Squeezed in Retirement
The Future of Middle Britain

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Contents

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Executive Summary

A distinctly UK problem

Provision for income in retirement remains a huge challenge for individuals, families and policy-makers. Although the topic has been much discussed, the debate on the new Pensions Bill in the UK offers an appropriate opportunity to reflect on the future of such provision, and perhaps to draw out lessons for other countries.

The UK is unique among developed economies in the degree of ongoing experimentation in its pension system. Through a series of reforms over two decades it has avoided the fiscal challenge of promising generous state pensions to a growing old-age population. The current Pensions Bill, by raising the state pension age and expanding enrolment in workplace pension schemes, should further contribute to the system's sustainability.

However, the UK has a relatively low level of state pension provision, and unlike in other European countries, the responsibility for personal financial planning and saving for retirement falls on individuals and households. Even if the UK is unlikely to face a crisis in its pensions system, therefore, future pensioners themselves are likely to be confronted by a crisis of expectations and a 'squeeze' in income. Because of low savings rates, middle class households may lack sufficient financial resources in retirement and could experience a considerable drop in their income. As a result, they may be unable to maintain the lifestyle they enjoyed during their working years, one which they may have expected to continue enjoying in retirement. Some may even slip into poverty.

A squeeze on the middle classes in retirement

This Chatham House Report takes a fresh look at how people in the UK save for their retirement and highlights the threat of a mismatch between individuals' savings behaviour and expectations regarding their future lifestyle. If people expect to maintain their lifestyle in retirement – with only marginal adjustments – the report's assessment of future incomes suggests that many from the middle class, middle income groups will be very disappointed.

By projecting retirement incomes forward to 2050, the report shows that the UK's middle class will face an acute 'squeeze' during retirement. This situation is likely to worsen over the coming decades as the shift from defined benefit (DB) to defined contribution (DC) pension schemes reduces the generosity of pension payments schemes. Furthermore, the recent recession has highlighted how vulnerable wealth and pension funds are to economic shocks and reduced annuity conversion rates. Such risks only add to the uncertainty over the benefits to be gained from increased lifetime savings, discouraging already reluctant savers.

This report finds that approximately 15 million UK households in the middle income groups – those with incomes today of between approximately £18,000 and £44,000 – risk a reduction in their income of almost 60% when they retire. Across the UK, 60% of the population – those individuals with incomes today of up to £33,000 – will be reliant on the state pension for more than 50% of their retirement income. And around 10 million households, the poorest 40%, risk having to live mostly off state pension provision that only just provides a minimum standard of living.

The report also finds that the squeezed middle is most at risk from specific macro-economic risk scenarios, including the impact of low bond yields, low house price growth and an accelerated shift out of DB pension scheme membership. In the worst case scenario in which all the risk factors come into play, the middle classes as well as the highest income group would all see their retirement income drop by over 10% by 2050 from the base-case scenario.

The overall scale of the drop in incomes and the potential for dashed expectations about the quality of life in retirement raise the spectre of future political as well as fiscal pressures. Certainly, people can adapt to changing, and adverse, circumstances and modify their expectations. However, a large group of impoverished pensioners could bring significant political pressure to bear on government and increase the prospect of some form of intervention.

But it is not too late to adjust and save

The report suggests that there is a window of opportunity for public policies not only to adjust people's expectations *vis-à-vis* their retirement incomes, but even to persuade them to take the necessary action in order to reduce their savings gap.

If middle class households were to make a significant, but not over-burdensome, increase in their savings – an extra 10% of income between the ages of 45 and 64 – this could substantially boost retirement incomes. Enhancing savings provision in this way could begin to turn around the prospects for adequate retirement income within a relatively short time-frame. However, for middle class, middle income households, the opportunity cost of saving is high. This means that policy measures must be designed to reduce the risks, uncertainties and costs of saving for the long term.

The report's analysis offers several policy options and recommendations:

Government incentives to save. Instead of the current incentives to save through tax relief, the government could offer matching contributions. As a genuine subsidy to savings rather than a deferment of tax payments (as with tax relief on contributions), this would make savings more affordable.

