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# Poverty in Perspective: A typology of poverty in Scotland



EQUALITY, POVERTY AND SOCIAL SECURITY

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## Executive summary

This study provides a detailed picture of the various experiences of poverty that low income (below 70% median income) households in Scotland face. It describes this through analysis of the Scottish Household Survey, replicating a methodology used in previous work by the authors (Wood et al, 2012). This produces a poverty typology for Scotland, where households in each poverty type share a similar set of poverty experiences.

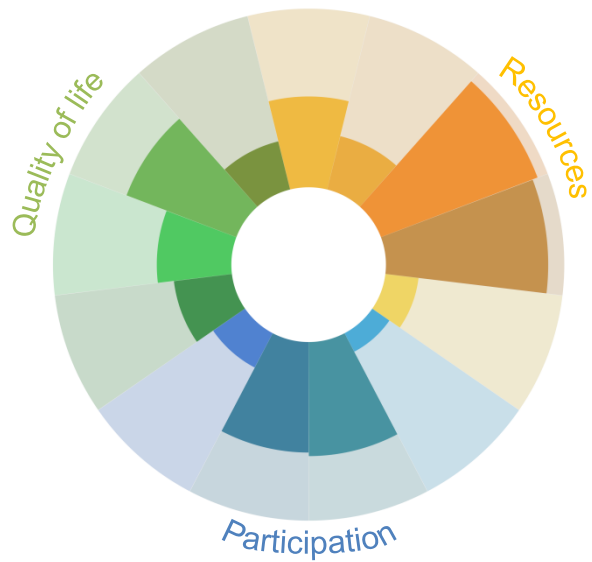
The research retains low income as a fundamental element of poverty and the poverty typology includes low income households only. Thirteen indicators are used to graphically represent different experiences of living in poverty. These indicators help to capture the complex interactions of some of the fundamental experiences of poverty, such as not having savings, low social support, not taking part in cultural activities and feeling unsafe.

The results are 13 types of poverty, spread across three pre-determined life stages: families with children, working age without children, and older age. The fact that different types of poverty emerge, helps to demonstrate that life on low income is not the same for all households. Some go without numerous items and activities, whereas others go without far fewer. See the graphics on the following pages for a visual summary of the poverty types.

Understanding the experiences of those in poverty is an important step in producing policies that improve their living standards. As well as presenting the main features of each poverty type, we consider the policy implications for households likely to have that combination of poverty experiences. For each poverty type, we explore how the group might be identified, how the causes and symptoms of their experience of poverty might be alleviated, and the implications of these findings for local and national poverty strategies.

# FAMILIES WITH CHILDREN – POVERTY TYPES

**'Workless families'**



**'Struggling to get by'**



**'Working home owners'**



**'Part-time workers with low assets'**



## Resources

- Income in lowest 10%
- Financial difficulties
- No savings
- No car
- Can't rely on friends/relatives

## Participation

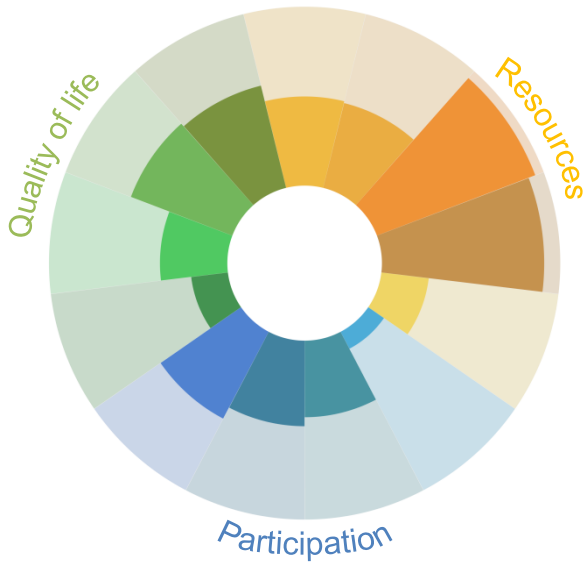
- Regular unpaid carer
- Few free cultural activities
- Few paid cultural activities
- No internet access at home

## Quality of life

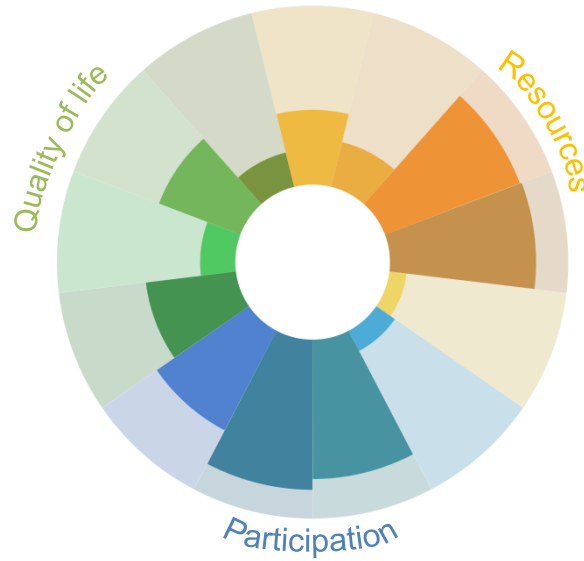
- No visits to open spaces
- Feels unsafe in local area
- 20% most deprived area
- Has been homeless

# WORKING AGE FAMILIES WITHOUT CHILDREN – POVERTY TYPES

**'Insecure singles'**



**'Socially detached singles'**



**'New poor'**



**'Generation rent'**



## Resources

- Income in lowest 10%
- Financial difficulties
- No savings
- No car
- Can't rely on friends/relatives

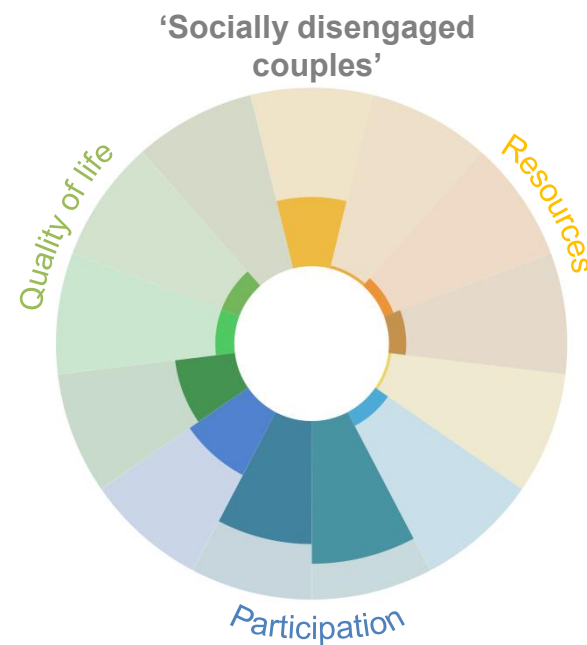
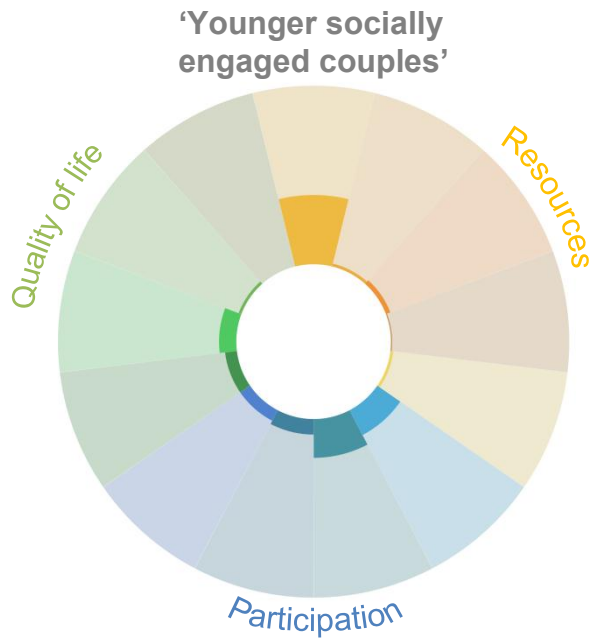
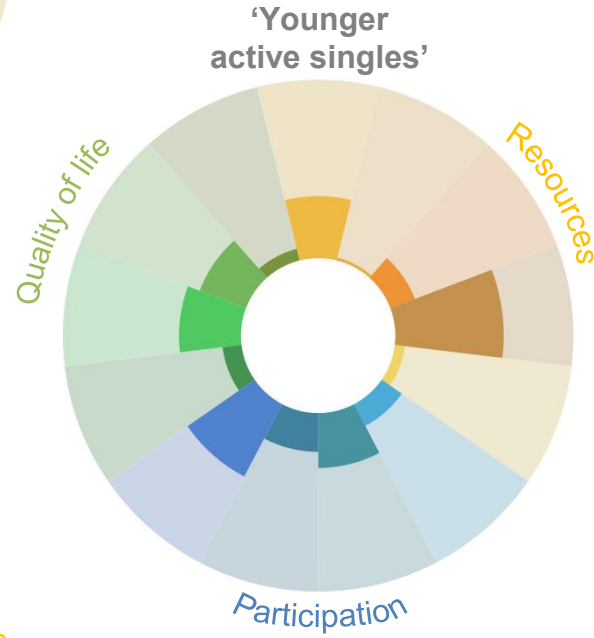
## Participation

- Regular unpaid carer
- Few free cultural activities
- Few paid cultural activities
- No internet access at home

## Quality of life

- No visits to open spaces
- Feels unsafe in local area
- 20% most deprived area
- Has been homeless

# OLDER AGE POVERTY TYPES



- Resources**
- Income in lowest 10%
  - Financial difficulties
  - No savings
  - No car
  - Can't rely on friends/relatives

- Participation**
- Regular unpaid carer
  - Few free cultural activities
  - Few paid cultural activities
  - No internet access at home

- Quality of life**
- No visits to open spaces
  - Feels unsafe in local area
  - 20% most deprived area
  - Has been homeless



# Introduction

The Scottish Government has adopted a multidimensional approach to poverty, in recognition of the fact that the causes and symptoms of poverty are wide-ranging, including factors such as health, housing, educational and social opportunities. For example, the current Child Poverty Strategy for Scotland 2014-2017 (The Scottish Government, 2014) contains a comprehensive measurement framework that addresses both the wide range of drivers of poverty and the impacts poverty has on the lives of children and their families. It includes a range of indicators under three key themes:

POCKETS – maximising household resources.

PROSPECTS – improving children’s wellbeing and life chances.

PLACES – provision of well-designed, sustainable places.

People in poverty are not a homogeneous group who can all be helped in the same way. The particular combinations of causes and symptoms vary across different households in poverty.

In 2012, Demos and NatCen published ‘Poverty in Perspective’ (Wood et al, 2012; Barnes et al, 2012); research that used secondary analysis of the Understanding Society survey - a large-scale household dataset representative of the UK - to create typologies of income-poor households that reflected the lived experience of poverty. Twenty poverty indicators - including poor housing, ill health, low educational attainment, worklessness, low work intensity and lack of social support - were mapped onto the low-income population, and poverty types were formed from the way they clustered together for different sets of households.

This new project replicates the ‘Poverty in Perspective’ methodology, as far as possible, to provide a poverty typology for Scotland, using data from the Scottish Household Survey. We are not redefining poverty, or measuring it in a new way that replaces the existing income-based measures. Instead, we are applying a new model of analysis to the low-income population (using an existing income-based poverty line), to better understand the lived experience of poverty and generate new insights into how to tackle it.

This report presents each poverty type graphically, then discusses its key features. It also outlines the policy implications for each type, enabling policymakers to better understand the distinct approach needed to tackle poverty for each group.

## Methods

This chapter describes the methodology used to create a poverty typology for Scotland. It covers the source of data, the construction of indicators to capture a range of poverty experiences, and the statistical technique used to identify households with similar combinations of poverty indicators – in other words, with similar experiences of poverty. In places the reader is referred to more detailed information in the appendices.

### Data source

To be able to create poverty types, a dataset was required that collects information on different aspects of poverty from a large number of households in Scotland. Households in Scotland are included in many of the UK-wide large-scale surveys, such as Understanding Society, the Family Resources Survey and the General Lifestyle Survey. Although these surveys collect information on a range of topics, the number of households in Scotland that they interview is not large.

The Scottish Household Survey (SHS), funded by the Scottish Government, was set up in 1998 to provide robust evidence on households in Scotland. The large-scale nature of the survey means that it allows disaggregation of information both geographically and in terms of population sub-groups (such as families with children or older people). Interviews are carried out in approximately 3,900 households each quarter. This report uses data from the latest two years of the survey – 2013 and 2014 – which when pooled contains information from approximately 28,000 households in Scotland. This dataset provides a big enough sample size to allow analysis of low-income households in three different life stages:

- **Families with children:** households with a child aged under 16 or aged 16-17 and in full-time education
- **Working age without children:** households with no children and all adults aged under pension age (men under 65 and women under 60)
- **Older age:** households with at least one adult aged over pension age (men 65 and over, and women 60 and over)

### Identifying low income households

As in 'Poverty in Perspective', this research looks only at low-income households – that is, households below 70% of median equivalised net household income. The 70% median threshold was selected because it is used in the official child poverty measure that identifies households with combined low income and material deprivation (DWP, 2015).

## **Defining income in the SHS**

The term net annual household income refers to income from employment, benefits and other sources, after taxation and other deductions, that is brought into the household by all members of the household. Income as collected by the SHS is not the same as that used by other Government surveys that specialise in collecting income information – such as the Family Resources Survey (FRS), used in the government's Households Below Average Income (HBAI) series. Income data from the SHS should not, therefore, be compared with other sources without careful consideration of the methods used. There are several reasons why the SHS data on income may not be completely accurate:

- The SHS collects information from, or about, the Highest Income Householder only (and their spouse or partner in couple families).
- Respondents are asked to estimate their income, and are shown a range on income bands to choose from. In other specialist income surveys, respondents are asked to refer to pay slips, benefit records or bank statements to support their information.
- It is likely that some people may not know the precise income of their partner, so may make a 'best guess'.
- Like with other 'sensitive' information, some respondents may understate their income because they do not want to reveal how much they really earn.
- As is often the case with income information, even in more specialist income surveys, there is a significant amount of missing data from households unwilling or unable to provide income information. Consequently values for some or all of the main components of income have been imputed by the data providers (Scottish Government, 2014).

An independent report that compared the SHS (and the Scottish House Condition Survey (SHCS)) and FRS/HBAI data concluded that '...considering the completely different and much less onerous method of collecting income data in the SHS/SHCS the agreement in the income distributions with the FRS/HBAI data is remarkably good' (Raab et al, 2004, p1). The report also noted that the SHS greatly underestimates investment income and interest payments compared to FRS/HBAI – this may account for the higher rates of poverty amongst older people in the SHS.

## **Imputing income for 'other adults'**

To further increase the quality of the income data, a procedure was undertaken to impute the income of 'other adults' in SHS from the average income of 'other adults' in the FRS/HBAI data. This procedure mirrored elements of the approach used by the Scottish Government (2010) in a project using earlier years of the SHS. That report found that main activity status was the key predictor of the income of 'other adults'. Consequently the median income of 'other adults' in the FRS/HBAI 2013 and 2014 surveys was imputed to 'other adults' in the SHS, according to main activity status.

Median income was calculated from the SHS sample. The percentage of households on low income (below 70% of the median income) within each life stage

is presented in Table 1. As mentioned earlier, it is likely that the SHS is overestimating the percentage older age households on low income.

Table 1. Number of households by poverty status in each life stage

		Life stage			All households
		Working age with children	Working age without children	Older age	
Whether equivalised net household income below 70% median					
70% median or above	Percent	74%	80%	64%	74%
	Unweighted n	3653	6767	4656	15076
Below 70% median	Percent	26%	20%	34%	26%
	Unweighted n	1344	1723	2473	5540
Unweighted Base		4997	8490	7129	20616

Notes: Weighted column percentages

Notes: Unweighted counts

Base: Households in Scotland

Source: Scottish Household Survey, 2013 and 2014 pooled

## Deriving poverty indicators

The original 'Poverty in Perspective' methodology selected a range of indicators that helped to capture the lived experience of poverty for households with a low income. How wide ranging those indicators should be was derived from discussions with key stakeholders (including policy makers, local service providers and academics) and by drawing on the Bristol Social Exclusion Matrix - which was designed to help researchers specify an approach for measuring multidimensional disadvantage (Room, 1995; Levitas, 2007).

The SHS covers many topics included in the three dimensions identified in the B-SEM (Resources, Participation and Quality of Life), such as housing, transport, health, employment, income, education and neighbourhood satisfaction. The poverty indicators used in the analysis are listed below.

### Resources

- Household income decile
- Some or deep financial difficulties
- No savings
- Difficulties paying rent/mortgage in last year
- No car
- Cannot rely on friends/neighbours for help

### Participation

- Provides regular unpaid care
- Has not done any free cultural activities in past year
- Has not done any paid cultural activities in past year
- No internet access at home
- Feels cannot influence local decisions

## Quality of life

- Overcrowded accommodation
- Home never warm or accommodation has serious heating problem
- Ever been homeless
- High number of neighbourhood problems
- Feel unsafe walking alone in neighbourhood or alone at home
- Lives in one of the 20% most deprived local areas
- Dissatisfied with local council
- Not visited countryside in last 12 months
- Experienced discrimination or harassment

There are also a range of other socio-demographic characteristics of households that help to explain the make-up of the poverty types:

- Household type
- Gender<sup>1</sup>
- Age<sup>1</sup>
- Ethnic group<sup>1</sup>
- Number of children
- Age of youngest child
- Main income source
- Household work status
- Adult and child health
- Highest qualification<sup>1</sup>
- Housing tenure
- Rurality

## Data analysis: Latent Class Analysis

Latent Class Analysis (LCA) was used to group households together into 'poverty types', based on similarities in their poverty indicator profiles, and to estimate the size of each these 'poverty types'. LCA is a member of the family of latent variable models (which includes factor analysis and structural equation modelling), and is a statistical technique used to find groups or subtypes of cases, 'latent classes', in multivariate categorical data.

In deciding how many latent classes are needed to best represent the variation in experiences of poverty, both model fit diagnostics and substantive interpretation of classes are considered. For the latter, the core output from the latent class models is used: estimated conditional item response probabilities – in other words, the probability of reporting a poverty indicator given membership of a particular poverty type. These are used to assess how commonly or uncommonly particular indicators of poverty are experienced across the poverty types, and to assess how useful the indicators are for distinguishing between types of poverty. Certain poverty indicators can be dropped from the models if they do not help to define distinct

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<sup>1</sup> The characteristic of the highest income householder.

subtypes of poverty, which makes interpretation easier. Initial analysis did lead to the dropping of some indicators<sup>2</sup>, and not all indicators are used in each life stage<sup>3</sup>.

In arriving at a final set of models, how clearly the latent classes can be differentiated from each other is maximised - in other words, whether the 'ideal types' cover the majority of experiences of poverty, or whether there are many households whose experiences fall in between them. This can be done partly on the basis of the item response probabilities, but also partly from inspecting the posterior probabilities of class memberships: ideally each case to be assigned 'cleanly' (or with a high probability) to one and only one class.

Interpreting the analysis involves describing the sets of poverty indicators that each poverty type has a high probability of experiencing, and the indicators that help distinguish between the poverty types. Factors that can drive poverty – such as work status, education and health - and other socio-demographic characteristics – such as age, family composition and ethnic group – are used to help describe the sorts of households that experience different types of poverty. Graphical representations of the poverty types are used to succinctly describe and compare the typology.

Of course there are limitations with this method, as there is with all research methodology. It is important to emphasise that not all households within a poverty type have exactly the same poverty experience – but they will have similar experiences. In other words, although a poverty type contains households with a similar set of poverty indicators, not all will have exactly the same combination of poverty indicators. When the poverty types are described below, therefore, we talk about the likelihood of an individual household experiencing a certain poverty indicator. For example, one household may be unable to save, and another may have savings, but they fall within the same poverty type because they are similar on enough other indicators to group them together<sup>4</sup>.

## Presenting the poverty types

The poverty types are presented and discussed in the next three chapters - each focusing on a different life stage: families with children, working age households without children, and older age.

Two graphics are used to illustrate each poverty type:

1/ A 'poverty wheel', showing the lived experience of poverty for households in that poverty type. Each segment of the poverty wheel represents a different poverty indicator. The proportion of the segment that is shaded reflects the probability that households in that poverty type have that poverty indicator. The segments are

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<sup>2</sup> Two indicators were dropped from the LCA analysis as they did not discriminate across classes; i) whether the accommodation has condensation, and, ii) if the household is less than 30 minutes' walk from the nearest green space.

<sup>3</sup> For example, overcrowding, and being behind with housing payments, were dropped for the older age life stage – mainly as the prevalence of these indicators was very low.

<sup>4</sup> See Annex B for further information on the Latent Class Analysis applied in this study.

coloured to signal the domain of the B-SEM to which they belong: yellow = resources, blue = participation, green = quality of life. Not all 20 of the poverty indicators used in the analysis are represented in the poverty wheel, just the 13 that best differentiate between the poverty types.<sup>5</sup>

2/ A chart showing the socio-demographic characteristics of households in that poverty type (including factors that could lead to a household having low income). This chart is coloured red.

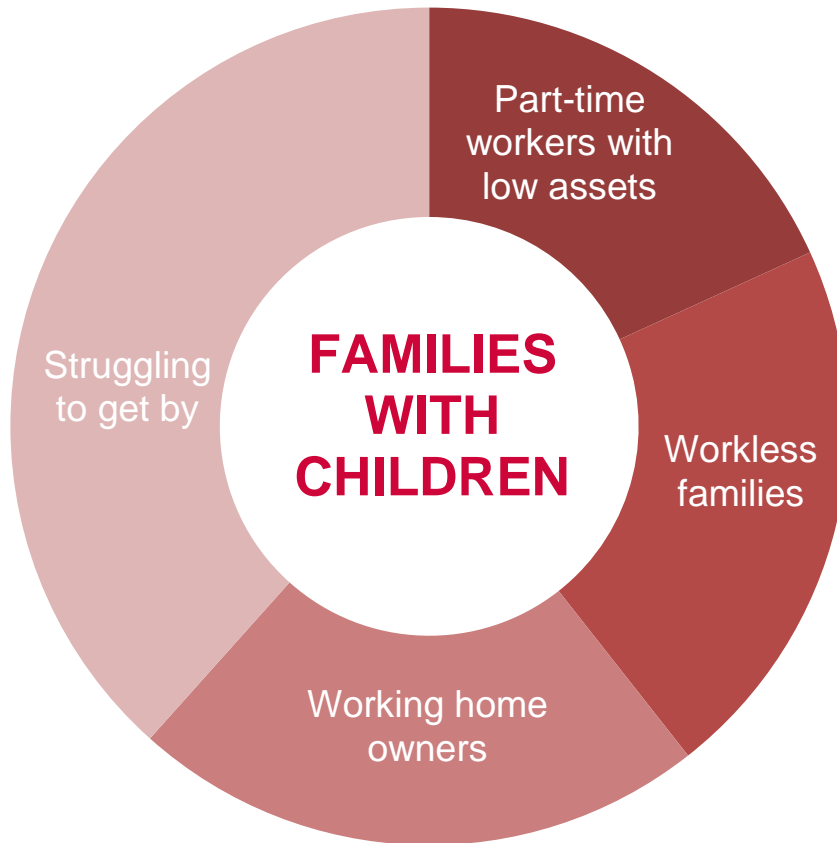
As well as presenting the main features of each poverty type, we explore how each group might be identified, how the causes and symptoms of their experience of poverty might be alleviated, and the implications of these findings for local and national poverty strategies.

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<sup>5</sup> See Annex B, Tables B.7-B.9 for the breakdown of the poverty types by all poverty indicators and socio-demographic characteristics.

## Poverty types: Families with children

The analysis of the households with children life stage revealed four poverty types:



The four segments above show the proportion of low income households in the 'families with children' life stage that are in each poverty type.

This chapter now goes on to describe the households in each poverty type, explaining the combination of indicators that households face. Given knowledge of how particular forms of poverty interact for households, there is also discussion of how policy makers and service providers can reach and help households in each poverty type.



