivation

4.1 Respondent characteristics

Although the majority of the material deprivation questions are asked about the household as a whole unit, it is also useful to consider the demographics and characteristics of particular respondents. Not only does at least one of the questions ask specifically about the individual's experience of deprivation, it is also reasonable to assume that the characteristics of the individual may affect the responses they give[32].

Associations between material deprivation and other characteristics were initially explored independently of one another. The relationship between material deprivation and each characteristic was then re-examined after controlling for other variables. The interesting and significant characteristics are described below.

4.1.1 *Age*

Age of respondent was found to have a significant relationship with experience of material deprivation. Age was treated as categorical with respondent age placed into one of five groups. This was a reasonable approach to take given the boundary in the data of retirement age. It was presumed reasonable to consider young people, middle aged people and old people as distinct groups. Further it was thought likely that young people and older people experience material deprivation differently from each other, as well as differently from those in the middle age categories (i.e. that there is a non-linear relationship between age and material deprivation). Figure 4.1 shows the percentage of those in each age group who are experiencing material deprivation. Error bars are displayed at the top of each age group to indicate the range within which the population estimate is likely to fall. Error bars that overlap, like those for age groups 16-24 and 45-64, indicate that the difference we have observed in this data is unlikely to exist in the wider population. Conversely, we can be confident that the estimates for which the error bars do not overlap represent a true difference, like those for age groups 25-44 and 45-64. Figure 4.1 shows that a much greater proportion of working age adults experience deprivation than do those of retirement age. Of the over 75s, for example, only 7% indicate that they are materially deprived. There is both a substantive and a methodological interpretation of this figure. Substantively, it may be that those who have survived past the age of 74 and are still able to live at home tend to be more affluent. Alternatively, it may be that the questions asked are not tapping into how the older generations experience deprivation. Although this analysis will continue with these older individuals included, more recent developments in the FRS and National Survey have allowed for the latter point raised here by including separate indicators for pensioner

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[32] There is evidence to suggest that pensioners, for example, perceive fewer of these material deprivation items to be essential than adults of a working age.

households[33].

Figure 4.1: Household material deprivation by age group
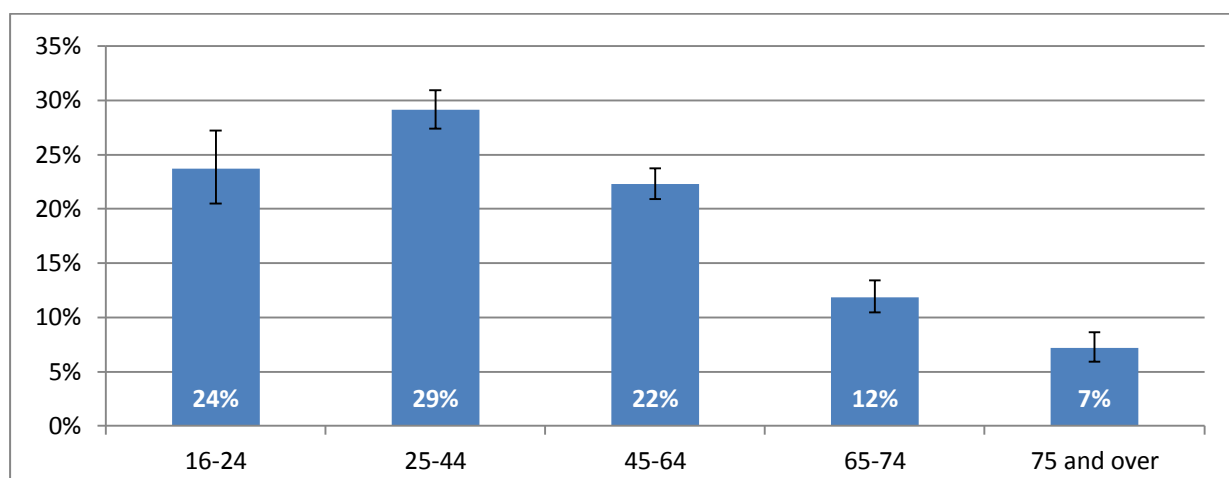
Age remained significantly associated with material deprivation once other characteristics were controlled for[34]. Figure 4.2 shows the effect of age on the likelihood of experiencing material deprivation, controlling for other factors. Each group is compared with the reference category of 16 to 24 year olds. There appeared to be a distinction between those above and below retirement age. Those below retirement age had an increased likelihood of experiencing material deprivation, with 25-44 year olds significantly more likely to experience deprivation (8 percentage points more likely). Conversely, those aged 75 and older are 10 percentage points less likely to experience deprivation. Although age categories 45-64 years and 65-74 years were not statistically significantly different from the youngest age category, they also followed the pattern described with the younger age group having an increased likelihood and the lower a reduced likelihood of being in deprivation.

Figure 4.2: Effect of age on household material deprivation

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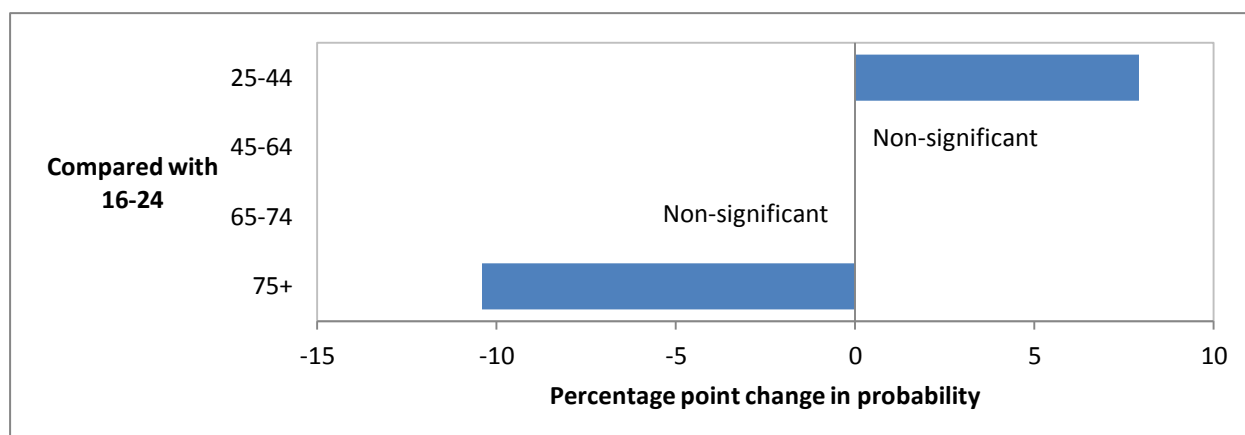
[33] McKay, S. (2008). *Measuring material deprivation among older people: Methodological study to revise the Family Resources Survey questions.* Department for Work and Pensions (working paper 54). From 2016-17 onwards, the National Survey includes a separate set of questions for pensioners (taken from the FRS) designed to more accurately pick up material deprivation in that group.

[34] For a full list of variables controlled for in the multivariate logistic regression, see 4.6 Summary.

The distinction found between older and younger age groups is further highlighted when looking at household composition. Noticeably fewer households composed solely of adults of a pensionable age were found to be deprived (9%) compared with those who contained adults of working age (25%). Indeed, after controlling for other characteristics, the relationship between retired households and material deprivation remained statistically significant with the likelihood of a retired household[35] experiencing material deprivation being 9 percentage points lower than households that contained adults of a working age.

4.1.2 *Gender*

A quarter of women reported experiencing material deprivation (25%) compared with less than a fifth of men (18%), as can be seen in Figure 4.3. This difference remained significant after controlling for other variables, with women's likelihood of experiencing deprivation 6 percentage points higher than that for men.

Figure 4.3: Household material deprivation by sex
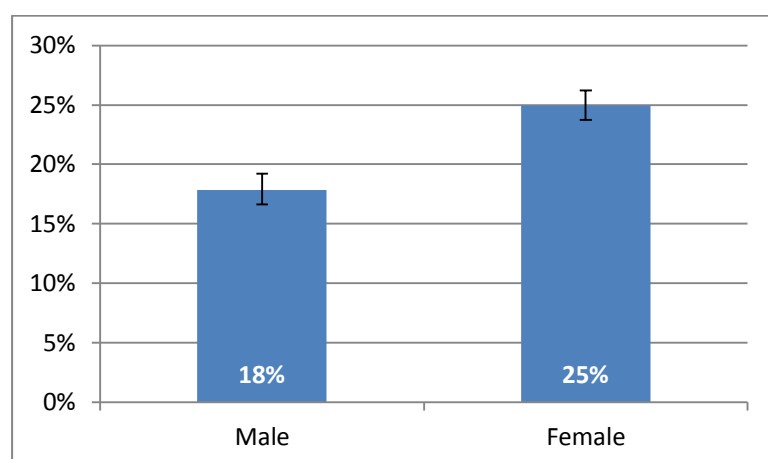
4.1.3 *Health*

Several questions were asked of respondents about their health status. Two of these questions, one about the state of their health and another about whether they suffered from a long-term limiting illness or disability, had significant associations with material deprivation. A fifth (20%) of those who reported good/fair health were considered to be materially deprived, compared with 39% of those who reported having bad health. This association remained statistically significant after controlling for other characteristics, with those who reported poor health 5 percentage points more likely than others to experience material deprivation.

Similar results were found for those who reported having a long-term limiting illness. 31% of those who reported having some kind of long-term limiting illness or disease were also in material deprivation. This remained significant once other variables (including self-

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[35] 'Retired household' throughout this analysis refers to those households consisting solely of adults of a pensionable age.

reported health status) were controlled for. Those having a long-term limiting illness were 8 percentage points more likely to experience material deprivation than those not experiencing this kind of health problem.

4.1.4 *Qualifications*

Level of qualification was significantly associated with material deprivation, both before and after controlling for other characteristics. Figure 4.4 gives the proportions and confidence intervals for each level of qualification, as categorised using the National Qualifications Framework (NQF)[36]. Perhaps unsurprisingly, those with the highest levels of qualifications experienced the lowest rates of material deprivation (NQF levels 4-8: 12%); whereas those with no qualifications or the lowest levels of qualifications experienced much higher proportions of deprivation (no qualifications: 32%; less than NQF level 2: 31%).

Figure 4.4: Household material deprivation by qualification level
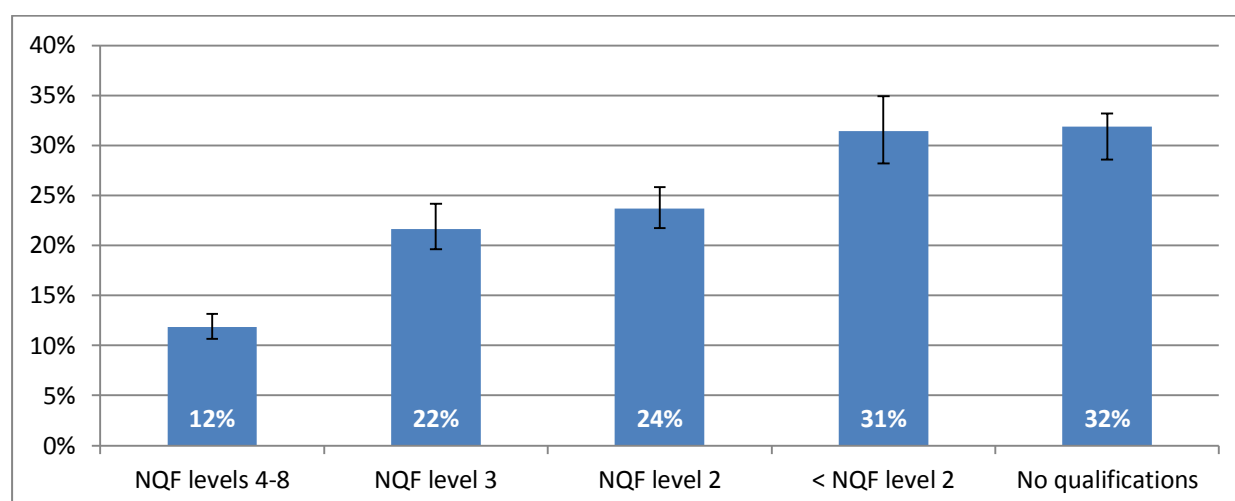
After controlling for other variables, the level of highest qualification reported by the respondents remained significantly associated with material deprivation. Figure 4.4 illustrates the effect of respondents' highest educational qualification obtained and their likelihood of experiencing material deprivation. This figure shows that as the level of qualification obtained decreases, the likelihood of material deprivation increases. It is important to remember that these likelihoods are controlling for other variables in the model such as employment status and age, thereby trying to isolate the influence of this specific variable on material deprivation.

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[36] Respondents' highest qualifications have been grouped according to the National Qualification Framework (NQF) levels, where level 1 is the lowest level of qualifications and level 8 is doctoral degree or equivalent.

Figure 4.5: Effect of highest educational qualification on household material deprivation
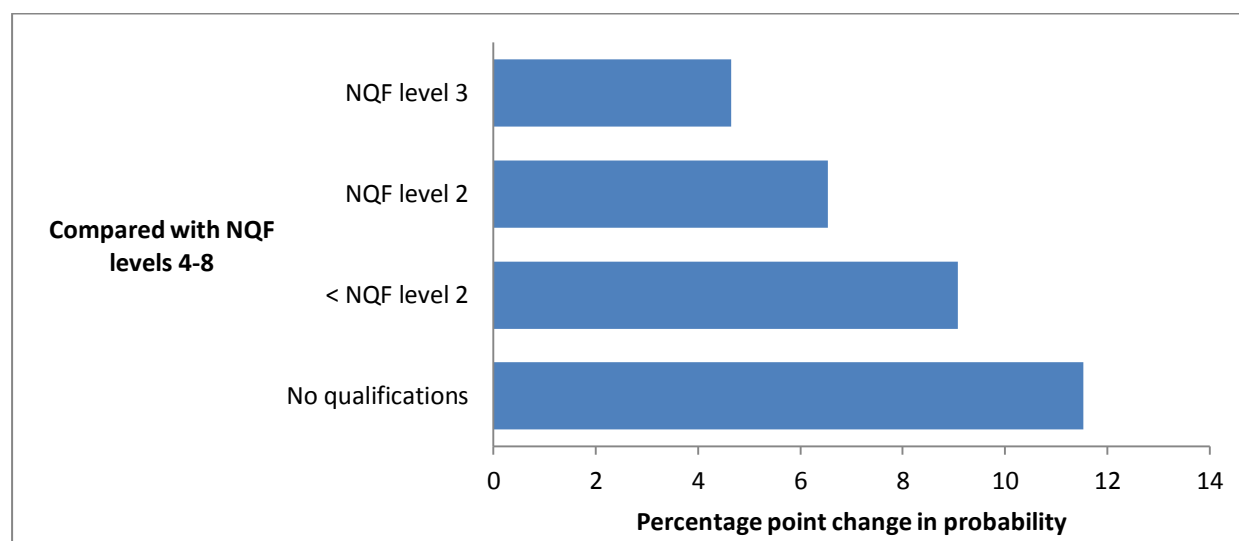
4.2 Family relationships and households

4.2.1 Marital status

Marital status has a significant association with material deprivation. A similar proportion of those who were widowed were materially deprived (15%) compared with those who were married (14%). In contrast twice the proportion of single respondents (24%) indicated material deprivation compared with married respondents (14%). Those who were divorced were even more likely to be materially deprived (38%), as shown in Figure 4.6.

Figure 4.6: Household material deprivation by marital status
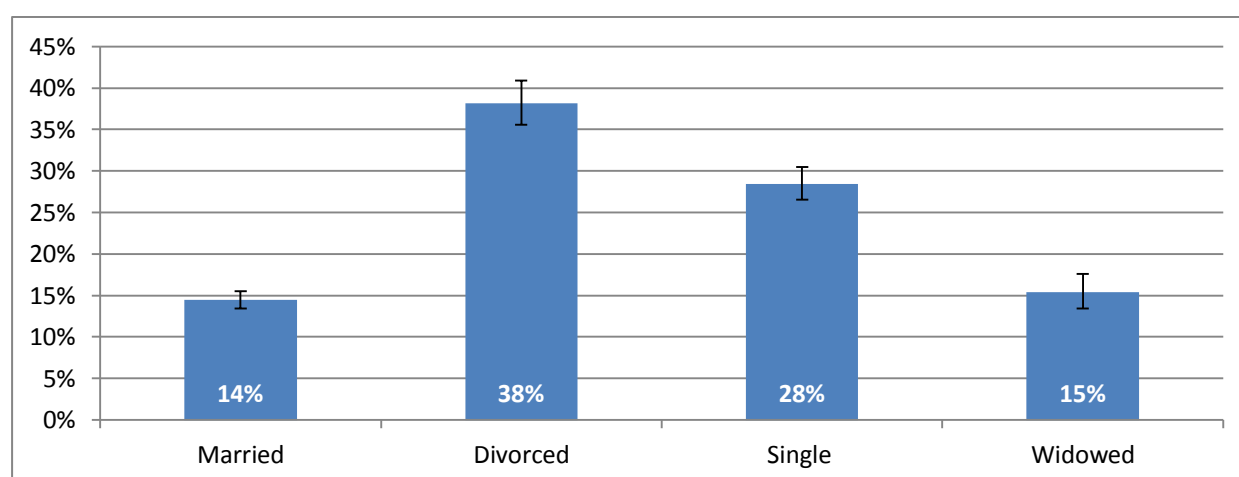
These results remained significant once other factors were controlled for, with divorced individuals having a substantially and statistically significant 12 percentage point increase in likelihood of deprivation compared with those who are married. Whilst different proportions of single people and widowed people were in material deprivation, once other

characteristics were accounted for both groups had a similar, increased likelihood of experiencing material deprivation compared with married people.

This is a good example to highlight the importance of using inferential statistics that can account for the influence of other variables on the association between variables of interest (in this case marital status and material deprivation). Conclusions drawn from descriptive statistics alone may not capture the complicated nature of the relationships between variables. Sociological research of this sort is necessarily complex and as such it is important to be aware of and account for as many potentially confounding variables as possible when trying to isolate the effect of any one factor.

The results of the inferential analyses conducted, reported as percentage point change, account for the effect that other factors may have on the relationship between the variables of interest and to some extent attempt to isolate this association. This can lead to the current situation, where the descriptive statistics (Figure 4.6) appear to be telling a different story to the results of the logistic regression (Figure 4.7). The descriptive statistics in this example may lead us to conclude that single people and widowed people have very different associations with material deprivation compared with the married group. It appears that single people have a higher likelihood of experiencing material deprivation than those widowed. The inferential statistics challenge this initial conclusion. They reveal that once other characteristics are controlled for single and widowed individuals actually have very similar likelihoods of experiencing material deprivation compared with those who are married. Further, these likelihoods are not too dissimilar to that of married couples and it is the divorced group for whom there is a significantly large effect.