Increasing flexibility. Improving the flexibility of pension schemes can also provide an incentive for households to make pension savings. For younger households, linking pension schemes to Individual Savings Accounts (ISAs) would allow savings to remain in flexible accounts. The

Canadian Registered Retirement Savings Plan, which allows for limited withdrawal of savings for expenditure on housing and education, may provide a useful example for UK policy-makers.

Simplifying savings decisions and access to financial advice. The UK's pension system is complex and poorly understood, particularly by low to middle income households. Simplifying the decision-making process through further automation and streamlining of savings decisions would reduce the opportunity cost of obtaining information and processing the advantages of various savings plans. Pension funds could become better aligned with banks, for example, by making it possible to check pension fund status online and make changes to such plans, in the same way that bank accounts can now be accessed online. This would make it easier to transfer surplus financial savings into a pension fund or to change investments within pension funds. Improving access to financial advice should also be a priority and it is not clear whether the government's proposed annual family financial health check under the Consumer Education Financial Body (announced in the June 2010 Budget and due to start in spring 2011) will be sufficient.

Guaranteeing annuity rates. As the recent fall in annuity rates has demonstrated, savers face considerable uncertainty about the conversion of pension savings into future incomes; they cannot be sure what income to expect. This factor is exacerbated by the shift away from DB schemes – which, by their nature, offer certain returns – towards DC schemes. If households were assured about the annuity rates they would be facing at the point of retirement, through guaranteed annuity conversion rates, this would provide an incentive to make further savings into private pension schemes. Policy-makers should investigate the feasibility of such guarantees.

Apart from increasing savings, the 'squeeze' on middle Britain in retirement can be mitigated by:

Reforming the state pension. Simplifying the state pension into a universal flat-rate benefit would capture many low

income households (which might otherwise not qualify for full entitlement) and also enable households to make savings decisions that appropriately reflect their expectations for retirement.

Working for longer. The state pension age is already being raised incrementally. However, there is a strong case for arguing that the current upper limit should be raised from 68 to 70. Our model indicates that if retirement is deferred to 70, retirement incomes could be some 5% higher than in the base-case scenario by 2050. This would help to close the middle income group's retirement income gap, reducing its vulnerability to risk and boosting pension incomes through extra earnings from employment as well as a larger property wealth back-up.

Providing incentives for later retirement will require changes to labour market policies. These could include lower income tax rates for people in employment beyond the state pension age and encouraging flexible working patterns and particular career choices that support later retirement.

1. Introduction

Will the UK experience a crisis in its middle class at the time of retirement? This report argues that middle class households in the UK face an acute risk of a considerable drop in their income on retirement. As a result they will be unable to maintain the lifestyle they enjoyed during their working years and expect to continue enjoying in retirement. Some may even slip to poverty level.

How to provide for and fund income in retirement is one of the major challenges for individuals, families and policy-makers in the coming decade. It is hardly a new topic for discussion. Many studies and policy reports have been published in the last couple of decades, especially in Europe, on the future of pension provision,[1] yet this continues to pose a challenge. The focus of these studies has mainly been on the impact of increasing longevity, demographic imbalances and the costs of providing defined benefit (DB) pensions.

However, the UK presents a rather specific set of challenges. In fact, the demographic pressures of the so-called baby-boomer generation[2] are relatively modest compared to countries such as Germany, Italy and Japan. Unlike in these countries, state pension provisions do not imply a heavy fiscal burden as they are comparatively modest; they are enough to provide basic retirement income but no more. Moreover, the UK was among the first developed countries to take on board OECD advice to introduce a greater private component for pension provision. Personal pension schemes were introduced in 1988 and stakeholder pension schemes started in 2001. The UK is unique among developed economies in the degree of ongoing experimentation in its pension system – although arguably this has created unnecessary uncertainty and complexity.

As a result of these changes the UK state pensions system may be sustainable from the point of view of public finances. Further moves towards improving its viability are under way in the current Pensions Bill with policies to increase the state pension age and expand enrolment in workplace pension schemes. Moreover, the government's intention to further reform the state pension to meet the key policy objectives of simplicity and fairness is likely to be linked to transforming state pension provision into a universal (non-means-tested) flat-rate benefit in the near future. Such a policy would be likely to raise the level of pensions that households are entitled to, keeping low income households out of poverty.