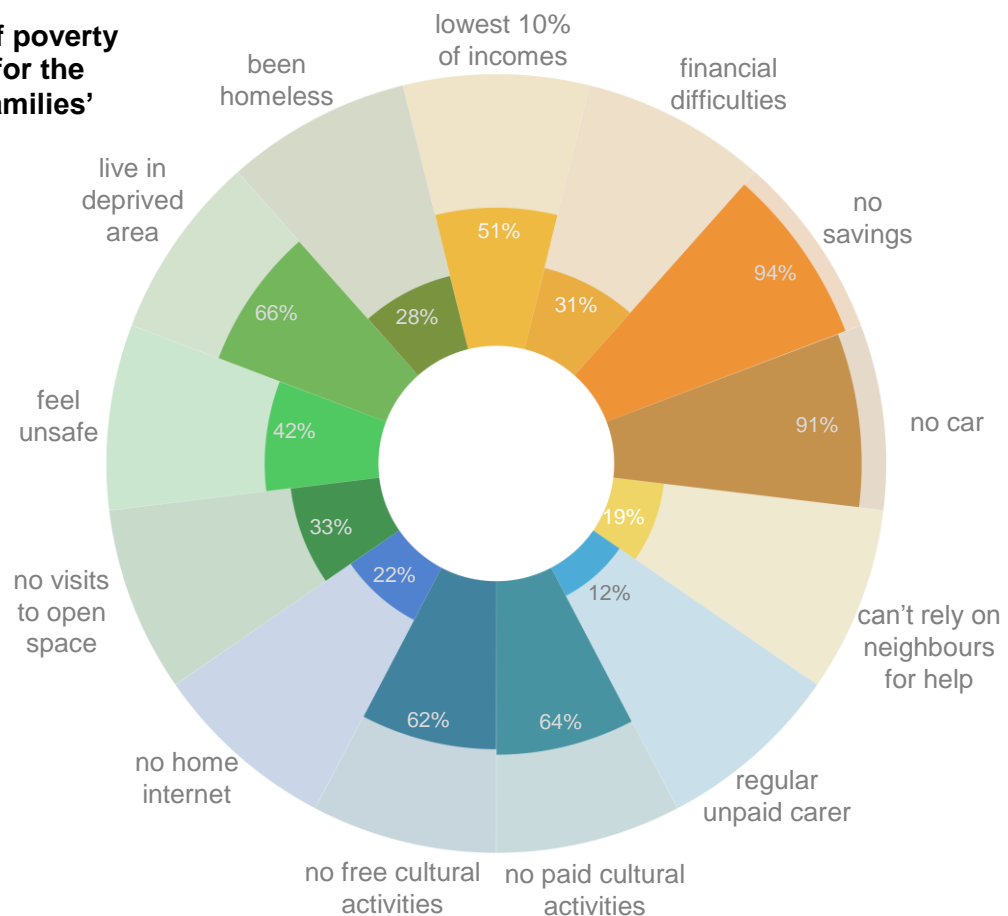
## Families with children: 'Workless families'

### Who they are

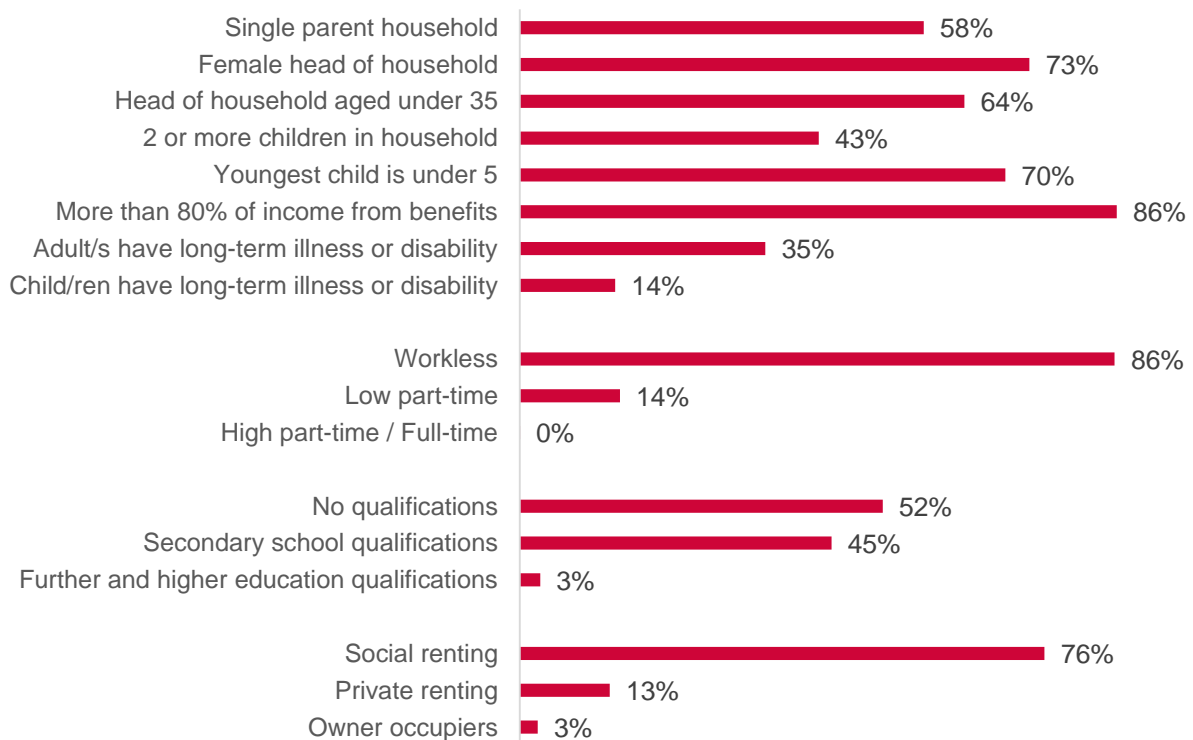
Members of this poverty type are predominately out of work or have little connection to the labour market. The majority live in social rented accommodation, mainly relying on benefits for their income, and around a third have poor health. In three quarters of these households, the highest income householder is a woman, and the majority of these women are single mothers.

'Poverty in Perspective' identified a group described as 'vulnerable mothers' (Wood et al., 2012). This group is made up of single mothers under 24, with babies or young children, living in social housing. They are the most deprived of all the child poverty groups in the UK, lacking consumer durables and behind on bill payments, and are low skilled with limited work histories. This group is likely to be very similar to the group of 'workless families' who are single mothers identified in this Scottish analysis. Previous research has shown that young, unemployed mothers tend to be at high risk of social exclusion (Campbell and Watt, 2016), and our findings support this. 'Workless families' tend to live in a deprived neighbourhood, without ownership of a car, and do not take part in cultural activities - meaning that many in this group may often find themselves stuck at home, or otherwise isolated. They also face a range of economic disadvantages.

**Breakdown of poverty indicators for the 'workless families'**



### Socio-demographic characteristics of the 'workless families'



### How to reach them

This analysis shows that, while isolated, the majority of this group live in social housing, making this an effective way of reaching those who fall into the group. Another effective way could be to look at those accessing Scotland’s free childcare entitlement (currently 600 hours per year for all 3 and 4 year olds, and eligible 2 year olds), as 70% of ‘workless families’ have a child under the age of 5. Their reliance on income from benefits means that they are likely to be taking advantage of nurseries offering the free entitlement.

### How to help them

The biggest challenges for this group are unemployment and social isolation. Unemployment and social isolation are often connected. Isolation can cause a lack of confidence, which can be a reason behind a person’s worklessness. Furthermore, employment can help prevent future isolation.

Unemployment is a major factor for these families – 86% are workless and the rest are working few hours. Support for young parents to stay in education or training is important, but for many who have already left education or training, getting into work will be crucial. Not all ‘workless families’ would be ready for an immediate entry into work, but employability support – such as providing CV and cover letter guidance, application and interview tips – would help them on a longer term journey into working in the future.

A third of this group have a long term illness or disability. This means some in this group will not realistically be able to enter work, although many could with the right support. There are now a number of initiatives which are encouraging and helping

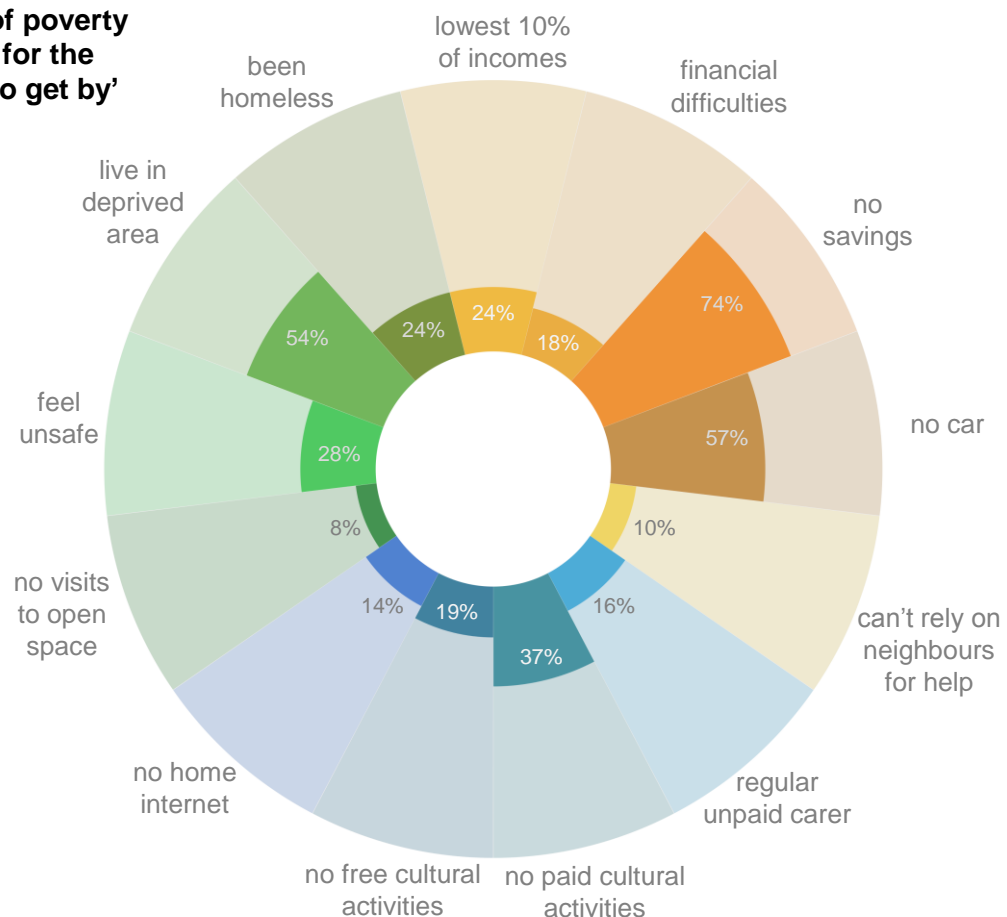
employers to attract, support and retain workers with health conditions, such as Disability Confident (launched in Scotland in 2016) (Wilson and Muir, 2016) and Fit for Work Scotland (2016). Furthermore, some Health and Social Care Partnerships are engaging with employers looking to provide better support to their workforce (Wilson and Muir, 2016).

## Families with children: ‘Struggling to get by’

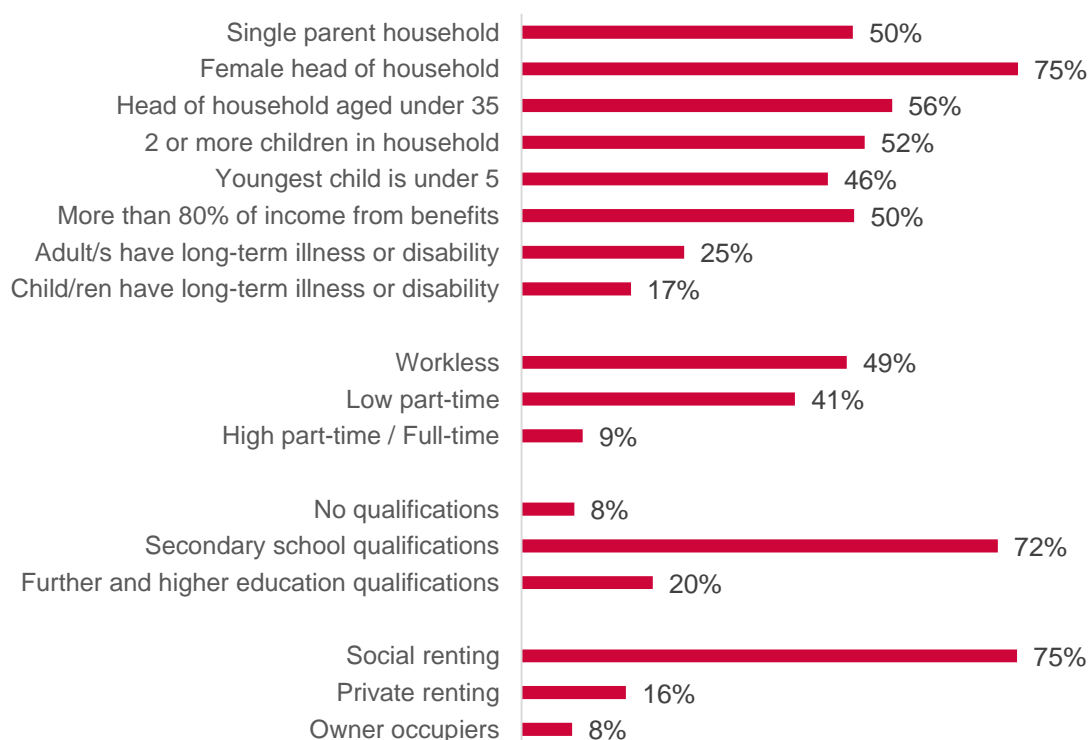
### Who they are

The ‘Struggling to get by’ households are the largest poverty type, making up approximately a third of low income families with children. The UK-wide ‘Poverty in Perspective’ analysis identified a group of young mothers who were described as ‘managing’ – single mothers, who have school aged children and are sometimes able to work part time. Managing mothers lack consumer durables, but are able to keep up with bills and other essential costs through employing sophisticated budgeting strategies. Similar to that group, the ‘struggling to get by’ group revealed in this analysis are families who are mostly unemployed or working part time despite some having good qualifications. Half are single parents, and three-quarters are women. However, they appear to be at a slightly higher risk of financial difficulties than managing mothers, and suffering from poorer health – hence the different categorisation, ‘struggling’, in the Scottish context.

**Breakdown of poverty indicators for the ‘struggling to get by’**



## Socio-demographic characteristics of the 'struggling to get by'



Like 'workless families', most of this group are living in social housing with few savings and no car. While the evidence does not conclusively show it, it is possible that some 'workless families' (perhaps those with better qualifications) become those 'struggling to get by' when their children get older. Although both groups have significant levels of worklessness, the 'struggling to get by' have higher rates of part time work. This may be in part due to having older children, but also no doubt due to their better qualification levels. For example, unemployed young mothers with very young children become slightly older mothers with older, primary school aged children and an increased opportunity to participate in employment.

### How to reach them

Given the similarities between those 'struggling to get by' and 'workless families', many of the policies for identifying and addressing poverty amongst unemployed young mothers would also be effective for their slightly older counterparts. Again, social housing and childcare services (including those providing the free entitlement) are key outreach tools. Primary schools and employers could also play a role in reaching this group.

### How to help them

The biggest challenges for this group are employment and childcare costs.

As with 'workless families', this group would benefit from employability support to help build their skills and experience and help them enter (or re-enter) work. An additional focus for this group would be to enable in work progression and increased work hours, given the higher proportion already working part time.

The childcare burden faced by this group must also be addressed as both a drain on this group's income and as a barrier to employment.

## Families with children: 'Working home owners'

### Who they are

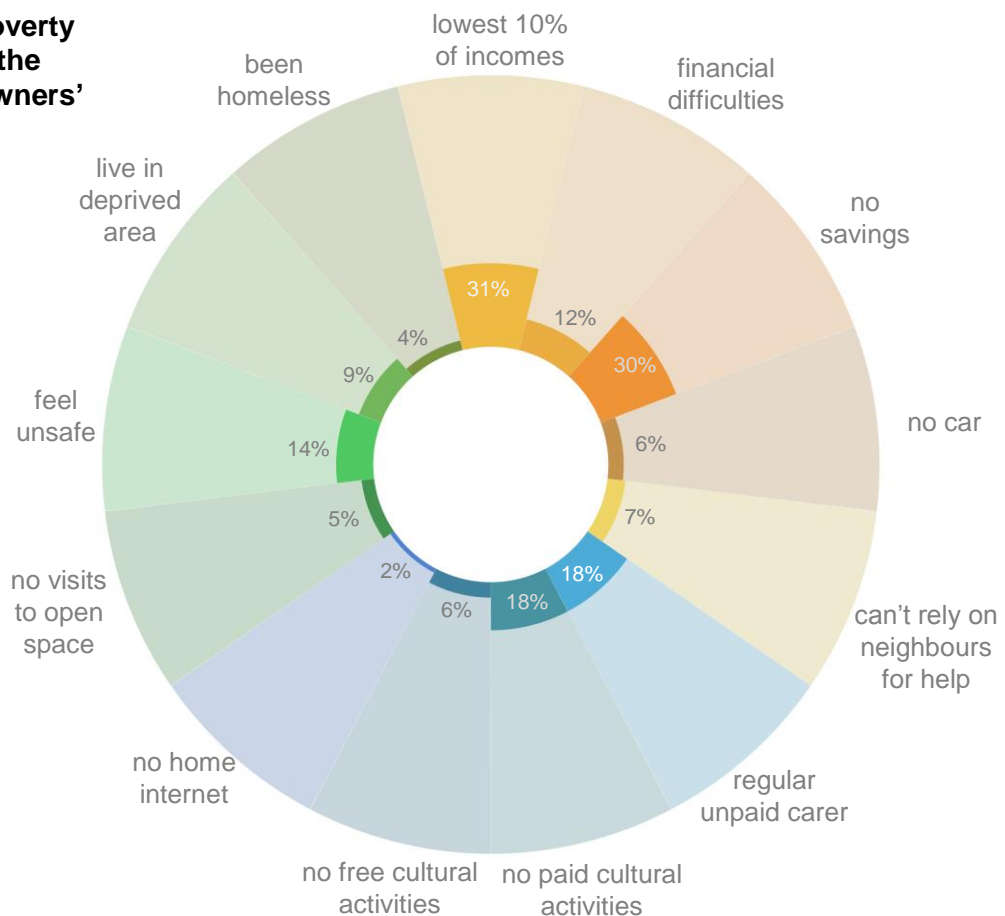
As in the UK as a whole, the vast majority of households in this group are two parent families, who are employed, well-educated homeowners.

'Working home owners' face far fewer disadvantages than other low income families. Their incomes are low, but they usually have the resilience and resources needed to see them through hard times, so they do not experience the hardship often associated with low income. Nevertheless, their precarious position means that they are vulnerable to economic shocks.

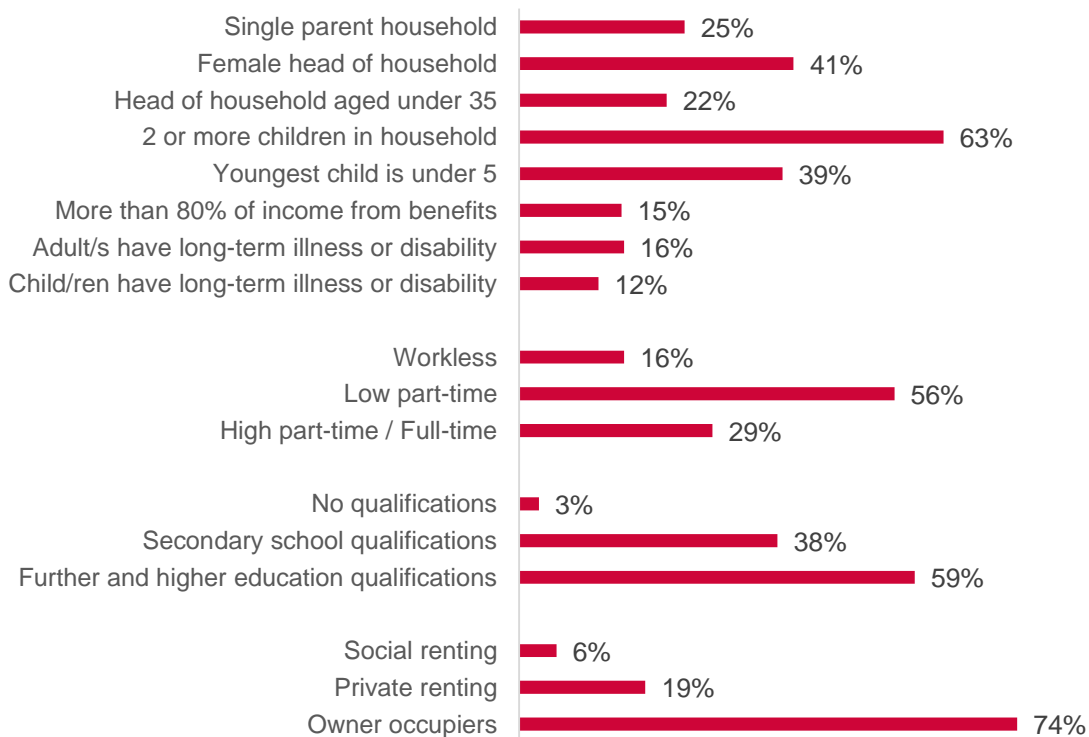
### How to reach them

People in this group are difficult to identify because they do not rely on benefits, and may not use public services or support often used by other low income families with children (Wood et al., 2012). They are not usually social renters – the majority are home owners – and are not found at the Job Centre or at debt advice charities. Hence employers are in a good position to reach out to and help them. This group may also be self-employed, so business support organisations could help identify them, along with credit unions.

### Breakdown of poverty indicators for the 'working home owners'



### Socio-demographic characteristics of the 'working home owners'



### How to help them

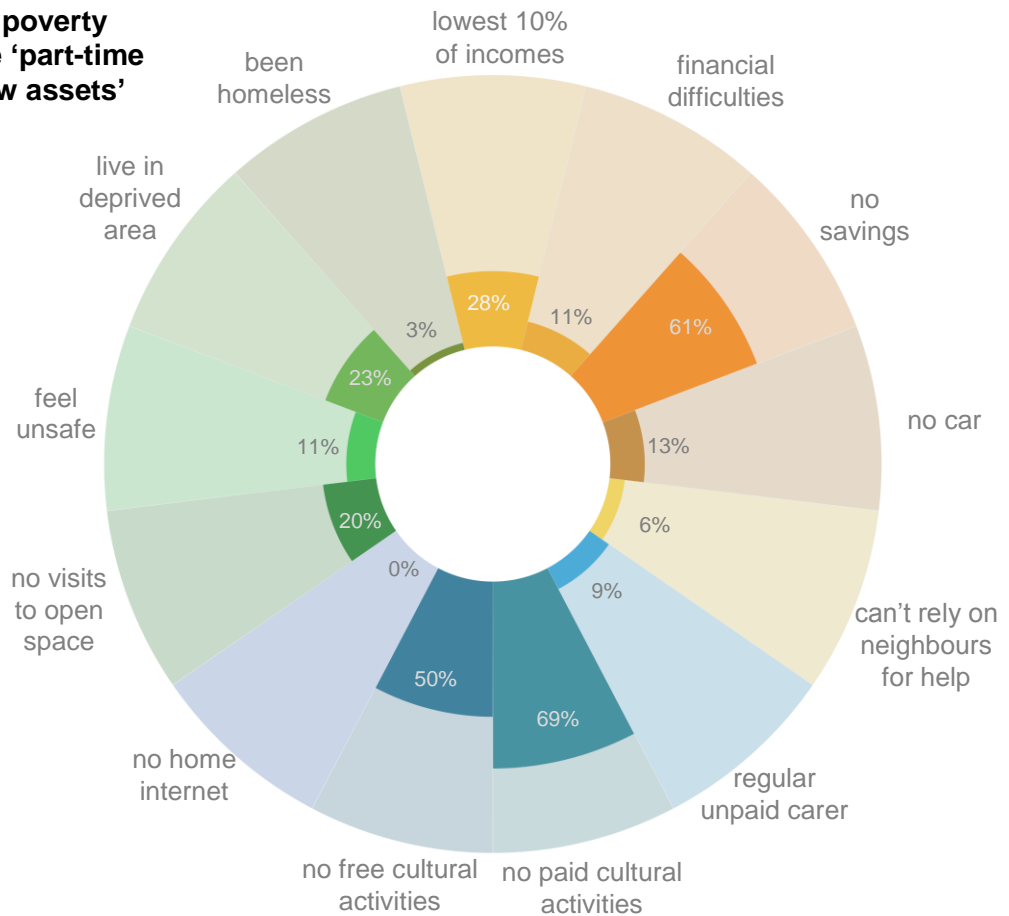
Policy interventions for this group should focus on prevention and reinforcement measures, so that they are able to withstand the pressure points and fluctuations they may face. This is all the more important given the uncertainty resulting from Brexit, which has the potential to tip 'Working home owners' into a more acute situation through redundancy, shrunk profits for the self-employed, repossession of homes and other crises.

## Families with children: 'Part-time workers with low assets'

### Who they are

The vast majority (91%) of this group are in work, yet most are only working a few hours per week. Over half are renting, so have no housing assets to fall back on, and the majority have no savings. This lack of assets suggests that they may have high outgoings. There could be various reasons for this. Any substantial childcare costs could absorb a significant amount of this group's income. Furthermore, it is plausible that a patchy work career may have led this group to incur debt in the past, the repayments of which could be another explanation for their high outgoings.

