Abstract

Estimates of the number of people facing inadequate retirement incomes

One of the key aims of pensions policy is that people should have adequate incomes in retirement. One method of assessing the adequacy of retirement incomes is the replacement rate, defined as the ratio of income after and before retirement.

We use a dynamic micro-simulation approach (the Department for Work and Pensions Pensim2 model) to estimate the future replacement rates for today’s working age population and derive an estimate of the number of people who will fall below the replacement rate thresholds suggested by the Pensions Commission in their 2004 report.

This estimate has been published by DWP as 'Estimates of the number of people facing inadequate retirement incomes'


This builds on previous work by the Institute of Fiscal studies which used survey data to make similar estimates for people close to retirement. The use of a dynamic micro-simulation approach allows us to extend the analysis to cover younger workers and to better capture variation in individuals' labour market histories.

JEL classification: J14 (Economics of the elderly; economics of disability) / J32 (Non-wage labour costs and private pensions) / H55 (Social security and public pensions)

Keywords: Pensions / Replacement Rates / Dynamic Micro-simulation
Replacement rates as a measure of adequacy

In this paper we use a dynamic micro-simulation approach to derive estimates of the number of people in the current workforce who face inadequate retirement incomes, often referred to more colloquially as the number of ‘undersavers’.

We base our measure of adequacy around the concept of the replacement rate, which can be roughly defined as retirement income as a proportion of working income. People whose replacement rate falls below a given threshold are regarded as having an inadequate retirement income.

There are of course other possible measures of adequacy. These include the measures of relative and absolute poverty that are tracked by the “Households Below Average Income” series of National Statistics reports, and the Minimum Income Standard research carried out by the Joseph Rowntree Foundation.

Analysis of these sorts of measures can tell us about the effectiveness and generosity of the safety net aspects of pensions policy, but any measure which does not have a strong link to individuals’ working age living standards and expectations of income in retirement is unlikely to usefully inform the policy debate around workplace pension reform, private pension saving and extending working lives.

A measure of adequacy based on replacement rates can capture the more absolute measures discussed above through having a replacement rate threshold for lower income people which implies a retirement income that is above some minimum absolute level.

Previous work by the Pensions Commission on what constitutes an adequate replacement rate

In their first report in 2004, the Pensions Commission looked at the question of what replacement rate levels people were desired and achieved by recent cohorts of pensioners.

They arrived at a set of replacement rate thresholds for different earnings bands, based mainly around survey evidence on the actual replacement rates achieved by people retiring during the 1990s. These thresholds are presented in Figure 1 below.

Figure 1: Pensions Commission replacement rate thresholds

<table>
<thead>
<tr>
<th>Original 2004 income band (gross earnings)</th>
<th>Uprated to 2012 in line with growth in average earnings</th>
<th>Target replacement rate (for gross income)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to £9,500</td>
<td>Up to £12,000</td>
<td>80%</td>
</tr>
<tr>
<td>£17,500</td>
<td>£22,100</td>
<td>70%</td>
</tr>
<tr>
<td>£25,000</td>
<td>£31,600</td>
<td>67%</td>
</tr>
<tr>
<td>£40,000</td>
<td>£50,500</td>
<td>60%</td>
</tr>
<tr>
<td>Over £40,000</td>
<td>Over £50,500</td>
<td>50%</td>
</tr>
</tbody>
</table>
We have continued to use these thresholds (uprated in line with growth in average earnings), but it is important to acknowledge their limitations.

Firstly, the earnings bands give rise to discontinuities in the level of retirement income required to reach the thresholds. For example, somebody with earnings of £50,000 (in 2012 terms) would need a retirement income of £50,000 * 60% = £30,000 to meet the target, whereas someone with a slightly higher income of £51,000 would be set a substantially lower target of £51,000 * 50% = £25,500.

Secondly the use of gross incomes, while it simplifies calculations and reduces the data requirements, means that the link to consumption and living standards is not as strong as would be ideal, and that the impact of changes in the tax, National Insurance and benefit environment will not always be captured.