Figure 4.7: Effect of marital status on household material deprivation
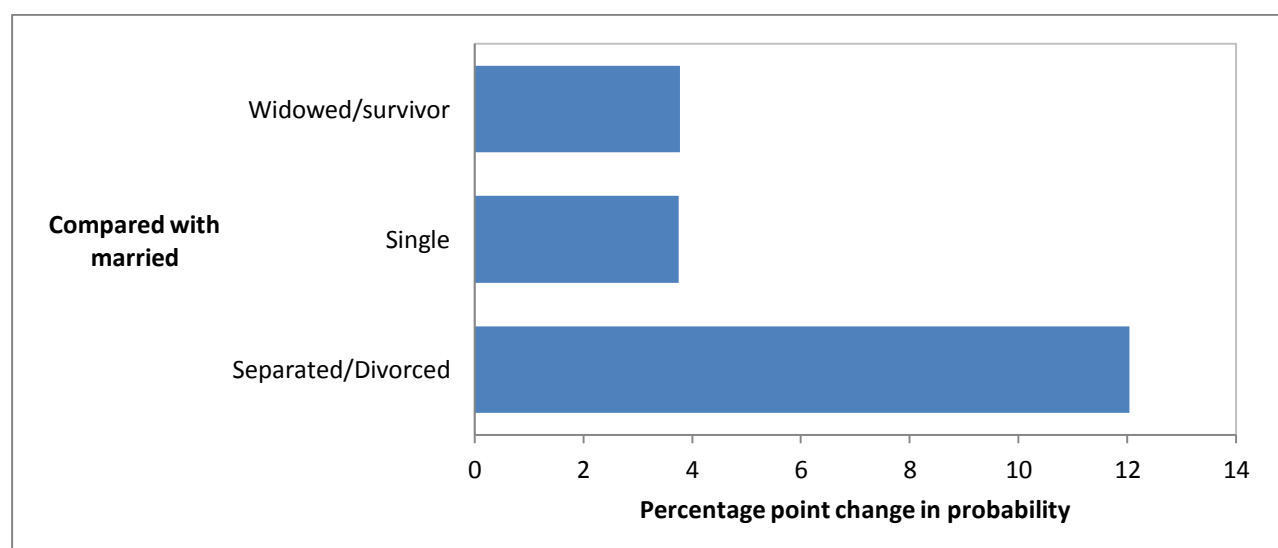
4.2.2 Number of children

The number of children within the household was significantly related to whether or not that household experienced material deprivation. Figure 4.8 shows the varying proportions of households with no, one, two and three or more children. As can be seen, having any number of children in the household is linked to a significantly increase in likelihood of material deprivation compared with households without children. Whilst there is little difference between having one or two children, those households with three or more children are more likely to experience material deprivation than those with less. This is confirmed when other characteristics are taken account of, with approximately a 3 percentage point increase in experiencing material deprivation with each additional child.[37]

Figure 4.8: Household material deprivation by number of children
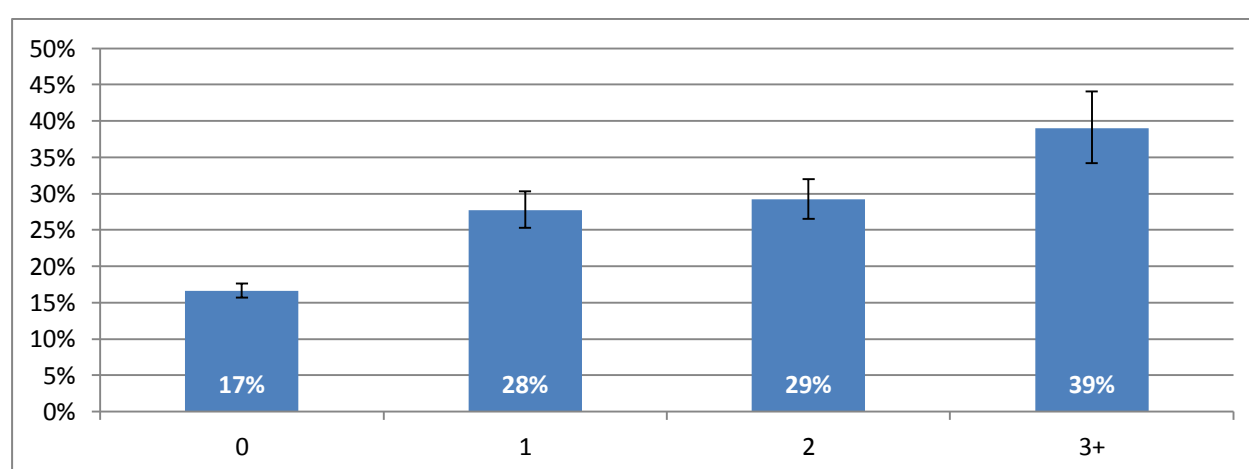
4.2.3 Single parent household

Somewhat related to both of the previous subsections, but having a distinct effect of its own,[38] being a single parent was associated with an increase in likelihood of material deprivation. Although the number of adults in the household was significantly associated with material deprivation (with single adult households being the most likely to experience deprivation at 31%), this characteristic was no longer significant when taking into consideration those single people who had children in the house. Controlling for other variables, the effect of being a single parent household on experience of material

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[37] The marginal effect for continuous measures such as this actually measures the *instantaneous rate of change* which provides a good approximation of the amount of change in material deprivation for a one unit change in number of children.

[38] Not to the extent that they exhibit multicollinearity. Multicollinearity refers to cases where two or more predictor variables in regression analyses are highly correlated with one another. This can present a problem with regards to the stability and interpretation of estimates produced. The models throughout this report have been tested and multicollinearity was not found to be a problem (all VIFs < 5).

deprivation remained statistically significant. Single parent households were 5 percentage points more likely than other household types to experience material deprivation.[39]

4.2.4 Housing tenure

The housing tenure status of the household also has a significant relationship with material deprivation. Figure 4.9 shows that those who owned their own home were much less likely to experience material deprivation (12%) than those who lived in either privately rented (35%) or social housing (51%).

Figure 4.9: Household material deprivation by housing tenure[40]
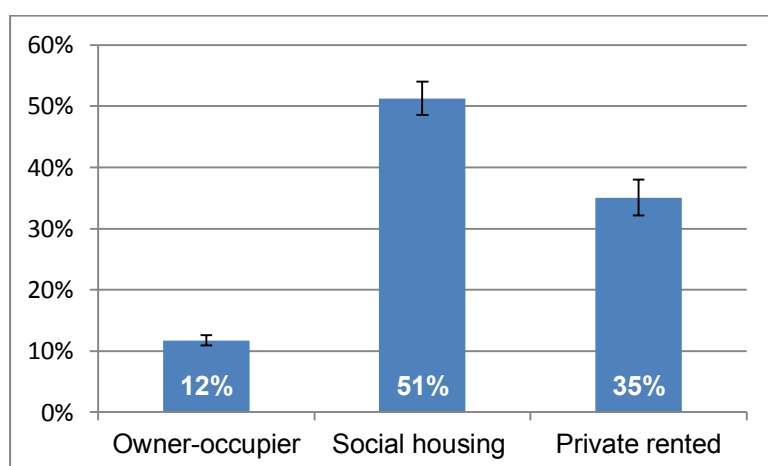
After controlling for other characteristics, this distinction between owner-occupier and rented households remained statistically significant (Figure 4.10). Rented households were over 10 percentage points more likely to be in deprivation. It is worth noting that the apparent large discrepancy between those in the private rented and social housing sector is minimised when consideration is given to other characteristics of the respondents. Those who rent from private individuals had an increase in likelihood of 14 percentage points, whilst those who rent from housing association or council landlords (i.e. those in social housing) had an increased likelihood 4 percentage points above this at an 18 point increase. It is worth noting the apparent discrepancy between the descriptive and inferential statistics here. Although there is a large percentage point change in the proportions of those experiencing material deprivation in the social housing and private rental groups (Figure 4.9), this apparent difference greatly reduces when other factors are controlled for and we examine the change in likelihood through inferential statistics (Figure 4.10).

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[39] It is important to note that single parent households are compared with all other households here, both those with and those without children. Section 5.2 explores the effect of single parent households when investigating only those households with children.

[40] These figures are different from the National Survey figures published on StatsWales, due to the different method of calculating deprivation that is employed here.

Figure 4.10: Effect of housing tenure on household material deprivation
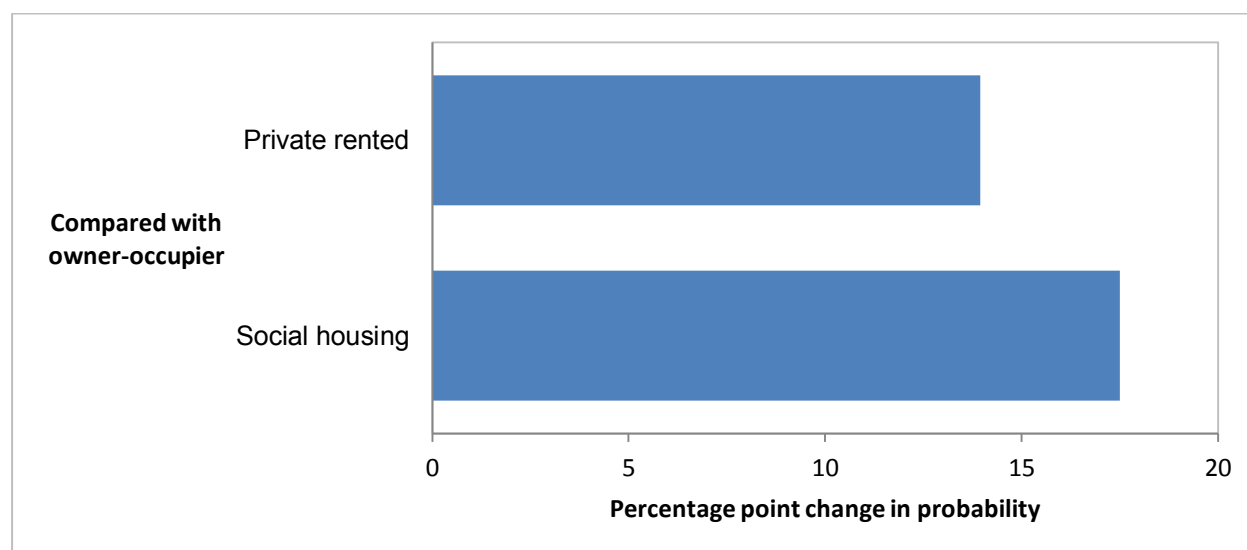
4.3 Employment and finances

4.3.1 Employment

Although the National Survey in 2014-15 did not collect information on respondents' income directly, several questions in the survey related to the economic status of both the individual as well as the household. In terms of the individual, their current economic status was established. Economic status was classified as employed, unemployed, or economically inactive (those not looking for work). Figure 4.11 shows the clear distinction between the three groups, particularly that between those in employment and those classified as unemployed.

Figure 4.11: Household material deprivation by current economic status
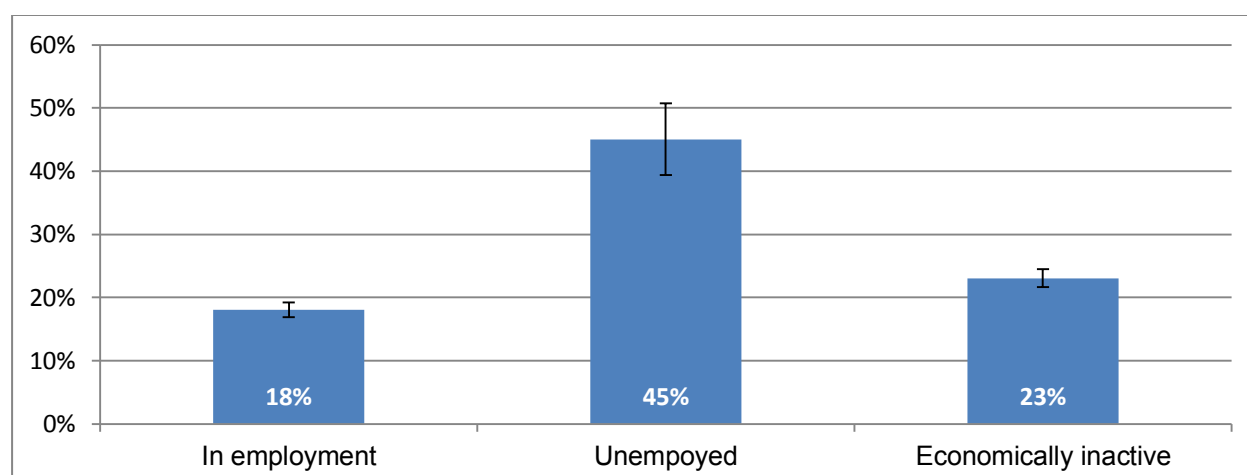
This relationship between individual employment status and material deprivation did not remain significant once other characteristics were taken into consideration. Instead, it appears to be the working status of the household more broadly that impacts on whether the household is in material deprivation.

Figure 4.12 shows the proportions of material deprivation for households with differing working status.

Figure 4.12: Household material deprivation by working status of household[41]
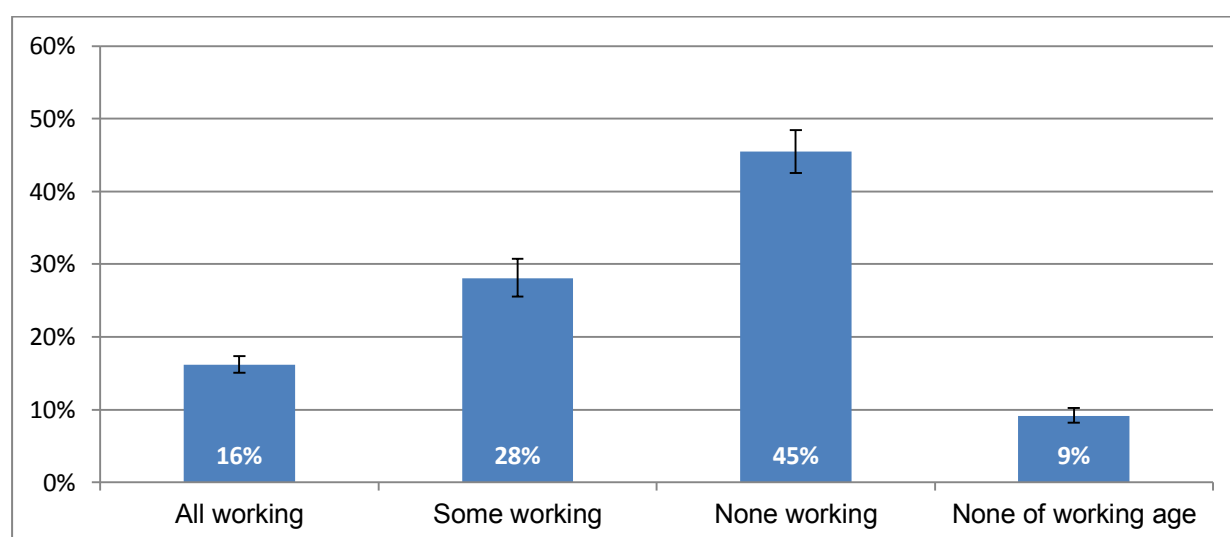
As can be seen, those households where all are working are less likely to be experiencing material deprivation than those where only some people are working, which in turn are less likely to experience deprivation than those households where no-one works. Households which are composed of those who are not of working age (majority composed of retired households) appear to have a substantively lower level of deprivation than those where all individuals are working but this effect is not statistically significant.

When other characteristics are taken into consideration, it is this household measure of working status rather than the individual measure that has a significant relationship with material deprivation. Figure 4.13 shows the effect of household working status on likelihood of experiencing material deprivation. The fewer the number of people working the higher the likelihood of material deprivation, with a 6 percentage point increase if only some of the household are working and a further 4 percentage point increase if none of the household work (i.e. 10 percentage points higher than if all the household is in employment). The difference between material deprivation of all working and none of working age, present in the descriptive statistics, was found to not be statistically significant. This means that the difference seen in the sample may be due to chance and we cannot conclude that this difference actually exists in the population.

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[41] Figures differ from those available on StatsWales due to the different method used here for determining material deprivation.

Figure 4.13: Effect of working status of household on material deprivation
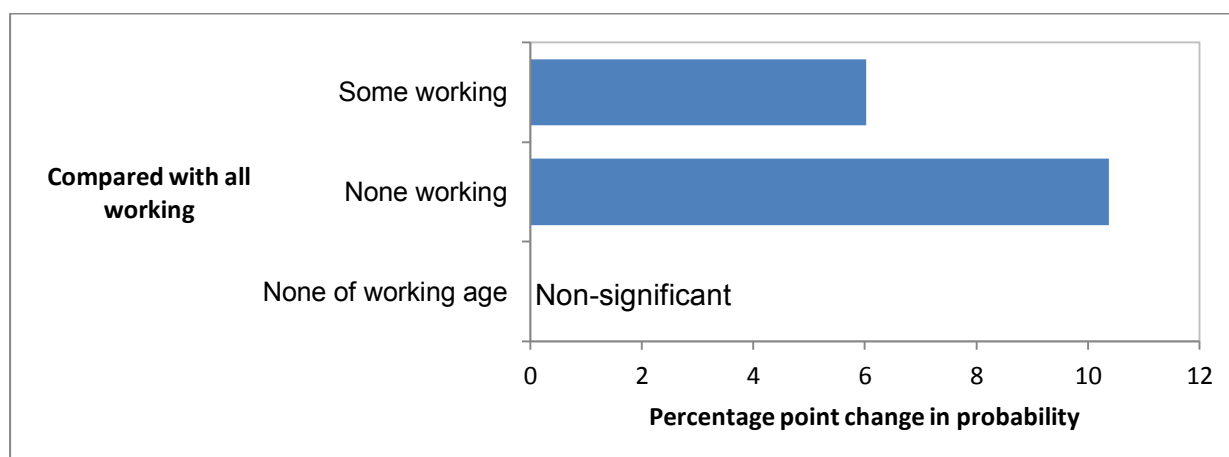
The effect of working status of household is regardless of the number of adults in the household. In fact the actual number of working age adults in the household (as opposed to whether it is some/all/none who are working) is not a significant predictor of whether that household is likely to experience material deprivation or not. Additionally, this effect does not take into consideration the type of employment that those in the household may be engaged in and does not distinguish between part-time and full-time employment.

4.4 Material deprivation and place

4.4.1 Local authority and local area

Although not included in the multivariate analysis, the relationship between household material deprivation and local authority was investigated. Figure 4.14 shows the proportion of households in material deprivation for each local authority in Wales. The dashed reference line at approximately 21% refers to the threshold at which material deprivation was set for this analysis. The error bars at the top of each bar give an indication of the precision of the margin of error of our sample estimate. Using the error bars as a guide, it appears that Monmouthshire (15%), Powys (16%), Gwynedd (17%) and Isle of Anglesey (16%) all have significantly lower than average levels of material deprivation. Conversely, Torfaen (27%) and Wrexham (25%) appear to have statistically significantly higher than average levels of household material deprivation. As a general rule of thumb, those local authorities whose error bars do not overlap may be considered as having significantly different proportions of material deprivation (e.g. Monmouthshire and Torfaen)[42].