**Breakdown of poverty indicators for the 'part-time workers with low assets'**



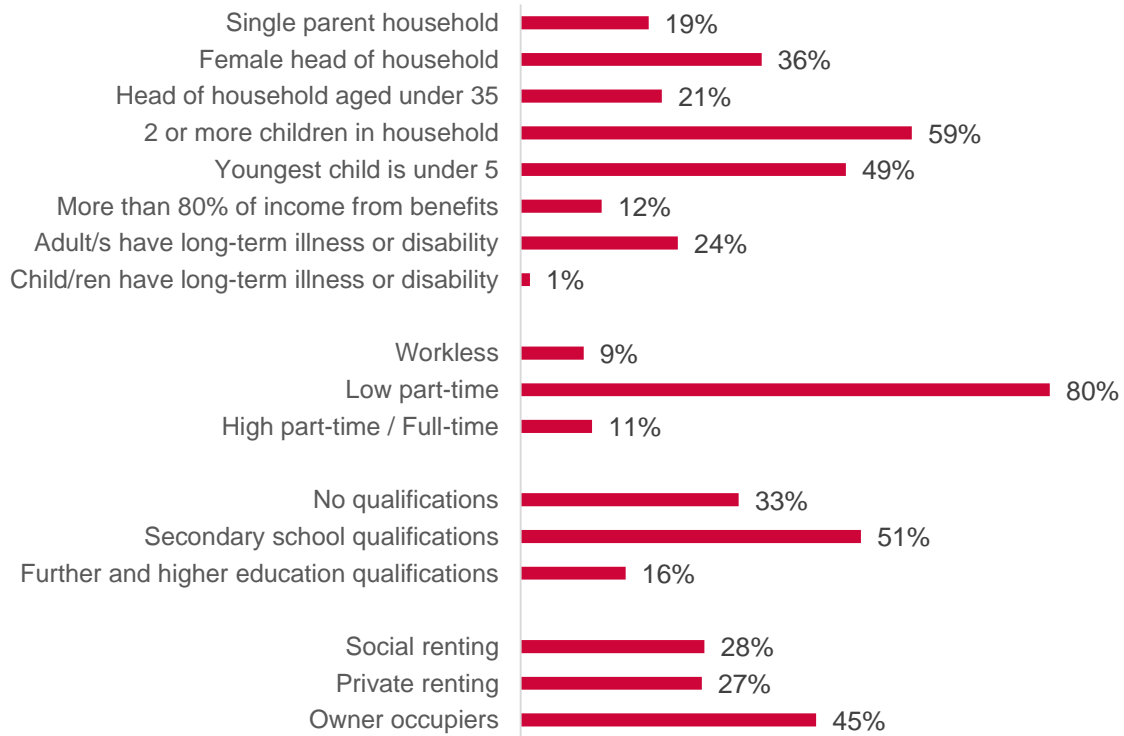
**How to reach them**

As the vast majority of this group are in work, employers could be an effective way of identifying them. Furthermore, the majority of this group live in social housing, so this could be another avenue for identification. Childcare providers and schools could also play a role.

**How to help them**

The challenge for this group is stretching their finances in order to pay for significant outgoings. Therefore the focus of intervention should be on enhancing their financial management skills, and reducing their outgoings – particularly their childcare costs – as their circumstances make it difficult for them to save and tackle the deprivation they face. Members of this poverty type may not be at crisis point, but prevention is key – especially given the economic uncertainty resulting from Brexit.

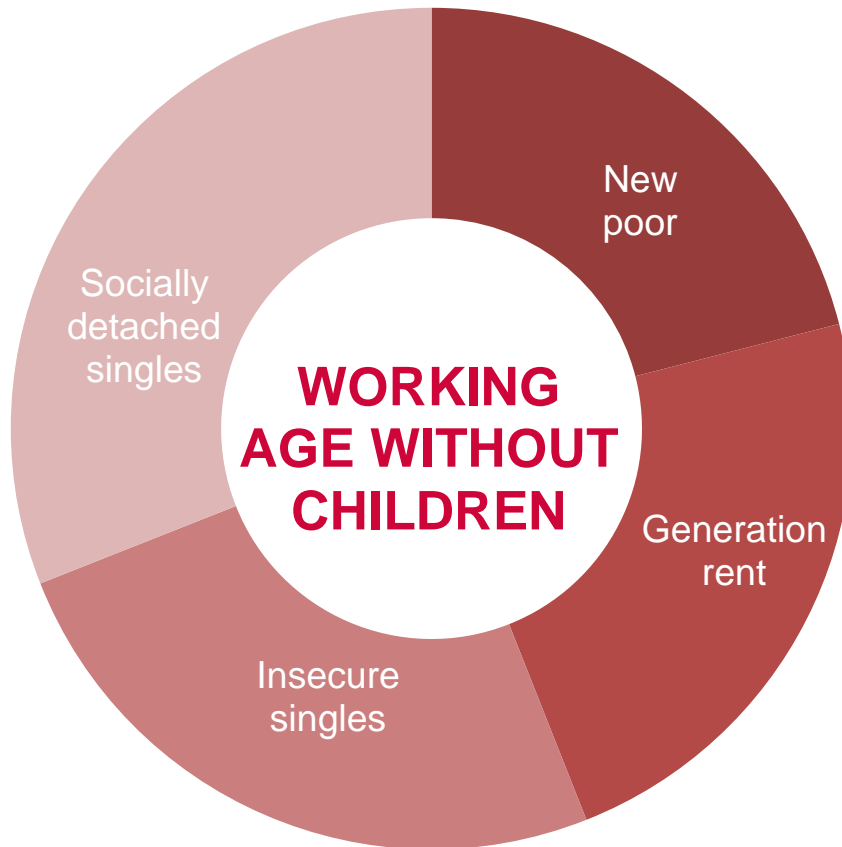
### Socio-demographic characteristics of the 'part-time workers with low assets'





## Poverty types: Working age without children

The analysis of the working age adults without children life stage revealed four poverty types:



The four segments above show the proportions of low income households in the 'working age families without children' life stage that are in each poverty type.

This chapter now goes on to describe the households in each poverty type, explaining the combination of indicators that households face. Given knowledge of how particular forms of poverty interact for households, there is also discussion of how policy makers and service providers can reach and help households in each poverty type.

## Working age without children: 'Insecure singles'

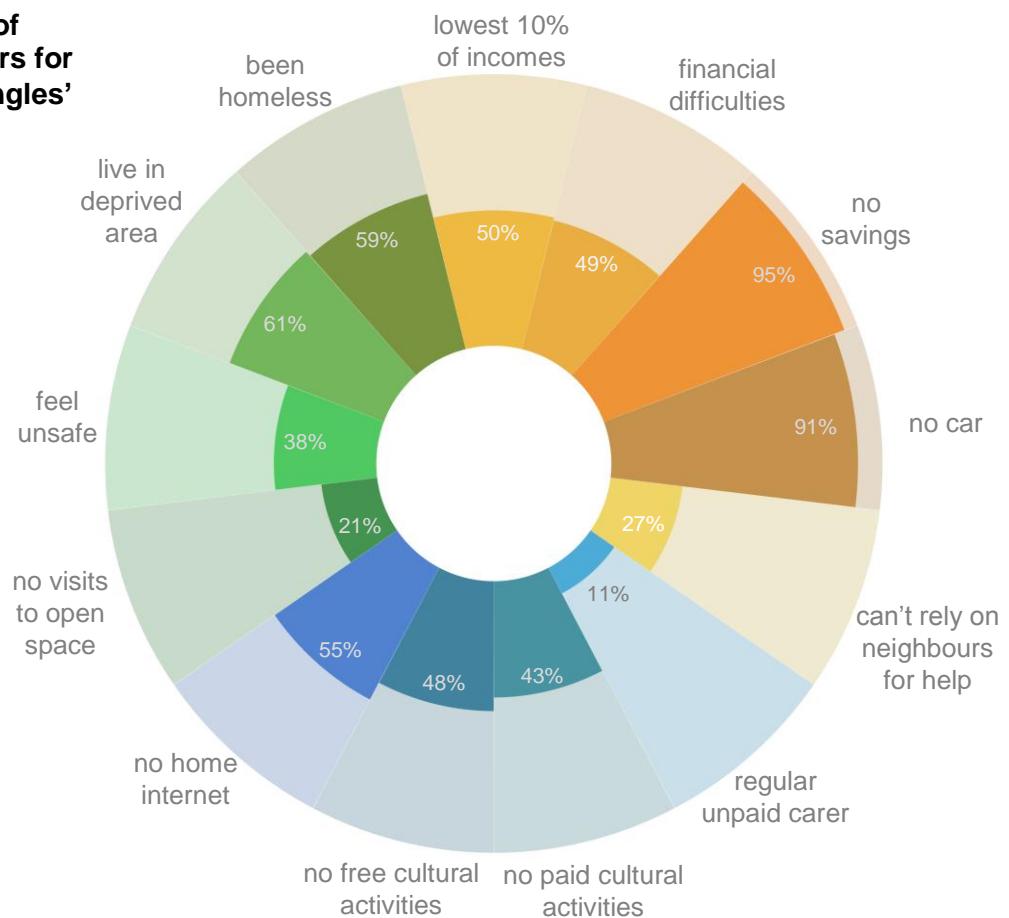
### Who they are

This group is similar to the 'insecure singles' type described in 'Poverty in Perspective'. They are one of the most vulnerable groups in Scotland, suffering from multiple disadvantages across health, education, housing and employment. The high rate of previous homelessness amongst this group (59%) is distinctive – the next highest rate for the cohort is much lower (20%, among 'socially detached singles'). People who are homeless are at an increased risk of becoming homeless again in the future. Around half of this group also suffer from health issues, which could include mental health problems and substance abuse issues, both of which are associated with a higher risk of homelessness and poor housing. 65% of insecure singles are men, and over half are between 25 and 44 years of age.

### How to reach them

Identifying this group is likely to be difficult. As people in this group are childless, they do not use many of the services that can identify parents who are struggling, such as childcare services. Furthermore, if a person in this group become homeless once again (e.g. after falling behind on their rent and being evicted) they might fall off the radar, so to speak.

**Breakdown of poverty indicators for the 'insecure singles'**



One way of identifying this group is through registered social landlords (RSLs) – 72% of this group are social tenants. Other outreach vehicles include job centres, given the high level of benefit use, and also debt advice organisations and homelessness charities, and health and substance abuse support groups who might have been in contact with this group during periods of homelessness. Finally, food banks might have contact with this group.

### How to help them

In order to reduce poverty for this group, the services described above need to work together to provide effective support. This group is a classic “multiple user” of many agencies – statutory and voluntary. The priority may not be to invest more resources to support this group, as much as to better coordinate and rationalise what is already in place. Identifying this group, and agencies working together to recognise they are dealing with the same people from different points of view, is the first step towards better coordination.

Interventions for this group should also focus on employment support – although the kind of support needed will depend on age. 65% of this group are aged 16-44, and the remainder 45 or over. Older and younger ‘insecure singles’ are likely to experience different challenges. Younger people in the group may have never worked, having left school and taken up benefits. They will need support aimed at enabling them to take their first steps into the world of work, which will include a focus on building their confidence. On the other hand, older (working age) people in the group are more likely to have worked before, but have possibly been made redundant, separated from a partner or experienced a bout of poor health, and need help to re-enter work and re-build their confidence. People with health problems in this group, whether young or old, will also need further support to help them manage their condition in the workplace.

#### Socio-demographic characteristics of the ‘insecure singles’



Welfare reform poses a particular risk to people in this group, given that the vast majority of their income comes from benefits, and they are highly vulnerable on a number of other indicators.

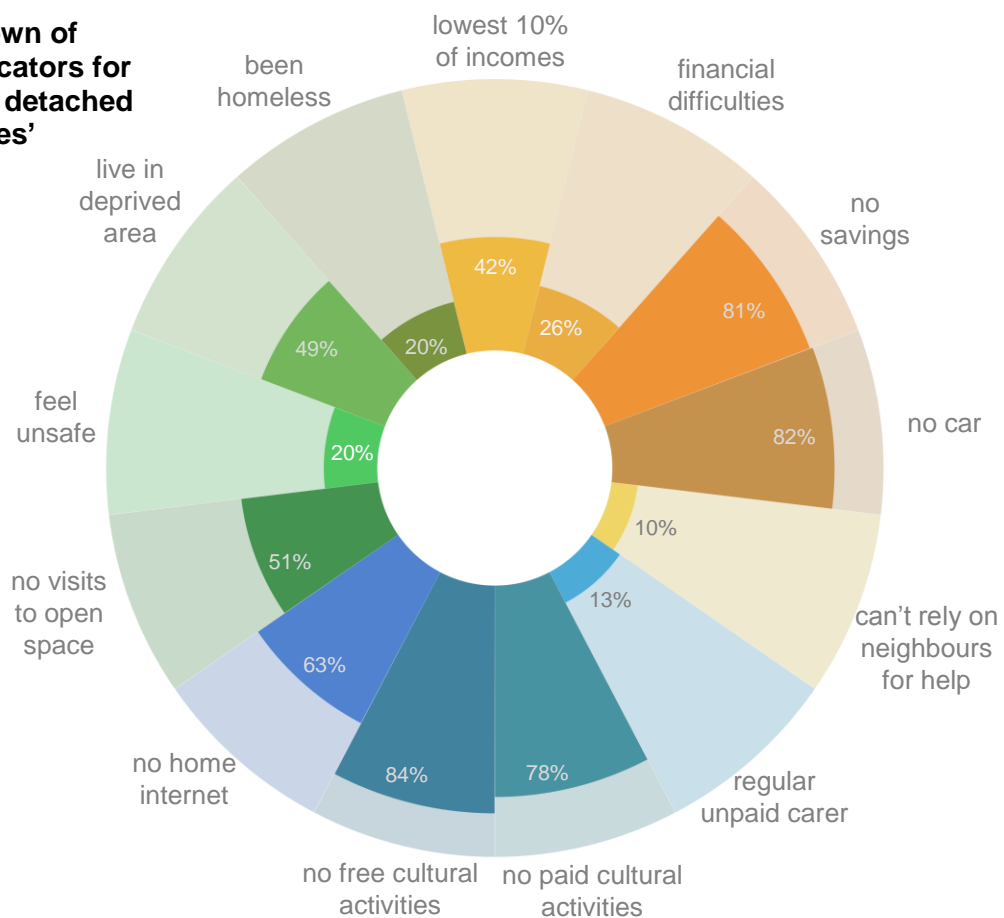
## Working age without children: ‘Socially detached singles’

### Who they are

‘Detached singles’ and older ‘insecure singles’ appear to have very similar experiences. They are workless, mainly single people living in social housing, receiving the majority of their income from benefits. They do not have savings to act as a buffer when their income drops. Both groups have a similar gender split: 60% of detached singles are men.

However, there are some subtle differences between the groups. ‘Detached singles’ are less likely to have internet access or to participate in cultural activities, making them more disconnected. They are also slightly less likely to say they are struggling financially, and slightly less likely to live in the most deprived neighbourhoods. It is possible that these differences are simply a result of the fact that they are older than ‘insecure singles’ – 69% are above the age of 45. ‘Insecure singles’ may become ‘Detached singles’ as they get older.

**Breakdown of poverty indicators for the ‘socially detached singles’**



## How to reach them

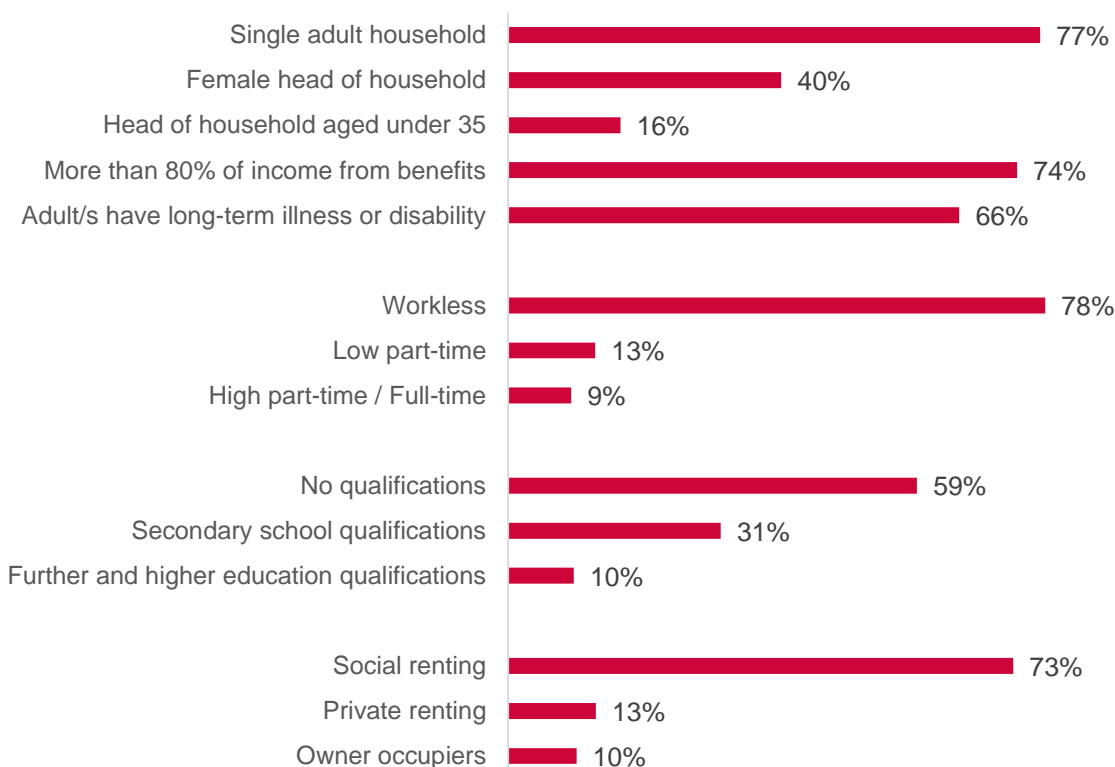
As with the 'insecure singles' group, this group could be identified through RSLs, job centres, food banks and debt advice organisations. A much smaller proportion in this group have been homeless, but a higher proportion have health problems (likely due to their older age profile), so health services are an additional identification route. The former employers of people in this group may be able to help identify them, too.

## How to help them

The key challenge for this group is finding work that they can sustain until retirement. Given the health conditions experienced by this group, employment support needs to be integrated with health advice if it is to help them re-enter the workforce.

The support for this group should not end once they are back in work. Being close to retirement age, this group should be helped to prepare for a smooth transition to life after work – planning for the financial and legal consequences of leaving work, and also for the social consequences. The latter is particularly important for men, whose social lives and identity are often closely linked to the work place.

### Socio-demographic characteristics of the 'socially detached singles'



## Working age without children: 'New poor'

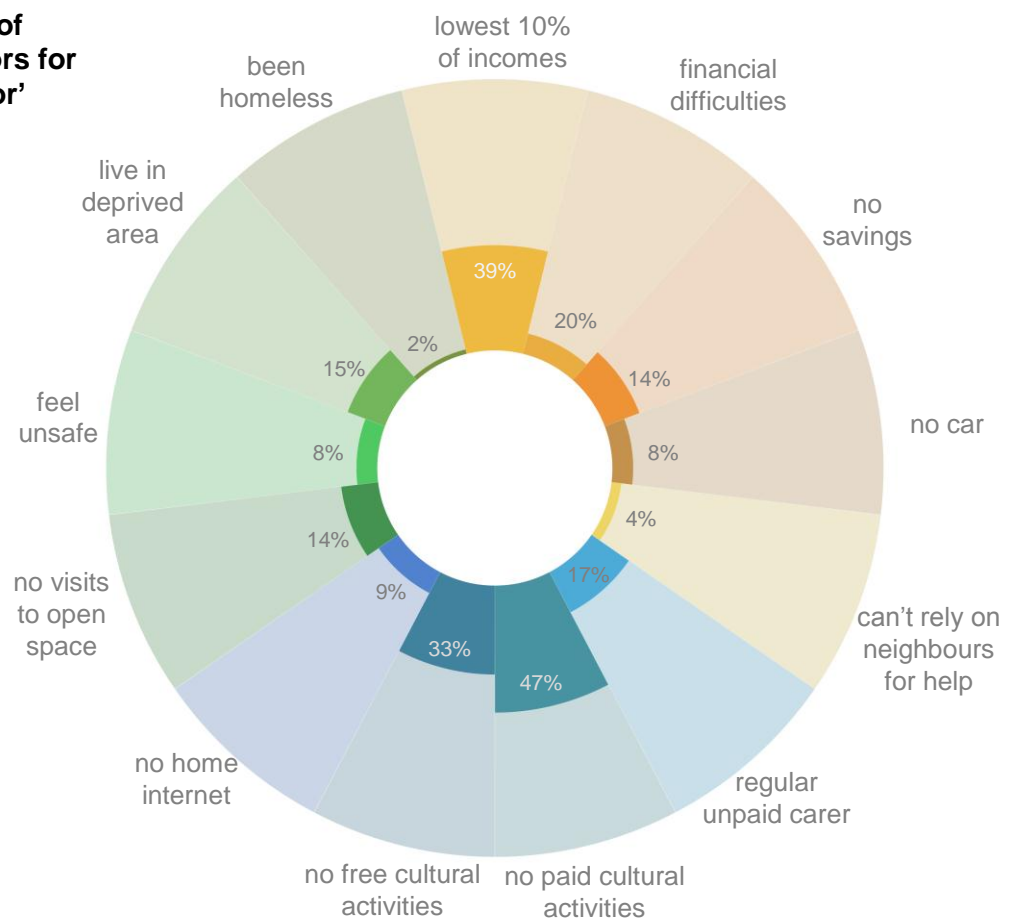
### Who they are

Three quarters of this group are in the bottom two income deciles, despite the group showing few signs of deprivation on the other poverty indicators. The majority are homeowners (or buying their home with a mortgage), 68% are in work, and few live in deprived neighbourhoods. This suggests that these households may have experienced reductions in income only recently. A number of factors could be behind this, such as age (the majority of this group are aged 45 and over), ill health and fluctuations in the wider economy. 17% of people in this group are carers, which could explain why a proportion of this group work part time, and might be another reason behind a drop in income for some. The vast majority of the 'new poor' have savings – dipping into these might enable them to cope in the short term, but may not be sustainable.

### How to reach them

Similar to the 'Working home owners' child poverty type, the 'new poor' may not be found using services typically associated with low incomes. Their lack of children means they cannot be reached through childcare centres and schools. The best way of identifying this group, therefore, might be through their employers and health services.

**Breakdown of poverty indicators for the 'new poor'**



## How to help them

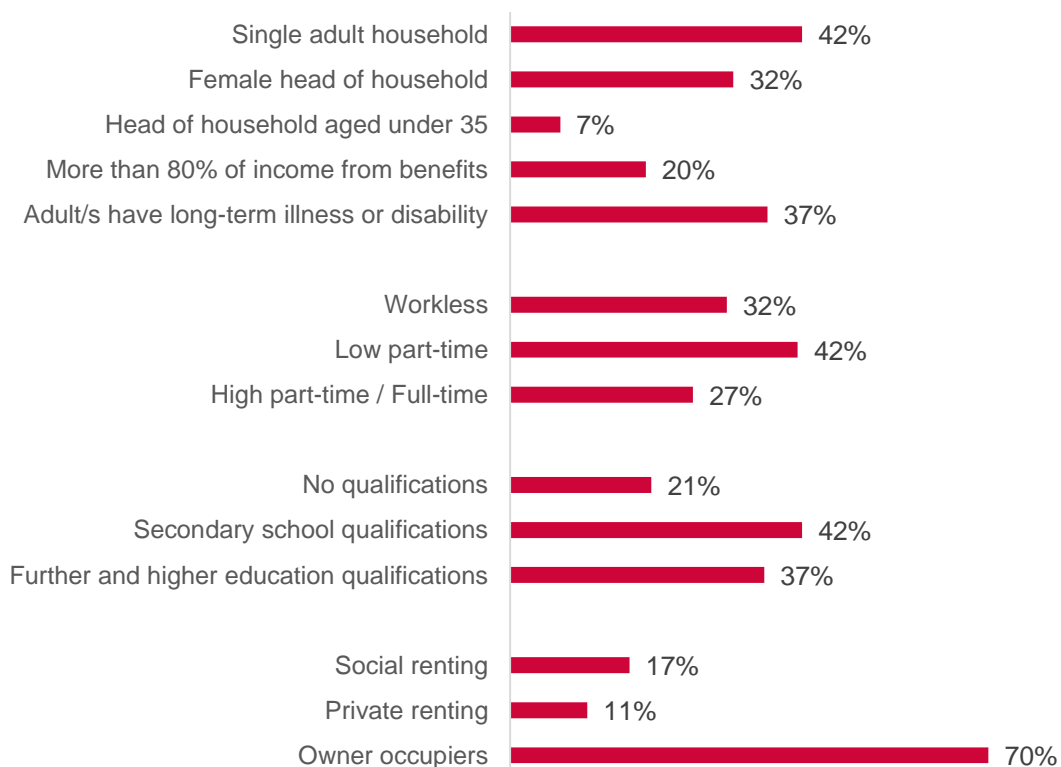
The key focus of interventions for this group should be on financial management in the short term, and boosting the number of hours they work in the medium term.

They may benefit from financial management while they adjust to their reduced income. They may have savings, but it is possible that they are not making the most of them, not having needed to in order to maintain a good standard of living in the past.

Benefits maximisation might also be effective for them, as they may not be claiming all the benefits they are entitled to – such as tax credits, Income Support for those in work and Employment and Support Allowance for those unable to work due to ill health (or Universal Credit when it replaces these benefits). People experiencing a sudden drop in income may not be familiar with the sources of financial support available, having never needed it before.

A longer term strategy for protecting the ‘new poor’ is to help them increase the number of hours they work. As some of this group have health conditions and/or caring responsibilities, employers may need to offer flexible working in order for this to be possible. However, the ‘new poor’ are relatively well qualified (51% have level 2 qualifications or above, and 23% have a degree) and are likely to be experienced, so there are good business reasons for offering flexibility.