But even if the UK is unlikely to experience a pension crisis, many middle class households look set to experience a considerable drop in their retirement income which will force them to considerably adjust their lifestyles and even to rely on social benefits. Low savings rates, especially across the generations approaching retirement age,[3] the shift in workplace pension scheme membership away from DB to DC schemes and the extremely low annuity rates currently on offer (in part linked to the drop in bond yields since the beginning of the financial crisis but also affected by expectations of increasing longevity) all suggest that people may not have sufficient financial resources to support the lifestyle they were used to during their working lives and expect to continue in retirement.

The issue therefore is not whether the old-age population will be living on a 'cat food diet', nor whether the system will cope, but whether there is an expectations mismatch. Basic needs are likely to be covered by the state pension. But will this be what middle Britain expects to retire on? Probably not. Most people expect to maintain a level close to their

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1   Such as in the Turner Report (2004). The Turner Report is the common name for the report published by the Pensions Commission (2004), chaired by Lord Turner – any references to the Turner Report refer to this. Also see McMorrow and Roeger (2002).

2   'Baby boomers' are individuals born in the two decades after the Second World War, from 1946 to 1964. While those born in the late 1940s have already retired or will retire soon, it will take about two decades for the whole group to move out of the labour force.

3   The household savings ratio in the UK declined from around 12% of disposable income in the early 1990s to 2% in 2008.

Box 1.1: An overview of the UK's pension system

The UK's pension system is composed of both state and private pension provision. This box outlines the current system while Box 2.1 provides an overview of already legislated changes to the system.

State pension

The core of the state scheme is the Basic State Pension (BSP). This is funded on a 'pay as you go' basis from workers' national insurance contributions and general taxation. The BSP is a flat-rate pension paid out on the basis of the number of years of qualifying national insurance contributions.[a]

In 2010/11, the full BSP is £97.65 per week for single pensioners and £156.15 for couples. The BSP is available from the state pension age (SPA). This is currently 65 for males; for females it was 60 but has started rising from April 2010 and will be equalized at 65 in November 2018. As outlined in the government's October 2010 Comprehensive Spending Review, the SPA will rise to 66 in 2020. For people reaching SPA before 6 April 2010, males required 44 qualifying years and females 39 years to receive the full BSP, while thereafter they need only 30 years.

On top of the BSP, for employees there is also state provision of an earnings-related pension, the State Second Pension (S2P). In 2002, this replaced the State Earnings Related Pensions Scheme (SERPS), which had been in force since 1978. Benefits in the S2P/SERPS are accrued according to a proportion of earnings.[b] Individuals who are members of a pension scheme that is expected to provide better benefits than S2P can 'contract out' – that is, they can forgo S2P benefits while making lower national insurance contributions.

Alongside the main state pension provisions, there are a number of means tested benefits that maintain retirement incomes. Key among these is Pension Credit, which has two components. The first is Guarantee Credit which provides a minimum income safety net, currently £132.60 per week for single pensioners and £202.40 for couples. The second is Savings Credit, which aims to ensure that households with savings for private pension income will not be worse off than households with no savings. Other important state benefits for retired households include Council Tax Benefit and Housing Benefit.

Private pension

Private pension provision in the UK can take the form of either a workplace scheme or an individual personal scheme.

Traditionally, workplace schemes have tended to be DB schemes, whereby benefits are paid according to a formula generally based on the number of years of service and the salary (usually at or near retirement). Contributions to the pension scheme are paid by employers and vary in line with the performance of the pension fund's investments and obligations.

However, given the risks in providing such pension schemes, DB schemes (in the private sector, less so in the public sector) are closing at a rapid pace and employees are generally being enrolled into workplace DC schemes. Here, employees contribute a defined proportion of their salary to their pension fund, typically alongside an employer contribution, while the pension income this generates depends both on the investment performance of the pension fund and the annuity conversion rate upon retirement.

DB schemes are 'trust-based'; that is, they operate via a trust established by the employer to receive contributions and pay benefits to employees, as overseen by appointed trustees. Workplace pension schemes can also be 'contract-based' where the policy-holder has a direct contract with the provider (such as group personal pension schemes and stakeholder pensions).