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[42] These differences have not been formally tested, this rule of thumb is presented as a rough guide.

Figure 4.14: Household material deprivation by Local authority

Local Authority	Percentage
Torfaen	27%
Rhondda Cynon Taf	25%
Wrexham	25%
Swansea	25%
Caerphilly	25%
Blaenau Gwent	24%
Cardiff	23%
Merthyr Tydfil	23%
Newport	22%
Neath Port Talbot	22%
Pembrokeshire	21%
Carmarthenshire	21%
Bridgend	21%
Vale of Glamorgan	21%
Ceredigion	20%
Denbighshire	19%
Conwy	18%
Flintshire	17%
Gwynedd	17%
Isle of Anglesey	16%
Powys	16%
Monmouthshire	15%
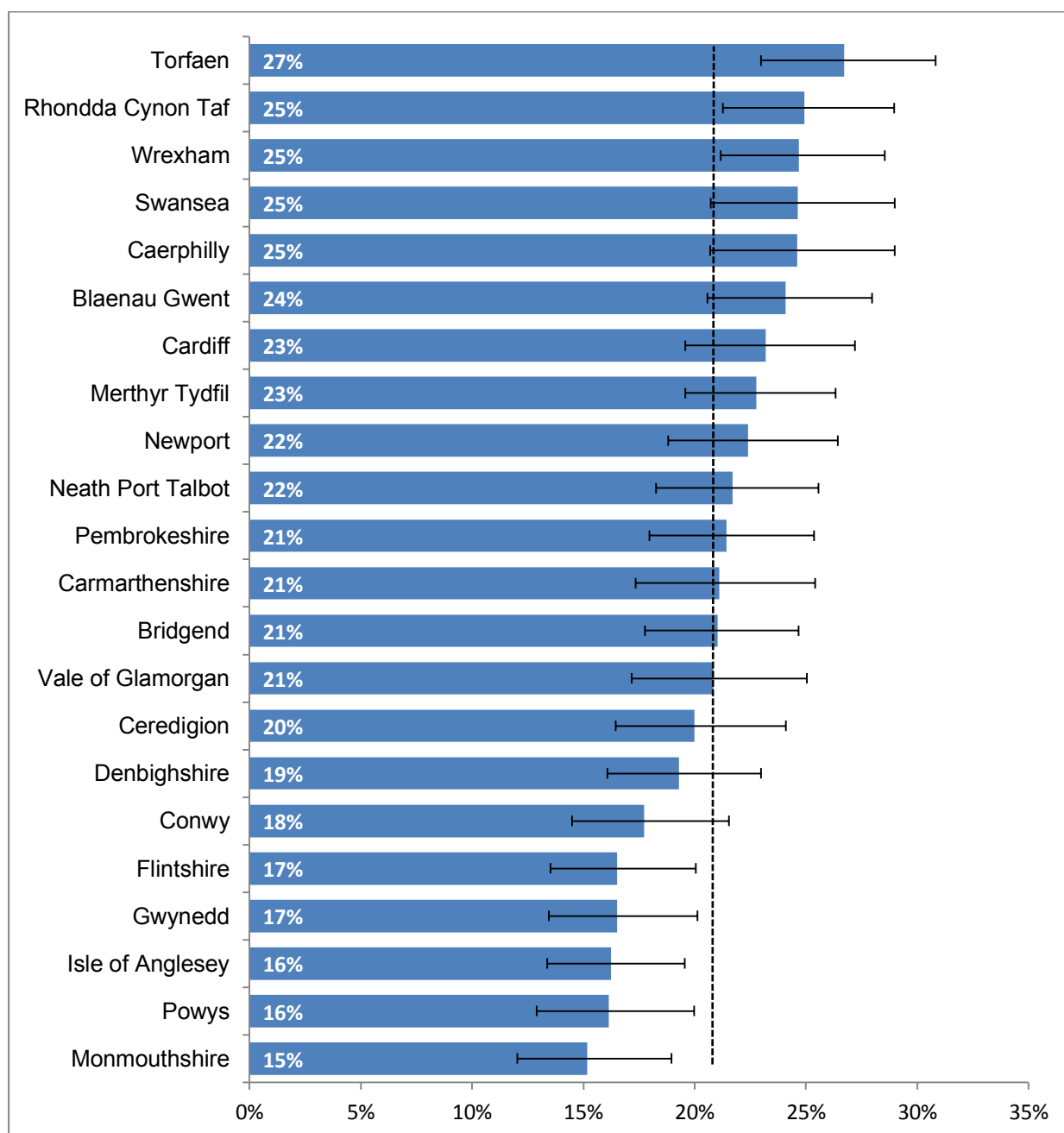
Continuing with the investigation into local area variables' relationship to household material deprivation, postcode data was used along with ONS criteria to determine whether the household was in an urban or rural location[43]. Figure 4.15 shows that a smaller proportion of rural households were in deprivation than those in urban areas (17% compared with 23%). Without giving consideration to other factors, this 6 percentage point difference was statistically significant. However, once other characteristics were taken into consideration the urban/rural nature of the household was no longer statistically significant.

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[43] Those in ONS classification groups Urban > 10K – less sparse and Town & fringe – less sparse were considered urban with all else classified as rural.

Figure 4.15: Household material deprivation by urban-rural classification
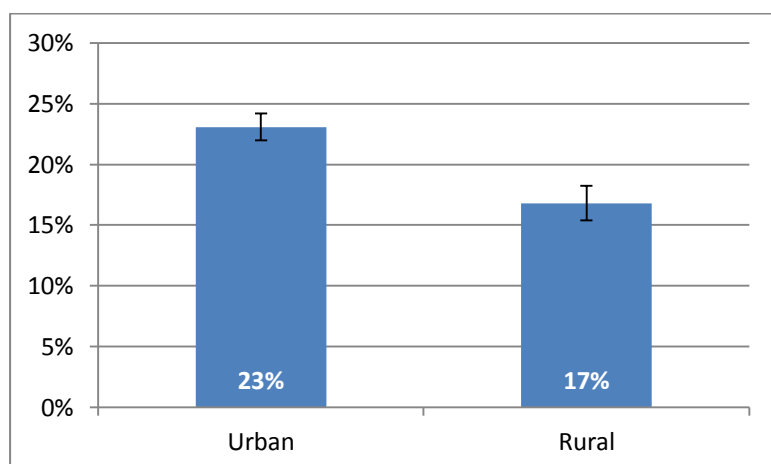
A greater proportion of households in Communities First areas[44] were seen to be in material deprivation than in other areas: 34% of Communities First and 18% in other areas. This 16 point difference was statistically significant when looking at the single variable relationship. However, as with urban-rural area, when other factors were taken into consideration this was no longer the case. A similar relationship was found for Vibrant and Viable Places areas[45]. A statistically significant relationship with household material deprivation was found, with houses within Vibrant and Viable Places 7 percentage points more likely (at 28%) to be in material deprivation than those in other areas (21%). Again, this relationship became non-significant when other factors were taken account of.

Although it was found that, on the whole, area level factors were less useful at explaining differences in material deprivation than individual level characteristics, some area level factors are more useful than others. If the level of measurement is on the local, rather than individual household level, running nested models reveals that the Welsh Index of Multiple Deprivation (WIMD) is a better measure for prediction than local authority. The relationship between WIMD and material deprivation is further explored in the following section.

4.4.2 Welsh Index of Multiple Deprivation

The Welsh Index of Multiple Deprivation is the official measure of relative deprivation of small areas in Wales[46]. The index consists of a set of eight domains from which an overall index is constructed. These eight domains are income, employment, health, education, access to services, community safety, physical environment, and housing. The relationship between material deprivation, as collected in the National Survey, and these WIMD measures, broken down into quintiles, was investigated. Using the continuous National Survey measure, correlations between household material deprivation and the

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[44] http://gov.wales/topics/people-and-communities/communities/communitiesfirst/
[45] Vibrant and Viable Places are areas identified in town centres, coastal communities and Communities First areas for regeneration from 2014 to 2017.
[46] http://gov.wales/statistics-and-research/welsh-index-multiple-deprivation/

WIMD quintile scores were calculated. Unsurprisingly, there are positive relationships between household material deprivation and WIMD measures when examined on an individual basis. These individual relationships continue to be significant when using the binary, in deprivation / not in deprivation, indicator. However, when consideration is given to other factors these relationships are no longer significant (with the exception of WIMD income score, see below). As seen in the previous section, it is not that other local area variables are better at explaining material deprivation but rather, the material deprivation of individual households is generally best understood by household and respondent level characteristics.

Although no other WIMD measures were significant when taking into consideration individual-level characteristics (of respondents or households), the WIMD income score was significant. The WIMD income score is derived from the percentage of the population that are in receipt of income related benefits[47] in that area, or are a supported asylum seeker. This reveals a potentially interesting relationship between the employment status of the individual, the working status of the household and the income score of the local area[48]. Figure 4.16 shows the proportions of material deprivation by quintiles of WIMD income score. Incremental increases in proportion of households materially deprived can be seen as the quintiles become more deprived.

Figure 4.16: Household material deprivation by WIMD income score
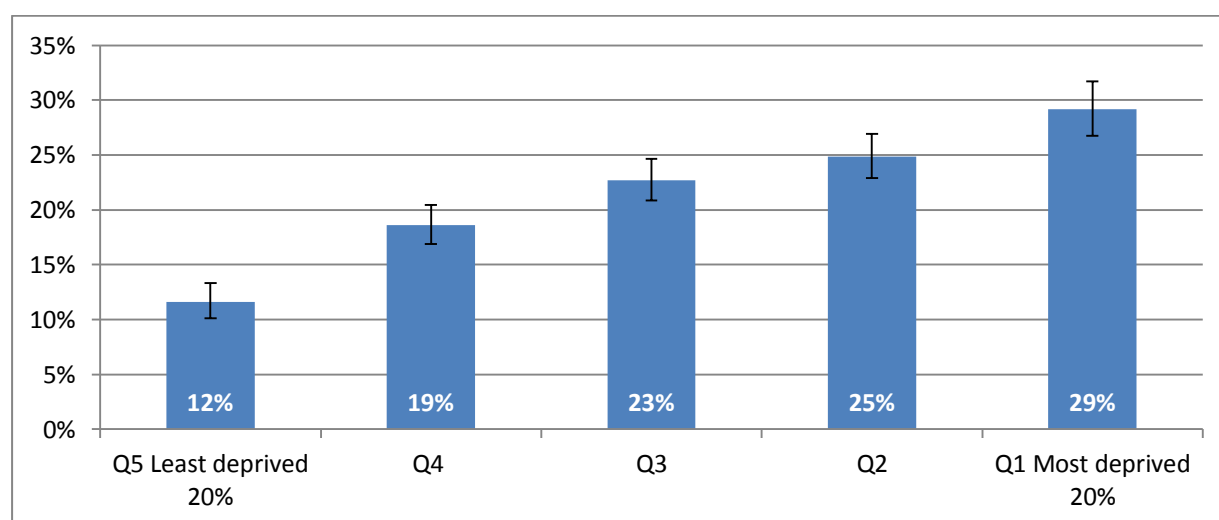
When controlling for other variables, the association between household material deprivation and the WIMD income measure remained statistically significant. Figure 4.17 shows the increase in predicted probability of material deprivation for each level of WIMD income score (in quintiles) with reference to the least deprived. Perhaps unsurprisingly the closer to the most deprived WIMD score, the greater the increase in probability of household material deprivation.

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[47] In receipt of tax credits with an income 60% below the Wales median.

[48] It is important to note that these kinds of income measures are not collected directly by the National Survey.

Figure 4.17: Effect of WIMD income measure on household material deprivation
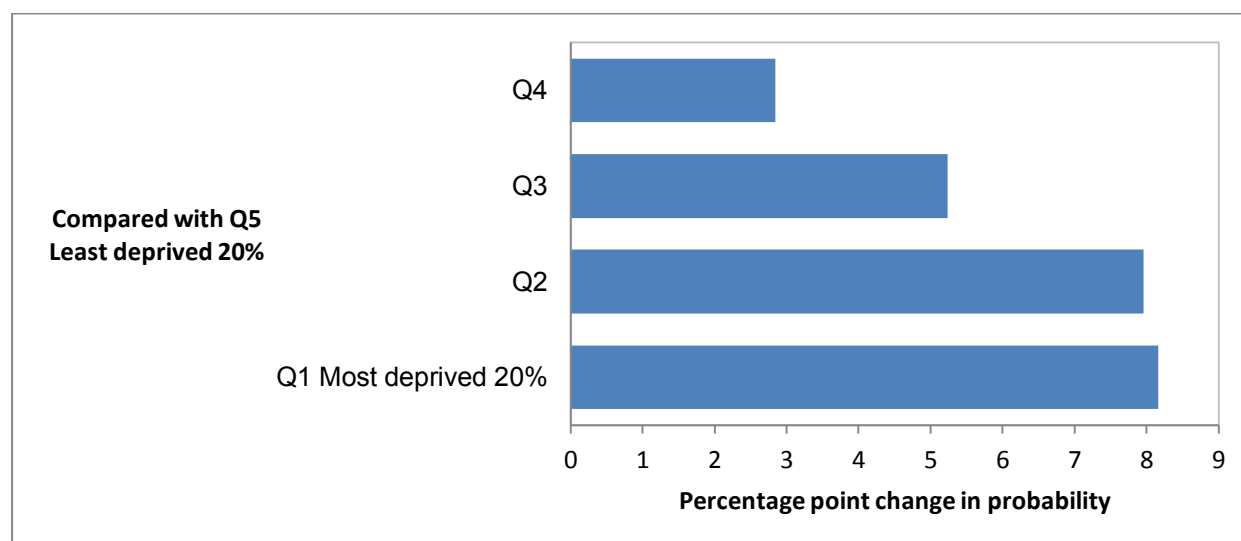
4.5 Material deprivation, well-being and access to services

4.5.1 Personal well-being

The National Survey collects information on respondents' perceived well-being. The areas of personal wellbeing investigated relate to aspects of health, satisfaction, anxiety and personal relationships. Although it is reasonable to assume that there is a relationship between material deprivation and personal well-being, it was decided not to include well-being measures in the multivariate analysis. The multivariate analysis assumes a directional relationship; specifically that the variables outlined above effect the probability of experiencing material deprivation. It may be argued that rather than this way round, it is experience of material deprivation that is likely to affect levels of personal well-being. As such it would have been inappropriate to include them in the multivariate analysis. Instead some basic descriptive statistics are included here to give an indication of the association between personal well-being and material deprivation.

Several questions were chosen to begin to investigate the association between personal well-being and material deprivation. Overall satisfaction with life[49], the feeling that things are worthwhile[50], happiness yesterday[51], and the amount of time for enjoyable things[52] were measured on a scale of 1 – 10 with a higher score indicating a greater degree of satisfaction/agreement. As can be seen in Figure 4.18, generally both those in and out of household material deprivation were relatively satisfied with all of these aspects of personal well-being. However, those experiencing material deprivation reported lower levels on average for all of these measures of personal well-being. Overall anxiety

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[49] 'Overall, how satisfied are you with your life nowadays?'
[50] 'Overall, to what extent do you feel that the things that you do in your life are worthwhile?'
[51] 'Overall, how happy did you feel yesterday?'
[52] '[How satisfied are you with] the amount of time you have to do things you like doing?'

yesterday[53] was also measured along a scale of 0-10, with a higher score indicating greater anxiety. Although both groups indicated relatively low levels of anxiety on average, the results indicate that those in material deprivation experience higher average levels of anxiety than those not in material deprivation (Figure 4.18).

The differences between the two groups' mean scores was formally tested and found to be statistically significant. Those in material deprivation have statistically significantly lower average levels of life satisfaction, happiness, time to do enjoyable things and satisfaction that things they do in their life are worthwhile. The difference in average anxiety levels, with those in material deprivation having higher levels of anxiety, is also statistically significant.

Figure 4.18: Personal well-being mean response by material deprivation[54]
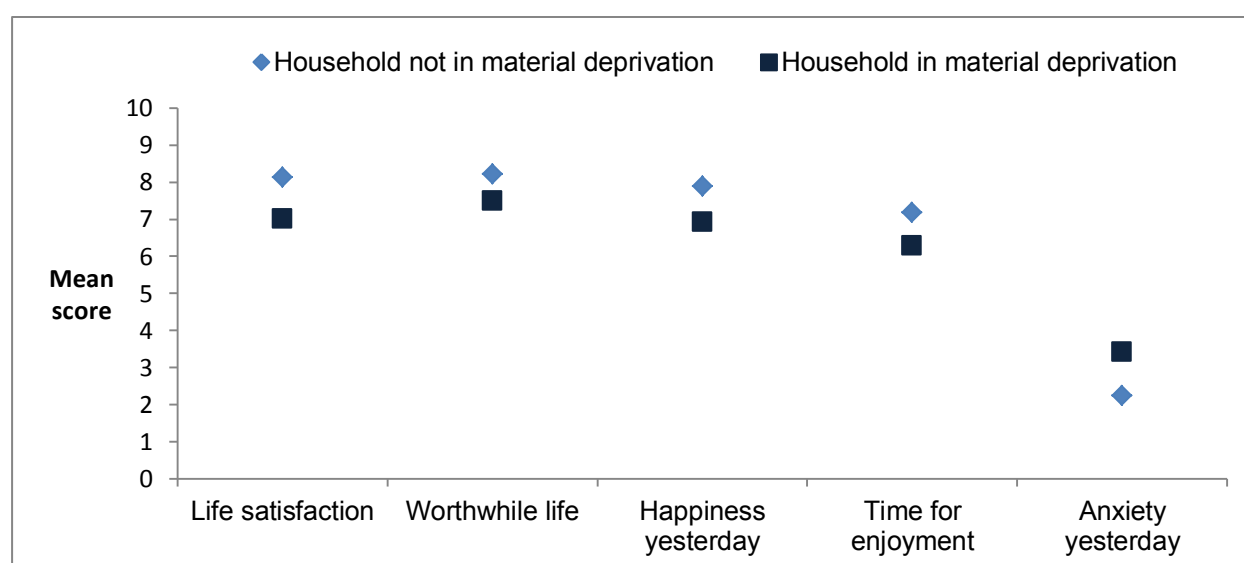
Similar to the well-being measures, whether or not respondents had accessed financial services that provide advice and support for people having problems with debt was not included in the multivariate analysis. Unsurprisingly, of those that sought financial advice the majority were in material deprivation (68% [±6%] in material deprivation compared with 32% [±6%] not). An aspect of material deprivation is whether or not respondents can keep up with their financial responsibilities[55]. Isolating this question it was seen that of those falling behind with these responsibilities, 27% (±5%) had sought advice/support of organisations providing these services. Interestingly approximately 3% (±0.5%) of those who indicated that they were keeping up with their financial commitments had also sought advice/support from these organisations in the last 12 months.

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[53] '… how anxious did you feel yesterday?'