### Socio-demographic characteristics of the ‘new poor’



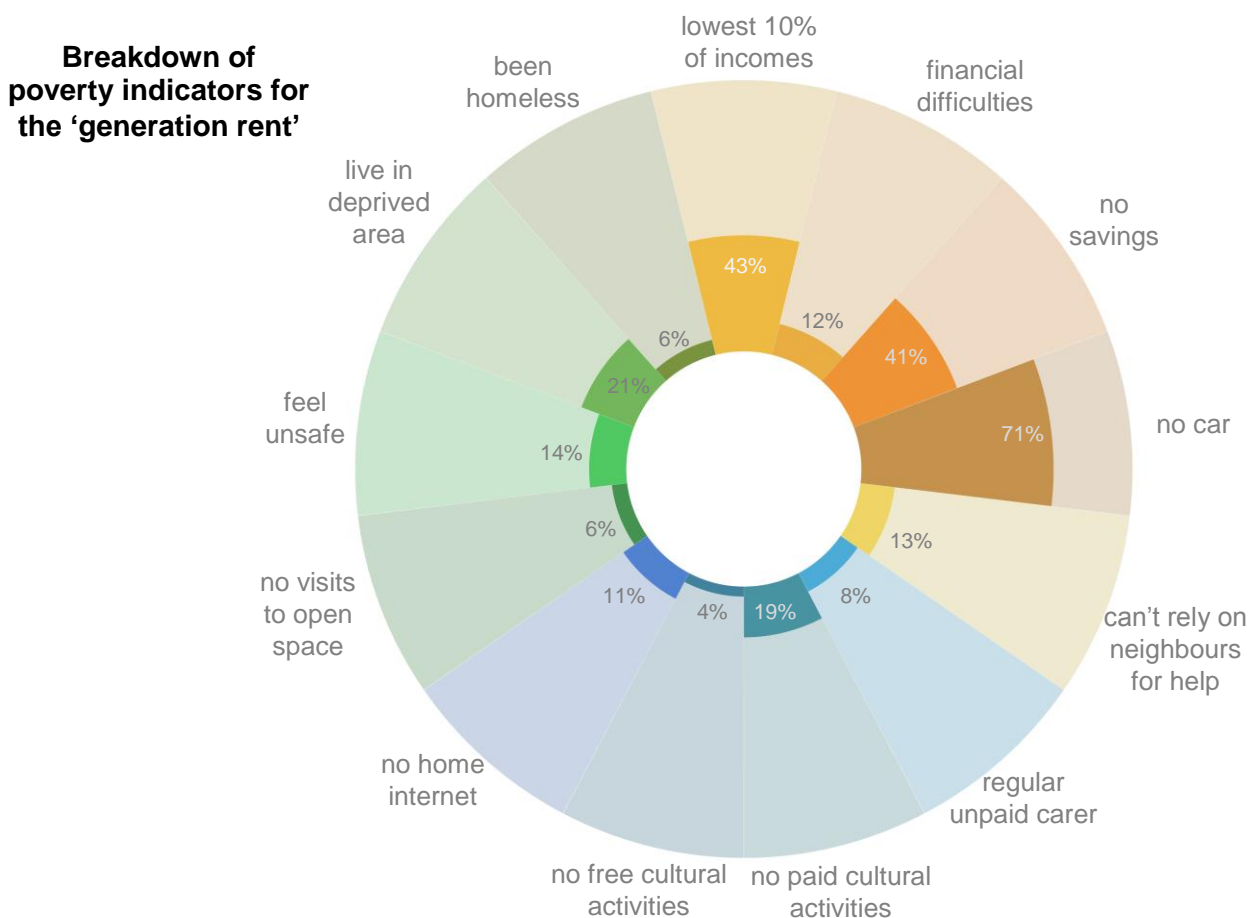
## Working age without children: 'Generation rent'

### Who they are

These young, well qualified singles tend to live in rented accommodation (over half in private rented), and two thirds live alone. There is an equal split of women and men. Some may be students whose low income is due to them studying, or having recently finished their studies and not yet entering the world of work. They do not tend to experience significant financial difficulties.

### How to reach them

The students in this group may be relatively easy to reach – student and more general youth outreach activities are well developed in Scotland, and preventative work might take place in universities. However, the Independent Advisor on Poverty to the Scottish Government has recommended targeting support to help young people not destined for Higher Education find worthwhile employment (Scottish Government, 2016). Consideration needs to be given to how best to reach these young people if, after leaving school, they become private renters and may only become 'visible' to support once they become longer term unemployed. Working early on with schools, as well as FE colleges and employers/apprentice organisations, will also be important.





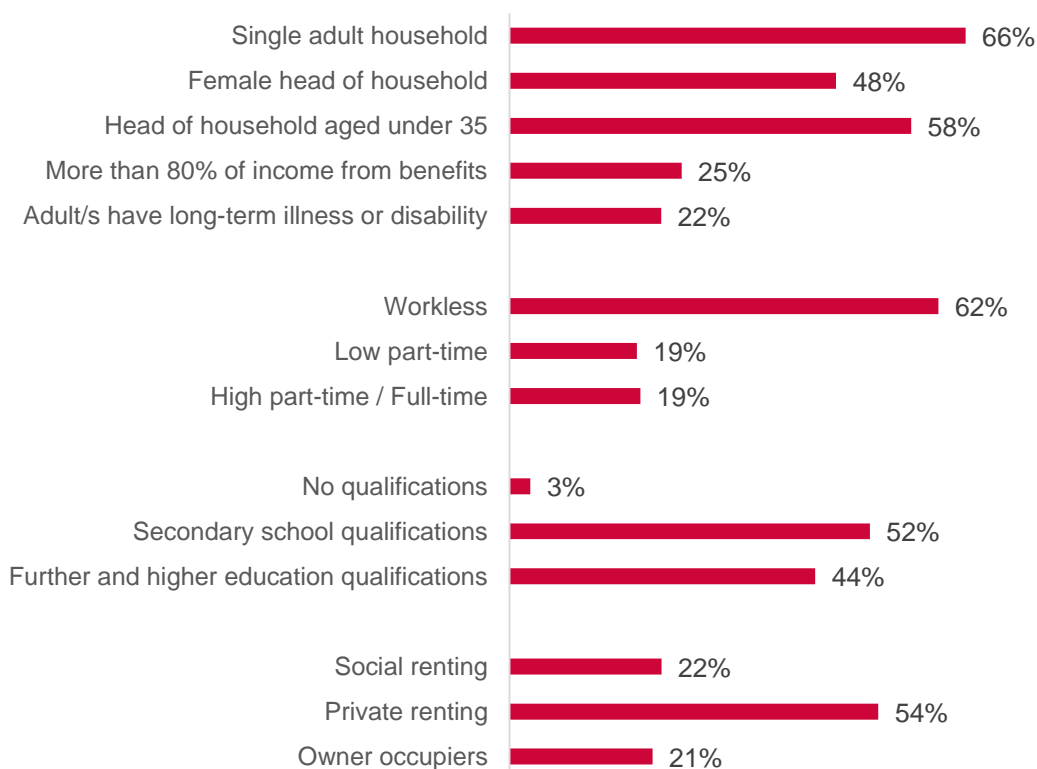
## How to help them

One might argue that, for this group, poverty is transient – students while still studying or soon to enter work do have low incomes, yet their poverty is a precursor to far better incomes and standards of living. Therefore, we might consider this group a low priority when it comes to poverty strategies. That said, this group are mainly renters, probably with little savings. Some have higher educational qualifications (with the social and other benefits attending a university may bring), but many do not. They remain, therefore, financially vulnerable. For those who cannot rely on their families for financial support, their relatively comfortable circumstances are not sustainable over the long term and depend entirely on securing decent employment.

Ensuring this group have access to financial advice and careers advice early on will be crucial in ensuring their poverty does not become a longer term, entrenched problem. With a labour market that may suffer in the run up and post-Brexit, under-employment or over-qualification may become more of an issue and well qualified young people may find themselves unable to translate their skills into well paid employment. Support for those not entering Higher Education but perhaps continuing their training in other ways will be vital, through a credible vocational and apprenticeship offer and strong careers advice to create clear pathways into work.

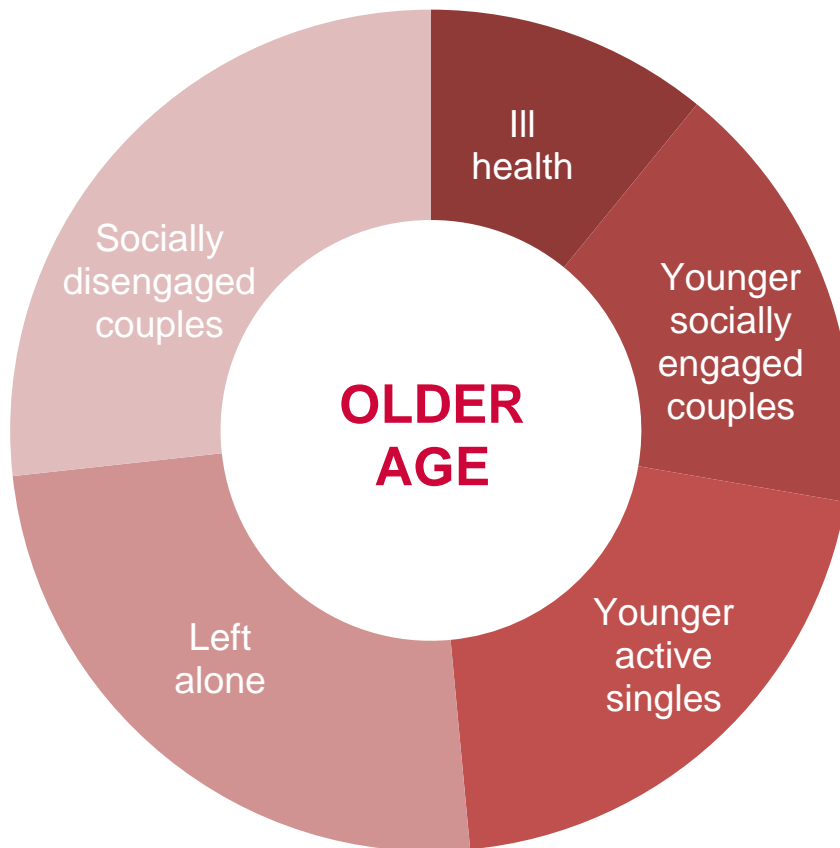
This group are also vulnerable to rent rises in the urban centres they primarily live in, and unable to accumulate savings needed to get onto the housing ladder. Affordable housing and opportunities for shared ownership will also be an important preventative measure, giving this group a level of resilience against a turbulent private rental market, and helping to lift them out of poverty as and when their incomes increase.

### Socio-demographic characteristics of the 'generation rent'



## Poverty types: Older age

The analysis of the older people life stage revealed five poverty types:



The five segments above show the proportions of low income households in the 'older age' life stage that are in each poverty type.

This chapter now goes on to describe the households in each poverty type, explaining the combination of indicators that households face. Given knowledge of how particular forms of poverty interact for households, there is also discussion of how policy makers and service providers can reach and help households in each poverty type.

## Older age: 'Ill health'

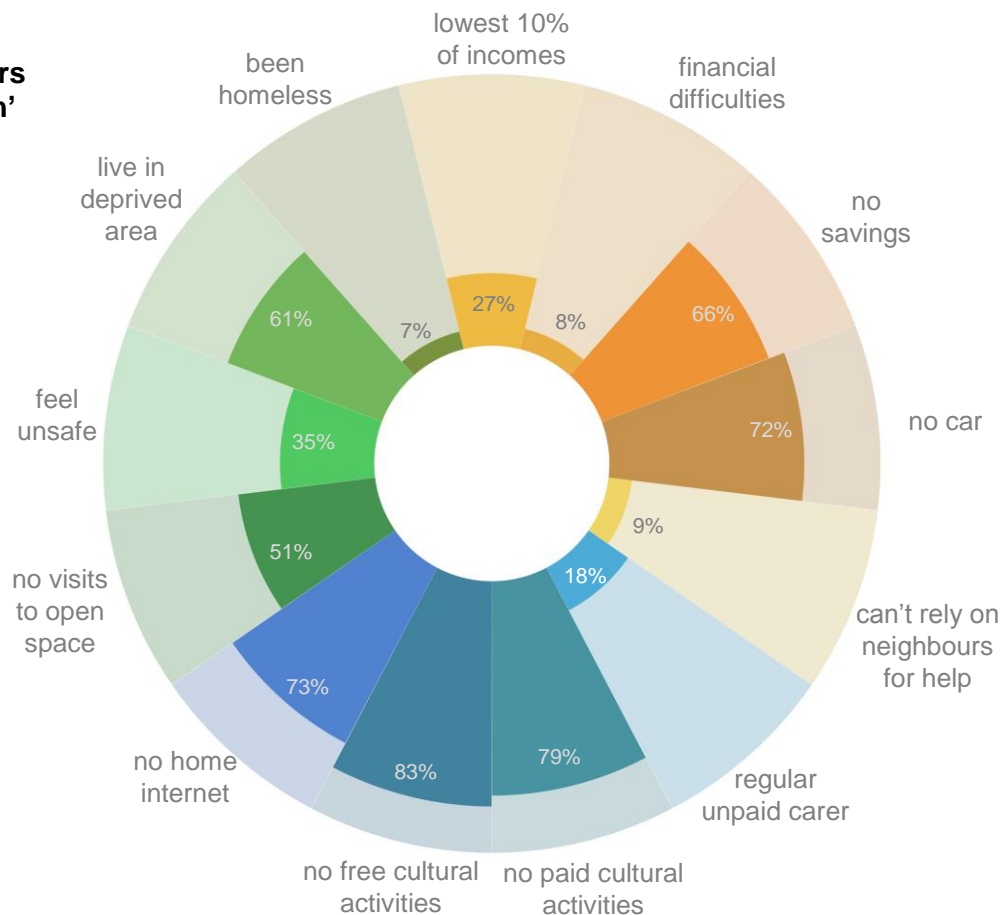
### Who they are

This group of low income older households is small, but the critical factor that shapes this group's experience of poverty is that the vast majority are in poor health or disabled – or are carers of other people. These households face a host of issues as a result: financial struggles, social isolation and lack of mobility to name just a few. Furthermore, this group are much more likely to live in deprived neighbourhoods, and three quarters live in social rented housing.

### How to reach them

This group are hard to reach, owing to the fact that they are isolated – three quarters lack internet access at home, and a similar proportion do not have a car. Health charities such as Alzheimer Scotland, Carers Trust Scotland and Diabetes Scotland may not already have contact with people in this group, but they are in the best position to reach out. This could perhaps be achieved through partnerships between organisations like these and housing associations, to enable health charities to identify older social tenants who are digitally and socially disconnected as a result of disability or being a carer.

**Breakdown of poverty indicators for the 'ill health' poverty type**



## How to help them

The focus for this group should be on improving housing quality, reducing isolation and providing support for carers.

Less than one in ten of this group are aged 80 or above, and half are below 70. Given that life expectancy is increasing, people in this group could be facing an extended period of poor health in poverty. Quality of life for this group needs to be addressed – more activities, more opportunities to socialise, and a more accessible urban space would make all the difference for older people who are carers or disabled.

The longer term picture for carers also needs consideration: once an older person becomes bereaved, their own health often declines and they can become more isolated (Soulsby and Bennett, 2000). Measures could be taken before bereavement to prevent this decline, such as helping the carer to expand their support network by enabling them to connect with other carers and community groups.

### Socio-demographic characteristics of the 'ill health' poverty type



## Older age: 'Left alone'

### Who they are

Older people in this group are similar to those in the previous group in that both are likely to have an illness or disability. However, the fact that people in the 'left alone' group are older (nearly two thirds are over 80) may suggest that their ill health is simply a symptom of their increased age. Most (90%) are living alone, so it is likely that many are widowed – and four in five are women, reflecting the difference in life expectancy between women and men. Unlike the 'ill health' group, the majority of people in the 'left alone' group own their own homes, and fewer report financial hardship. Nevertheless, both groups face a lack of mobility and social isolation.

### How to reach them

The fact that this is a socially isolated, home owning group makes them difficult to reach. The most effective way might be through health services and health charities, as two thirds of the group have a health problem.

**Breakdown of poverty indicators for the 'left alone'**



## How to help them

The key focus of interventions for this group should be on tackling their sense of isolation and perhaps tapping into their housing assets.

The range of opportunities for older women to socialise and create new networks are already well developed in many communities – the challenge is to reach those who often have no way of finding out about these services.

However, a more effective strategy for the particularly isolated home owners might be to support their move into retirement housing. 'Building Companionship' showed that older people living in retirement housing developments were much more likely than older people in general to say they did not feel lonely, to have socialised recently, to report feeling a sense of community, and to say there are enough social events for them to enjoy (Wood and Salter, 2016).

Of course, a move to specialist retirement housing is not for everyone, but there are likely to be many in this group who could be supported to downsize more generally. While this would clearly benefit the whole of the housing chain, it would also benefit older people in this group – not only by freeing up some of their housing assets to boost their retirement income, but also perhaps to tackle their isolation by enabling them to move to a more accessible, better located and/or more easily maintained smaller property, which could help them leave their homes more often.

### Socio-demographic characteristics of the 'left alone'



## Older age: 'Socially disengaged couples'

### Who they are

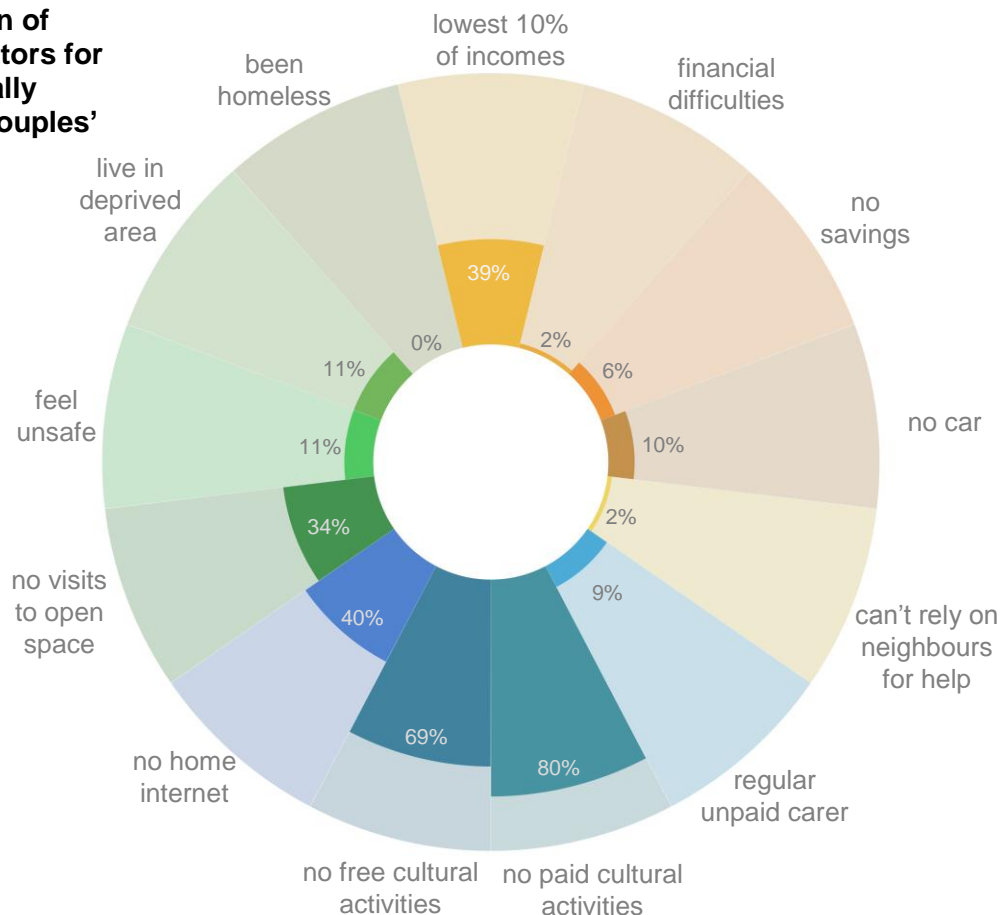
'Socially isengaged couples' are very similar to the previous, 'left alone' group, but with one key difference: 'socially disengaged couples' are primarily two person households. This fact explains many of the other differences between the groups: 'socially disengaged couples' have a better health profile than the 'left alones', as older couples often do (evidence suggests older couples tend to look after each other and keep each other mentally active). They are also more mobile, able to drive a car and more socially engaged (though relatively disengaged overall).

'Socially disengaged couples' are slightly younger than their 'left alone' counterparts. It is highly plausible that people in the 'socially disengaged couples' type become people in the 'left alone' type when their partner dies and their health deteriorates. This has important implications for policy interventions for this group.

### How to reach them

This group is somewhat isolated in that they do not participate in cultural activities. However, the majority have internet access, a car and are mobile – so, with the right kind of activities on offer, they could become more engaged. Offering more activities that appeal to older people locally could encourage this group to engage with their communities, making them easier to reach. Social media and online forums may be another useful way to reach out.

**Breakdown of poverty indicators for the 'socially disengaged couples'**



## How to help them

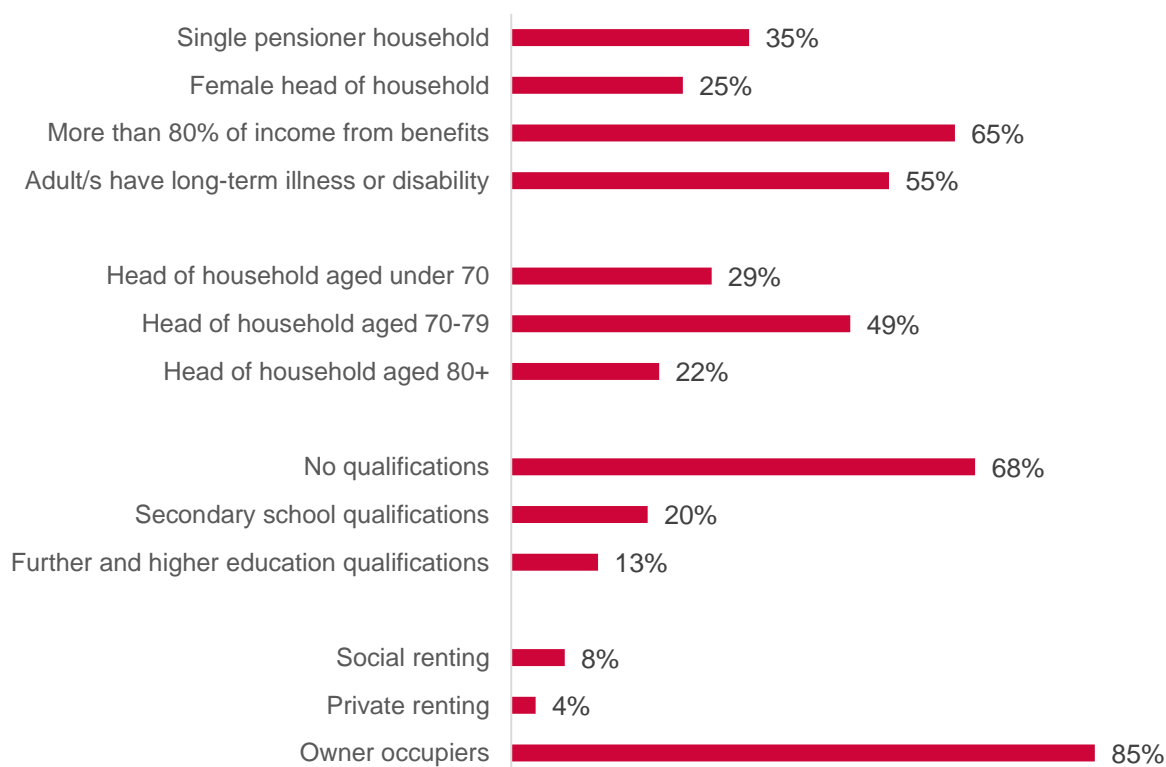
Barring their lack of participation in cultural activities, 'disengaged couples' are not especially deprived. However, their isolation as a couple renders them vulnerable as individuals – the partner left behind is at risk of the deprivation factors associated with the 'left alone' type outlined above when they are widowed.

Therefore, the focus for this group should be on prevention measures – to build resilience, and encourage community engagement, hobbies etc., which can help maintain good health and activity should one of the household suffer poor health or pass away.

Members of this group would benefit from policies that aim to expand their social networks while they are in better health, mobile, and able to take up hobbies or volunteering. Not only is this good for preventing isolation in the present (after all, this group is already showing signs of disengagement, and couples can still feel isolated), but it means that the widowed partner will have activities to fall back on and friends to spend time with when their partner dies.

As with the 'left alones', the majority of 'disengaged couples' own their own home outright. Given the challenges posed by moving as one gets older, particularly as a single pensioner with worsening health, there is an argument that older couples in this type could benefit from downsizing or moving into retirement housing earlier rather than later, while in relatively good health – both to tackle their current level of social disengagement and to act as a prevention measure for the surviving partner in years to come.