**Previous estimates of number of undersavers by Pensions Commission**

The Pensions Commission arrived at an estimate that 9.6 million, or 60% of people aged over 35 and in work were undersaving.\(^1\)

Based on simple assumptions about life time earnings and savings behaviour, the Pensions Commission derived for each earnings band and age group the percentage of gross earnings that would need to be saved from age 35 to State Pension Age in order to meet the replacement rate targets.

The number of people saving less than this was then estimated from cross-sectional data, primarily the 2002/03 Family Resources Survey.

This was truly a measure of under-saving in the sense that it was an estimate of the numbers currently in work and either not saving, or saving below a given rate, with the required rate informed by the replacement rate thresholds discussed above.

However, with the available data, the required rates of saving had to be based on several simplifying assumptions, including that people worked and saved throughout their lives and accrued full State Pension rights.

The Pensions Commission presented this estimate as being ‘the minimum number of people under-saving in pensions’, and stated their intention to ‘develop a more realistic model, building on the Pensim2 model being developed within DWP, and drawing on data on the stock of accumulated pension saving being developed from the English Longitudinal Study of Ageing Survey.’\(^1\)

In 2005, the Institute for Fiscal studies achieved the second part of this, presenting a detailed analysis of projected replacement rates for people soon to retire using the 2002/03 wave of the English Longitudinal Study of Ageing (ELSA).


\(^2\) A simplified version of this approach is used by Scottish Widows in their regularly updated index. Based on responses to their own survey they regard as under-saving anybody who is not in a Defined Benefit scheme and is making total pensions contributions below 12% of salary.
Previous estimates by the Institute for Fiscal Studies

The 2005 IFS paper ‘Prepared for Retirement? The adequacy and distribution of retirement resources in England’ used ELSA data on the earnings, pension rights, and financial and housing wealth of people aged from 50 to State Pension Age in England in 2002/03 to produce estimates of the proportion of pensioners who would face replacement rates below the Pensions Commission thresholds.

As ELSA has information on accumulated pension rights and expected retirement ages, this analysis was able to build up a more informed picture of the replacement rates that would be achieved by people retiring through to the mid-2010s. The IFS were also able to look at the potential impact of housing and non-pension financial wealth on replacement rates.

Their key results, which were the starting point for this new analysis, are presented below.

Figure 2: Institute for Fiscal Studies estimates of the percentage of individuals in families with employment income predicted to have replacement rate below Pensions Commission benchmark when they reach State Pension Age

<table>
<thead>
<tr>
<th></th>
<th>Retire in 2002</th>
<th>Probabilistic selection of working to SPA</th>
<th>Work to SPA if currently working</th>
<th>Work to SPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pension wealth only</td>
<td>46.0</td>
<td>38.8</td>
<td>26.1</td>
<td>25.3</td>
</tr>
<tr>
<td>Non-housing wealth</td>
<td>35.1</td>
<td>29.1</td>
<td>18.5</td>
<td>17.8</td>
</tr>
<tr>
<td>Total wealth</td>
<td>23.1</td>
<td>18.3</td>
<td>10.5</td>
<td>10.0</td>
</tr>
<tr>
<td>Total wealth plus expected inheritances</td>
<td>20.8</td>
<td>16.2</td>
<td>9.0</td>
<td>8.7</td>
</tr>
<tr>
<td>Total wealth plus expected inheritances plus Pension Credit</td>
<td>16.5</td>
<td>12.6</td>
<td>7.4</td>
<td>7.3</td>
</tr>
</tbody>
</table>

Sample size=3,605

The rows show different measures of retirement resources starting with an assessment based only on pension income. The non-housing wealth version brings in other financial wealth on the assumption that it can all be turned into annuitised income, and the ‘total wealth’ version includes a notional income based on annuitisation of half of net housing wealth. The columns work through different assumptions about when people retire, starting with the extreme assumption that they all retire immediately. The probabilistic version in column two is based on reported likelihood from the survey respondents themselves.

These estimates are substantially lower than those arrived at by the Pensions Commission.