[54] These estimates based on the National Survey sample do have associated confidence intervals around them to reflect the nature of sample based estimation and application to the wider population. These are not displayed in Figure 4.18 as error bars because the confidence intervals around these estimates are very small.

[55] Bills and credit commitments.

4.5.2 Satisfaction with housing

Satisfaction with housing was also collected in the National Survey and was found to be statistically significantly associated with material deprivation. Of those who were dissatisfied with their housing 63% were in material deprivation. However, this factor was not included in the multivariate analysis for similar reasons to satisfaction with personal well-being. It is reasonable to assume that material deprivation may have an effect on satisfaction with housing: those who cannot afford upkeep on their residence may well be dissatisfied with it. It is also likely that those in material deprivation will be residing in housing at the lower end of the sector and so be more likely to be dissatisfied.

4.5.3 Internet access

Lack of internet access could be seen as a result of being materially deprived, in terms of not being able to afford access. Conversely, lack of access to the internet may exacerbate material deprivation. This argument centres around the idea of a 'poverty premium' whereby these households pay disproportionally more for goods and services. Further, welfare reform is making internet literacy and access a necessity as there is an increased need for benefits to be claimed online[56]. There was a greater proportion of materially deprived households amongst those who do not have access to the internet than those who do have access (see Figure 4.19). Thinking about this another way, 28% of materially deprived households do not have access to the internet. If the assumption is made that internet access does affect levels of material deprivation then, controlling for other variables, lack of access leads to a 8 percentage point increase in the predicted probability of experience of material deprivation.

Figure 4.19: Household material deprivation by internet access
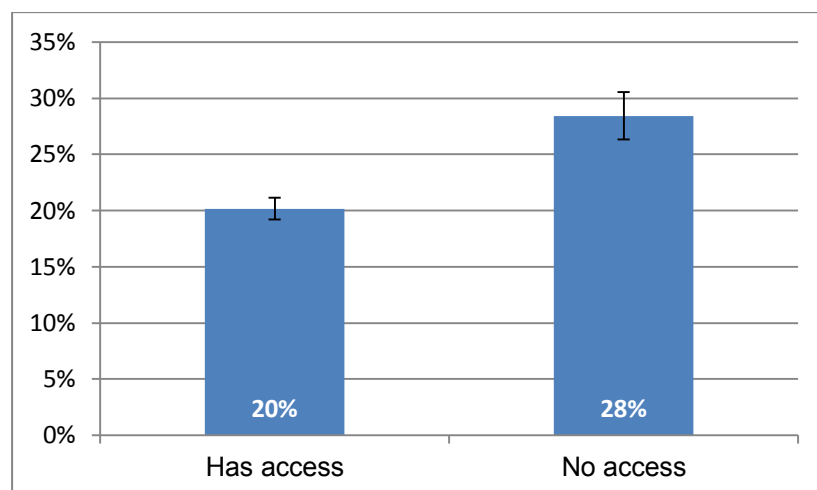
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4.6 Summary

Figure 4.20 provides a summary of the multivariate analysis. It shows the maximum effect of each variable on the probability of experiencing material deprivation as a change in probability. For variables which had more than one response category, e.g. age, the level with the most dramatic increase/decrease is illustrated. All of the factors included in the summary table have a statistically significant relationship with household material deprivation. On the whole, the characteristics listed have a 'positive' effect on material deprivation in that they show an increase in predicted probability of experiencing material deprivation as the categories within the characteristics increase. The exception to this is the effect of age and retirement which both show a decrease. This makes sense as they are clearly somewhat related (although not to the extent that they are collinear). Figure 4.20 shows that older people have a reduced likelihood of experiencing material deprivation (as measured here) than younger people.

Figure 4.20: Maximum effect of variables on household material deprivation
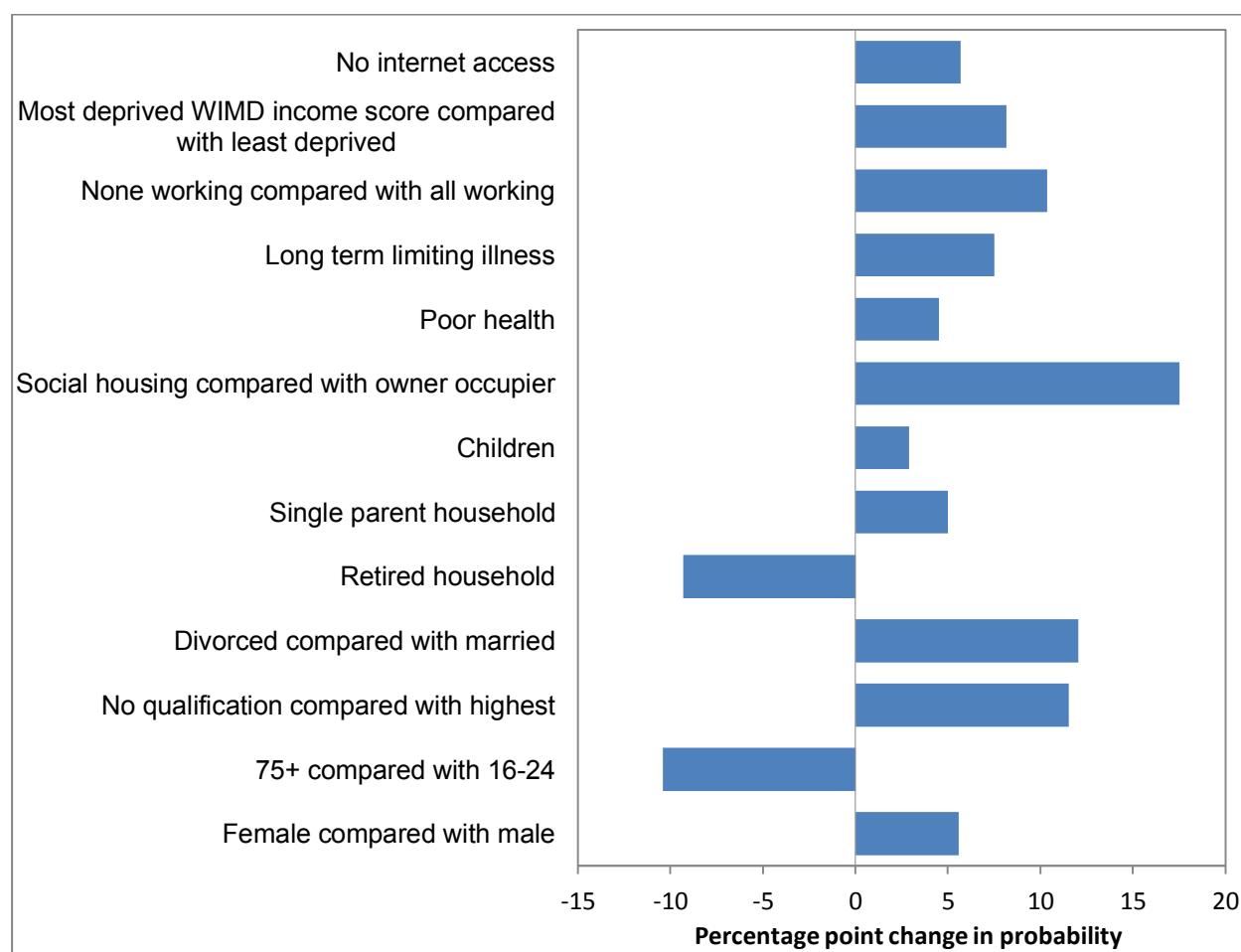
Figure 4.20 also gives an indication of the comparative strength of effect of each characteristic. For example, housing tenure (specifically social housing) has the largest effect at 18 percentage points whereas poor health and single parent households have comparatively small effects.

5 Child material deprivation

32% of households with dependent children were in the bottom 20% of materially deprived households. For the purposes of this analysis, cases were classified as experiencing child specific deprivation if both the household was in deprivation *and* there was at least one child specific item lacking[57]. 7% of households were classed as materially deprived using this latter measure. The following analyses consider material deprivation of households with children both in terms of those households experiencing household material deprivation only, and households experiencing child-specific material deprivation (which also indicates the household is in household material deprivation), compared with those households not in deprivation.

As with the preceding analysis, associations between material deprivation and other characteristics were initially explored independently of one another. Unlike Section 4, error bars are not included in the figures in this section. This is because including them would have made the figures overly complicated. Instead, confidence intervals for these estimates can be found in Appendix 2. The relationship between material deprivation and each characteristic was then re-examined after controlling for other variables. The latter analysis was conducted using multinomial logistic regression[58]. This allows for the relationship between household characteristics and deprivation to be investigated at each level of deprivation, i.e. not in deprivation, experiencing household deprivation, child specific deprivation. As with household material deprivation in Section 4, factors which were significant in predicting deprivation were identified.

5.1 Respondent characteristics

5.1.1 *Age*

Investigation of the age of the responsible adult in the household revealed a general pattern whereby as there is an increase in age bracket, the proportion of material deprivation decreases (seFigure 5.1).

16-24 year olds with children suffered from the highest proportions of material deprivation (44% in household deprivation, 9% experiencing child specific deprivation). Although this pattern is apparent in the descriptive statistics, inferential tests revealed that it is only significant when considering child specific deprivation (and not significant for household deprivation). Furthermore, when other characteristics are taken account of, the only level that remains statistically significant is that of the oldest age group (those 65 years and older) compared with the youngest age group (those aged 16-24 years). There is a 6 percentage point decrease in likelihood of experiencing child specific material deprivation

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[57] For further details of how these thresholds were decided upon, see Section 2.2.

[58] Although the dependent material deprivation variable may be conceptualised as ordinal, the proportional odds assumption was violated and so the ordinal logit model could not be used. Hence, multinomial logit (which makes no assumption of proportional odds) was used as an alternative.

for those whose responsible adult is in the highest age bracket compared with the lowest. Thought about conversely, young parents have a higher likelihood of having children experiencing child specific material deprivation parents[59] those in the older age bracket. The fact that the apparent differences found amongst the younger age groups in the descriptive statistics were not statistically significant when controlling for variables means that we cannot conclude that these differences are significant in predicting material deprivation in the population.

Figure 5.1: Material deprivation of households with children by age
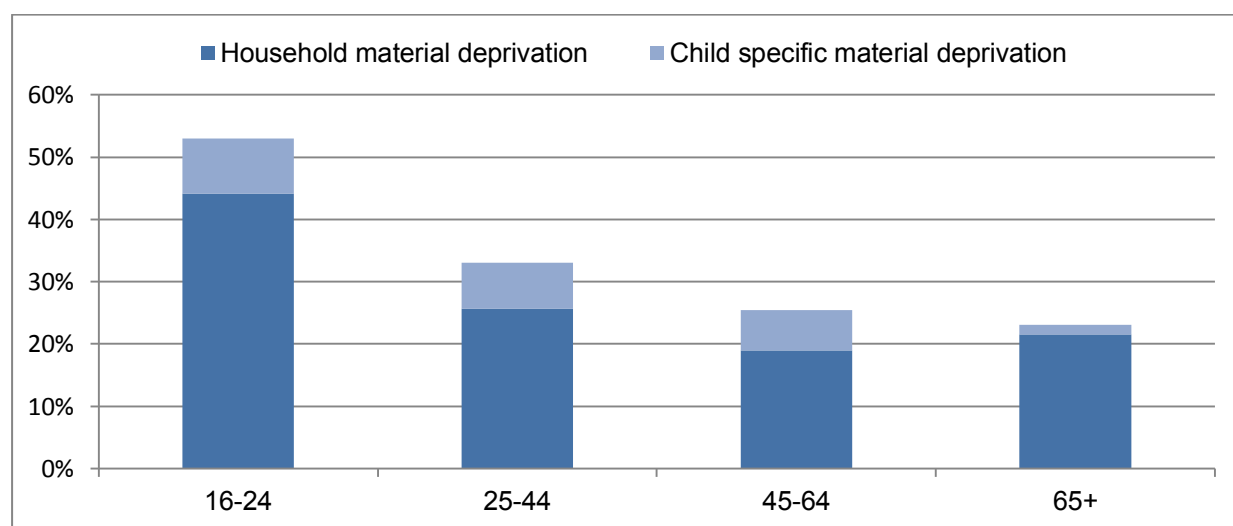
5.1.2 *Gender*

The gender of the parent had a statistically significant relationship with the material deprivation of households with children. As can be seen in Figure 5.2, a greater proportion of women reported experiencing both household (29%) and child specific deprivation (9%) compared with men (18% and 4% respectively).

Figure 5.2: Material deprivation of households with children by sex

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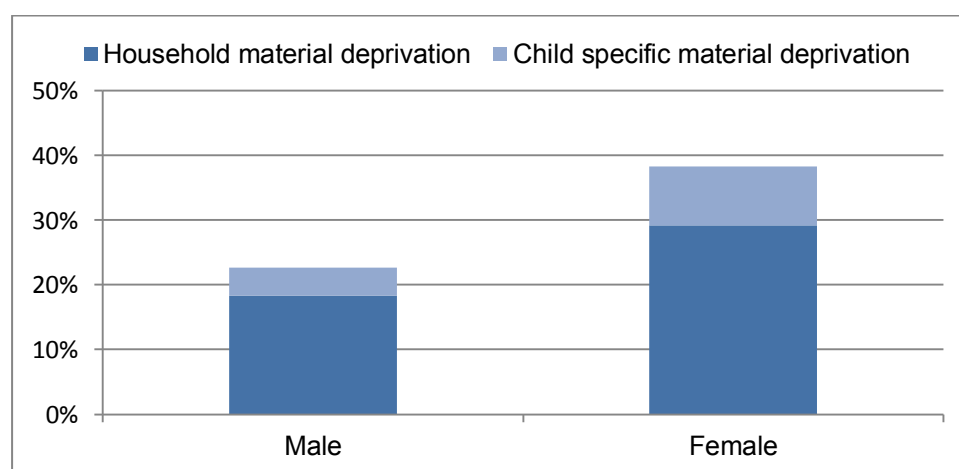
[59] Throughout the report the term "parent" refers to parents and legal guardians.

The relationship between gender and material deprivation remained significant once controlling for other factors with a varying strength of effect between the two levels of deprivation. Compared with men, women were 6 percentage points more likely to experience household material deprivation and 2 points more likely to lack child-specific items (see Figure 5.3)

Figure 5.3: Effect of gender on material deprivation of households with children
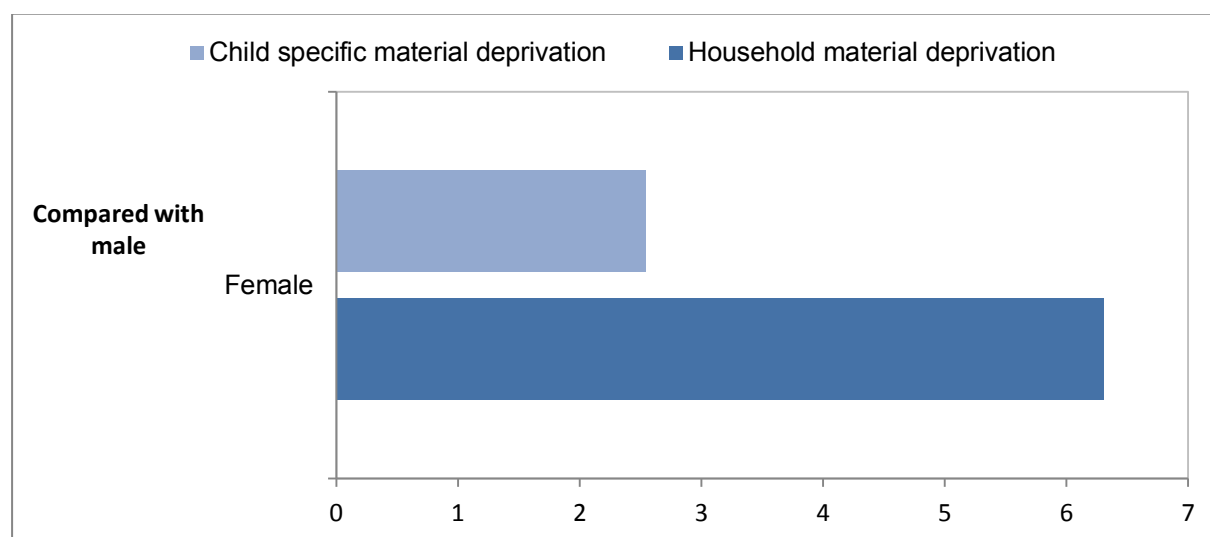
5.1.3 *Health*

Of the health related questions asked of respondents, both general health status and whether or not the respondent suffered from a life-limiting illness or disease were statistically significant predictors of experiencing material deprivation for households with children. The proportions of material deprivation by health status and limiting illness are shown in Figure 5.4 and Figure 5.5 respectively. As can be seen in these figures, the relationship between experiencing material deprivation and these two health measures appears to be similar. Those who report having poor health have larger proportions of deprivation (38% household and 30% child specific) compared with those who report having fair to good health (24% household and 6% child specific). Likewise, more of those who have a long-term limiting illness also experience material deprivation (34% household and 16% child specific) than those who do not have such an illness (23% household and 5% child specific). Additionally, a notably larger proportion of those in poor health report experiencing household and child specific deprivation than do those who have a long-term limiting illness.