### Socio-demographic characteristics of the 'socially disengaged couples'





## Older age: 'Younger active singles'

### Who they are

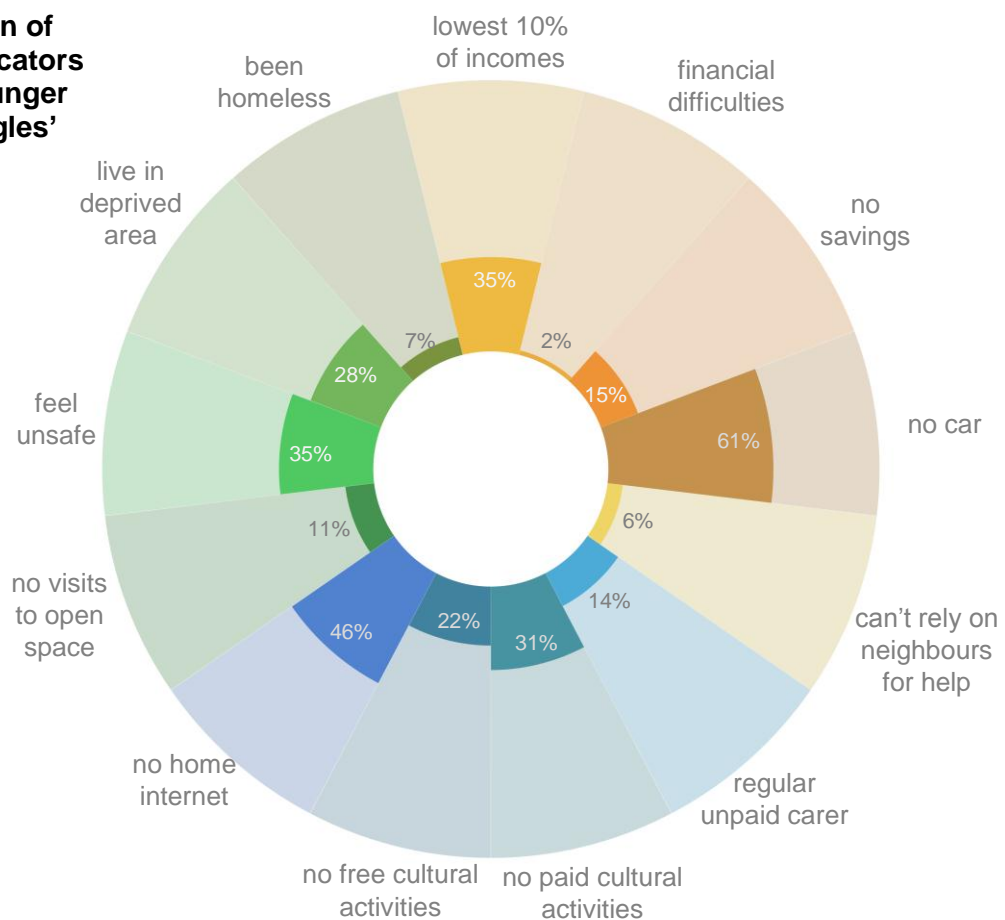
This group are among the youngest low income pensioners. They tend to be single women and are better qualified than most. This suggests that they have had higher income jobs than the previous 3 groups, have more generous pensions as a result and are staying mobile and healthy due to being younger. As most are in their 60s, one can assume that (like an increasing number of the baby boomer generation) they are divorced or separated, or never married.

The majority of this group lack a car and almost a half lack internet access, but they are not socially disengaged – the majority have taken part in free cultural activities in the past year, and are even more likely to have engaged in paid activities, suggesting that the lack of a car and internet access for some is not a significant barrier to socialising for this group, unlike previous groups.

### How to reach them

As this group are already socially engaged, the best way to identify them may be through RSLs and community groups, to whom they might already be known.

**Breakdown of poverty indicators for the 'younger active singles'**



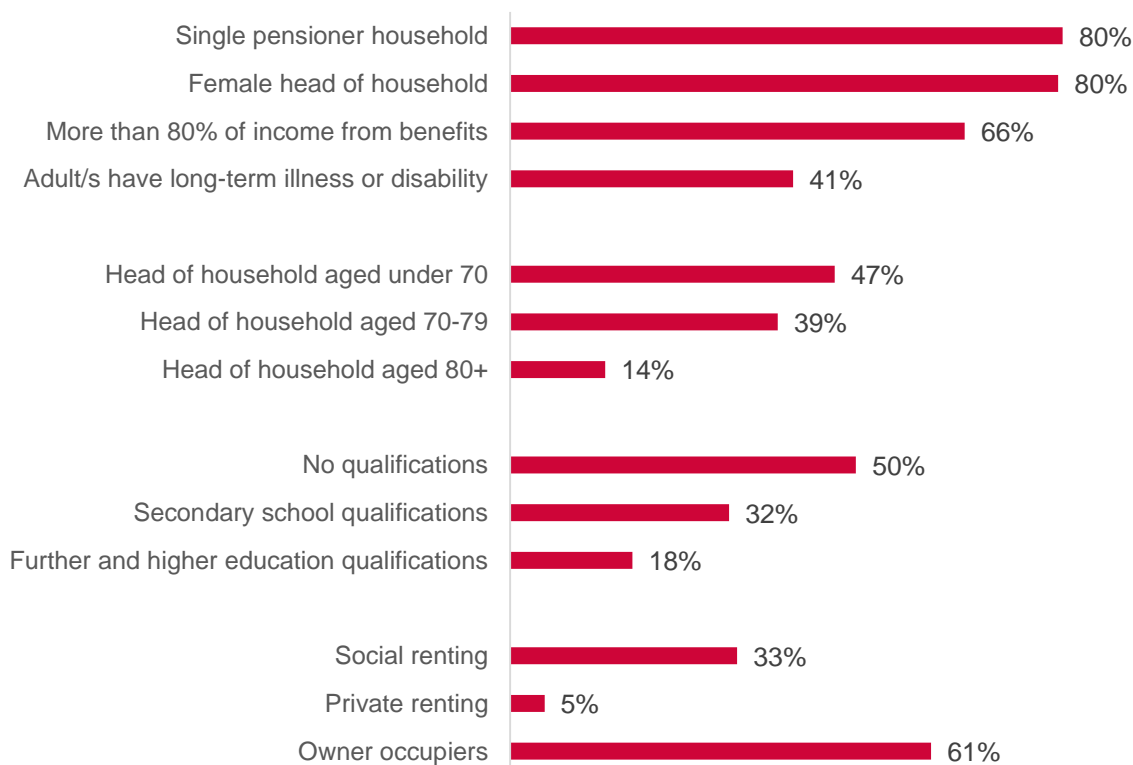
## How to help them

As this group does not display disadvantage in almost all of the remaining poverty indicators, it may be a poor use of resource to invest heavily in interventions for this group. Nonetheless, investing time and resources into providing financial advice regarding the use of limited pensions incomes would be wise – this group may have 20 or more years in retirement to make their pensions last.

However, the energy and relative youth of this group could be captured as a means of helping older people in the previous three groups. In 'Building Companionship' (2016), Demos discussed the concept of 'socialisers' – older people who are already sociable, and who often take an active role in organising activities to be enjoyed not only by themselves but also by their wider community (Wood and Salter, 2016).

Older people in this group could be encouraged to become 'socialisers' – organisers, supporters or befrienders of older people who are further along in age, in poorer health, or more isolated. As most people in this group are single women, they may relish the opportunity to make new friends – and, as discussed with respect to 'disengaged couples' above, an expanded social network can only help them as they become older and their health and/or mobility declines in the future. While 'Building Companionship' focused on socialisers within retirement housing schemes, socialisers need not be confined to these environments – they could make a contribution in the wider community too, engaging the most isolated older people who are living alone.

### Socio-demographic characteristics of the 'younger active singles'



## Older age: 'Younger socially engaged couples'

### Who they are

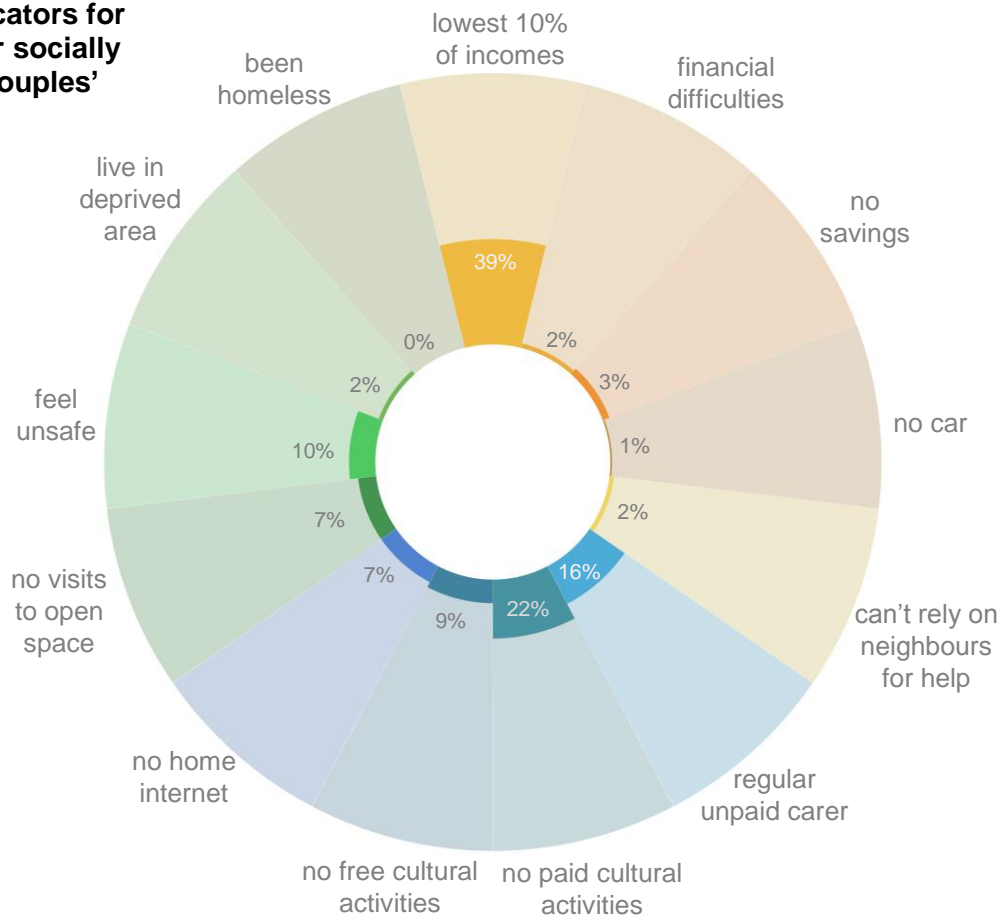
This group are one of the youngest of the older cohort in poverty, and largely composed of couples. Important factors in explaining why this group is the least deprived according to most of the poverty indicators are that they are relatively healthy, better educated and home owners, suggesting they had successful working lives, despite experiencing a dip in their income upon retirement.

'Younger active singles' and 'younger socially engaged couples' are quite similar in many ways. It is possible therefore that women in 'younger engaged couples' become 'younger active singles' if they are bereaved (or separated).

### How to reach this group

Given their high levels of social engagement, this group can be identified by community groups in which older people participate. It is possible that former employers could reach out to this group as well as their relative youth means they may only be recently retired.

**Breakdown of poverty indicators for the 'younger socially engaged couples'**



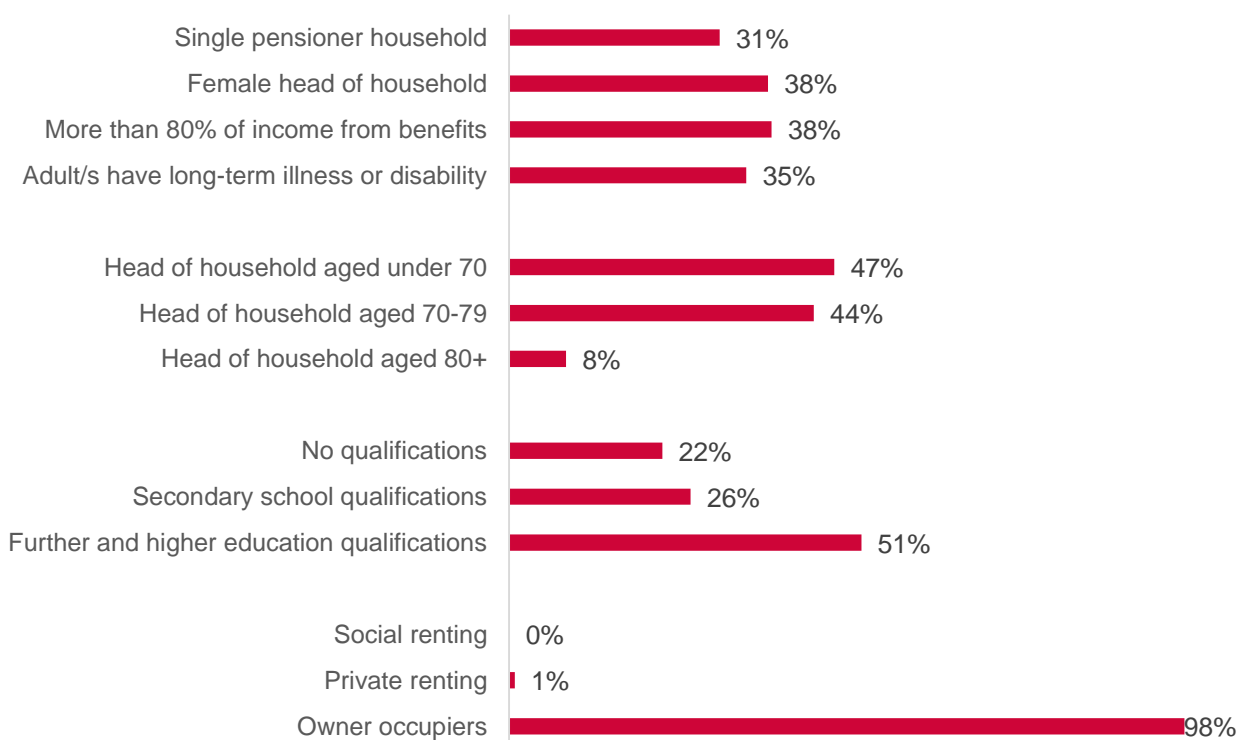
## How to help this group

The focus for this group should be on measures that will prevent them from becoming more affected by poverty in the future – particularly focusing on isolation and housing issues. As they are the youngest of the pensioner groups, they would also benefit from financial advice and investment in financial capability to ensure their modest pensions and savings, and their housing assets, are used wisely to maintain a relatively decent standard of living for the 20 or more years they may have in retirement.

Similar to ‘younger active singles’, this group could make highly effective socialisers – perhaps even more so due to being more mobile and being able share the work involved in planning and organising activities. They are also the group most likely to live in rural areas, so ‘younger socially engaged couples’ living in rural areas would be particularly helpful in visiting older people in this cohort living in remote locations that are difficult to access without a car. The social networks gained in these roles would be effective in preventing people in this group from experiencing loneliness in later life.

The vast majority of this group are homeowners. While this arrangement may be manageable in the present, it may become unmanageable as this group grow older and their health declines. Furthermore, it could perpetuate isolation when one person in the couple is widowed. As with ‘socially disengaged couples’, a better outcome could result from ‘younger socially engaged’ couples downsizing (either into a smaller, more accessible home, or retirement housing) sooner rather than later.

### Socio-demographic characteristics of the ‘younger socially engaged couples’



## Conclusion

This study has used data from the Scottish Household Survey to identify a number of 'types of poverty' amongst the low income population in Scotland. Households in all poverty types have low income – by definition – but each poverty type represents a different experience of poverty. The findings provide evidence that living on low income is not the same experience for all poor households.

Our research identified thirteen different types of poverty, across three pre-determined life stages (families with children, working age without children, older age). Each poverty type that we have identified captures a different experience of poverty, whether that be through the impacts of having low income or the reasons for being poor. This could vary from the 'workless families' – income poor families with children who are out of work and have little resources; to the 'working home owners' – again, income poor families with children, but who are older and much more likely to be in work, and consequently have fewer explicit markers of poverty. This comparison alone shows two very different groups of low income families with children, for whom policy implications would be quite different.

Having a more nuanced description of households in poverty can be helpful to policymakers and practitioners who wish to develop a multi-faceted approach to poverty alleviation. Observing the lived experience of low-income households helps with the identification of groups of households, and of the particular combination of services likely to be most effective in helping them.

As with all research, there are limitations to this study and it is important to reflect on them here. Although the Scottish Household Survey has a number of qualities that mean research such as this is possible – notably, its large sample size and inclusion of a broad range of poverty-related data – the income information it collects is limited compared to other specialist income surveys, meaning it is difficult to accurately identify households living on low income.

We have used Latent Class Analysis to help identify poverty types. Although a powerful analytical technique, it also has flaws. For example it requires a certain amount of subjective decision making by the researcher – in selecting the chosen number of poverty types, and in interpreting the types. Perhaps not a fault of the analytical technique, but it is also clear that low income households do not fit perfectly into a set of poverty types. In other words, there is still quite a lot of variation within each poverty type – not all households in the same type have exactly the same experience of poverty. People's lives are complex, and being able to neatly summarise the varied experiences of poverty into a small number of 'poverty types' is unrealistic.

Further research would benefit from replication of this approach, to see if other data produces a similar set of poverty types in Scotland. Comparisons with the original 'Poverty in Perspective' study suggests that there are some similarities (for a number of reasons, we may not expect a complete overlap between UK and Scottish poverty types). Further research may also try to understand the dynamic element of poverty types. Do types of poverty remain the same over time, or do

different types of poverty emerge – perhaps in line with structural changes to the economy and society? Do people stay in the same poverty type over time, and does the persistence of poverty vary depending in which type of poverty you are in? Do people move from one poverty type to another, and is moving between poverty types a start of the route out of poverty for some? Are people more likely to escape from poverty if originally situated in one poverty type rather than another, and which type of poverty are those who enter low income most likely to join? All these questions need further research, and many need to utilise the qualities of longitudinal surveys (something which the Scottish Household Survey does not offer).

Despite these limitations, having a truly multidimensional picture of the experiences of low income households is still very useful to policy makers. Arguably, this information goes a step further than the two-way connections between low income and other indicators of poverty that is the feature of many statistical studies of poverty. There are numerous research reports that demonstrate the link between low income and worklessness, and between low income and low education, and between low income and poor health. But unless a truly multidimensional approach is taken, it is difficult to understand how these interact with each other. The poverty typology presented here just does that, and has led to a range of policy recommendations for groups of low income households with quite different experiences of poverty.

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# Annexes



## **Annex A – Definitions: Poverty indicators and poverty factors**

This section explains the poverty indicators used in the final analysis to create the poverty typologies. The poverty indicators are grouped according to whether they represent Resources, Participation, or Quality of Life domains of poverty/social exclusion (Levitas et al, 2007).

In brackets after each indicator shows whether the full survey sample gave information or just part of the sample. Indicators where just part of the sample gave information were still included in the Latent Class Analysis to create the poverty types (see Annex B for more details).

### **RESOURCES**

#### **Poverty indicator: Household income decile (full sample)**

Households below the 70% median could be at different depths of low income. This indicator shows which of the bottom income deciles a household is in.

#### **Poverty indicator: Some or deep financial difficulties (full sample)**

Households are asked 'Taking everything together, which of these phrases on this card best describes how you and your household are managing financially these days?' from 'manage very well' to 'are in deep financial trouble'. This poverty indicator identifies households that say they 'have some financial difficulties' or 'are in deep financial trouble'.

#### **Poverty indicator: No savings (part sample)**

Households are asked about the total value of any savings or investments they have. This poverty indicator identifies households that have no savings or investments.

#### **Poverty indicator: Difficulties paying rent/mortgage in last year (part sample)**

Households are asked whether in the last 12 months they have had any difficulties paying their mortgage or rent. This poverty indicator identifies those who have.

#### **Poverty indicator: No car (full sample)**

Households are asked how many cars are normally available for private use by members of the household. This poverty indicator identifies households that have no access to a car.

#### **Poverty indicator: Cannot rely on friends/neighbours for help (full sample)**

Households were asked how involved they are with other people living in their neighbourhood. More specifically they were asked 'If I was alone and needed help, I could rely on one of my friends/relatives in this neighbourhood to help me'. This

poverty indicator identifies households that ‘tend to disagree’ or ‘strongly disagree’ to this statement.

## **PARTICIPATION**

### **Poverty indicator: Provides regular unpaid care (full sample)**

Apart from anything they might do as part of employment households were asked if anyone in the household look afters, or gives any regular help or support to family members, friends, neighbours or others because of either long-term physical / mental ill-health / disability; or problems related to old age. This poverty indicator identifies whether anyone in the household provides regular unpaid care.

### **Poverty indicator: Has not done any paid cultural activities in past year (full sample)**

Households are asked whether they have done a range of paid cultural activities in the past year, and if so how frequently. The activities includes: going to the Cinema; Classical music performance or opera; Live music event, e.g. traditional music, rock concert, jazz event; Theatre, pantomime / musical / play; Dance show / event, e.g. ballet; Historic place, e.g. castle, stately home and grounds, battle or archaeological site; Exhibition – including art, photography and crafts. This poverty indicator identifies households that have not done any paid cultural activities in the past year.

### **Poverty indicator: Has not done any free cultural activities in past year (full sample)**

Households are asked whether they have done a range of free cultural activities in the past year, and if so how frequently. The activities includes: Library, including mobile and online; Museum; Gallery; Street arts, e.g. musical performances or art in parks, streets or shopping centre; Culturally specific festival, e.g. mela /Feis/ local Gala days; Book festival or reading group; and, Archive or records office, e.g. Scotland’s Family History Peoples Centre. This poverty indicator identifies households that have not done any free cultural activities in the past year.

### **Poverty indicator: No internet access at home (part sample)**

This indicator identifies households that do not currently have access to the internet from home.

### **Poverty indicator: Feels cannot influence local decisions (full sample)**

This indicator identifies households who tend to disagree or strongly disagree with the statement ‘I can influence decision affecting my local area’.

## **QUALITY OF LIFE**

### **Poverty indicator: Overcrowded accommodation (full sample)**

Households are asked the number of bedrooms in the accommodation (including those currently used for other purposes) and the number, age and relationship of all

household members. From this information the 'bedroom standard' is calculated to identify whether a household is overcrowded. The bedroom standard allocates a separate bedroom to each married or cohabiting couple, any other person aged 21 or over, each pair of adolescents aged 10-20 of the same sex, and each pair of children aged under 10. Any unpaired person is allocated a separate bedroom.

**Poverty indicator: Home never warm or accommodation has serious heating problem (part sample)**

Households are asked whether, during the winter months, they generally find that their heating keeps them warm enough at home. This poverty indicator identifies households that say 'no, never', and those who if they say 'only some of the time' or 'never' go on to say that their heating is a serious problem.

**Poverty indicator: Ever been homeless (full sample)**

This indicator identifies households that have said they have ever been homeless, that is, lost their home with no alternative accommodation to go to.

**Poverty indicator: High number of neighbourhood problems (full sample)**

Households were asked how common (very/fairly/not very/not at all) this list of things was in their neighbourhood: Noisy neighbours or regular loud parties; Vandalism, graffiti or other deliberate damage to property; Rubbish or litter lying around; Neighbour disputes; Groups or individuals intimidating or harassing others; Drug misuse or dealing; Rowdy behaviour e.g. drunkenness, hooliganism or loutish behaviour; Abandoned or burnt out vehicles; Animal nuisance such as noise or dog fouling. An index was created that summed each item by its frequency which ranged between 9 (all 9 things never happened) to 36 (all 9 things were very common). This poverty indicator identifies households that scored over 21 which suggests a high or frequent number of neighbourhood problems (e.g. a score of 20 could be made up from 5 of these things being very common).

**Poverty indicator: Feel unsafe walking alone in neighbourhood or alone at home (full sample)**

Households were asked how safe they feel walking alone in their neighbourhood after dark, and, how safe they feel when alone at home at night. This poverty indicator identifies households that said 'a bit unsafe' or 'very unsafe' to either of these two questions.

**Poverty indicator: Lives in one of the 20% most deprived local areas (full sample)**

The Scottish Index of Multiple Deprivation 2012 helps identify concentrations of deprivation by incorporating several different aspects of deprivation and combining them into a single index. The SIMD combines 38 indicators across 7 domains: income, employment, health, education, skills and training, housing, geographic access and crime. Example indicators include the percentage of adults receiving low-income welfare benefits (Income domain), the journey time by public transport

to a post office (Access domain), and the percentage of people living in households without central heating (Housing domain). The SIMD divides Scotland into 6,505 small areas, called datazones, each containing around 350 households. The Index provides a relative ranking for each datazone, from 1 (most deprived) to 6,505 (least deprived). This poverty indicator identifies households that live in one of the 20% most deprived areas as classified by the Scottish Index of Multiple Deprivation.

### **Poverty indicator: Dissatisfied with local council (full sample)**

Households were asked to what extent they agree (strongly agree/tend to agree/neither agree nor disagree/tend to disagree/strongly disagree) with a list of statements about their local council:

- A. My local council provides high quality services
- B. My local council does the best it can with the money available
- C. My local council is addressing the key issues affecting the quality of life in my local neighbourhood
- D. My council is good at listening to local people's views before it takes decisions
- E. My local council designs its services around the needs of the people who use them
- F. My council is good at letting local people know how well it is performing
- G. My local council is good at letting people know about the kinds of services it provides
- H. I can influence decisions affecting my local area
- I. I would like to be more involved in the decisions my council makes that affect my local area

An index was created that summed each item according to by its frequency which ranged between 9 (strongly agreed with all 9 statements) to 45 (strongly disagreed with all 9 statements). This poverty indicator identifies households that scored over 35 which suggests a high level of dissatisfaction with their local council (e.g. a score of 35 could be made up from disagreeing strongly with 7 of the 9 statements).