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3 Figure 2 simply reproduces table 6.4 of the IFS publication
This is partly because the IFS assessed replacement rates on a family unit basis, which reduces the estimated prevalence of low replacement rates, as some people with poor individual pension provision will have wealthier partners. Couples will also have higher combined incomes, so tend to be subject to lower replacement rate thresholds under the Pensions Commission framework set out above. The fact that the analysis was restricted to older workers from a generation with relatively good pensions outcomes may also be a factor.

Note that although ELSA is a longitudinal survey, at this point only the first wave was available, so the analysis itself was cross-sectional and based on comparison of reported earnings to modelled pension income. Assumptions still had to be made about individuals’ past and future earnings and National Insurance Contributions, and people not currently in work had to be excluded.

The analysis was also restricted to a fairly narrow cohort of imminent retirees as ELSA only covers people aged over 50. The results of this analysis were extrapolated by DWP to give an estimate of 7 million undersavers aged between 25 and State Pension Age in the 2006 White Paper “Security in Retirement”, but a measure based on those who are about to retire is of limited use in assessing and responding to future challenges.

Other than shorter term decisions on uprating, the impact of pensions policy and changes in savings behaviour will tend to have a full effect on replacement rates only in the long term, and people who are about to retire will have built up their pension entitlement in a different environment than the one facing today’s younger workers.

The need to capture the future implications of current pension policy for younger workers without standardised assumptions about their future earnings and saving leads us to a dynamic micro-simulation approach.

**Micro-simulation and Pensim2**

Pensim2 is one of the Department for Work and Pensions’ in-house micro-simulation models.

The current edition uses a synthetic base data set of 60,000 individuals, based primarily a fusion of survey (e.g. Family Resources Survey, British Household Panel Survey) and administrative data, representing the population of Great Britain in 2006/07.

The model simulates mortality, education, labour market, fertility, partnership, pensions saving for each individual on an annual basis.

Non-pensions processes and macro-economic assumptions are generally constrained to be consistent with the relevant projections of population, mortality, employment, inflation etc from the relevant bodies (eg Offices for Budget Responsibility and National Statistics).

Given these constraints, the simulation of State Pension entitlement can be modelled in a fairly mechanistic way, as other than individual decisions to ‘Contract Out’ of
Additional Pension, entitlement is almost entirely determined by an individual’s labour market status over their lifetime.

The simulated accumulation of private pension entitlement relies more heavily on DWP’s own assumptions about savings behaviour, investment returns and the shift away from Defined Benefit schemes.

While any results based on this approach will be highly dependent on these external projections and internal assumptions, there are similar issues with the earlier approaches described above (though these tend to have simplifying assumptions about how individuals behave over their lifetime rather than assumptions about trends in aggregate measures).

The micro-simulation approach allows us to extend the scope of the analysis to younger workers, even where they are not currently saving. It also generates a rich distribution of different work histories and lifetime earnings profiles.

The simulated longitudinal micro-data creates the opportunity to revisit the definition of the replacement rate and consider measures of lifetime income rather than just looking at income immediately before and after retirement. This means that outcomes for people with patchier work histories can be included, whereas an approach based on cross-sectional data will usually have to exclude any survey respondents who are out of work.

**Revised measures of income in work and retirement**

Our modified approach to the numerator and denominator in the replacement rate calculation is as follows.

All incomes, whether earnings or pensions are put into constant earnings terms (i.e deflated in line with the Average Earnings Index).

For an individual, the measure of working age income is taken as the average of any positive gross earnings from age 50 to State Pension Age. This has the advantage of including individuals with patchier work histories who would have to be excluded from a cross-sectional analysis.

An alternative would have been to look at average earnings over the whole working life, but we decided that in order to capture the change in living standards at retirement the measure needed to reflect income closer to retirement rather than over the whole life. This approach would also have presented some difficulties in modelling individuals who are near retirement at the start of the simulation, as the model does not hold information on their earlier work history.

For an individual, the measure of retirement income is taken as the average of all pensions and annuity income from State Pension Age through to death, plus an estimate of potential income from non-pension financial wealth.
This excludes any income from other benefits (e.g. Pension Credit, Housing Benefit, Council Tax Benefit), or from other forms of non-financial wealth (most obviously housing).