Figure 5.4: Material deprivation of households with children by health status
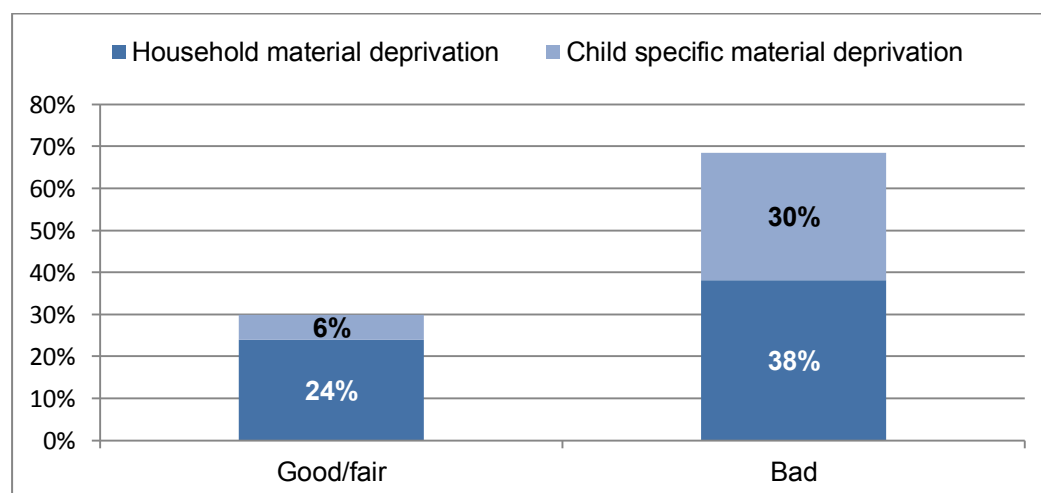
Figure 5.5: Material deprivation of households with children by respondent limiting illness
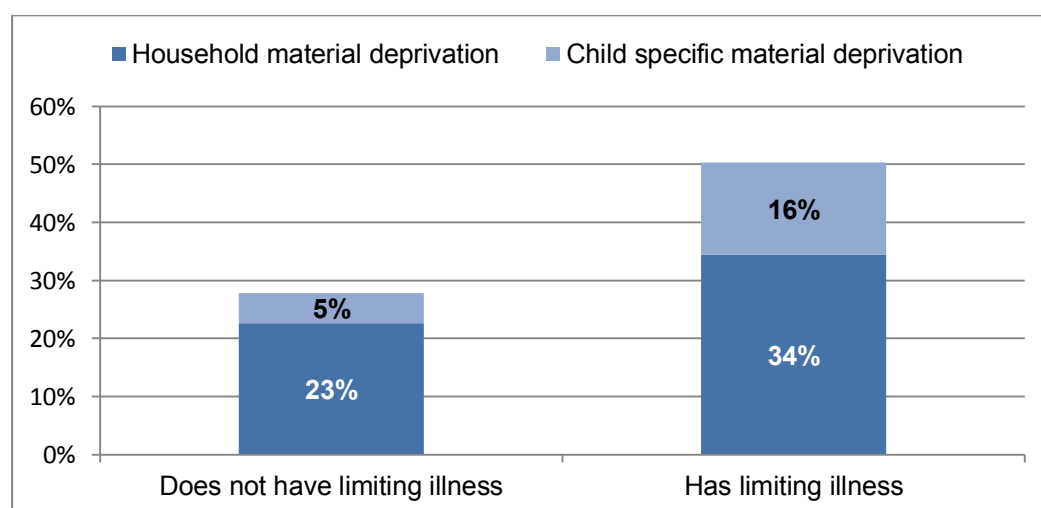
The relationship between general health and child specific deprivation remained statistically significant when controlling for other variables. The predicted probability of those who report poor health having a child/children in child specific material deprivation is 6 percentage points higher than those who report fair to good health, holding all other factors the same. However, when controlling for other factors the apparent relationship between general health and household deprivation was no longer statistically significant.

A significant link remained between limiting illness and both household and child specific deprivation for those households with children when other factors were taken into consideration. The predicted probability of experiencing deprivation increased by a similar amount for those having a limiting illness compared with those not having a limiting illness; there was a 4 percentage point increase in experiencing household deprivation only and a 3 point increase in experiencing child specific deprivation. It is interesting to note that the general health factor appears to have more of an effect on child specific deprivation than does limiting illness.

5.1.4 *Qualifications*

Similar to household material deprivation more broadly, highest qualification of the respondent had a significant relationship with material deprivation of households with children. Figure 5.6 highlights that the higher the educational qualification the smaller the proportion of material deprivation (both household and child specific). Once controlling for other variables these relationships broadly remained significant.

Figure 5.6: Material deprivation of households with children, by highest qualification
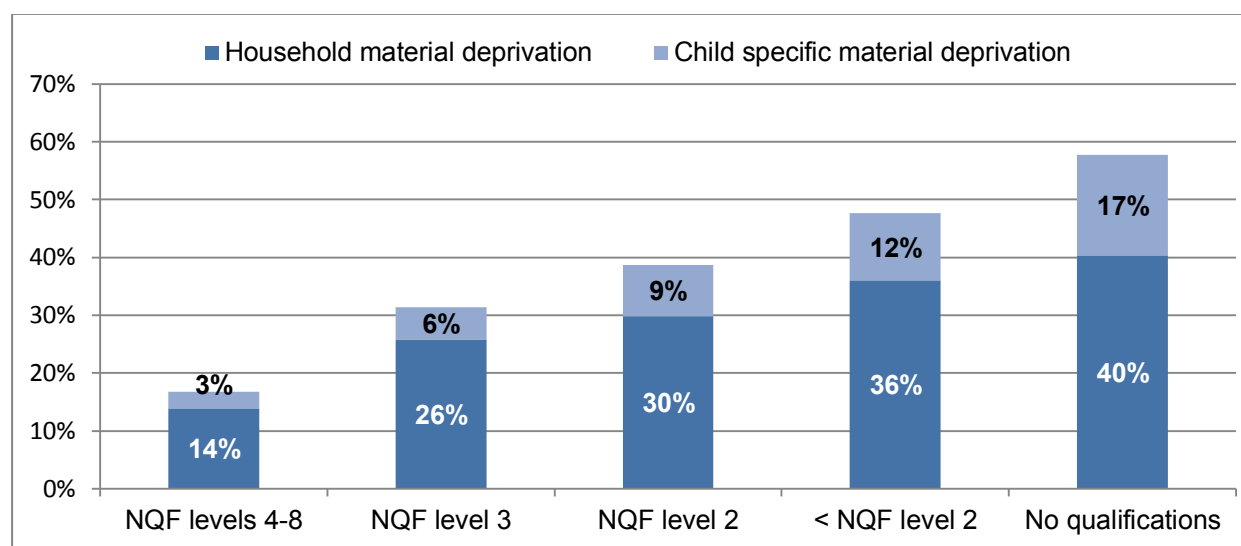
Figure 5.7 shows the effect of each level of qualification on the predicted probability of experiencing both types of deprivation. The effect of qualification is much less marked for child specific deprivation (up to 3% increase) than for household deprivation only (up to 10% increase), with level 3 not significant for child specific deprivation.

Figure 5.7: Effect of highest qualification on material deprivation of households with children
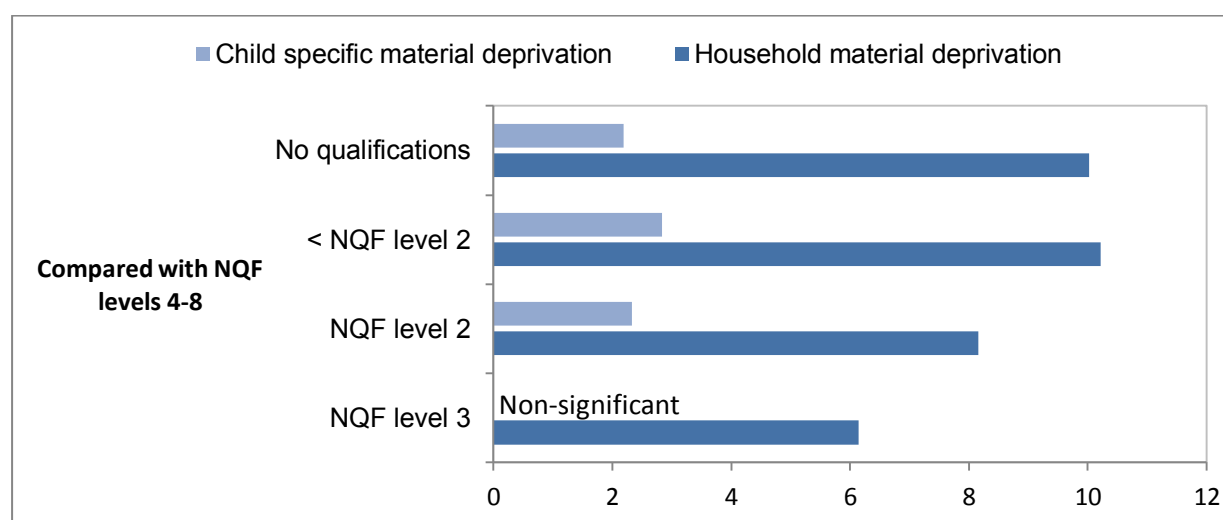
5.2 Family relationships and households

5.2.1 Marital status

The marital status of the respondent was found to be significantly related to material deprivation of households with children.

Figure 5.8 shows the proportions of material deprivation by marital status. Those households where the respondent was married or in a partnership had the lowest proportions of household and child specific deprivation (18% and 4% respectively), whilst those where the respondent was divorced or separated showed the highest proportions of household and child specific deprivation (36% and 18% respectively).

Figure 5.8: Material deprivation by marital status, households with children
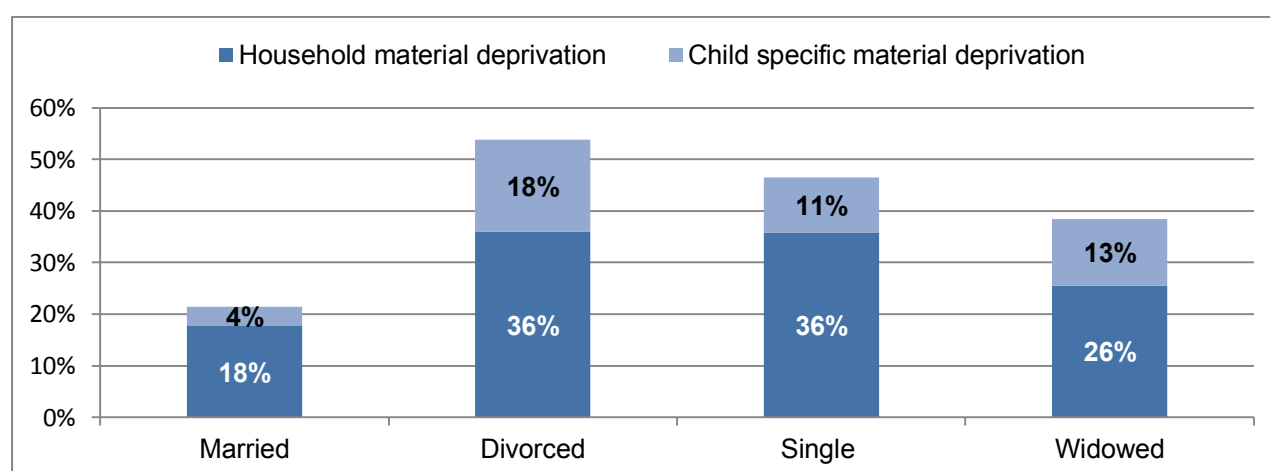
Marital status also remained generally significant once controlling for other factors. Being divorced or separated was associated with an increase in the predicted probability of experiencing both household and child specific deprivation by 8 and 6 percentage points respectively (Figure 5.9). However, being single only had a significant link with experience of child specific deprivation, with an increase of 3 percentage points. Neither household deprivation nor child specific deprivation were significantly linked to respondent being widowed rather than married, once other factors were accounted for.

Figure 5.9: Effect of marital status on material deprivation of households with children
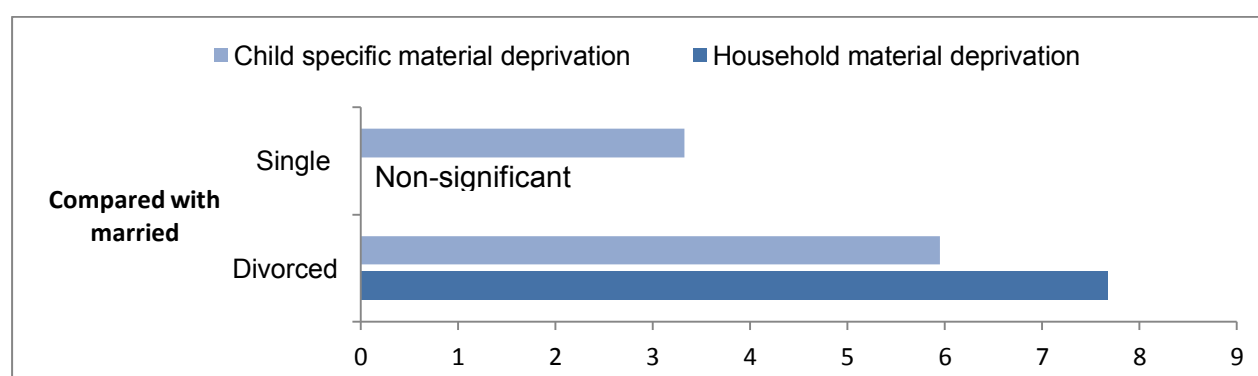
Although the link with single parent status was significant when considering the whole sample (see Section 4.2.3), this characteristic had a different relationship when considering only those households with children. Proportionally, single parent households were more likely to report being in both household material deprivation (45%) and child specific deprivation (14%) than other households (with 23% in household material deprivation and 6% in child specific deprivation). However, once other factors were accounted for this relationship no longer remained statistically significant. This suggests that other characteristics are better at explaining the material deprivation of households with children (see 5.6 Summary).

5.2.2 Number of children

The number of dependent children[60] in the household was found to be significantly associated with both household and child specific material deprivation. Figure 5.10 shows that whilst the proportions of deprivation are similar amongst households with one child and two children, those with three or more children have slightly higher levels of deprivation (by up to 6% for both household and child specific deprivation).

Figure 5.10: Material deprivation of households with children by number of children
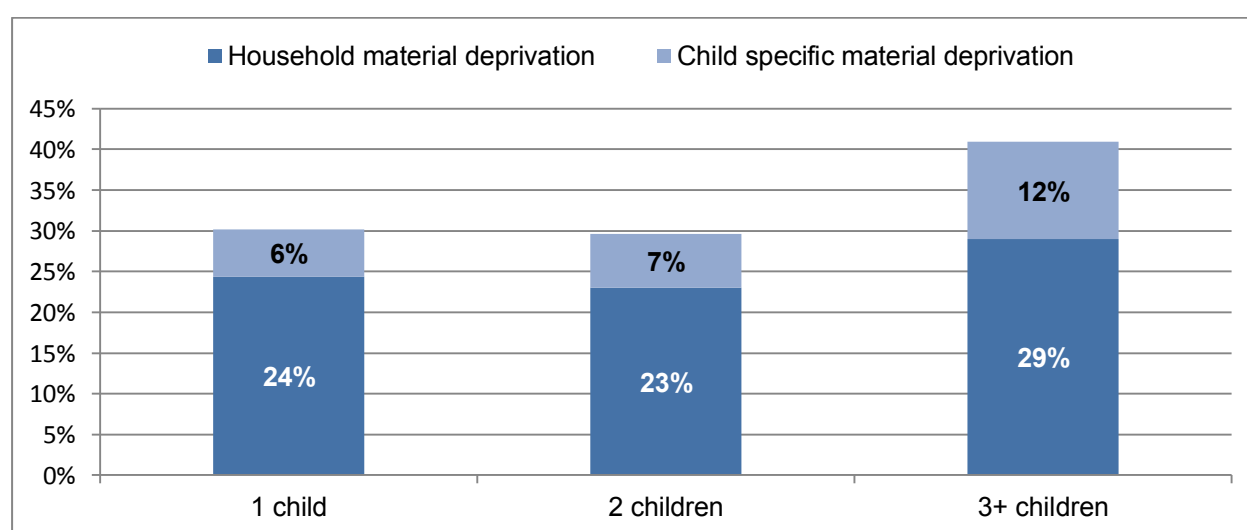
Controlling for other characteristics revealed that the effect of number of children is not as strong as it may appear to be from the above descriptive statistics. The number of children did not have a statistically significant link with household deprivation but was linked to 2 percentage point increase per child in likelihood of experiencing child specific deprivation.[61] Having a child under 5 years of age also had a statistically significant relationship with child specific deprivation. However, in this case having a child under 5 years old was linked with a 3 percentage point decrease in probability of child material

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[60] This is slightly different from the total number of children in the household used in section 4. In section 4 the total number of children refers to those under 16 years of age in the household. The number of dependent children here includes these children plus 16 – 19 year olds in full time education.

[61] It is important to note that this is an approximate increase, rather than exact, as it is measured by the instantaneous rate of change.

deprivation. Figure 5.11 shows the proportions of material deprivation for those households with children under 5 and those with older children. It is interesting to note that the proportion of households experiencing overall material deprivation is larger for those with children under 5 years old than those without. The discrepancy between household and child specific deprivation here may be an artefact of the child specific indicators, which may not adequately address the needs of younger children and infants, rather than a real difference between the level of deprivation suffered.

Figure 5.11: Material deprivation of households with children, by children under 5
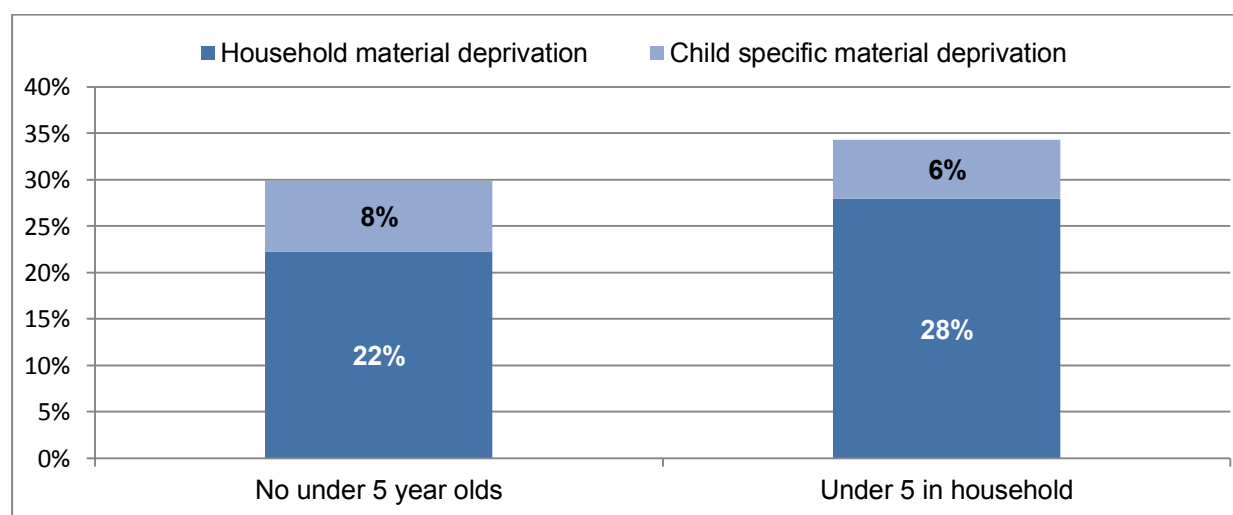
5.2.3 Housing tenure

A much higher proportion of those in rented houses suffered from household and child specific deprivation than those who owned their own homes. Figure 5.12 shows that the highest proportions of material deprivation were seen in those who rent from social landlords[62] (47% household deprivation and 18% child specific). Those in the private rental sector had slightly lower proportions of deprivation, with 39% in household deprivation and 10% with child specific deprivation. Those who declared themselves as owner-occupied had the lowest proportions at 14% experiencing household deprivation and 3% with child specific deprivation.

This difference between tenure types remained statistically significant once other characteristics were accounted for. Figure 5.13 shows a substantial link between renting and household deprivation, with a 19 percentage point increase in likelihood for those in social housing and a 17 point increase for those in the rented sector. Whilst the effect was also significant for child specific deprivation it was much less marked at around a 2 percentage point increase for both rental sectors compared with owner-occupiers. This indicates that, whilst the proportions may be markedly different for these groups, once

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[62] Housing association or local authority.

other characteristics have been controlled for the actual difference in likelihood is very similar for all housing tenure groups.