### **Poverty indicator: Not visited countryside in last 12 months (full sample)**

Households were asked some questions about various visits to the outdoors that they might do in their leisure time. The term 'outdoors' covered things such as; visits to open spaces in the countryside as well as in towns and cities, such as woodland, parks, farmland, paths, beaches etc. These leisure trips could either have been taken from home or whilst away from home on holiday, provided the holiday was in Scotland. They might include everyday activities like walking the dog

as well as other activities like mountain biking or kayaking. This poverty indicator identifies households that did this once or twice a month or less.

### **Poverty indicator: Experienced discrimination or harassment (full sample)**

Households were asked whether, in the last three years, whilst in Scotland, they had experienced any kind of discrimination or harassment. Discrimination covered occasions when they felt they were treated unfairly or with less respect than other people because of their age, gender, ethnic group, religion, disability, or sexual orientation. Harassment covered occasions where they felt intimidated, threatened or disturbed because of their age, gender, ethnic group, religion, disability, sexual orientation or some other reason.

There are also a range of poverty factors and other characteristics of households that help to explain the make-up of the poverty types.

### **Poverty factor: Household type**

The type of household has a number of categories based on the age and composition of the household:

- Single adult household consists of an adult of non-pensionable age and no children
- Small adult household contains two adults of non-pensionable age and no children
- Single parent household contains an adult and one or more children
- Small family households consist of two adults and one or two children
- Large family household consists of either (a) two adults and three or more children or (b) three or more adults and one or more children
- Large adult household has three or more adults and no children
- Older smaller household contains either (a) an adult of non-pensionable age and an adult of pensionable age and no children or (b) two adults of pensionable age and no children
- Single pensioner household consists of one adult of pensionable age (65+ for women, and 65+ for men) and no children.

### **Poverty factor: Gender**

This identifies the gender of the highest income householder, so is mainly used to describe single person households.

**Poverty factor: Ethnic group**

This identifies the ethnic group of the highest income householder and has two categories: White and Minority Ethnic Group.

**Poverty factor: Number of children**

This identifies the number of dependent children in the household, from 0 to 3 or more.

**Poverty factor: Age of youngest child**

This identifies the youngest dependent child in the household, and use school-age categories (0-4, 5-11, 12-15)

**Poverty factor: Main income sources**

Three measures recording whether income from each source is at least 80% of the household's total income: benefits (including all welfare benefits, tax credits and the state pension); earnings; and, miscellaneous sources (including occupational pension, annuities and investment income, maintenance payments, and rent from property).

**Poverty factor: Household work status**

This identifies the work intensity of the household, vary from workless (no adult in work) to full-time (all adults working 30 or more hours per week).

**Poverty factor: Adult and child health**

Households were asked whether each of the people in the household has any long-standing illness, health problem or disability that limits their daily activity or the kind of work that they can do. These separate measures identify whether there are any adults with poor health and whether there are any children with poor health.

**Poverty factor: Highest qualification**

This identifies the highest qualification of a random adult in the household:

- No qualifications
- Level 1 - 'O' Grade, Standard grade or equivalent (SVQ level 1 or 2)
- Level 2 - Higher, A level or equivalent (SVQ Level 3)
- Level 3 - HNC/HND or equivalent (SVQ Level 4)
- Level 4 - Degree, Professional qualification (Above SVQ Level 4)
- Other qualification

**Poverty factor: Rurality**

This uses the urban/rural classification to identify households living in urban (large urban areas, small urban areas or small accessible towns) or rural areas (small remote towns, accessible rural or remote rural).

**Poverty factor: Tenure of household**

This identifies how the household owns its accommodation: Buying with mortgage/loan or own it outright; Social renting; Private renting; or, Other, e.g. living rent free.

## Annex B – Latent Class Analysis: Detailed methodology

Latent class models (Lazarsfeld and Henry, 1968) are frequently used to explore possible typologies and patterns of clustering in data sets. We theorise that the associations between the poverty indicators are a function of some underlying general variable that characterises experiences of poverty. This variable is a categorical, nominal variable that classifies members of the population in terms of those different experiences. It is not tangible and cannot be observed directly, hence it is termed a *latent* variable. By contrast, the survey items are termed *observed* or *manifest* variables.

The basic latent class model can be specified most simply as follows:

$x$  is a categorical latent variable, with  $q$  unordered categories  $j = 1, \dots, q$ ; and  $y_i$  ( $i = 1, \dots, p$ ) are  $p$  observed or manifest variables, where  $y_i$  has  $c_i$  categories  $s = 1, \dots, c_i$ .

We model the probabilities of belonging to class  $j$ :

$$\eta_j = P(x = j), j = 1, \dots, q$$

and the conditional response probabilities:

$$\pi_{is}(j) = P(y_i = s | x = j),$$

that is, the probability of responding in category  $s$  to item  $i$ , given membership of latent class  $j$ .

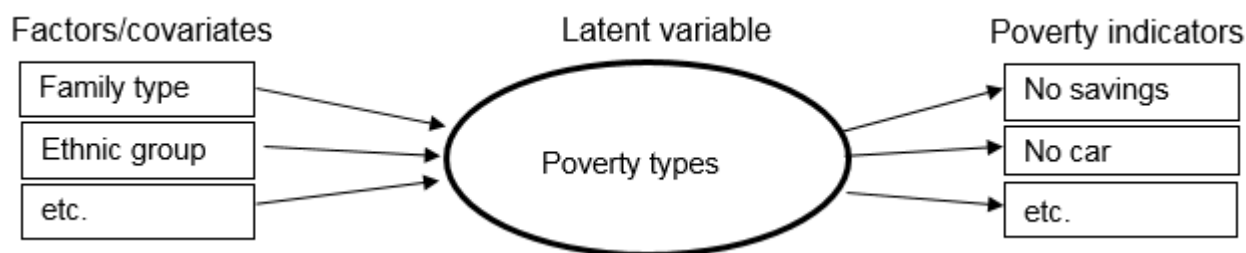
As explained in the main report, we study the estimated conditional probabilities  $\pi_{is}(j)$  to reach an interpretation of a latent class model. Having reached an interpretation for the latent classes, we might then be interested in the proportions of people expected to belong to each of them; this is given in the class probabilities,  $\eta_j$ .

The model can equivalently be presented as a regression model, where we regress multiple observed survey items on a single nominal latent variable. Since all of the survey items are categorical, this is a logistic regression model for  $s - 1$  categories for each item:

$$\log \left[ \frac{\pi_{is}(j)}{\pi_{i1}(1)} \right] = \alpha_{i(1)}(s) + \sum_{l=2}^q \alpha_{il}(s)x_l$$

where  $x_l$  ( $l = 2, \dots, q$ ) are dummy variables representing the latent classes. It is straightforward to extend this formulation to include covariates on the right hand side of the equation. We include covariates in the models in order to provide socio-demographic profiles for the classes, essentially using covariates as explanatory variables or predictors of class membership, as illustrated figuratively in the diagram below:





In latent variable modelling terminology the part on the left hand side in the diagram is broadly termed the ‘structural’ part of the model, in contrast to the item response probabilities (on the right hand side) which comprise the ‘measurement’ part of the model. We chose to model the covariates by treating them as ‘active’ (in the terminology of LatentGold software used to estimate the models), meaning that we estimate item response probabilities conditional on class, conditional on covariates. This procedure means that including covariates can affect the class compositions and distributions, since it assumes conditional independence between poverty indicators and covariates, given classes.

Overall we considered that it was an appropriate theoretical choice to include variables that are often spoken of as ‘drivers’ of poverty as active predictors of class membership, but we note that future research would be valuable to investigate whether the conditional independence assumption is reasonable, and if not, for which combinations of variables it might be violated<sup>6</sup>. We carefully compared models that treated the covariates as ‘active’ and as ‘inactive’ (where the structural part of the model is estimated separately from the measurement part of the model). Entropy and classification error statistics indicated that the models with active covariates are more successful than their equivalents with inactive covariates. We found that the class solutions were a little different in each approach, and more so for the younger life-stages. Some further scrutiny of modelling choices might therefore be useful in future research.

### **Our practical modelling strategy**

When the researcher has no fixed ideas about the nature of clustering in the data, part of the challenge of latent class modelling is to decide how many classes should be used to best represent a set of data. For each life-stage we ran a series of models, beginning with a two-class solution, up to a seven-class solution, and compared those solutions to each other both in terms of overall fit statistics and in terms of interpretability of the classes. For overall fit statistics we used the standard AIC and BIC measures (where for a given data set, smaller numbers indicate better models). Figure B1 summarises AIC and BIC for these investigations. AIC decreased steadily with number of classes (as we would expect); BIC suggested between 2- and 4-class solutions for families with children, 3- and 5- class solutions for working age adults without children, and 4- and 5-class solutions for older people. Together these suggested to us that we should at least consider 5-, 6- and 7-class models in case they yielded additional insights in terms of substantive

<sup>6</sup> A useful discussion of some of the considerations involved, which also outlines the alternatives to the approach we adopted, can be found in Vermunt (2010).

interpretation. As we increased the number of classes, the models tended to return solutions with some very small class sizes, for example with classes that were estimated to contain less than 10% the population in that life-stage. We scrutinised these smaller classes very carefully for their utility, paying particular attention to the uncertainty around their estimated parameters. Ultimately we have retained only one model (for the older age life-stage) that involves a notably small class; we chose this solution partly on the grounds of fit, and partly on the grounds of the added insights that the extra class brings to the analysis. So for the older-age group we present a five-class model, while we present four-class models for the other two life-stages. Tables B1-B3 present the logit estimates for these models. Tables B4-B6 present the estimated class and item response probabilities for the models ( $\hat{\eta}_j$  and  $\hat{\pi}_{is}(j)$  respectively) with estimated standard errors.

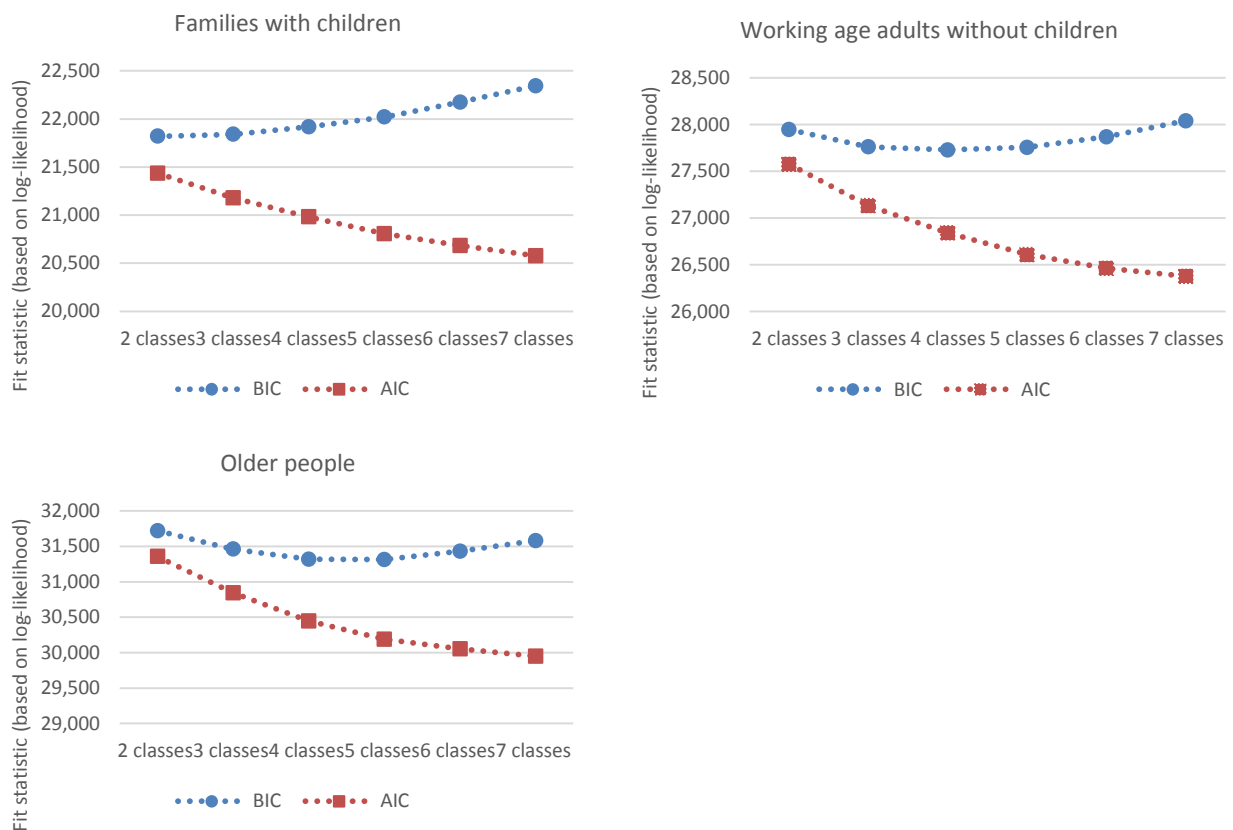
Having settled on these models, we re-ran each one on a random sub-sample (of half of the respondents) of its respective life-stage in order to obtain an indicative evaluation of its robustness to sampling variation. For all life stages we found the models fitted on the random sub-sample to be close to their full-sample versions. We would note that the estimate of the class sizes are not very stable across models, so care should be taken not to read too much into those values: we would suggest instead that the utility of our analyses lies in uncovering patterns of clustering in the poverty indicators and naming those common profiles of experiences.

For each model fitted, we assessed the substantive interpretability of the classes it contained by inspecting conditional item response probabilities. Alongside this we scrutinised the utility of each item. We dropped a minimal number of variables from the models after assessing how well they enabled us to discriminate between (i.e. produce clear differentiable definitions of) latent classes. Discrimination power was assessed in terms of inferential statistics for the items' 'slope' coefficients (using the overall Wald statistic for each item, and the individual z-statistic for each estimated parameter, adopting  $p < 0.05$  and  $z > |1.96|$  as a rough guide). Using these, we decided to remove the items 'live more than 30 mins from a green space' and 'home has condensation problems' from all three life-stage analyses. In addition we dropped from the older age life-stage analysis the items 'overcrowded accommodation' and 'have had difficulties paying rent/mortgage in the last year'; respondents in this life-stage were extremely unlikely to report experiencing either of these. Aside from these differences, we used the same sets of variables for all three life stages – except in the case where individual items were obviously not appropriate for some groups (e.g. 'number of children' would not be a relevant variable to include for the 'working age without children' group). This was in order to be able to draw comparisons about relative risks of different poverty indicators across life stages.

The analyses were carried out in LatentGold (Vermunt and Magidson, 2016) software using Full Information Maximum Likelihood (FIML), allowing us to include a number of items that were not asked of the full sample. FIML handles missing values directly in the likelihood function – analogously estimating the model 'around the gaps' rather than either deleting cases listwise from the analysis, or imputing missing values. For the 22 items analysed, no case in the data set returned a

complete set of answers; most contained between two and five missing values, but a few cases contained as many as 17 missing values. Most of the missingness in the data comes from the survey design: the data analysed are pooled from two waves, and include a few questions that were only asked in sub-samples in one of the waves. The analysis notably contains four items<sup>7</sup> that were only asked to a small section of respondents. Given that this missingness is due to survey design based on random allocation of respondents to different versions of the questionnaire, it seems not unreasonable to treat it as random and use FIML to deal with it. The items in question are not pivotal for the interpretation of the classes, but their inclusion adds depth to our substantive understanding of them. LatentGold deals with missingness on covariates in a different way, either deleting cases listwise or using a fairly simple imputation. Since missingness is very limited on covariates, we opted to use listwise deletion for these.

**Figure B.1 AIC and BIC statistics for series of models within each life stage**



<sup>7</sup> Not having any savings, having difficulties paying rent/mortgage in the last year, not having internet access at home, living in a home that is never warm or has a serious heating problem.

**Table B.1 Parameter estimates for 4-class latent class model, families with children**

Measurement model		Intercepts				Coefficients								
Item	Category	Estimate	z	Wald	p-value	Struggling to get by (Ref.)	Working home owners	Workless families	Part-time workers with low assets	Wald	p-value			
Income decile	Poorest decile	0	.	13.64	0.001	0	0	.	0	.	0	.	32.14	<0.001
	2nd poorest decile	0.601	3.40			0	-0.594	-1.97	-0.764	-2.66	-0.141	-0.43		
	3rd poorest decile	0.236	1.24			0	-0.040	-0.14	-2.505	-4.56	-0.239	-0.71		
Financial difficulties	None	0	.	64.46	<0.001	0	0	.	0	.	0	.	18.44	<0.001
	Some or deep financial difficulties	-1.549	-8.03			0	-0.419	-1.25	0.731	2.20	-0.573	-1.55		
Savings	Some savings	0	.	19.63	<0.001	0	0	.	0	.	0	.	40.20	<0.001
	No savings	1.022	4.43			0	-1.846	-4.61	1.684	2.57	-0.585	-1.37		
Rent/mortgage difficulties	No difficulties paying rent/mortgage in last year	0	.	30.50	<0.001	0	0	.	0	.	0	.	4.91	0.180
	Difficulties paying rent/mortgage in last year	-1.361	-5.52			0	-1.481	-2.15	-0.529	-0.99	-0.369	-0.81		
Car ownership	At least one car in household	0	.	3.22	0.073	0	0	.	0	.	0	.	88.34	<0.001
	No car	0.273	1.79			0	-3.041	-7.43	2.011	3.30	-2.174	-4.38		
Friends/neighbours	Can rely on friends/neighbours for help	0	.	94.29	<0.001	0	0	.	0	.	0	.	14.20	0.003
	Cannot rely on friends/neighbours for help	-2.199	-9.71			0	-0.328	-0.80	0.743	2.06	-0.519	-1.13		
Unpaid care	Does not provide regular unpaid car	0	.	36.63	<0.001	0	0	.	0	.	0	.	4.01	0.260
	Provides regular unpaid care	-1.648	-6.05			0	0.152	0.42	-0.341	-0.46	-0.663	-1.51		
Free cultural activities	Has done some free cultural activities in past year	0	.	16.87	<0.001	0	0	.	0	.	0	.	61.70	<0.001
	Has not done many free cultural activities in past year	-0.544	-4.11			0	-0.966	-3.28	1.104	4.34	1.341	5.48		
Paid cultural activities	Has done some paid cultural activities in past year	0	.	60.25	<0.001	0	0	.	0	.	0	.	59.98	<0.001
	Has not done many paid cultural activities in past year	-1.420	-7.76			0	-1.396	-3.08	1.915	5.05	1.435	5.19		
Internet access	Has internet access at home	0	.	28.03	<0.001	0	0	.	0	.	0	.	151.17	<0.001
	No internet access at home	-1.818	-5.29			0	-1.898	-1.62	0.566	1.02	-5.909	-10.00		
Local area empowerment	Yes, can influence decisions	0	.	37.76	<0.001	0	0	.	0	.	0	.	7.71	0.052
	No, cannot influence decisions	-1.053	-6.15			0	-0.184	-0.69	0.538	1.77	0.053	0.17		
Overcrowding	Home is not overcrowded	0	.	66.02	<0.001	0	0	.	0	.	0	.	9.42	0.024
	Home is overcrowded	-2.077	-8.13			0	-0.789	-1.79	0.556	1.16	0.089	0.24		
Heating	No heating problems	0	.	41.47	<0.001	0	0	.	0	.	0	.	19.48	<0.001
	Home never warm or heating serious problem	-2.165	-6.44			0	-1.312	-1.62	1.537	3.15	-0.033	-0.05		
Homelessness	Has not been homeless	0	.	39.84	<0.001	0	0	.	0	.	0	.	38.04	<0.001
	Has been homeless	-1.163	-6.31			0	-2.101	-4.87	0.227	0.66	-2.202	-2.29		
Neighbourhood problems	None or not many neighbourhood problems	0	.	34.79	<0.001	0	0	.	0	.	0	.	43.43	<0.001
	High no. of neighbourhood problems	-1.111	-5.90			0	-1.435	-3.99	0.475	1.30	-1.610	-3.41		
Personal safety	Does not feel unsafe walking alone in neighbourhood or alone at home	0	.	34.11	<0.001	0	0	.	0	.	0	.	43.36	<0.001
	Feel unsafe walking alone in neighbourhood or alone at home	-0.957	-5.84			0	-0.823	-2.95	0.634	2.26	-1.119	-2.80		
Multiple deprivation level of local services	Not a 20% most deprived area	0	.	1.38	0.240	0	0	.	0	.	0	.	62.35	<0.001
	20% most deprived area (IMD)	0.161	1.17			0	-2.466	-6.56	0.520	1.94	-1.354	-3.86		
	Not dissatisfied with local council	0	.	67.61	<0.001	0	0	.	0	.	0	.	8.50	0.037
	Dissatisfied with local council	-1.667	-8.22			0	-1.048	-2.22	0.180	0.46	-0.059	-0.15		
Green space	Has visited countryside/open space in last 12 months	0	.	90.94	<0.001	0	0	.	0	.	0	.	36.29	<0.001
	Not visited countryside/open space in last 12 months	-2.384	-9.54			0	-0.538	-1.17	1.696	4.30	1.010	2.91		
Discrimination	Has not experienced discrimination	0	.	63.41	<0.001	0	0	.	0	.	0	.	2.56	0.460
	Experienced discrimination	-2.366	-7.96			0	-0.094	-0.22	0.464	0.83	-0.123	-0.28		
<b>Structural model</b>														
<b>Intercept</b>						0	-16.089	-3.59	-2.445	-0.87	4.481	1.44	13.88	0.003
<b>Covariates:</b>														
Household type	Single parent					0	0	.	0	.	0	.	7.38	0.290
	Small family					0	-1.758	-1.10	0.234	0.14	0.489	0.42		
	Large family					0	2.254	0.83	-1.064	-0.55	-1.011	-0.53		
Sex of household head	Male					0	0	.	0	.	0	.	4.05	0.260
	Female					0	-1.222	-0.59	-1.552	-1.86	-2.374	-1.40		
Age group of household head	16-24					0	0	.	0	.	0	.	35.60	0.008
	25-34					0	11.900	3.14	-1.503	-1.57	-3.589	-1.39		
	35-44					0	14.330	3.26	-2.414	-1.67	3.479	1.47		
	45-59					0	17.177	2.37	-1.787	-0.83	4.300	0.88		
	60-69					0	16.395	3.08	-4.483	-1.11	14.809	2.02		
	70-79					0	24.518	3.34	-5.571	-1.64	-0.397	-0.08		
	80+					0	8.326	0.72	12.674	1.21	-12.529	-1.01		
Ethnicity of household head	White					0	0	.	0	.	0	.	1.90	0.590
	Minority ethnic groups					0	2.068	0.69	-0.954	-0.53	6.000	1.33		
Number of children	1					0	0	.	0	.	0	.	6.24	0.400
	2					0	2.046	1.52	-0.843	-0.93	1.257	0.86		
	3 or more					0	-1.548	-0.75	0.312	0.22	4.509	1.94		
						0	0	.	0	.	0	.	9.18	0.160
Age of youngest child	0 to 4					0	0	.	0	.	0	.		
	5 to 11					0	-2.665	-1.88	-1.902	-1.33	-6.170	-1.95		
	12 to 15					0	1.317	0.65	-0.083	-0.09	0.485	0.31		
Income source	More than 80% of income from benefits					0	0	.	0	.	0	.	34.27	<0.001
	More than 80% of income from miscellaneous sources					0	1.752	0.47	11.310	4.48	-1.279	-0.28		
	More than 80% of income from earnings					0	2.494	1.29	-0.630	-0.49	2.046	0.94		
	Mixture					0	2.357	1.11	-1.880	-1.57	2.797	1.00		
Household work status	Workless					0	0	.	0	.	0	.	38.08	<0.001
	Low part time					0	1.111	0.73	-1.591	-0.87	6.906	2.17		
	High part-time					0	4.135	2.11	-7.128	-2.68	3.942	1.60		
	Full time					0	0.720	0.30	-11.236	-4.22	3.656	1.33		
Adult health	No adult/s have long-term illness or disability					0	0	.	0	.	0	.	1.00	0.800
	Adult/s have long-term illness or disability					0	-1.453	-0.82	0.137	0.12	-0.393	-0.19		
Child health	No child/ren have long-term illness or disability					0	0	.	0	.	0	.	3.95	0.270
	Child/ren have long-term illness or disability					0	-2.100	-1.11	-0.160	-0.10	-10.669	-1.93		
Highest qualification of household head	No qualifications					0	0	.	0	.	0	.	32.21	0.006
	Other qualification					0	4.723	1.65	-4.713	-0.97	-6.546	-1.77		
	Level 1 - 'O' Grade, Standard grade or equiv (SVQ level 1 or 2)					0	1.628	0.73	-5.443	-2.62	-4.628	-1.66		
	Level 2 - Higher, A level or equivalent (SVQ Level 3)					0	6.815	1.87	-6.156	-2.94	-8.022	-1.89		
	Level 3 - HNC/HND or equivalent (SVQ Level 4)					0	10.681	2.02	-7.024	-3.34	-3.499	-1.16		
	Level 4 - Degree, Professional qualification (Above SVQ Level 4)					0	11.400	1.76	-10.489	-2.38	-6.294	-1.19		
Housing	Own outright					0	0	.	0	.	0	.	21.02	0.050
	Buying with mortgage					0	-1.597	-0.59	10.174	2.60	-7.257	-1.91		
	Social renting					0	-13.720	-2.04	11.106	2.58	-13.967	-2.31		
	Private renting					0	-5.749	-1.41	9.877	2.49	-4.791	-1.90		
	Other					0	-9.287	-1.84	14.163	3.39	-12.953	-2.08		
Rurality	Urban					0	0	.	0	.	0	.	9.45	0.024
	Rural					0	8.606	2.59	-2.328	-0.76	12.109	2.05		