The financial wealth component is not modelled within the micro-simulation. Instead we generate a distribution of financial wealth for each cohort at State Pension Age derived from the first wave of the Wealth and Assets Survey. This distribution is assumed to remain fixed in constant earnings terms. This wealth is then treated as providing a flat annuity income from State Pension Age to death. While people will not necessarily annuitise their wealth in this way, it should give a reasonable view of the contribution of other financial wealth to living standards over retirement.

Any pension income claimed before State Pension Age, and any earnings beyond State Pension Age are excluded from both measures.

**Revised derivation of replacement rates and adequacy**

We assess the adequacy of retirement income using the Pensions Commission thresholds discussed earlier. This is simple in principle, with the replacement rate derived by comparing the working and retirement income measures described above, and people whose replacement rate is below the relevant Pensions Commission benchmark contributing to the count of people facing inadequate retirement incomes.

In practice, there are two areas of complication. The first is in translating the Pensions Commission thresholds to a model where pension income is both deflated to real earnings terms and averaged across retirement. The second is in how couples are treated, particularly where they reach pension age at different points or where one partner lives for significantly longer than the other.

If unadjusted Pensions Commissions thresholds are used with replacement rates which are based on an average income over the whole of retirement in real earnings terms, then we are setting a very high bar for the assessment of whether incomes are adequate. In order to achieve the target a pensioner would need to have an income stream equivalent to meeting the replacement rate target in the first year of retirement and then having their income grow as fast as average earnings each year.

This is clearly unrealistic for anybody with income other than Basic State Pension, as indexation of other income sources will tend to be no better than Retail Price Index inflation (and in future is more likely to be in line with consumer prices). This means an unadjusted target would effectively be asking for a higher initial replacement rate, and would set a higher bar for individuals who are simulated as living longer. Also, it probably makes more sense to regard the replacement rate target as being about matching a level of consumption from working life, rather than keeping pace with earnings growth amongst future generations.

To deal with this the adequacy threshold is adjusted, so that we require people to achieve a stream of retirement income equivalent to matching the Pensions Commission threshold in the first year of retirement, then uprating this income by CPI over retirement. In constant earnings terms, this means that the required pension income falls slightly over time.
For a single individual, this adjustment is relatively simple. To calculate the total target income over retirement, we first define \( T \) as being their working age income multiplied by the Pensions Commission target replacement rate, expressed in base year earning terms (2012 in our headline calculation). Inflation in post-retirement year \( j \) is \( X_j\% \) and growth in average earnings in year \( j \) is \( Y_j \); the individual lives \( n \) years of post-SPA life.

Then the total target income over retirement, \( Y \), can be calculated as set out in equation 1 below.

\[
Y = T \left[ 1 + \sum_{j=1}^{n} \frac{\prod_{a=1}^{j}(1 + X_a)}{\prod_{a=1}^{j}(1 + Y_a)} \right]
\]

Where the assumed annual inflation series is constant, this can be simplified considerably, and is dependent only on \( n \) the number of years of retirement.

For each individual, we assess replacement rates and adequacy on a family unit basis, looking at the family unit they are in at the point they reach State Pension Age. This means that most people are assessed on the basis of the combined income of a couple, which is slightly more complicated.

To assess the adequacy of retirement income for a couple we take the following steps. Firstly, set an unadjusted target for average retirement income similarly to \( T \) above, by summing the average working age incomes of both members of the couple, i.e \( T = T_1 + T_2 \). Then apportion half of this total target to each member of the couple before making a similar adjustment as in equation 1. This gives a total target income stream \( Y = Y_1 + Y_2 \) where \( Y_i \) is defined in equation 2 below. This just applies the same adjustment as equation 1, starting from half of the combined target income, and using \( n(i) \), the years of life in retirement for member \( i \) of the couple.

\[
Y_i = 0.5T \left[ 1 + \sum_{j=1}^{n(i)} \frac{\prod_{a=1}^{j}(1 + X_a)}{\prod_{a=1}^{j}(1 + Y_a)} \right]
\]

This method effectively requires a couple to have only half of the unadjusted target pension income in any year in which one member is either dead or has not yet reached pension age.
As the Pensions Commission income bands were originally set for individuals, assessment on a family unit basis also means that most people are assessed as being in the higher income bands, with lower target replacement rates\(^4\).