Figure 5.12: Material deprivation of households with children, by housing tenure
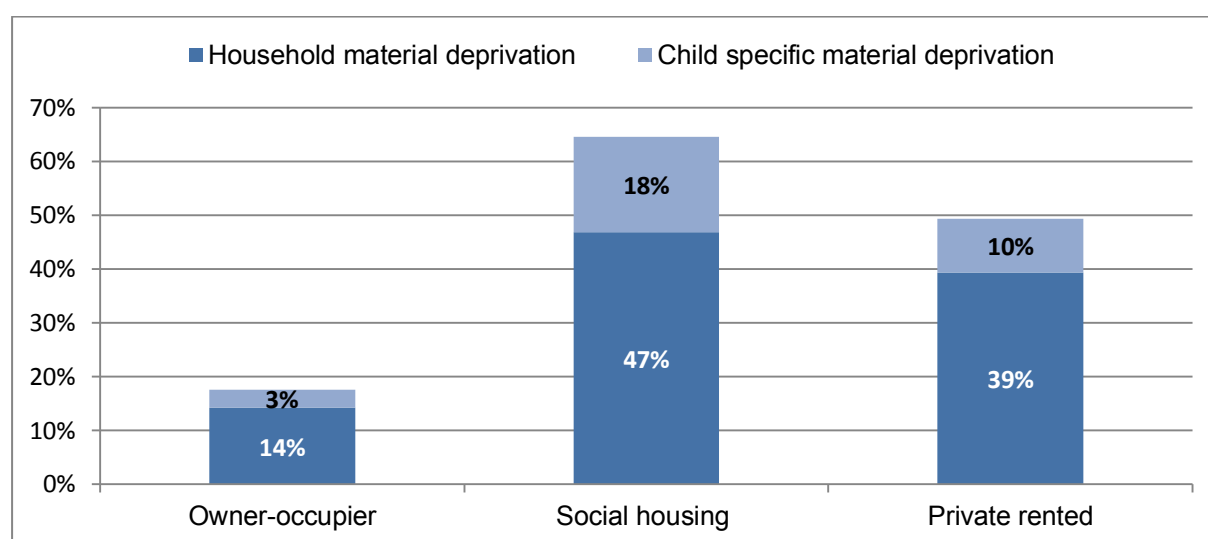
Figure 5.13: Effect of housing tenure on material deprivation of households with children
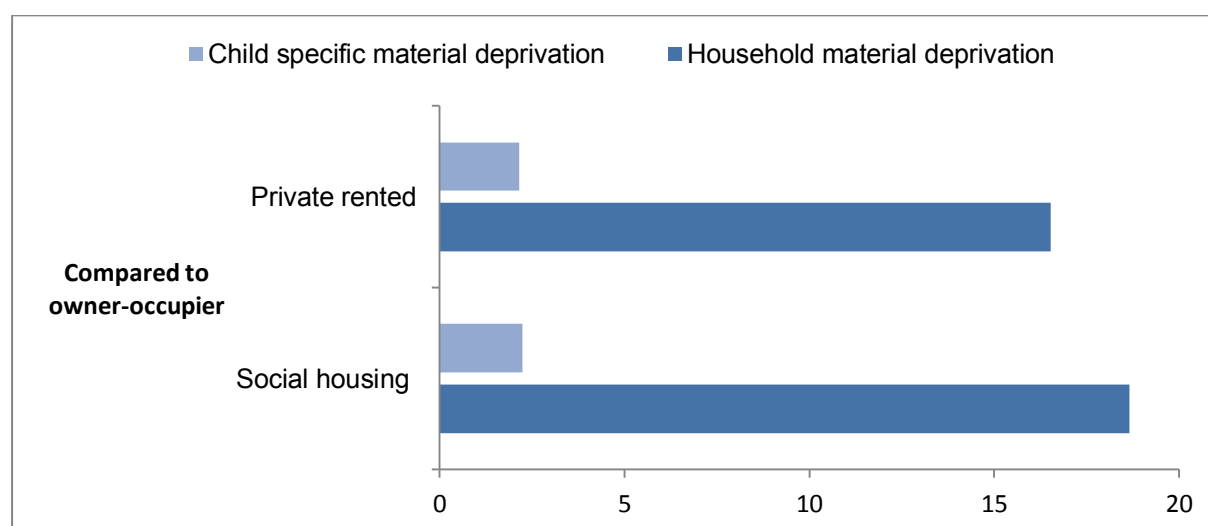
This factor particularly highlights the issue of causality in this type of analysis. When working with cross-sectional survey data such as this it can be difficult to tease out cause and effect. Indeed we must only infer, rather than claim, any causal mechanisms that may be at work. Whilst some of the variables stated as having an effect on material deprivation may well indicate a directional relationship, such as working status for example, in other cases, such as with housing tenure, the direction of relationship may be less clear. Whilst the language used is of 'effect on' material deprivation, it may well be the case that it is the very fact that a respondent is experiencing material deprivation that requires them to seek social housing (for example).

5.3   Employment and finances

5.3.1   Employment

As with the material deprivation of the whole sample, there appeared to be a relationship between individual employment status and levels of deprivation. Figure 5.14 shows that those in employment reported much lower levels of both types of deprivation (20% household and 4% child specific) compared with those who were unemployed (42% household and 20% child specific) or economically inactive[63] (39% household and 16% child specific). As with the whole sample, once other characteristics were accounted for this relationship did not remain significant. Rather, it was working status of the entire household which was more important in predicting material deprivation.

Figure 5.14: Material deprivation of households with children by employment status
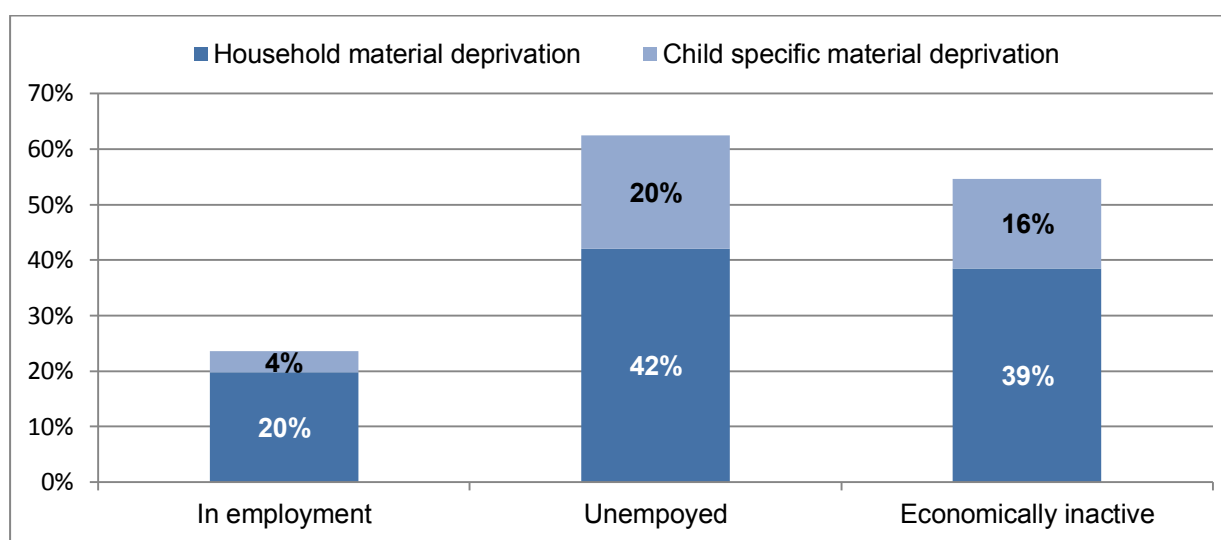
Figure 5.15 highlights that as the proportion of working people in the household decreases, the proportion experiencing material deprivation increases, with the greatest difference between all working and none working. This relationship remains broadly the same when controlling for other characteristics. Of those households with all adults working, 19% reported experiencing household material deprivation and just 3% from child specific deprivation. At the other extreme, those households where no-one was working, 50% were in household material deprivation and 24% child specific deprivation.

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[63] 'Economically inactive' refers to those individuals who are not in nor seeking employment.

Figure 5.15: Material deprivation of households with children, by household working status
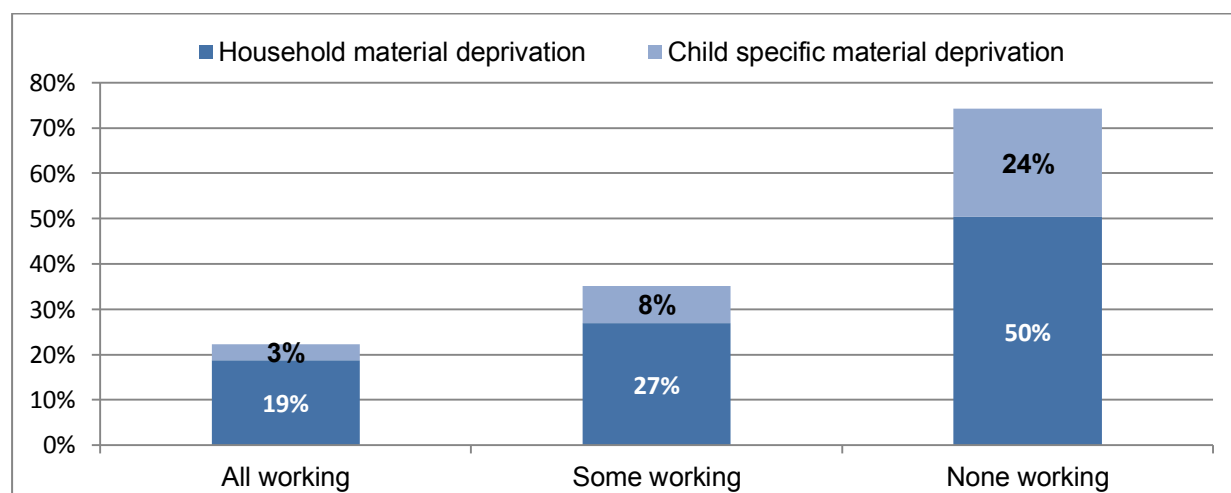
Figure 5.16 shows the link between working status and material deprivation once all other factors are taken into consideration. Compared with households where everyone works, the likelihood of experiencing child specific deprivation increases by 3 percentage points if only some of the household is working. The increase is 6 percentage points if no-one of working age in the household is working. There is an even larger effect on household material deprivation, with an increase of 9 percentage points for households where no-one works compared with households with the same characteristics where everyone works. However, unlike child specific deprivation, the effect of only some of the household working did not have a statistically significant effect on this household deprivation.

Figure 5.16: Effect of household working status on material deprivation of households with children
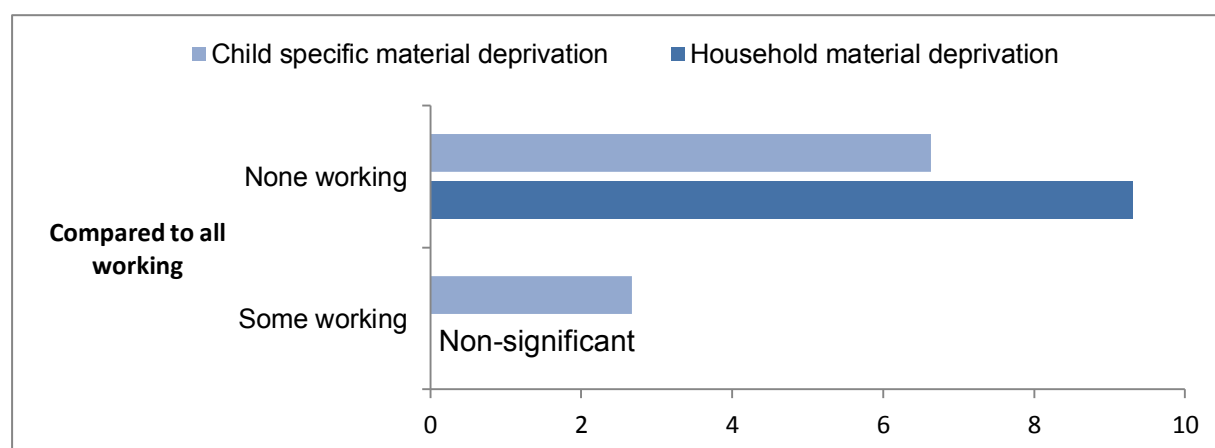
As with material deprivation of the whole sample, this effect of working status of the household was not related to the number of adults in the household. In fact, the number of adults in the household did not have a statistically significant association with the material deprivation of households with children. It is also important to note that the effect of working status reported here does not take into consideration the difference between

working patterns or type of employment. Additionally, this factor highlights the limitations of cross-sectional survey analysis in determining cause and effect.

5.4   Material deprivation and place

5.4.1   Local authority and local area

The analysis found that there was little difference between local authorities when it comes to households with children experiencing material deprivation.

Examination of other area variables was also conducted. Figure 5.17 shows the proportions of material deprivation of households based on their urban-rural classification. Households with children in less sparse, urban areas have larger proportions of material deprivation (26% household and 8% child specific) than those in rural areas (21% household and 4% child specific). However when controlling for other factors, this relationship is neither statistically nor substantively significant. Similar results were found for other local area classifications. Households in Communities First areas[44] were more likely to experience household deprivation (33%) and child specific deprivation (13%) than those not in Communities First areas (22% and 5% respectively). However, this relationship was not significant when controlling for other variables. There were lower proportions of material deprivation in Vibrant and Viable Places[45] areas (24% household, 7% child specific deprivation) than those not in Vibrant and Viable Places (27% household and 15% child specific). Again, this relationship was not significant when controlling for other variables.

Figure 5.17: Material deprivation of households with children by urban-rural classification.
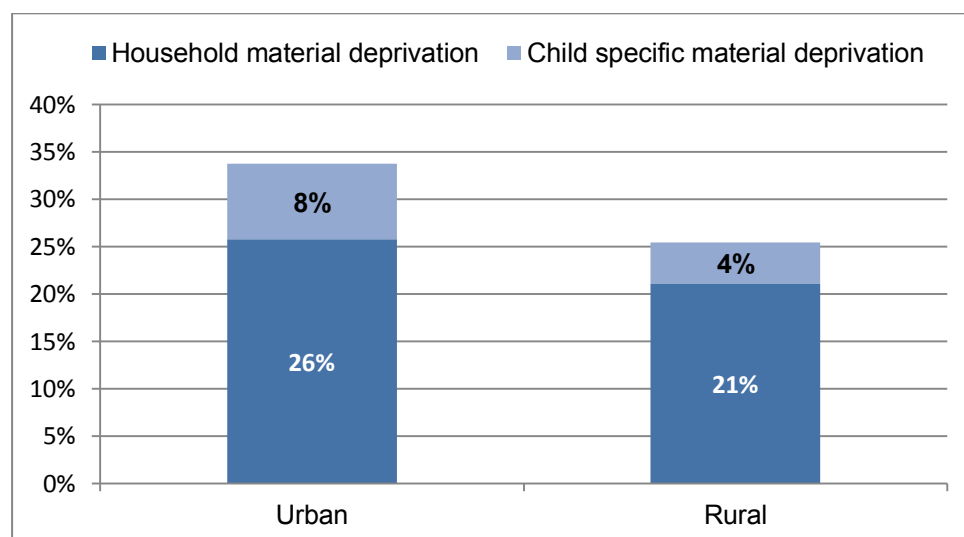
As with the Welsh Index of Multiple Deprivation measures (on next page) and household material deprivation of the whole sample, this is not to say that area measures are not useful in and of themselves when investigating material deprivation. Rather, individual household and respondent characteristics are more powerful predictors of material deprivation at a household level.

5.4.2 Welsh Index of Multiple Deprivation

Details of the Welsh Index of Multiple Deprivation can be found in Section 4.4. As with general household deprivation, the relationships between material deprivation of households with children and the WIMD indicators were generally not significant once other variables were controlled for. The exceptions to this were the WIMD income[64] and access to services scores. As shown in Figure 5.18, as the area becomes more deprived in terms of income the proportion of both types of deprivation increases.

Figure 5.18: Material deprivation of households with children, by WIMD income score
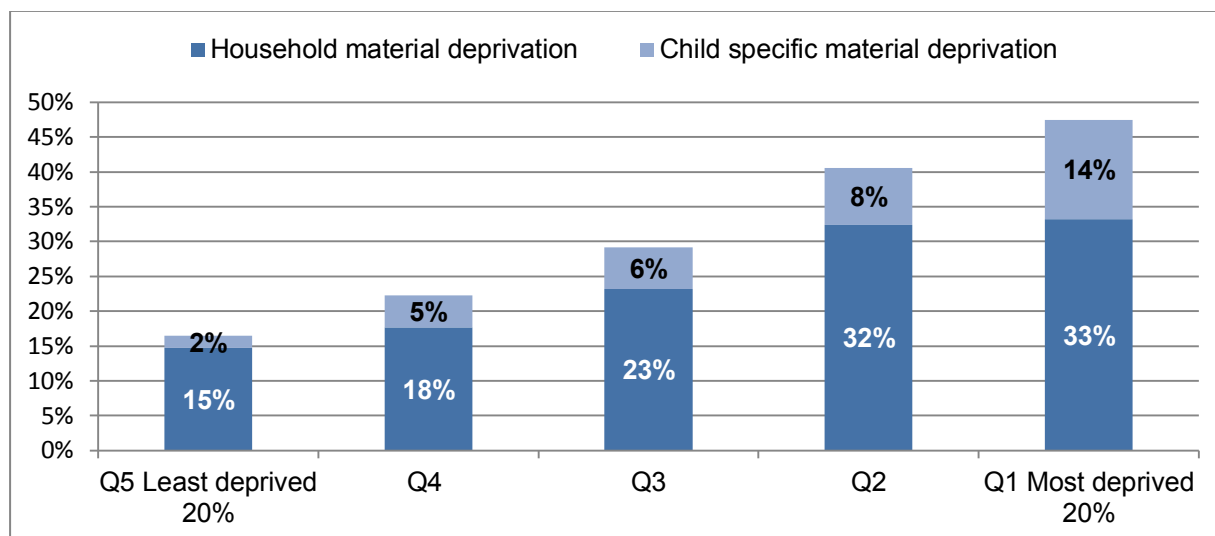
Holding all else constant, those in the two most deprived income quintiles (i.e. the bottom 40%) have a significantly increased likelihood of experiencing child specific deprivation compared with those in the least deprived fifth. Those in the bottom quintile (Q1) have an increased likelihood of experiencing this type of deprivation (5 percentage points higher than the least deprived), whilst those in the second to most deprived quintile (Q2) have a 3 percentage point higher likelihood than those in the least deprived. The relationship between the other levels of WIMD income score and child specific deprivation, and between WIMD income score and household deprivation only, were not statistically significant.

The WIMD access to services score is derived from the average travel time by public and private transport to the nearest: food shop, GP surgery, post office, public library, leisure centre, primary school, secondary school, pharmacy and petrol station (for private transport).

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[64] Derived from the percentage of the population in the area that are in receipt of income related benefits, in receipt of tax credits with an income 60% below the Wales median, or are a supported asylum seeker.