**Table B.2 Parameter estimates for 4-class latent class model, working age adults without children**

Measurement model		Intercepts				Coefficients								
Item	Category	Estimate	z	Wald	p-value	Detached singles (Ref.)	Generation rent		Insecure singles		New poor		Wald	p-value
							Estimate	z	Estimate	z	Estimate	z		
Income decile	Poorest decile	0		7.06	0.029	0	0	0	0	0	0	8.24	0.220	
	2nd poorest decile	-0.373	-2.24			0	0.114	0.39	0.089	0.31	0.412	1.48		
	3rd poorest decile	-0.391	-2.03			0	-0.199	-0.61	-1.060	-2.02	-0.206	-0.55		
Financial difficulties	None	0		15.83	<0.001	0	0	0	0	0	0	76.39	<0.001	
	Some or deep financial difficulties	-1.062	-3.98			0	-0.893	-1.85	1.029	2.66	-1.419	-3.81		
Savings	Some savings	0		9.53	0.002	0	0	0	0	0	0	28.42	<0.001	
	No savings	1.464	3.09			0	-1.822	-2.70	1.553	1.12	-3.293	-4.67		
Rent/mortgage difficulties	No difficulties paying rent/mortgage in last year	0		19.74	<0.001	0	0	0	0	0	0	8.67	0.034	
	Difficulties paying rent/mortgage in last year	-1.923	-4.44			0	-0.261	-0.43	0.955	1.47	-2.086	-1.16		
Car ownership	At least one car in household	0		8.99	0.003	0	0	0	0	0	0	70.49	<0.001	
	No car	1.506	3.00			0	-0.591	-0.78	0.865	0.92	-3.958	-6.04		
Friends/neighbours	Can rely on friends/neighbours for help	0		39.71	<0.001	0	0	0	0	0	0	13.48	0.004	
	Cannot rely on friends/neighbours for help	-2.186	-6.30			0	0.261	0.59	1.171	2.72	-1.070	-0.64		
Unpaid care	Does not provide regular unpaid care	0		32.84	<0.001	0	0	0	0	0	0	1.59	0.660	
	Provides regular unpaid care	-1.865	-5.73			0	-0.608	-0.68	-0.187	-0.31	0.281	0.38		
Free cultural activities	Has done some free cultural activities in past year	0		29.75	<0.001	0	0	0	0	0	0	87.31	<0.001	
	Has not done many free cultural activities in past year	1.275	5.45			0	-2.741	-8.44	-1.549	-3.06	-1.406	-2.97		
Paid cultural activities	Has done some paid cultural activities in past year	0		28.82	<0.001	0	0	0	0	0	0	54.96	<0.001	
	Has not done many paid cultural activities in past year	1.645	5.37			0	-4.937	-7.30	-1.726	-2.38	-2.334	-3.97		
Internet access	Has internet access at home	0		3.43	0.064	0	0	0	0	0	0	61.61	<0.001	
	No internet access at home	0.545	1.85			0	-2.666	-4.18	-0.326	-0.63	-2.837	-5.59		
Local area empowerment	Yes, can influence decisions	0		17.67	<0.001	0	0	0	0	0	0	19.03	<0.001	
	No, cannot influence decisions	-0.821	-4.20			0	-1.194	-3.73	0.025	0.06	-0.207	-0.72		
Overcrowding	Home is not overcrowded	0		48.47	<0.001	0	0	0	0	0	0	76.01	<0.001	
	Home is overcrowded	-4.663	-6.96			0	0.838	0.83	-7.098	-6.21	-6.792	-4.65		
Heating	No heating problems	0		19.31	<0.001	0	0	0	0	0	0	12.77	0.005	
	Home never warm or heating serious problem	-1.625	-4.39			0	-1.137	-1.41	0.693	1.23	-0.975	-1.58		
Homelessness	Has not been homeless	0		11.35	0.001	0	0	0	0	0	0	44.88	<0.001	
	Has been homeless	-1.401	-3.37			0	-1.425	-1.61	1.773	2.79	-2.610	-3.59		
Neighbourhood problems	None or not many neighbourhood problems	0		17.33	<0.001	0	0	0	0	0	0	42.21	<0.001	
	High no. of neighbourhood problems	-2.455	-4.16			0	0.314	0.49	2.040	2.98	-0.587	-0.29		
Personal safety	Does not feel unsafe walking alone in neighbourhood or alone at home	0		18.23	<0.001	0	0	0	0	0	0	28.09	<0.001	
	Feel unsafe walking alone in neighbourhood or alone at home	-1.416	-4.27			0	-0.423	-0.88	0.919	1.85	-0.968	-1.51		
Multiple deprivation level of local services	Not a 20% most deprived area (IMD)	0		0.04	0.850	0	0	0	0	0	0	74.64	<0.001	
	20% most deprived area (IMD)	-0.032	-0.19			0	-1.319	-2.42	0.483	1.40	-1.695	-1.80		
Local services	Not dissatisfied with local council	0		28.56	<0.001	0	0	0	0	0	0	3.71	0.290	
	Dissatisfied with local council	-1.744	-5.34			0	-1.256	-1.80	-0.055	-0.08	-0.050	-0.12		
Green space	Has visited countryside/open space in last 12 months	0		0.09	0.770	0	0	0	0	0	0	71.69	<0.001	
	Not visited countryside/open space in last 12 months	0.053	0.30			0	-2.837	-7.40	-1.390	-2.18	-1.879	-4.03		
Discrimination	Has not experienced discrimination	0		69.62	<0.001	0	0	0	0	0	0	25.02	<0.001	
	Experienced discrimination	-2.456	-8.34			0	0.271	0.62	1.456	3.66	-0.851	-1.12		
<b>Structural model</b>														
<b>Intercept</b>						0	-1.725	-1.02	-0.137	-0.12	-6.620	-4.38	21.99	<0.001
<b>Covariates:</b>														
Household type	Single adult	0				0	0	0	0	0	0	10.85	0.093	
	Small adult	0				0	0.195	0.32	-0.305	-0.55	2.601	1.59		
	Large adult	0				0	0.688	0.61	-1.352	-0.85	2.555	1.82		
Sex of household head	Male	0				0	0	0	0	0	0	3.11	0.380	
	Female	0				0	0.064	0.17	-0.172	-0.53	-1.088	-1.62		
Age group of household head	16-24	0				0	0	0	0	0	0	94.91	<0.001	
	25-34	0				0	-1.086	-1.84	0.276	0.43	4.927	3.95		
	35-44	0				0	-0.979	-1.54	-0.270	-0.41	4.863	4.08		
	45-59	0				0	-1.538	-1.91	-1.334	-1.79	5.797	3.60		
	60-69	0				0	-1.608	-0.46	-3.252	-2.44	6.864	4.50		
	70-79	0				0	-3.271	-0.57	-4.825	-0.76	-1.073	-0.12		
Ethnicity of household head	White	0				0	0	0	0	0	0	9.65	0.022	
	Minority ethnic groups	0				0	-1.616	-1.99	-1.339	-1.66	-3.261	-1.07		
Income source	More than 80% of income from benefits	0				0	0	0	0	0	0	21.13	0.012	
	More than 80% of income from miscellaneous sources	0				0	1.627	1.82	-0.338	-0.29	2.437	1.36		
	More than 80% of income from earnings	0				0	1.398	1.08	-0.876	-0.77	0.150	0.05		
	Mixture	0				0	0.941	0.59	-1.150	-0.96	-0.378	-0.11		
Household work status	Workless	0				0	0	0	0	0	0	11.90	0.220	
	Low part time	0				0	-0.700	-0.48	0.831	0.77	1.991	0.73		
	High part-time	0				0	0.369	0.07	0.894	0.35	2.747	0.63		
	Full time	0				0	-0.795	-0.58	-1.318	-1.00	2.531	0.99		
Adult health	No adult/s have long-term illness or disability	0				0	0	0	0	0	0	7.04	0.071	
	Adult/s have long-term illness or disability	0				0	-1.007	-2.30	-0.607	-1.47	-0.437	-0.61		
Highest qualification of household head	No qualifications	0				0	0	0	0	0	0	40.62	<0.001	
	Other qualification	0				0	1.164	0.65	0.565	0.63	1.314	1.08		
	Level 1 - 'O' Grade, Standard grade or equiv (SVQ Level 1 or 2)	0				0	2.576	2.60	0.878	1.84	1.674	3.30		
	Level 2 - Higher, A level or equivalent (SVQ Level 3)	0				0	3.784	3.24	0.806	0.84	1.180	1.06		
	Level 3 - HNC/HND or equivalent (SVQ Level 4)	0				0	3.217	2.99	0.544	0.81	1.455	1.62		
Housing	Level 4 - Degree, Professional qualification (Above SVQ Level 4)	0				0	5.108	3.40	2.560	1.92	2.664	0.97		
	Own outright	0				0	0	0	0	0	0	77.55	<0.001	
Rurality	Buying with mortgage	0				0	1.077	0.70	0.375	0.31	-1.114	-0.59		
	Social renting	0				0	-0.719	-0.37	0.846	0.80	-3.798	-1.31		
	Private renting	0				0	0.650	0.45	0.503	0.41	-2.803	-2.58		
	Other	0				0	0.013	0.01	1.851	1.32	-3.034	-1.29		
	Rural	0				0	0	0	0	0	0	2.21	0.530	
Rurality	Urban	0				0	0	0	0	0	0	2.21	0.530	
	Rural	0				0	-0.286	-0.40	-0.446	-0.61	2.789	1.25		

**Table B.3 Parameter estimates for 5-class latent class model, older people**

Measurement model		Intercepts				Coefficients										
Item	Category	Estimate	z	Wald	p-value	Disengaged couples (Ref.)	Left alone		Younger active singles		Younger engaged couples		Ill health		Wald	p-value
							Estimate	z	Estimate	z	Estimate	z	Estimate	z		
Income decile	Poorest decile	0		20.72	<0.001	0	0								24.39	0.002
	2nd poorest decile	0.039	0.31			0	-0.315	-1.62	-0.094	-0.40	-0.015	-0.07	0.244	0.84		
	3rd poorest decile	-0.652	-3.89			0	0.313	1.34	0.549	2.09	0.029	0.10	0.956	3.08		
Financial difficulties	None	0		83.14	<0.001	0	0								332.08	<0.001
	Some or deep financial difficulties	-4.080	-9.12			0	-7.732	-13.10	-0.009	-0.01	0.026	0.03	1.605	2.44		
Savings	Some savings	0		30.28	<0.001	0	0								57.87	<0.001
	No savings	-2.749	-5.50			0	-0.054	-0.06	1.009	1.63	-0.728	-0.60	3.403	5.00		
Car ownership	At least one car in household	0		43.47	<0.001	0	0								125.27	<0.001
	No car	-2.175	-6.59			0	4.989	10.18	2.640	5.67	-2.385	-2.13	3.112	5.43		
Friends/neighbors	Can rely on friends/neighbours for help	0		54.61	<0.001	0	0								9.55	0.049
	Cannot rely on friends/neighbours for help	-3.977	-7.39			0	0.347	0.57	1.138	1.75	-0.105	-0.10	1.664	2.18		
Unpaid care	Does not provide regular unpaid car	0		90.11	<0.001	0	0								17.98	0.001
	Provides regular unpaid care	-2.321	-9.49			0	-1.201	-2.74	0.489	1.46	0.627	1.65	0.786	1.32		
Free cultural activities	Has done some free cultural activities in past year	0		56.22	<0.001	0	0								137.96	<0.001
	Has not done many free cultural activities in past year	1.411	7.50			0	0.133	0.47	-2.200	-6.99	-2.682	-7.58	-0.078	-0.22		
Paid cultural activities	Has done some paid cultural activities in past year	0		9.09	0.003	0	0								187.88	<0.001
	Has not done many paid cultural activities in past year	0.805	3.01			0	0.820	2.09	-2.095	-5.48	-3.113	-7.86	0.784	1.52		
Internet access	Has internet access at home	0		3.64	0.056	0	0								28.96	<0.001
	No internet access at home	-0.415	-1.91			0	6.213	2.34	0.265	0.62	-2.174	-3.37	1.415	2.22		
Local area empowerment	Influence/Local Area	0		36.24	<0.001	0	0								13.25	0.010
	Yes, can influence decisions	-0.792	-6.02			0	0.020	0.11	-0.355	-1.51	-0.545	-2.06	0.273	1.02		
Heating	No heating problems	0		22.71	<0.001	0	0								8.33	0.080
	Home never warm or heating serious problem	-3.846	-4.77			0	0.404	0.42	1.338	1.47	0.872	0.77	2.177	2.18		
Homelessness	Has not been homeless	0		25.91	<0.001	0	0								20.87	<0.001
	Has been homeless	-5.881	-5.09			0	0.432	0.23	3.307	2.66	-1.365	-0.67	3.287	2.66		
Neighbourhood problems	None or not many neighbourhood problems	0		87.84	<0.001	0	0								32.18	<0.001
	High no. of neighbourhood problems	-3.520	-9.37			0	-1.650	-0.65	1.309	2.68	-0.758	-0.75	1.879	4.26		
Personal safety	Does not feel unsafe walking alone in neighbourhood or alone at home	0		71.15	<0.001	0	0								59.72	<0.001
	Feel unsafe walking alone in neighbourhood or alone at home	-2.101	-8.44			0	1.514	4.81	1.482	4.51	-0.108	-0.22	1.490	3.80		
Multiple deprivation	Not a 20% most deprived area	0		57.06	<0.001	0	0								75.65	0.000
	20% most deprived area (IMD)	-2.137	-7.55			0	0.845	2.18	1.171	3.05	-1.615	-1.44	2.585	7.01		
Local services	Not dissatisfied with local council	0		96.69	<0.001	0	0								11.11	0.025
	Dissatisfied with local council	-1.992	-9.83			0	-0.647	-1.80	-0.548	-1.46	-0.397	-1.06	0.459	1.04		
Green space	Has visited countryside/open space in last 12 months	0		18.52	<0.001	0	0								121.48	<0.001
	Not visited countryside/open space in last 12 months	-0.674	-4.30			0	0.882	3.92	-1.425	-4.49	-1.863	-5.35	0.713	2.29		
Discrimination	Has not experienced discrimination	0		30.50	<0.001	0	0								7.99	0.092
	Experienced discrimination	-4.780	-5.52			0	-0.945	-0.66	1.761	1.85	1.701	1.74	1.950	1.70		
<b>Structural model</b>																
<b>Intercept</b>						0	-12.710	-7.91	-7.451	-3.15	-0.553	-0.35	1.798	0.38	87.48	<0.001
<b>Covariates:</b>																
Household type	Large adult					0	0								102.37	<0.001
	Older smaller					0	4.891	4.84	0.135	0.09	-0.428	-0.42	-1.319	-0.43		
	Single pensioner					0	7.202	7.26	1.456	0.98	-1.130	-0.93	-0.204	-0.06		
Sex of household head	Male					0	0								49.05	<0.001
	Female					0	2.058	5.01	2.331	5.50	0.838	2.07	0.900	1.00		
Age group of household head	45-59					0	0								156.03	<0.001
	60-69					0	4.144	3.75	5.331	3.79	-0.533	-0.53	-3.884	-1.80		
	70-79					0	4.731	4.22	4.697	3.19	-0.884	-0.84	-5.136	-2.14		
	80+					0	6.792	5.88	4.607	2.99	-2.107	-1.86	-5.339	-2.27		
Ethnicity of household head	White					0	0								47.97	<0.001
	Minority ethnic groups					0	-4.806	-3.92	-6.835	-5.82	0.254	0.26	2.287	1.53		
	Income source					0	0								37.97	<0.001
Income source	More than 80% of income from benefits					0	0									
	More than 80% of income from miscellaneous sources					0	-2.332	-2.14	-0.291	-0.28	1.243	1.05	-1.731	-0.92		
	More than 80% of income from earnings					0	-0.981	-0.55	-0.383	-0.32	1.850	1.65	0.721	0.57		
Mixture						0	-0.413	-1.16	0.333	0.92	1.180	3.41	-2.333	-2.97		
						0	0								55.54	<0.001
Household work status	Workless					0	0									
	Low part time					0	0.675	0.95	-0.538	-0.63	-1.961	-2.19	-3.786	-2.07		
	High part-time					0	-3.825	-1.38	-4.358	-1.82	-9.083	-4.16	-3.160	-1.24		
Adult health	Full time					0	-3.374	-2.52	2.584	2.42	-1.372	-1.17	2.627	0.84		
	No adult/s have long-term illness or disability					0	0								31.64	<0.001
Highest qualification of household head	Adult/s have long-term illness or disability					0	0.694	2.06	-0.389	-0.98	-0.959	-3.06	2.146	1.79		
	No qualifications					0	0								121.95	<0.001
Other qualification	Level 1 - 'O' Grade, Standard grade or equiv (SVQ level 1 or 2)					0	-0.905	-2.31	-0.009	-0.02	0.742	1.55	-1.369	-1.75		
	Level 2 - Higher, A level or equivalent (SVQ Level 3)					0	-3.114	-3.70	0.274	0.38	1.421	2.40	-3.460	-3.01		
	Level 3 - HNC/HND or equivalent (SVQ Level 4)					0	-1.940	-2.95	0.648	1.10	2.511	4.61	-2.627	-1.65		
	Level 4 - Degree, Professional qualification (Above SVQ Level 4)					0	-1.836	-2.37	0.578	0.80	2.408	4.03	-3.035	-2.25		
Housing	Own outright					0	0								53.51	<0.001
	Buying with mortgage					0	1.249	1.36	0.967	1.33	-0.033	-0.07	2.773	1.58		
	Social renting					0	2.141	3.47	2.237	3.66	-4.365	-1.57	4.927	3.33		
	Private renting					0	0.340	0.30	1.541	1.50	-2.483	-2.43	3.434	2.08		
	Other					0	-1.224	-0.79	-1.366	-0.80	-1.328	-1.45	2.827	1.58		
Rurality	Urban					0	0								40.94	<0.001
	Rural					0	-1.963	-4.26	-2.847	-4.78	0.342	0.74	-4.881	-3.80		

**Table B.4 Estimated class and item response probabilities with estimated standard errors, 4-class latent class model, families with children**

	Workless families		Struggling to get by		Working home owners		Part-time workers with low assets	
	Prob.	s.e.	Prob.	s.e.	Prob.	s.e.	Prob.	s.e.
<b>Estimated class size:</b>	0.215	0.027	0.383	0.030	0.220	0.014	0.182	0.016
<b>Estimated item response probabilities</b>								
Poorest income decile	0.512	0.045	0.245	0.031	0.310	0.042	0.279	0.048
2nd poorest income decile	0.435	0.045	0.446	0.032	0.313	0.042	0.442	0.049
3rd poorest income decile	0.053	0.026	0.310	0.030	0.377	0.037	0.278	0.041
Some or deep financial difficulties	0.306	0.045	0.175	0.028	0.123	0.027	0.107	0.030
No savings	0.937	0.034	0.735	0.045	0.305	0.066	0.607	0.083
Difficulties paying rent/mortgage in last year	0.131	0.048	0.204	0.040	0.055	0.033	0.151	0.047
No car	0.908	0.047	0.568	0.037	0.059	0.021	0.130	0.052
Not rely on friends/neighbours for help	0.189	0.034	0.100	0.020	0.074	0.022	0.062	0.022
Provides regular unpaid care	0.120	0.056	0.162	0.037	0.183	0.032	0.090	0.027
Has not done many free cultural activities in past year	0.637	0.047	0.367	0.031	0.181	0.037	0.689	0.045
Has not done many paid cultural activities in past year	0.621	0.068	0.195	0.029	0.057	0.021	0.504	0.050
No internet access at home	0.222	0.059	0.140	0.041	0.024	0.025	0.000	0.000
No, cannot influence decisions	0.374	0.047	0.259	0.033	0.225	0.032	0.269	0.043
Overcrowded	0.179	0.042	0.111	0.025	0.054	0.018	0.121	0.027
Home never warm or heating serious problem	0.348	0.072	0.103	0.031	0.030	0.021	0.100	0.047
Been homeless	0.282	0.044	0.238	0.033	0.037	0.014	0.033	0.029
High no. of neighbourhood problems	0.346	0.051	0.248	0.035	0.073	0.020	0.062	0.026
Feel unsafe walking alone in neighbourhood or alone at home	0.420	0.046	0.277	0.033	0.144	0.029	0.111	0.034
20% most deprived area (IMD)	0.664	0.044	0.540	0.034	0.091	0.028	0.233	0.056
Dissatisfied with local council	0.184	0.038	0.159	0.027	0.062	0.025	0.151	0.040
Not visited countryside/open space in last 12 months	0.334	0.055	0.084	0.019	0.051	0.017	0.202	0.035
Experienced discrimination	0.130	0.037	0.086	0.023	0.079	0.020	0.077	0.021

**Table B.5 Estimated class and item response probabilities with estimated standard errors, 4-class latent class model, working age adults without children**

	Insecure singles		Detached singles		New poor		Generation rent	
	Prob.	s.e.	Prob.	s.e.	Prob.	s.e.	Prob.	s.e.
<b>Estimated class size:</b>	0.231	0.044	0.314	0.041	0.209	0.083	0.246	0.087
<b>Estimated item response probabilities</b>								
Poorest income decile	0.503	0.050	0.423	0.035	0.386	0.045	0.430	0.058
2nd poorest income decile	0.379	0.039	0.291	0.033	0.401	0.039	0.332	0.040
3rd poorest income decile	0.118	0.041	0.286	0.038	0.213	0.044	0.238	0.039
Some or deep financial difficulties	0.492	0.051	0.257	0.051	0.077	0.021	0.124	0.035
No savings	0.953	0.048	0.812	0.072	0.138	0.080	0.412	0.088
Difficulties paying rent/mortgage in last year	0.275	0.069	0.128	0.048	0.018	0.031	0.101	0.035
No car	0.915	0.041	0.819	0.075	0.079	0.047	0.714	0.172
Not rely on friends/neighbours for help	0.266	0.039	0.101	0.032	0.037	0.057	0.127	0.031
Provides regular unpaid care	0.114	0.035	0.134	0.038	0.170	0.068	0.078	0.073
Has not done many free cultural activities in past year	0.432	0.104	0.782	0.040	0.467	0.084	0.188	0.031
Has not done many paid cultural activities in past year	0.480	0.129	0.838	0.042	0.334	0.096	0.036	0.020
No internet access at home	0.554	0.078	0.633	0.068	0.092	0.037	0.107	0.051
No, cannot influence decisions	0.311	0.059	0.306	0.041	0.263	0.044	0.118	0.027
Overcrowded	0.000	0.000	0.009	0.006	0.000	0.000	0.021	0.013
Home never warm or heating serious problem	0.283	0.064	0.165	0.051	0.069	0.030	0.059	0.038
Been homeless	0.592	0.085	0.198	0.066	0.018	0.013	0.056	0.031
High no. of neighbourhood problems	0.398	0.058	0.079	0.043	0.046	0.071	0.105	0.054
Feel unsafe walking alone in neighbourhood or alone at home	0.378	0.056	0.195	0.052	0.084	0.036	0.137	0.038
20% most deprived area (IMD)	0.611	0.055	0.492	0.042	0.151	0.115	0.206	0.088
Dissatisfied with local council	0.142	0.054	0.149	0.041	0.143	0.026	0.047	0.030
Not visited countryside/open space in last 12 months	0.208	0.089	0.513	0.045	0.139	0.047	0.058	0.021
Experienced discrimination	0.269	0.050	0.079	0.021	0.035	0.022	0.101	0.029



**Table B.6 Estimated class and item response probabilities with estimated standard errors, 5-class latent class model, older people**

	Ill health		Left alone		Disengaged couples		Younger active singles		Younger engaged couples	
	Prob.	s.e.	Prob.	s.e.	Prob.	s.e.	Prob.	s.e.	Prob.	s.e.
<b>Estimated class size:</b>	0.107	0.027	0.246	0.027	0.268	0.023	0.207	0.024	0.174	0.024
<b>Estimated item response probabilities</b>										
Poorest income decile	0.272	0.045	0.405	0.030	0.391	0.029	0.351	0.034	0.390	0.035
2nd poorest income decile	0.360	0.049	0.307	0.027	0.406	0.027	0.332	0.035	0.400	0.033
3rd poorest income decile	0.368	0.052	0.288	0.027	0.204	0.024	0.317	0.034	0.209	0.030
Some or deep financial difficulties	0.078	0.032	0.000	0.000	0.017	0.007	0.017	0.010	0.017	0.010
No savings	0.658	0.096	0.057	0.037	0.060	0.028	0.149	0.046	0.030	0.028
No car	0.719	0.097	0.943	0.022	0.102	0.030	0.614	0.066	0.010	0.011
Not rely on friends/neighbours for help	0.090	0.033	0.026	0.008	0.018	0.010	0.055	0.017	0.017	0.013
Provides regular unpaid care	0.177	0.069	0.029	0.011	0.089	0.020	0.138	0.026	0.155	0.029
Has not done many free cultural activities in past year	0.791	0.045	0.824	0.029	0.804	0.030	0.312	0.053	0.219	0.063
Has not done many paid cultural activities in past year	0.830	0.063	0.835	0.038	0.691	0.057	0.216	0.044	0.090	0.031
No internet access at home	0.731	0.113	0.997	0.008	0.398	0.052	0.462	0.084	0.070	0.039
No, cannot influence decisions	0.373	0.050	0.316	0.028	0.312	0.028	0.241	0.035	0.208	0.033
Home never warm or heating serious problem	0.159	0.066	0.031	0.016	0.021	0.017	0.075	0.030	0.049	0.027
Been homeless	0.070	0.026	0.004	0.006	0.003	0.003	0.071	0.018	0.001	0.001
High no. of neighbourhood problems	0.162	0.035	0.006	0.014	0.029	0.011	0.099	0.023	0.014	0.011
Feel unsafe walking alone in neighbourhood or alone at home	0.352	0.068	0.357	0.043	0.109	0.024	0.350	0.038	0.099	0.031
20% most deprived area (IMD)	0.610	0.059	0.216	0.046	0.106	0.027	0.276	0.041	0.023	0.023
Dissatisfied with local council	0.178	0.048	0.067	0.017	0.120	0.021	0.073	0.022	0.084	0.020
Not visited countryside/open space in last 12 months	0.510	0.062	0.552	0.039	0.338	0.035	0.109	0.027	0.073	0.023
Experienced discrimination	0.056	0.029	0.003	0.004	0.008	0.007	0.047	0.015	0.044	0.014

## Item probabilities and relative risks

The following tables present the item probabilities and the relative risks for each of the Latent Class Analysis solutions.