Note that where someone separates or is widowed before reaching State Pension Age they are assessed only on the basis of their individual income. This also applies to individuals who are working age at the start of the simulation but have a partner who is over state pension age, as the simulation does not contain details of the partner’s pre-retirement earnings.

**Macro-economic and policy assumptions**

The macro-economic assumptions in the version of Pensim2 used for this analysis are consistent with Office for Budget Responsibility projections as at Budget 2012.

**Figure 3: Long term inflation assumptions**

<table>
<thead>
<tr>
<th>Index</th>
<th>Long term assumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Prices Index</td>
<td>2% annual growth</td>
</tr>
<tr>
<td>Retail Prices Index</td>
<td>3.2% annual growth</td>
</tr>
<tr>
<td>Average Earnings Index</td>
<td>4.75% annual growth</td>
</tr>
</tbody>
</table>

The modelled policy environment includes the 2010 reforms to State Pension and the equalisation and eventual increase to 68 of State Pension Age. The ‘triple lock’ for uprating of Basic State Pension is assumed to remain in place for the long term (Basic State Pension uprated in line with the highest of prices, earnings, or 2.5%).

It does not include the introduction of auto-enrolment into workplace pensions, the proposed earlier increase of State Pension Age to 67 or the introduction of a Single Tier pension.

The simulation excludes migration. In this context, this is not a significant omission as we are estimating the pension outcomes of current workers.

Mortality rates are consistent with the 2010-based Office for National Statistics projections.

**Other pensions assumptions**

The availability of Defined Benefit schemes to new employees in the private sector is assumed to continue to decline, with no new employees being offered Defined Benefit schemes beyond 2018. Members who joined prior to 2018 will continue to accrue benefits until their membership of the Defined Benefit scheme ceases.

Average fund growth is assumed to be 3.5% above Retail Price Index inflation.

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\(^4\) This is consistent with the approach taken in the analysis set out in figure 2. Later in this paper we look at how our published results would change under a simple adjustment which sets thresholds for couples based on equivalised incomes.
‘Contracting out’ for Defined Contribution schemes ended in April 2012.

Contribution rates for employers and employees are based on those observed in the 2010 Annual Survey of Hours and Earnings (ASHE).

Most private and public sector pensions are assumed to be uprated by CPI inflation once in payment. The modelling of public sector pensions does not yet reflect all of the reforms introduced by the current Government.

Annuityisation of pension pots is based on evidence from the Annuity Bureau, adjusted in line with ONS projections of life expectancy.

**Resulting estimates of numbers facing inadequate retirement incomes**

With the adjusted definition of adequacy and the policy and economic assumptions described above, we have constructed an estimate of the number of today’s workers whose retirement income will fall short of the Pensions Commission thresholds.

The estimates are limited to the population aged 22 to State Pension Age. They also exclude people whose simulated working age income is below the level of the Guarantee Credit, on the basis that means tested benefits will fully replace their working age income regardless of their savings behaviour or state pension entitlement.

**Figure 4: Estimated numbers of individuals aged 22 to State Pension Age in 2012 with inadequate retirement income under Pensions Commission replacement rate targets**

<table>
<thead>
<tr>
<th>Target replacement rate</th>
<th>80%</th>
<th>70%</th>
<th>67%</th>
<th>60%</th>
<th>50%</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income bracket (for family unit, average from age 50 to State Pension Age)</td>
<td>Under £12,000</td>
<td>£12,000-£22,100</td>
<td>£22,100-£31,600</td>
<td>£31,600-£50,500</td>
<td>Over £50,500</td>
<td>All</td>
</tr>
<tr>
<td>Total individuals (millions)</td>
<td>1.3</td>
<td>4.3</td>
<td>4.4</td>
<td>8.9</td>
<td>9.0</td>
<td>27.8</td>
</tr>
<tr>
<td>Number with income below target (millions)</td>
<td>0.1</td>
<td>1.2</td>
<td>1.7</td>
<td>3.4</td>
<td>4.2</td>
<td>10.7</td>
</tr>
<tr>
<td>Percentage with income below target</td>
<td>11%</td>
<td>29%</td>
<td>39%</td>
<td>39%</td>
<td>47%</td>
<td>38%</td>
</tr>
</tbody>
</table>

Notes:
1. Estimates are in millions, rounded to nearest 0.1 million

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2. Income brackets are in constant terms relative to average earnings in 2012/13. Couples are placed in the income bracket reflecting their combined income.