Figure 5.19: Material deprivation of households with children, by WIMD access to services score
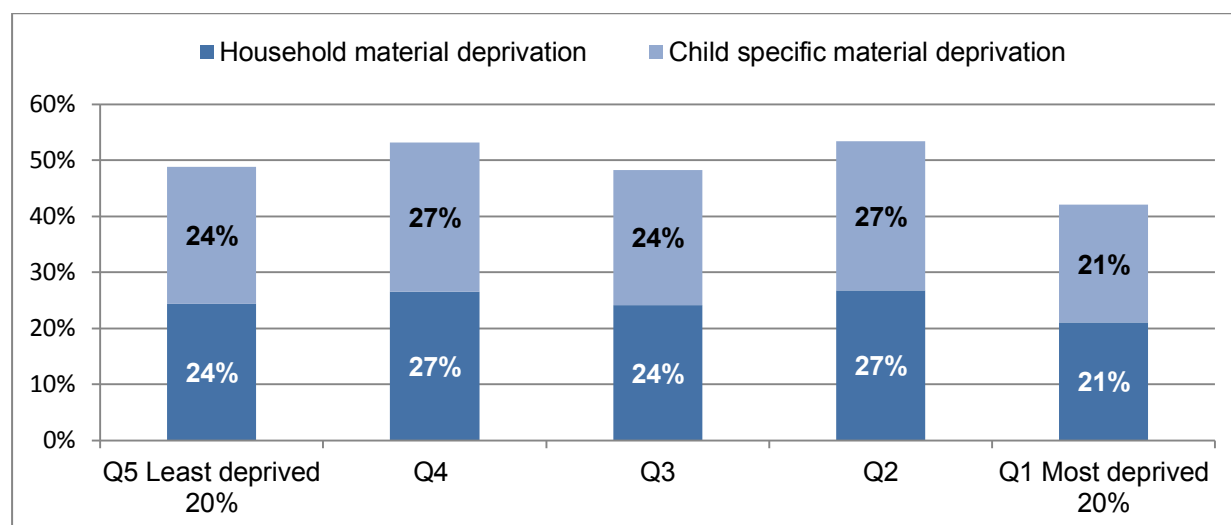
Although it was not envisaged that this measure would relate directly to material deprivation, when controlling for other factors a significant relationship was found between this and material deprivation of households with children. Specifically, a significant relationship was found between the middle quintile (Q3) and child specific material deprivation. Further, it was found that compared with those in the least deprived quintile (Q5), those in Q3 were 4 percentage points less likely to experience child specific deprivation. This is an interesting and unusual relationship that may warrant further investigation.

5.5 Childcare, parental support and access to services

5.5.1 Childcare

Although not included in the regression analyses, the relationship between material deprivation of households with children and childcare was briefly investigated. Approximately three-quarters of households reported using friends and family for childcare (this was consistent over all levels of deprivation). Interestingly there appeared to be little difference between how often respondents had friends or family look after their children (for free) by level of material deprivation. The majority of households use this type of childcare between 1 and 30 hours a week (with a greater proportion of those experiencing no deprivation or only household deprivation using them for 1 – 10 hours (51% and 52% respectively) and a greater proportion of households with child specific deprivation using them for 10 – 30 hours (42%). Those experiencing child specific deprivation were more likely to have friends and family look after their children for free for over 30 hours a week (13%). Although these descriptive results appear to show a slight difference in take up of free childcare, further analysis found that these differences were not statistically significant (i.e. could just be due to a quirk of the survey sample).

How easy respondents found it to afford formal childcare was also investigated. Perhaps unsurprisingly those who reported either household deprivation or child specific deprivation found it more difficult to afford childcare than those not in household deprivation. Perhaps because of small sample sizes, no significant difference in affordability was found between the proportion of those experiencing child specific deprivation and those experiencing household deprivation only.

5.5.2 Literacy and numeracy support

Parents were asked about their confidence in supporting their children's learning for those children aged between 3 and 11 years. Figure 5.20 shows average confidence split by deprivation, with a higher score representing a greater confidence to support learning. All of the differences in the figure are significantly different apart from those between the materially deprived groups in terms of their confidence in Welsh reading and writing. These two areas of support generally saw lower levels of parental confidence than did reading and writing in English or Maths support.

Figure 5.20: Parental confidence in ability to support literacy and numeracy, by material deprivation
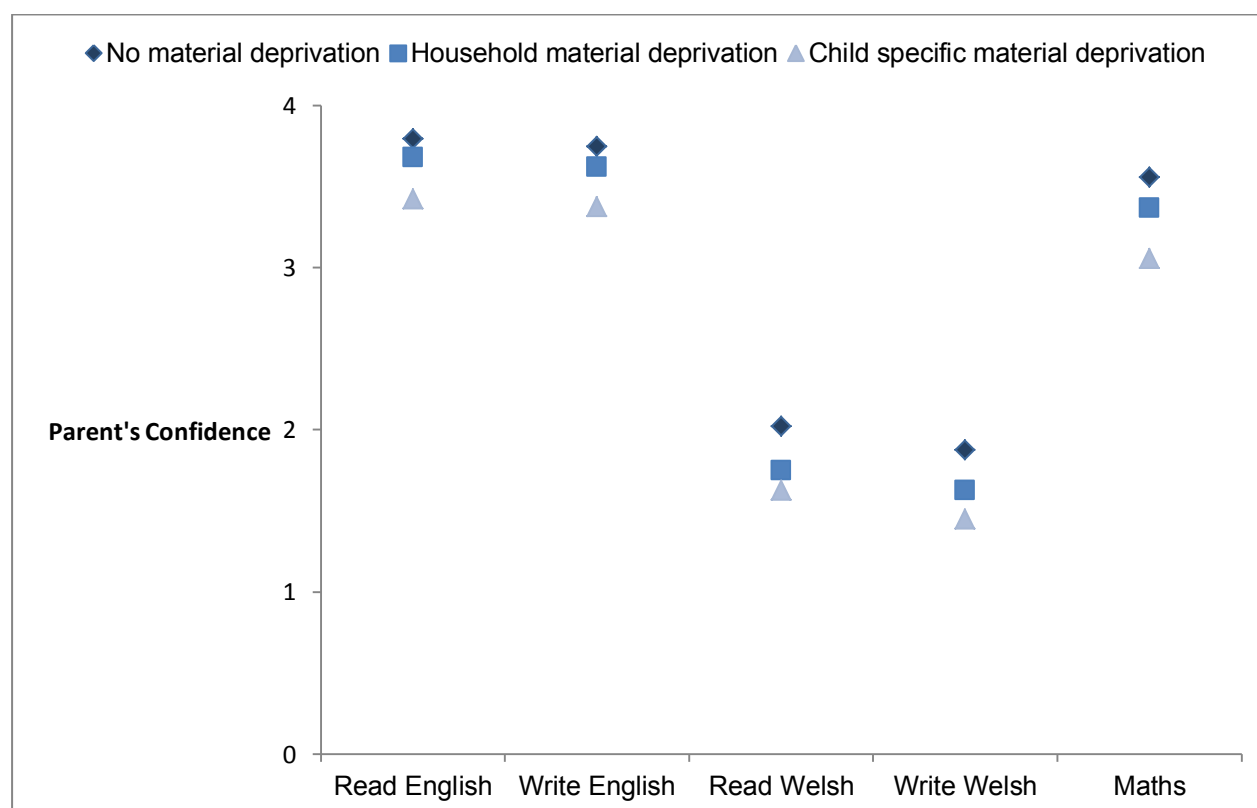
5.5.3 Internet access

Lack of internet access could be seen as a result of being materially deprived, in terms of not being able to afford access. Conversely, lack of access to the internet may exacerbate material deprivation. The arguments to this centre around the idea of a 'poverty premium'[65] whereby these households pay disproportionally more for goods and services. Further, welfare reform is making internet literacy and access a necessity as there is an increased need for benefits to be claimed online[66].

In terms of households with children, those with no access to the internet had significantly higher levels of material deprivation than those with internet access (see Figure 5.21). Of those without internet access, 51% reported household material deprivation and 12% child specific deprivation. This is substantially higher than the proportions reported for those with internet access (23% household deprivation and 6% child specific deprivation).

Figure 5.21: Material deprivation of households with children, by internet access
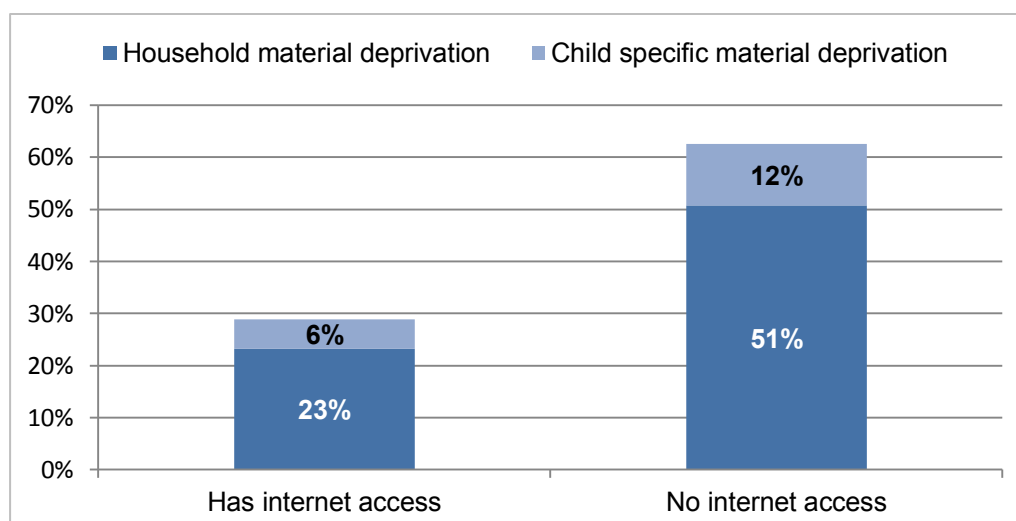
This relationship remained significant after controlling for other variables, with lack of access leading to an 11 percentage point increase in the predicted probability of experiencing household material deprivation and a 3 percentage point increase in the probability of child specific deprivation when compared against those households with internet access.

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[65] See Welsh Government's Child Poverty Strategy (2015).
[66] See Welsh Government's Delivering Digital Inclusion: A strategic framework for Wales (2010) and Digital Inclusion Delivery Plan: Annual Progress (2015).

5.6 Summary

Figure 5.22 provides a summary of all the characteristics included in the analysis of households with children. It is interesting to note that household material deprivation has fewer statistically significant predictors than child specific deprivation, although the predictors of significance for household deprivation are also stronger than the effect for child material deprivation. These differences in strength of relationship between the explanatory variables and the levels of material deprivation indicate differences in which characteristics have the most influence on each of the two types of deprivation. It is unsurprising to note that those factors that predict household material deprivation also predict child specific deprivation as the former is an aspect of the latter. However, there are several variables that predict child specific deprivation but not household deprivation. This may reflect the fact that child specific deprivation is an additional level of deprivation over and above household material deprivation.

Comparing the results here to those in Figure 4.20, which summarises the results from the investigation with all households together, we can see that the characteristics and their effects are broadly similar. Housing tenure still has a very important role to play with social housing having the strongest effect on household. Of interest is the absence of single parent households in

Figure 5.22. Whilst this characteristic was significant for predicting household deprivation it is not significant for predicting household deprivation in households with children. This suggests that, rather than this characteristic not being of importance, the other characteristics included in the model better predict material deprivation for these groups.

Figure 5.22: Maximum effect of variables on material deprivation of households with children

Figure 5.22: Maximum effect of variables on material deprivation of households with children

- Child specific material deprivation
- Household material deprivation

Variable	
WIMD services score	Not statistically signifcant
No internet access	
WIMD income score	Not statistically signifcant
Working status of household	
Long-term limiting illness	
Poor Health	Not statistically signifcant
Housing tenure	
Number of children	Not statistically signifcant
Child(ren) under 5 years old	Not statistically signifcant
Marital status	
Highest educational qualification	
Age	Not statistically signifcant
Gender	

Percentage point change in probability

6 Conclusions

The majority of households were not missing any of the material deprivation items because of a lack of affordability. Of the households that were classified as being in the most deprived quintile, several characteristics across the major topics were found to be interesting and important in explaining material deprivation. The analysis found that characteristics of the individual and of the other people in the household were important in explaining material deprivation.

Individual characteristics that were found to explain deprivation included age, health, qualifications, and gender. The differences between gender, whereby women had an increased likelihood of deprivation, highlights issues with the nature of the survey. The survey is a collection of self-reported characteristics and so rather than there being a real gender difference in likelihood of being in deprivation, this may reflect a gender difference in likelihood of reporting being in deprivation.

In some cases, such as that of working status, household level characteristics were better predictors of deprivation than individual characteristics. There is an assumption with the material deprivation measure that deprivation is felt equally by all in the household[67]. The fact that there are instances where household characteristics are found to be better than individual characteristics at explaining deprivation supports this assumption.

Interestingly, characteristics at an area level seem to have little influence on material deprivation in the models built. Although there appear to be significant differences in terms of proportions, the analysis allowed for other characteristics to be taken into account that were more powerful predictors than area. This makes intuitive sense: household deprivation is best understood by the characteristics of that particular household and the individuals that constitute it.

On the whole, respondents with dependent children living in the household appeared to protect them from the experience of child specific material deprivation. Whilst children living in households in material deprivation will surely be affected by this deprivation to a certain extent, the analysis showed that the children in the vast majority of these households do not lack items from the question set.

As with overall household deprivation, households with children had a range of individual, household and area characteristics that were found to be important in explaining deprivation. Generally these characteristics were similar to those for households without children. Child specific material deprivation was conceptualised as consisting of both household items and child specific items. Perhaps it is therefore unsurprising that a larger number of characteristics were important to explaining this specific type of deprivation; the more complex the deprivation, the more complex it is to explain by other characteristics.

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[67] Hick, R. (2015). Material poverty and multiple deprivation in Britain: The distinctiveness and multidimensional assessment. *Journal of Public Policy*

The analysis allowed for the two types of deprivation that households with children could potentially experience to be understood simultaneously and so comparisons could be drawn. Whilst child specific material deprivation was best understood by several more variables than household only, these additional variables had smaller effects on the likelihood of experiencing child specific deprivation.

For both household and child material deprivation, the older the respondent the less likely they were to be experiencing deprivation. Rather than suggesting that older people are less likely to experience deprivation, an alternative explanation is that the material deprivation measures used here do not adequately capture the type of deprivation older people experience. This issue has been addressed in advances in both the National Survey and the Family Resources Survey, which now include a pensioner specific material deprivation module.

Similarly, having a child under 5 years of age appeared to significantly reduce the probability of experiencing child specific deprivation. However this may well be an artefact of the indicators themselves rather than the distinctiveness of this group. Not all indicators apply to all households equally. This is true of the household measures, where those in rented accommodation (who are more likely to be in deprivation than owner-occupiers) may not be responsible for electrical goods, furniture or decorating. The result of this may be that these households' deprivation is actually underestimated. This kind of issue applies more keenly to the child specific indicators. The child specific indicators apply to different ages such that primary school aged children have a greater likelihood of being counted as materially deprived than those of different ages. The analytic approach taken tried to account for this and seemed to mitigate its effect somewhat. A fuller discussion of the implication of this was presented in the methodology section (see section 2.2.2).[68]

This report has tried to successfully capture the complex nature of material deprivation within and amongst different households. It has utilised the wealth of information available in the 2014-15 National Survey to understand the nature and characteristics of material deprivation in Wales. It is important to note that the relationships described in this report are ones of association rather than cause and effect. Cross-sectional analysis of this kind is useful in describing and investigating associations but we cannot claim that the characteristics found to be important cause material deprivation based simply on the results presented. Rather, we must use our knowledge and understanding to infer how characteristics of individuals, households and areas combine and interact, in order to better understand the complex and important issue of material deprivation.

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[68] Item response theory could be used as an alternative to try to tackle these issues. Whilst it was beyond the scope of this report to do this, this would be an interesting and potentially useful avenue for further work.

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Appendix 1: Household material deprivation tables

Table A1.6.1: Household material deprivation regression coefficients

Variable		*b*	*b* lower bound	*b* upper bound	*p*
			Confidence intervals		
Sex	*Male*				
	Female	0.444748	0.3061755	0.5833202	<0.001
	16-24				
	24-44	0.5884828	0.338567	0.8283986	<0.001
Age	45-64	0.2630288	-0.0156499	0.5417074	0.064
	65-74	-0.201115	-0.6222144	0.2199844	0.349
	75+	-1.1307	-1.669608	-0.5917926	<0.001
	NQF levels 4-8				
	NQF level 3	0.39660329	0.1894157	0.6037908	0.002
Highest qualification	NQF level 2	0.54123067	0.3538718	0.7285897	<0.001
	< NQF level 2	0.72377483	0.4909023	0.9566476	<0.001
	No qualifications	0.88913616	0.662422	1.11203	<0.001
	Married/Partnership				
	Separated/Divorced	0.87201235	0.6909481	1.053076	<0.001
Marital status	Single	0.30332237	0.1223771	0.4842676	0.001
	Widowed/survivor	0.30523069	0.52844	0.5576181	0.018
Retired household	*Not retired*				
	Retired	-0.82643357	-1.195089	-0.4577784	<0.001
Single parent	*Not single parent*				
	Single parent	0.37268706	0.1391499	0.6062238	0.002
Children	*No children*				
	Each additional child	0.23176389	0.1483286	0.3151991	<0.001
	Owner-occupied				
Housing tenure	Social housing	1.19067751	1.015338	1.366017	<0.001
	Private rented	0.98813872	0.8063561	1.169922	<0.001
General health	*Good/fair*				

Variable		b	b lower bound	b upper bound	p
				Confidence intervals	
	Bad	0.33981165	0.124722	0.5549014	0.002
Long-term limiting illness	*No LLTI*				
	Has LLTI	0.56053479	0.3941183	0.7269512	<0.001
	All working				
Working status of household	Some working	0.47437593	0.4743759	0.6586965	<0.001
	None working	0.77198285	0.7719826	0.9631673	<0.001
	No-one aged 16 -19 (not in FTE) nor aged 19-64 in household	0.47480334	0.4748032	0.9803227	0.066
	Q5 Least deprived 20%				
	Q4	0.25201008	0.0074418	0.496578	0.043
WIMD income score	*Q3*	0.44422033	0.2168857	0.6715546	<0.001
	Q2	0.64578457	0.4210484	0.8705212	<0.001
	Q1 Most deprived 20%	0.66081095	0.422138	0.8994839	<0.001
Internet access	*Has access*				
	No access	0.42578851	0.2330741	0.6185027	0.001
Constant		*-5.05629711*	*-5.563807*	*-4.548788*	*<0.001*