The **item probability** is the likelihood that a household in the poverty type has a particular poverty indicator (or risk factor / background characteristic). For example, using the families with children life stage as an example, the probability of a household in the 'workless families' poverty type being in the lowest income decile is 51% (or 0.51). This means that, on average, about half the households in that poverty type are in the lowest income decile (the item probabilities for the second decile are 44% and the third decile 5%, meaning that all households in this poverty type are in the bottom three income deciles, as 51% + 44% + 5% = 100%). The probability of a household in the Struggling to get by poverty type being in the lowest income decile is 24% (or 0.24). This shows that households in the 'workless families' poverty type are more likely to be in the lowest income decile than households in the 'struggling to get by' poverty type.

To help illustrate the kinds of households in each poverty type, we focus on item probabilities over 50% and over 75%. An item probability over 75% would imply that a large majority of households in that poverty type have that particular poverty indicator (or risk factor / background characteristic). We also note where households are particularly likely not to have a particular poverty indicator (or risk factor / background characteristic) by highlighting item probabilities less than 50% and less than 25%. In the tables below, high item probabilities have darker green shading, whereas low item probabilities have lighter green/white shading.

It may be the case that none of the poverty types have a high likelihood of having a particular poverty indicator (or risk factor / background characteristic), simply because it is not especially prevalent amongst the low income population. For example, relatively few households have no friends or relatives in the neighbourhood that they could rely on if they needed help. However, it is still possible for a poverty type to be more likely than another poverty type to have no-one in their neighbourhood they can rely on, despite it being relatively uncommon. This is important to note, as it suggests that households in this poverty type are most at risk of this poverty indicator (or risk factor / background characteristic). To

$$\text{Relative risk} = \frac{\% \text{ of households in poverty type } i \text{ with indicator } j}{\% \text{ of households in poverty with indicator } j}$$

help with this we have produced a table showing the **relative risk**.

Hence:

A relative risk of 1 means there is no difference in risk between households in the poverty type and all households in poverty in that life stage

A relative risk <1 means the indicator is less likely to occur in the poverty type than amongst all households in poverty in that life stage

A relative risk >1 means the indicator is more likely to occur in the type than amongst all households in poverty in that life stage

Again, the tables are shaded to help denote high (darker brown shading) and low (lighter brown/white shading) risk.

**Table B.7 Families with children: Item probabilities and relative risks**

Class	ITEM PROBABILITIES				RELATIVE RISK				
	Workless families	Struggling to get by	Working home owners	Part-time workers with low assets	Workless families	Struggling to get by	Working home owners	Working families with young children	
<b>Poverty indicators</b>									
<b>Resources</b>	Poorest income decile	0.51	0.24	0.31	0.28	1.59	0.76	0.96	0.86
	2nd poorest income decile	0.44	0.45	0.31	0.44	1.05	1.08	0.76	1.07
	3rd poorest income decile	0.05	0.31	0.38	0.28	0.20	1.17	1.43	1.06
	Some or deep financial difficulties	0.31	0.18	0.12	0.11	1.71	0.98	0.68	0.60
	No savings	0.94	0.74	0.30	0.61	1.38	1.08	0.45	0.89
	Difficulties paying rent/mortgage in last year	0.13	0.20	0.06	0.15	0.90	1.41	0.38	1.04
	No car	0.91	0.57	0.06	0.13	2.02	1.26	0.13	0.29
	Not rely on friends/neighbours for help	0.19	0.10	0.07	0.06	1.78	0.94	0.70	0.58
	Provides regular unpaid care	0.12	0.16	0.18	0.09	0.83	1.11	1.26	0.62
	Has not done any free cultural activities in past year	0.64	0.37	0.18	0.69	1.44	0.83	0.41	1.56
<b>Participation</b>	Has not done any paid cultural activities in past year	0.62	0.19	0.06	0.50	1.99	0.62	0.18	1.61
	No internet access at home	0.22	0.14	0.02	0.00	2.04	1.28	0.22	0.00
	No, cannot influence decisions	0.37	0.26	0.22	0.27	1.35	0.93	0.81	0.97
	Overcrowded	0.18	0.11	0.05	0.12	1.56	0.97	0.47	1.05
<b>Quality of Life</b>	Home never warm or heating serious problem	0.35	0.10	0.03	0.10	2.64	0.78	0.23	0.76
	Been homeless	0.28	0.24	0.04	0.03	1.70	1.44	0.22	0.20
	High no. of neighbourhood problems	0.35	0.25	0.07	0.06	1.76	1.26	0.37	0.31
	Feel unsafe walking alone in neighbourhood or alone at home	0.42	0.28	0.14	0.11	1.69	1.12	0.58	0.45
	20% most deprived area (IMD)	0.66	0.54	0.09	0.23	1.61	1.31	0.22	0.56
	Dissatisfied with local council	0.18	0.16	0.06	0.15	1.30	1.12	0.44	1.07
	Not visited countryside/open space in last 12 months	0.33	0.08	0.05	0.20	2.20	0.55	0.34	1.33
	Experienced discrimination	0.13	0.09	0.08	0.08	1.41	0.93	0.85	0.83
<b>Poverty risk factors and background characteristics of households</b>									
<b>HH type</b>	Single parent	0.58	0.50	0.25	0.19	1.43	1.24	0.60	0.47
	Small family	0.25	0.35	0.48	0.49	0.67	0.91	1.25	1.28
	Large family	0.16	0.15	0.28	0.32	0.77	0.71	1.31	1.50
<b>Sex of HH head</b>	Male	0.27	0.25	0.59	0.64	0.67	0.62	1.49	1.60
	Female	0.73	0.75	0.41	0.36	1.22	1.25	0.68	0.60
<b>Age group of HH head</b>	16-24	0.30	0.10	0.00	0.05	2.68	0.89	0.00	0.45
	25-34	0.34	0.46	0.22	0.16	1.04	1.41	0.67	0.50
	35-44	0.24	0.33	0.40	0.53	0.66	0.92	1.09	1.46
	45-59	0.11	0.09	0.36	0.19	0.62	0.54	2.08	1.11
	60-69	0.01	0.01	0.00	0.06	0.55	0.51	0.26	3.47
	70-79	0.00	0.00	0.02	0.00	0.90	0.08	3.34	0.22
	80+	0.00	0.00	0.00	0.00	6.00	0.00	0.00	0.00
<b>Ethnic group of HH head</b>	White	0.96	0.97	0.91	0.82	1.04	1.04	0.98	0.88
	Minority ethnic groups	0.04	0.03	0.09	0.18	0.53	0.42	1.20	2.53
<b>Number of children</b>	1	0.57	0.48	0.37	0.41	1.23	1.04	0.80	0.88
	2	0.22	0.36	0.49	0.32	0.63	1.03	1.38	0.92
	3 or more	0.21	0.16	0.14	0.27	1.12	0.84	0.77	1.47
<b>Age of youngest child</b>	0 to 4	0.70	0.46	0.39	0.49	1.39	0.92	0.78	0.97
	5 to 11	0.19	0.42	0.40	0.28	0.55	1.24	1.18	0.81
	12 to 15	0.12	0.11	0.21	0.23	0.73	0.73	1.33	1.49
<b>HH income source</b>	More than 80% of income from benefits	0.86	0.50	0.15	0.12	1.98	1.16	0.35	0.28
	More than 80% of income from miscellaneous sources	0.01	0.00	0.01	0.00	2.35	0.00	1.86	0.49
	More than 80% of income from earnings	0.04	0.14	0.43	0.32	0.18	0.64	2.02	1.49
	Mixture	0.09	0.36	0.41	0.56	0.27	1.03	1.17	1.60
<b>Household work status</b>	Workless	0.86	0.49	0.16	0.09	2.02	1.16	0.37	0.22
	Low part time	0.14	0.41	0.56	0.80	0.31	0.91	1.22	1.74
	High part-time	0.00	0.03	0.17	0.05	0.00	0.51	2.89	0.92
	Full time	0.00	0.06	0.12	0.05	0.00	1.05	1.97	0.89
<b>Health</b>	Adult/s have long-term illness or disability	0.35	0.25	0.16	0.24	1.43	0.99	0.63	0.96
	Child/ren have long-term illness or disability	0.14	0.17	0.12	0.01	1.13	1.36	0.97	0.11
<b>Highest qualification of HH head</b>	No qualifications	0.50	0.05	0.01	0.30	2.70	0.28	0.07	1.63
	Other qualification	0.02	0.03	0.02	0.02	0.83	1.22	0.70	1.09
	Level 1 - 'O' Grade, Standard grade or equiv (SVQ level 1 or 2)	0.38	0.54	0.11	0.44	0.97	1.38	0.27	1.11
	Level 2 - Higher, A level or equivalent (SVQ Level 3)	0.07	0.18	0.28	0.08	0.44	1.13	1.75	0.49
	Level 3 - HNC/HND or equivalent (SVQ Level 4)	0.02	0.12	0.22	0.08	0.21	1.06	1.89	0.73
	Level 4 - Degree, Professional qualification (Above SVQ Level 4)	0.01	0.08	0.37	0.07	0.04	0.62	2.94	0.59
<b>Housing</b>	Own outright	0.00	0.01	0.11	0.15	0.01	0.11	2.01	2.81
	Buying with mortgage	0.03	0.07	0.63	0.29	0.11	0.32	2.81	1.30
	Social renting	0.76	0.75	0.06	0.28	1.47	1.46	0.11	0.54
	Private renting	0.13	0.16	0.19	0.27	0.72	0.88	1.04	1.52
	Other	0.09	0.01	0.02	0.00	3.06	0.48	0.60	0.15
<b>Plurality</b>	Urban	0.97	0.95	0.79	0.73	1.10	1.08	0.90	0.83
	Rural	0.03	0.05	0.21	0.27	0.28	0.40	1.74	2.22

**Table B.8** Families without children: Item probabilities and relative risks

		ITEM PROBABILITIES				RELATIVE RISK			
		Insecure singles	Detached singles	New poor	Generation rent	Insecure singles	Detached singles	New poor	Generation rent
		<b>Poverty indicators</b>							
<b>Resources</b>	Poorest income decile	0.50	0.42	0.39	0.43	1.16	0.97	0.89	0.99
	2nd poorest income decile	0.38	0.29	0.40	0.33	1.10	0.85	1.17	0.96
	3rd poorest income decile	0.12	0.29	0.21	0.24	0.54	1.30	0.97	1.08
	Some or deep financial difficulties	0.49	0.26	0.08	0.12	2.04	1.07	0.32	0.52
	No savings	0.95	0.81	0.14	0.41	1.57	1.34	0.23	0.68
<b>Participation</b>	Difficulties paying rent/mortgage in last year	0.28	0.13	0.02	0.10	2.15	1.00	0.14	0.79
	No car	0.91	0.82	0.08	0.71	1.38	1.24	0.12	1.08
	Not rely on friends/neighbours for help	0.27	0.10	0.04	0.13	2.01	0.76	0.28	0.96
	Provides regular unpaid care	0.11	0.13	0.17	0.08	0.93	1.09	1.39	0.63
	Has not done any free cultural activities in past year	0.43	0.78	0.47	0.19	0.88	1.60	0.96	0.38
<b>Quality of Life</b>	Has not done any paid cultural activities in past year	0.48	0.84	0.33	0.04	1.06	1.85	0.74	0.08
	No internet access at home	0.55	0.63	0.09	0.11	1.53	1.75	0.25	0.30
	No, cannot influence decisions	0.31	0.31	0.26	0.12	1.24	1.21	1.05	0.47
	Overcrowded	0.00	0.01	0.00	0.02	0.00	1.15	0.00	2.61
	Home never warm or heating serious problem	0.28	0.16	0.07	0.06	1.95	1.13	0.48	0.41
	Been homeless	0.59	0.20	0.02	0.06	2.74	0.91	0.08	0.26
	High no. of neighbourhood problems	0.40	0.08	0.05	0.11	2.62	0.52	0.30	0.69
	Feel unsafe walking alone in neighbourhood or alone at home	0.38	0.20	0.08	0.14	1.89	0.98	0.42	0.68
	20% most deprived area (IMD)	0.61	0.49	0.15	0.21	1.62	1.30	0.40	0.54
	Dissatisfied with local council	0.14	0.15	0.14	0.05	1.17	1.23	1.18	0.39
		<b>Poverty risk factors and background characteristics of households</b>							
<b>Hhold type</b>	Single adult	0.83	0.77	0.42	0.66	1.21	1.13	0.62	0.97
	Small adult	0.15	0.16	0.45	0.24	0.63	0.66	1.91	1.02
	Large adult	0.02	0.07	0.12	0.10	0.24	0.93	1.63	1.27
<b>Sex of HH head</b>	Male	0.65	0.60	0.68	0.52	1.07	0.99	1.11	0.86
	Female	0.35	0.40	0.32	0.48	0.89	1.02	0.83	1.22
<b>Age group of HH head</b>	16-24	0.14	0.06	0.00	0.39	0.97	0.38	0.00	2.66
	25-34	0.27	0.11	0.07	0.19	1.70	0.68	0.46	1.22
	35-44	0.24	0.15	0.08	0.13	1.61	0.97	0.53	0.86
	45-59	0.34	0.59	0.62	0.26	0.74	1.29	1.36	0.57
	60-69	0.01	0.10	0.23	0.03	0.11	1.14	2.59	0.31
	70-79	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00
<b>Ethnic group of HH head</b>	White	0.96	0.93	0.98	0.91	1.02	0.99	1.04	0.96
	Minority ethnic groups	0.04	0.07	0.02	0.09	0.68	1.22	0.28	1.62
<b>HH income source</b>	More than 80% of income from benefits	0.82	0.74	0.20	0.25	1.56	1.41	0.38	0.48
	More than 80% of income from miscellaneous sources	0.02	0.02	0.16	0.27	0.21	0.15	1.44	2.45
	More than 80% of income from earnings	0.10	0.15	0.50	0.35	0.37	0.57	1.92	1.36
	Mixture	0.06	0.09	0.15	0.13	0.61	0.89	1.38	1.18
<b>Household work status</b>	Workless	0.85	0.78	0.32	0.62	1.28	1.18	0.48	0.95
	Low part time	0.13	0.13	0.42	0.19	0.64	0.63	2.06	0.91
	High part-time	0.00	0.00	0.04	0.02	0.30	0.24	2.79	1.12
	Full time	0.02	0.09	0.23	0.18	0.16	0.72	1.85	1.42
<b>Health</b>	Adult/s have long-term illness or disability	0.50	0.66	0.37	0.22	1.11	1.44	0.82	0.49
<b>Highest qualification of HH head</b>	No qualifications	0.32	0.57	0.19	0.03	1.07	1.91	0.63	0.09
	Other qualification	0.03	0.03	0.02	0.01	1.32	1.43	0.88	0.26
	Level 1 - 'O' Grade, Standard grade or equiv (SVQ level 1 or 2)	0.36	0.22	0.28	0.16	1.44	0.89	1.12	0.63
	Level 2 - Higher, A level or equivalent (SVQ Level 3)	0.10	0.08	0.14	0.37	0.59	0.50	0.84	2.16
	Level 3 - HNC/HND or equivalent (SVQ Level 4)	0.07	0.07	0.14	0.16	0.66	0.65	1.34	1.48
	Level 4 - Degree, Professional qualification (Above SVQ Level 4)	0.12	0.03	0.23	0.29	0.78	0.17	1.48	1.86
<b>Housing</b>	Own outright	0.02	0.04	0.45	0.05	0.16	0.35	3.60	0.41
	Buying with mortgage	0.03	0.06	0.24	0.16	0.28	0.48	2.14	1.38
	Social renting	0.72	0.73	0.17	0.22	1.48	1.51	0.36	0.45
	Private renting	0.15	0.13	0.11	0.54	0.64	0.56	0.49	2.34
	Other	0.08	0.04	0.02	0.03	1.90	0.89	0.42	0.79
<b>Rurality</b>	Urban	0.96	0.93	0.70	0.95	1.07	1.05	0.78	1.06
	Rural	0.04	0.07	0.30	0.05	0.42	0.61	2.85	0.47

**Table B.9** Older age: Item probabilities and relative risks

Class	ITEM PROBABILITY					RELATIVE RISK				
	Ill health	Left alone	Disengaged couples	Younger active singles	Younger engaged couples	Ill health	Left alone	Disengaged couples	Younger active singles	Younger engaged couples
<b>Poverty indicators</b>										
Poorest income decile	0.27	0.40	0.39	0.35	0.39	0.73	1.08	1.05	0.94	1.05
2nd poorest income decile	0.36	0.31	0.41	0.33	0.40	1.00	0.85	1.13	0.92	1.11
3rd poorest income decile	0.37	0.29	0.20	0.32	0.21	1.38	1.08	0.76	1.19	0.79
<b>Resources</b>										
Some or deep financial difficulties	0.08	0.00	0.02	0.02	0.02	4.06	0.00	0.87	0.86	0.90
No savings	0.66	0.06	0.06	0.15	0.03	4.54	0.39	0.41	1.03	0.21
No car	0.72	0.94	0.10	0.61	0.01	1.55	2.03	0.22	1.32	0.02
Not rely on friends/neighbours for help	0.09	0.03	0.02	0.06	0.02	2.56	0.74	0.52	1.58	0.47
<b>Participation</b>										
Provides regular unpaid care	0.18	0.03	0.09	0.14	0.16	1.68	0.27	0.85	1.31	1.47
Has not done any free cultural activities in past year	0.79	0.82	0.80	0.31	0.22	1.31	1.36	1.33	0.52	0.36
Has not done any paid cultural activities in past year	0.83	0.84	0.69	0.22	0.09	1.54	1.55	1.28	0.40	0.17
No internet access at home	0.73	1.00	0.40	0.46	0.07	1.33	1.82	0.73	0.84	0.13
No, cannot influence decisions	0.37	0.32	0.31	0.24	0.21	1.30	1.10	1.09	0.84	0.73
<b>Quality of life</b>										
Home never warm or heating serious problem	0.16	0.03	0.02	0.08	0.05	2.94	0.57	0.39	1.39	0.90
Been homeless	0.07	0.00	0.00	0.07	0.00	2.90	0.18	0.12	2.95	0.03
High no. of neighbourhood problems	0.16	0.01	0.03	0.10	0.01	3.31	0.12	0.58	2.01	0.28
Feel unsafe walking alone in neighbourhood or alone at home	0.35	0.36	0.11	0.35	0.10	1.49	1.51	0.46	1.48	0.42
20% most deprived area (IMD)	0.61	0.22	0.11	0.28	0.02	2.95	1.04	0.51	1.33	0.11
Dissatisfied with local council	0.18	0.07	0.12	0.07	0.08	1.83	0.69	1.24	0.75	0.87
Not visited countryside/open space in last 12 months	0.51	0.55	0.34	0.11	0.07	1.62	1.75	1.07	0.35	0.23
Experienced discrimination	0.06	0.00	0.01	0.05	0.04	2.13	0.13	0.32	1.78	1.68
<b>Poverty risk factors and background characteristics of households</b>										
<b>Household type</b>										
Large adult	0.06	0.00	0.02	0.01	0.02	3.16	0.00	1.27	0.58	1.20
Older smaller	0.33	0.09	0.63	0.19	0.67	0.86	0.25	1.65	0.49	1.76
Single pensioner	0.61	0.91	0.35	0.80	0.31	1.02	1.51	0.58	1.34	0.51
<b>Sex of HH head</b>										
Male	0.49	0.21	0.75	0.20	0.62	1.07	0.47	1.65	0.45	1.37
Female	0.51	0.79	0.25	0.80	0.38	0.94	1.44	0.46	1.46	0.69
<b>Age group of HH head</b>										
45-59	0.03	0.00	0.01	0.00	0.02	3.08	0.00	1.02	0.00	2.28
60-69	0.47	0.08	0.28	0.47	0.45	1.48	0.24	0.88	1.47	1.41
70-79	0.41	0.29	0.49	0.39	0.44	1.01	0.72	1.22	0.96	1.09
80+	0.09	0.63	0.22	0.14	0.08	0.34	2.38	0.81	0.52	0.31
<b>Ethnic group of HH head</b>										
White	0.97	1.00	0.99	1.00	0.99	0.98	1.01	1.00	1.01	1.00
Minority ethnic groups	0.03	0.00	0.01	0.00	0.01	4.78	0.00	1.19	0.00	1.02
<b>Income source</b>										
More than 80% of income from benefits	0.92	0.78	0.65	0.66	0.38	1.38	1.17	0.97	0.99	0.57
More than 80% of income from miscellaneous sources	0.01	0.01	0.04	0.03	0.12	0.19	0.20	1.07	0.71	2.86
More than 80% of income from earnings	0.03	0.00	0.04	0.04	0.04	0.89	0.16	1.21	1.47	1.37
Mixture	0.05	0.21	0.28	0.27	0.46	0.17	0.79	1.04	1.01	1.74
<b>Household work status</b>										
Workless	0.97	0.98	0.89	0.91	0.92	1.05	1.05	0.96	0.98	0.99
Low part time	0.01	0.02	0.10	0.06	0.07	0.18	0.30	1.77	0.99	1.32
High part-time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.82	0.00	0.00
Full time	0.02	0.00	0.00	0.03	0.01	1.49	0.00	0.36	3.10	0.64
<b>Health</b>										
Adult/s have long-term illness or disability	0.85	0.65	0.55	0.41	0.35	1.57	1.20	1.01	0.76	0.64
<b>Highest qualification of HH head</b>										
No qualifications	0.81	0.72	0.48	0.33	0.13	1.67	1.50	1.00	0.68	0.27
Other qualification	0.10	0.18	0.19	0.17	0.09	0.64	1.15	1.20	1.10	0.60
Level 1 - 'O' Grade, Standard grade or equiv (SVQ level 1 or	0.04	0.02	0.14	0.19	0.12	0.38	0.15	1.33	1.76	1.18
Level 2 - Higher, A level or equivalent (SVQ Level 3)	0.02	0.03	0.06	0.13	0.14	0.31	0.34	0.76	1.74	1.84
Level 3 - HNC/HND or equivalent (SVQ Level 4)	0.01	0.02	0.05	0.05	0.10	0.29	0.40	1.00	1.17	2.08
Level 4 - Degree, Professional qualification (Above SVQ Level	0.01	0.04	0.08	0.12	0.42	0.11	0.27	0.62	0.96	3.21
<b>Housing</b>										
Own outright	0.08	0.59	0.79	0.54	0.92	0.13	0.93	1.25	0.84	1.44
Buying with mortgage	0.07	0.06	0.06	0.08	0.07	1.15	0.94	0.87	1.16	1.00
Social renting	0.74	0.31	0.08	0.33	0.00	3.01	1.28	0.32	1.35	0.00
Private renting	0.05	0.02	0.04	0.05	0.01	1.68	0.58	1.13	1.60	0.27
Other	0.06	0.02	0.04	0.01	0.01	2.45	0.77	1.61	0.29	0.35
<b>Rurality</b>										
Urban	0.99	0.87	0.67	0.95	0.66	1.22	1.07	0.83	1.17	0.82
Rural	0.01	0.13	0.33	0.05	0.34	0.08	0.71	1.70	0.28	1.75



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