3. Estimates are for Great Britain

4. Estimates exclude around 1.6m people for whom the measure of working age income is below the level of the Guarantee Credit

**Comparison to previous analysis**

This estimate is considerably lower in percentage terms than the first Pensions Commission version discussed earlier. It also shows different characteristics, with a larger proportion of the higher income bands being at risk, whereas the Pensions Commission found the opposite. This may be partly because our analysis looks at the combined income of couples, but may also reflect that our measure of working age income is based on micro-simulation of earnings nearer to retirement, rather than current earnings. Pensions saving may be lower during a period of lower income.

The most comparable figure from the IFS analysis (as set out in Figure 2) is probably the version which includes non-housing wealth and uses a probabilistic retirement assumption. This gave a figure of 29%, which is around a quarter lower than the 38% overall estimate in Figure 4.

There could be many factors driving this difference. For example, the IFS analysis was limited to older people who were in work, and had to assume that they had full work histories and state pension entitlements leading up to 2002/03. This will have tended to exclude some people with patchy labour market activity and to overstate the state pension income of others. This is not necessarily always an advantage of our approach, as it could be argued that high replacement rates will be very difficult to achieve, and are perhaps not an advisable aim for people who spend a large part of their lives out of work.

Changes in the pensions landscape (e.g. less availability of Defined Benefit schemes), demographics (e.g. rising life expectancy leading to lower annuity rates) and the economy (e.g. poor recent fund growth) may also play a part to varying extents.

There are factors working in the other direction too. For instance, a high earner who chose to retire on a modest income in their mid-fifties would tend to be excluded in the IFS approach, but under our method they could be set a relatively high adequacy threshold based on their earnings during their early fifties and flagged as having an inadequate retirement income.
Further analysis of published results

In this section we look at breakdowns of the 10.7 million estimate presented in figure 4, by age and current earnings (as opposed to the measure of projected earnings used to set the replacement rate thresholds). No gender split is presented, as most people are assessed on the basis of joint couple income at retirement.

Figure 5 shows the breakdown by current earnings. Note that this is based on a simulation of the labour market in 2012, starting from base data which represents 2006, and presents the earnings of individuals rather than family units.

Figure 6 shows the same individuals as a proportion of the population aged 22 to State Pension Age in each earnings bracket. Both charts exclude people who are simulated as earning less than the level of the Guarantee Credit in the run-up to retirement, but still include large numbers of people who currently have zero earnings. This includes people simulated as being unemployed, in education, caring, incapacitated or otherwise inactive in 2012.

Figure 5: Breakdown of estimate by current individual earnings

Breakdown of 10.7m estimate by modelled earnings in 2012
Figure 6: Estimated proportion facing inadequate retirement income, by individual earnings in 2012

Figure 5 is not very informative, but does show us that while many of our ‘undersavers’ are placed in the higher income groups in Figure 4, the majority do not fall within the top income groups on the basis of their current individual income.

Figure 6 shows a relatively smooth gradation with people on lower current incomes less likely to fall short of the replacement rate thresholds.

Figures 7 and 8 present a similar breakdown, by the age of individuals in 2012. Note that the 60-64 age group largely consists of men, as we are only two years into the equalisation of State Pension Age.

Figure 7: Breakdown of estimate by current age
Figure 8: Estimated proportion facing inadequate retirement income, by individual earnings in 2012

This perhaps shows surprisingly little variation between cohorts given that younger cohorts have less access to Defined Benefit schemes and will live longer. These may be offset by other factors such as people working longer and having easier access to full Basic State Pension. More generous uprating of Basic State Pension (which is assumed to be ‘triple locked’) will also be a factor; for older workers, the Basic State Pension will have risen only in line with prices over a large part of their working lives.