Table A1.6.2: Household material deprivation percentage point change

Variable		Percentage point change	Confidence intervals Lower bound	Upper bound	*p*
Sex	*Male*				
	Female	5.56833	3.86007	7.27658	<0.001
Age	*16-24*				
	25-44	7.91421	4.75773	11.0707	<0.001
	45-64	3.32033	-0.09524	6.7359	0.057
	65-74	-2.30113	-7.10632	2.50405	0.348
	75+	-10.41156	-14.96842	-5.85471	<0.001
Highest qualification	*NQF levels 4-8*				
	NQF level 3	4.64079	2.16145	7.12012	<0.001
	NQF level 2	6.53638	4.23764	8.83511	<0.001
	< NQF level 2	9.08258	5.95781	12.20735	<0.001
	No qualifications	11.53356	8.4169	14.65021	<0.001
Marital status	*Married/Partnership*				
	Separated/Divorced	12.04111	9.31995	14.76228	<0.001
	Single	3.75471	1.48019	6.02924	0.001
	Widowed/survivor	3.77983	0.5103	0.0704935	0.023
Retired household	*Not retired*				
	Retired household	-9.31578	-13.03831	-5.59324	<0.001
Single parent	*Not single parent*				
	Single parent	5.00593	1.65428	8.35758	0.003
Number of children	*No children*				
	Each additional child	2.8998	1.86822	393138	<0.001
Housing tenure	*Owner occupied*				
	Social housing	17.50747	14.5167	2049824	<0.001
	Private rented	13.95096	11.07489	16.82703	<0.001
General health	*Fair-good*				
	Bad	4.5151	1.49129	7.5389	0.003

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Variable		Percentage point change	Confidence intervals		p
			Lower bound	Upper bound	
Long-term limiting illness	*No LLTI*				
	Has LLTI	7.52806	5.15962	9.8965	<0.001
Working status of household	*All working*				
	Some working	6.02032	3.55003	8.49062	<0.001
	None working	10.37793	7.61475	13.14111	<0.001
	None of working age	6.02627	-0.80369	12.85622	0.084
WIMD income score	*Q5 Least deprived 20%*				
	Q4	2.8482	0.08817	5.60824	0.043
	Q3	5.24073	2.60153	7.87994	<0.001
	Q2	7.955	5.24555	10.66445	<0.001
	Q1 Most deprived 20%	8.1657	5.23005	11.10135	<0.001
Internet access	*Has internet access*				
	No internet access	5.68961	2.96024	8.41898	<0.001

Appendix 2: Households with children material deprivation tables
Table A2.0.1: Households with children proportions

Variable		Household deprivation			Child specific deprivation		
			Confidence intervals			Confidence intervals	
		%	Lower	Upper	%	Lower	Upper
Age	16-24	44.12	35.56	53.05	8.89	5.19	14.81
	25-44	25.69	23.74	27.74	7.33	6.23	8.6
	45-64	18.91	16.19	21.97	6.51	4.9	8.62
	65+	21.48	8.72	43.95	1.54	0.21	10.28
Sex	Male	18.34	15.98	20.96	4.35	3.18	5.92
	Female	29.19	27.11	31.36	9.11	7.85	10.55
General health	Good/fair	23.9	22.28	25.59	5.95	5.13	6.89
	Bad	38.17	29.97	47.1	30.32	22.29	39.77
Long-term limiting illness	No LLTI	22.63	20.94	24.42	5.17	4.35	6.14
	Has LLTI	34.39	30.07	38.99	15.98	12.75	19.86
Highest qualification	NQF levels 4-8	13.9	11.94	16.11	2.9	2.01	4.17
	NQF level 3	25.76	22.21	29.66	5.58	4.03	7.68
	NQF level 2	29.78	26.02	33.82	8.93	6.8	11.64
	< NQF level 2	36.01	30.32	42.12	11.62	8.38	15.91
	No qualifications	40.39	34.26	46.84	17.31	12.82	22.95
Marital status	Married/partnership	17.69	15.81	19.73	3.74	2.84	4.89
	Divorced/separated	35.96	30.67	41.63	17.88	13.63	23.08
	Single	35.84	32.61	39.2	10.63	8.76	12.84
	Widowed/survivor	25.56	15.23	39.63	12.91	4.92	29.81
Number of children	1 child	24.36	26.91	21.98	5.81	7.27	4.64
	2 children	23.00	25.56	20.66	6.63	8.36	5.24
	3+ children	29.00	34.01	25.13	11.94	1.52	9.30
Child under 5 years old	No child under 5yrs	22.25	20.24	24.39	7.65	6.41	9.09
	Child/ren under 5yrs	27.95	25.42	30.64	6.32	5.08	7.84
Housing tenure	Owner-occupier	14.21	12.61	15.97	3.33	2.51	4.42
	Social housing	46.81	42.44	51.23	17.78	14.73	21.31

Variable		Household deprivation			Child specific deprivation		
			Confidence intervals			Confidence intervals	
		%	Lower	Upper	%	Lower	Upper
Economic activity	Private rented	39.31	35.12	43.66	10	7.78	12.76
	In employment	19.74	18.05	21.55	3.82	3.09	4.71
	Unemployed	41.99	33.87	50.57	20.46	14.31	28.39
	Economically inactive	38.5	34.49	42.67	16.17	13.24	19.6
Working status of household	All working	18.77	17	20.69	3.46	2.73	4.36
	Some working	26.97	23.48	30.76	8.19	6.16	10.82
	None working	50.41	45.18	55.63	23.8	19.62	28.55
	No-one of working age	7.9	1.07	40.34	9.55	1.32	45.44
Local authority	Isle of Anglesey	23.16	17.17	30.47	3.21	1.24	8.09
	Gwynedd	20.92	14.65	28.96	3.55	1.31	9.25
	Conwy	21.3	14.8	29.66	7.42	3.92	13.58
	Denbighshire	24.48	17.99	32.39	6.66	3.66	11.84
	Flintshire	21.36	15.73	28.34	5.52	3.04	9.83
	Wrexham	35.13	28.38	42.52	8.06	4.92	12.97
	Ceredigion	19.15	12.61	27.98	5.45	2.45	11.7
	Powys	25.41	18.58	33.71	3.01	1.15	7.61
	Pembrokeshire	32.82	25.56	41	3.6	1.51	8.36
	Carmarthenshire	26.64	19.76	34.87	4.87	2.02	11.27
	Swansea	29.19	22.03	37.54	7.05	3.85	12.57
	Neath Port Talbot	24.42	17.94	32.33	4.81	2.52	8.97
	Bridgend	25.5	19.56	32.51	9.5	5.43	16.08
	Vale of Glamorgan	23.32	17.05	31.03	4.61	2.44	8.56
	Cardiff	23.09	17.25	30.19	8.23	5.17	12.85
	Rhondda Cynon Taf	21.92	16.29	28.84	11.06	7.14	16.74
	Merthyr Tydfil	26.68	20.84	33.46	7.19	4.13	12.25
	Caerphilly	26.72	19.68	35.18	10.02	6.04	16.16
	Blaenau Gwent	26.33	19.02	35.23	13.87	8.74	21.31
	Torfaen	29.92	23.27	37.54	8	4.66	13.41

Variable		Household deprivation			Child specific deprivation		
			Confidence intervals			Confidence intervals	
		%	Lower	Upper	%	Lower	Upper
	Monmouthshire	15.51	10.64	22.06	4.56	2.37	8.69
	Newport	18	12.93	24.51	9.71	5.68	16.12
Urban/rural area	Urban	25.75	23.85	27.75	8.01	6.91	9.27
	Rural	21.11	18.41	24.09	4.32	2.98	6.21
Communities First	Not Communities First	21.9	20.14	23.76	5.33	4.44	6.38
	Communities First cluster	32.89	29.4	36.59	12.53	10.18	15.32
Vibrant & Viable Places	Not VVP	26.62	20.82	33.35	14.54	9.72	21.19
	VVP	24.47	22.83	26.2	6.63	5.73	7.66
WIMD income score	Q5 Least deprived 20%	14.7	11.8	18.17	1.76	0.98	3.15
	Q4	17.65	14.55	21.24	4.65	3.22	6.65
	Q3	23.22	20.03	26.75	5.91	4.24	8.17
	Q2	32.39	28.68	36.33	8.16	6.1	10.83
	Q1 Most deprived 20%	33.19	29.26	37.37	14.31	11.59	17.53
WIMD access to services score	Q5 Least deprived 20%	24.41	20.61	28.73	7.89	5.75	10.74
	Q4	26.59	22.94	30.59	8.9	6.7	11.72
	Q3	24.14	20.68	27.96	4.49	3.06	6.53
	Q2	26.73	23.31	30.46	7.91	6.08	10.23
	Q1 Most deprived 20%	21.02	18.1	24.27	6.56	4.71	9.05
Household has access to internet	Has internet access	23.22	21.62	24.91	6.5	5.6	7.54
	No internet access	50.75	42.71	58.75	16.64	11.75	23.05

Table A2.0.2: Households with children parental confidence means

		No material deprivation			Household material deprivation			Child specific material deprivation		
			Confidence intervals			Confidence intervals			Confidence intervals	
		Mean	Lower	Upper	Mean	Lower	Upper	Mean	Lower	Upper
Parental confidence	Read English	3.794071	3.760151	3.827992	3.681095	3.614165	3.748026	3.42133	3.267725	3.574935
	Write English	3.746671	3.709318	3.784024	3.619195	3.54685	3.691541	3.375744	3.22205	3.529438
	Read Welsh	2.022441	1.947993	2.096889	1.750621	1.652785	1.848457	1.628	1.44625	1.80975
	Write Welsh	1.87394	1.802401	1.94548	1.626365	1.531229	1.721501	1.447822	1.295132	1.600511
	Maths	3.555419	3.511952	3.598886	3.369137	3.289821	3.448452	3.057176	2.879213	3.235138

Table A2.0.3: Households with material deprivation regression coefficients

Variable		Household deprivation				Child specific deprivation			
			Confidence intervals				Confidence intervals		
		b	b lower	b upper	p	b	b lower	b upper	p
Sex	*Male*								
	Female	0.5225886	0.2921195	0.7530578	<0.001	0.7384126	0.3056484	1.171177	0.001
Age	*16-24*								
	25-44	0.0667657	-0.4371687	0.5707002	0.795	0.1770319	-0.6508375	1.004901	0.675
	45-64	-0.1523468	-0.7305615	0.4257678	0.606	-0.0335572	-0.9709931	0.9038786	0.944
	65+	-0.0616671	-1.214058	1.090724	0.916	-14.29802	-15.39331	-13.20272	<0.001
Highest qualification	*NQF levels 4-8*								
	NQF level 3	0.4602177	0.1640279	0.7564074	0.002	0.3846826	-0.1605357	0.9299008	0.167
	NQF level 2	0.6307838	0.3427087	0.9188588	<0.001	0.7211894	0.1848501	1.257529	0.008
	< NQF level 2	0.7722178	0.3941516	1.150284	<0.001	0.8706763	0.2800385	1.461314	0.004
	No qualifications	0.7414342	0.3353068	1.147562	<0.001	0.7534736	0.076937	1.43001	0.029
Marital status	*Married/partnership*								
	Separated/divorced	0.6769549	0.337778	1.016132	<0.001	1.30169	0.7798758	1.823505	<0.001
	Single	0.2504291	-0.0074119	0.5082702	0.057	0.7439903	0.2777804	1.2102	0.002
	Widowed/survivor	0.1047095	-0.7281801	0.9375991	0.805	0.8371882	-0.2750449	1.949421	0.14

Variable		Household deprivation				Child specific deprivation			
		Confidence intervals				**Confidence intervals**			
		b	*b* lower	*b* upper	*p*	*b*	*b* lower	*b* upper	*p*
Child under 5 years old	*No children under 5yrs*								
	Child/ren under 5yrs	0.0215366	-0.2197078	0.262781	0.861	-0.6309595	-1.036988	-0.2249312	0.002
Number of dependent children	*1 child*								
	Each additional child	0.0842721	-0.0382746	0.2068188	0.178	0.4080214	0.2407285	0.5753141	<0.001
Housing tenure	*Owner-occupier*								
	Social housing	1.18044	0.8732109	1.48767	<0.001	0.925087	0.453244	1.39693	<0.001
	Private rented	1.067805	0.7895517	1.346059	<0.001	0.8499597	0.3718724	1.328047	<0.001
Health	*Good/fair*								
	Bad	0.4771268	-0.0940695	1.048323	0.102	1.073899	0.339479	1.808318	0.004
Long-term limiting illness	*No LLTI*								
	Has LLTI	0.3620838	0.0664723	0.6576953	0.016	0.6393637	0.1931193	1.085608	0.005
Working status of household	*All working*								
	Some working	0.1646726	-0.0903727	0.4197179	0.206	0.5909452	0.1298517	1.052039	0.012
	None working	0.7727213	0.4058869	1.139556	<0.001	1.403976	0.88763	1.920322	<0.001
	No-one of working age	-1.808683	-4.077009	0.4596421	0.118	13.85291	10.94994	16.75589	<0.001
WIMD income score	*Q5 Least deprived 20%*								
	Q4	0.0701768	-0.3046789	0.4450324	0.718	0.7306896	-0.0357116	1.497091	0.062
	Q3	0.1608522	-0.1858339	0.5075383	0.363	0.6542522	-0.1045095	1.413014	0.091
	Q2	0.3913922	0.0413697	0.7414146	0.028	0.9016791	0.1633702	1.639988	0.017
	Q1 Most deprived 20%	0.2561441	-0.1209909	0.6332791	0.183	1.095659	0.349686	1.841631	0.004
Internet access	*Has internet access*								
	No internet access	0.7919416	0.2807705	1.303113	0.002	0.8347599	0.1475126	1.522007	0.017
WIMD access to services score	*Q5 Least deprived 20%*								
	Q4	-0.0495071	-0.3918489	0.2928347	0.777	-0.0783242	-0.6193453	0.4626969	0.777
	Q3	-0.1587783	-0.4984127	0.1808561	0.36	-0.8303802	-1.425358	-0.235402	0.006
	Q2	-0.0498886	-0.3927909	0.2930137	0.776	-0.3157084	-0.8307484	0.1993317	0.23

Variable	Household deprivation				Child specific deprivation			
	Confidence intervals				Confidence intervals			
	b	*b* lower	*b* upper	*p*	*b*	*b* lower	*b* upper	*p*
Q1 Most deprived 20%	-0.1582877	-0.4920581	0.1754826	0.242	-0.2159699	-0.8263666	0.3944329	0.488
Constant	*-2.862956*	*-3.565781*	*-2.16013*	*<0.001*	*-5.821296*	*-7.169506*	*-4.473087*	*<0.001*

Table A2.0.4: Households with children percentage point change

Variable	Household material deprivation				Child specific material deprivation			
		Confidence intervals				Confidence intervals		
	Percentage point change	Lower bound	Upper bound	*p*	Percentage point change	Lower bound	Upper bound	*p*
Sex	*Male*							
	Female	0.0631109	0.0294236	0.0967983	<0.001	0.025438	0.0051692	0.0457068	0.014
Age	*16-24*							
	25-44	0.005907	-0.0665544	0.0783684	0.873	0.0077384	-0.0308583	0.0463352	0.694
	45-64	-0.0224407	-0.1050465	0.060165	0.594	0.0020526	-0.0419088	0.0460141	0.927
	65+	0.0244312	-0.1473547	0.1962171	0.78	-0.064708	-0.1022869	-0.0271291	0.001
Highest qualification	*NQF levels 4-8*							
	NQF level 3	0.061467	0.0166015	0.1063326	0.007	0.008802	-0.0166712	0.0342751	0.498
	NQF level 2	0.0815384	0.0363467	0.1265301	<0.001	0.0232651	-0.0042052	0.0507354	0.097
	< NQF level 2	0.1021095	0.0404941	0.163725	0.001	0.0283486	-0.0027726	0.0594699	0.074
	No qualifications	0.1002307	0.0341554	0.1663059	0.003	0.0218857	-0.0130164	0.0567879	0.219
Marital status	*Married/Partnership*							
	Divorced/Separated	0.0768142	0.0190975	0.1345309	0.009	0.0594911	0.0245757	0.0944066	0.001
	Single	0.021706	-0.0183268	0.0617388	0.288	0.0332963	0.0090798	0.0575128	0.007
	Widowed/Survivor	-0.0043958	-0.1314908	0.1226993	0.946	0.0441435	-0.0333942	0.01216812	0.264
Child under 5 years old	*No child under 5 yrs*							
	Child/ren under 5yrs	0.0200796	-0.0157623	0.0559215	0.272	-0.0339951	-0.054275	-0.0137152	0.001
Number of children	*1 child*							
	Each additional child	0.0023369	-0.0154446	0.0201184	0.797	0.0199418	0.0114898	0.0283938	<0.001
Housing tenure	*Owner-occupier*							
	Social housing	0.1866263	0.1279708	0.2452818	<0.001	0.0224435	-0.0032828	0.0481698	0.087

Variable		Household material deprivation				Child specific material deprivation			
		Confidence intervals				**Confidence intervals**			
		Percentage point change	Lower bound	Upper bound	*p*	Percentage point change	Lower bound	Upper bound	*p*
	Private rented	0.1653299	0.11377	0.2168898	<0.001	0.021493	-0.0051489	0.0481349	0.114
General health	*Good/fair*								
	Bad	0.0431588	-0.0463461	0.1326637	0.345	0.0590762	0.0027602	0.1153922	0.04
Long-term limiting illness	*No LLTI*								
	Has LLTI	0.0407507	-0.0063835	0.087885	0.09	0.0277066	0.0005641	0.0528491	0.045
	All working								
Working status of household	Some working	0.0131175	-0.264934	0.0527284	0.516	0.0267609	0.0021565	0.0513653	0.033
	None working	0.0930302	0.0293222	0.1597381	0.004	0.0662995	0.0293688	0.1032301	<0.001
	No-one of working age	-0.2342434	-0.2565565	-0.2119303	<0.001	0.9407129	0.927938	0.9534878	<0.001
	Q5 Least deprived 20%								
WIMD income score	Q4	-0.0040899	-0.0597528	0.0515729	0.885	0.0302291	-0.0011526	0.0616109	0.059
	Q3	0.011718	-0.0406861	0.0641222	0.661	0.0239703	-0.0054413	0.053382	0.11
	Q2	0.0429201	-0.0113319	0.0971721	0.121	0.0312695	0.0019245	0.0606145	0.037
	Q1 Most deprived 20%	0.0147729	-0.0416661	0.0712119	0.608	0.047247	0.0158111	0.0786828	0.003
	Has internet access								
Internet access	No internet access	0.1133131	0.0271892	0.199437	0.01	0.0263216	-0.0136659	0.0663092	0.197
	Q5 Least deprived 20%								
WIMD services score	Q4	-0.0055206	-0.0571779	0.0461367	0.834	-0.0033986	-0.0354806	0.0286834	0.836
	Q3	-0.004324	-0.0556846	0.0470366	0.869	-0.0376212	-0.0669908	-0.0082415	0.012
	Q2	0.0010813	-0.0507337	0.0528963	0.967	-0.016932	-0.0459115	0.0120475	0.252
	Q1 Most deprived 20%	-0.0184902	-0.0687915	0.0318112	0.471	-0.0085037	-0.0438632	0.0268557	0.637