This lack of variation also points up the difference between the micro-simulation approach and cross-sectional methods in that younger workers who are not currently saving do not have to be either excluded from the analysis or treated as facing inadequate incomes because they have not yet started saving.

**Impact of equivalisation**

As seen in Figure 4, the use of the Pensions Commission income bands, designed for individual earnings means that couples tend to be placed in the higher earnings bands and set a relatively low replacement rate target.

An alternative approach is to place couples in the income band determined by their equivalised individual income. Under the modified OECD equivalisation scale, a single person is regarded as having the same living standards as a couple with one and a half times as much income. This can be adjusted for simply by setting separate income bands for couples at one and a half times the original Pensions Commission levels.

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6 Using the Before Housing Costs version, and ignoring children as few pensioners have dependent children.
Figure 9: Equivalised income bands

<table>
<thead>
<tr>
<th>Income band for singles in 2012 terms</th>
<th>Equivalised income band for combined income of couple, in 2012 terms</th>
<th>Target replacement rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than £12,000</td>
<td>Less than £18,000</td>
<td>80%</td>
</tr>
<tr>
<td>£12,000 - £22,100</td>
<td>£18,000 - £33,100</td>
<td>70%</td>
</tr>
<tr>
<td>£22,100 - £31,600</td>
<td>£33,100 - £47,300</td>
<td>67%</td>
</tr>
<tr>
<td>£31,600 - £50,500</td>
<td>£47,300 - £75,800</td>
<td>60%</td>
</tr>
<tr>
<td>Over £50,500</td>
<td>Over £75,800</td>
<td>50%</td>
</tr>
</tbody>
</table>

Figure 10: Impact of equivalisation on estimate and distribution across income bands

<table>
<thead>
<tr>
<th>Replacement rate threshold</th>
<th>80%</th>
<th>70%</th>
<th>67%</th>
<th>60%</th>
<th>50%</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (millions)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Original</td>
<td>1.3</td>
<td>4.3</td>
<td>4.4</td>
<td>8.9</td>
<td>9.0</td>
<td>27.8</td>
</tr>
<tr>
<td>Equivalised</td>
<td>1.8</td>
<td>6.5</td>
<td>7.3</td>
<td>9.1</td>
<td>3.1</td>
<td>27.8</td>
</tr>
<tr>
<td>Number facing inadequate income (millions)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Original</td>
<td>0.14</td>
<td>1.2</td>
<td>1.7</td>
<td>3.4</td>
<td>4.2</td>
<td>10.7</td>
</tr>
<tr>
<td>Equivalised</td>
<td>0.15</td>
<td>1.6</td>
<td>3.6</td>
<td>5.7</td>
<td>2.1</td>
<td>13.1</td>
</tr>
<tr>
<td>Percentage facing inadequate income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Original</td>
<td>11%</td>
<td>29%</td>
<td>39%</td>
<td>39%</td>
<td>47%</td>
<td>38%</td>
</tr>
<tr>
<td>Equivalised</td>
<td>8%</td>
<td>25%</td>
<td>50%</td>
<td>62%</td>
<td>66%</td>
<td>47%</td>
</tr>
</tbody>
</table>

This shows a more balanced spread of individuals across the different replacement rate thresholds, with most people now in the middle three bands. It gives an overall higher number and proportion of people now estimated to fall short of the targets, but with a lower proportion amongst the lower two bands, which before equivalisation consisted mainly of low income single people.

Potential future developments

In future this analysis may be developed in several ways.

The scope could be extended to include an estimate of the impact of housing wealth (as seen in Figure 2, the IFS found that if pensioners were assumed to be able to liquidate half of their housing wealth, the number facing inadequate incomes was significantly lower). The same estimate can be reproduced for different policy or economic scenarios; for example differing levels of response to auto-enrolment, or the introduction of a Single Tier pension.

The working age and retirement income measures could be refined to give a better treatment of the outcomes for people working past State Pension Age or retiring early.
References