Non-workplace pension schemes have been available in the UK since 1988 and operate on a contract basis. Individuals open a pension plan with a pension provider and make contributions which are annuitized upon retirement. The majority of these are stakeholder pension schemes, introduced in 2001.

Taxation

Pension schemes are tax-privileged. Contributions to pension schemes receive the basic rate of tax relief while returns on pension fund investments are not liable to taxation. However, pension income is taxed at the basic rate (although the tax-free income allowance is higher for older households than for working age households).

Furthermore, upon retirement up to 25% of a pension fund can be taken in the form of a tax-free lump sum.

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a   Credits for the BSP can also be accrued by those receiving child benefit, carer's allowance or disability allowance, and by those unemployed and actively seeking work

b   There is a significant flat-rate component to S2P accrual which benefits lower earners. The earnings-related component of S2P will decline following the Pensions Act of 2007, and it is expected to become entirely flat-rate by 2030

pre-retirement lifestyle during retirement. However, if retirement incomes prove to be substantially lower than pre-retirement levels, will middle class individuals and households have to scale down their expectations and adapt to a less comfortable life in retirement?

By focusing on the income that households are expected to generate in retirement on the basis of their cumulated wealth and entitlements, disaggregated by income group and age cohort, this report offers a distinct perspective on the pensions debate, reflecting recent trends and changes in the pension system. Through this methodology, it aims to contribute to a better understanding of the impact of economic conditions, saving patterns and individual preferences on final retirement incomes. Indeed, one of the key goals of the report is to identify which segments of the UK population are likely to struggle to meet an adequate income replacement rate in the future under stable economic trends as well as under more adverse conditions.

More specifically, the report examines how much different income groups save, in which periods of their life-cycle, and how consumption (and in turn savings) choices change at different points within the life-cycle. The research results are also tested under alternative, more adverse, background assumptions. Additional risk factors are included in the analysis to ascertain whether forecasts for retirement incomes are less secure than they may appear.

The decisions whether to save and how much to save, of course, are a matter of personal choice, based on individual constraints, preferences and expectations. In addition, there is a high voluntary component to the current UK pensions system whereby private pensions cumulate via contributions – by the employer or the employee, or both. Proposals for state pension reform may reinforce the voluntary character of the system. Though households under such a system will have their basic needs met, they will be expected to take care of themselves if they aspire to achieve better standards of living.

In the report we stress the voluntary aspect of savings and investing for the future, but we also raise the issue of whether any future government will be able to ignore the disappointment and discontent of middle class households that will find themselves 'squeezed' in retirement. Will disgruntled pensioners need to be 'bailed out'? In the report we offer an estimate of how many middle class households are at risk of being 'squeezed' in retirement, suggesting that their savings deficit could become a pressing political issue.

This report therefore addresses the issue of policy responses in the light of the implications of savings behaviour and wealth formation for retirement living standards. While increasing numbers of people can expect to lead longer and healthier lives, financial security needs

to be improved to enable them to take full advantage of their retirement years – yet more generous funding cannot realistically be provided by state pensions. What is clear is that encouraging more of the working age population to delay consumption and save for a comfortable retirement remains a challenge for policy-makers and pension providers. How can public policies induce such behaviour among key segments of the population? Which income groups should be targeted and how? Can the pension industry be encouraged to provide more specific products that address the issue of longevity as well as savers' goals and concerns?

The report is organized as follows. Chapter 2 provides an overview of the methodology adopted to produce forward-looking projections for retirement income and discusses the analytical framework, the dataset and the assumptions used in the framework to derive the base case. Chapter 3 presents the base-case results derived from the analytical framework and discusses the implications for retirement incomes

and replacement rates in some detail. It also assesses a factor that is rather specific to the UK – the potential release of property wealth to generate additional income in retirement. Chapter 4 expands the analysis to examine the impact of worsening conditions at the macroeconomic level on base-case projections of the estimated outcomes for wealth formation and retirement incomes. The purpose is to introduce into the analysis additional risks – persistently low interest rates, low property prices and an accelerated shift in workplace pension schemes – to assess their effect on projected retirement incomes, and to illustrate how a plausible deterioration of the base-case scenario could modify policy targets and augment concerns about particular segments of the population. Finally, Chapter 5 discusses the key policy questions that emerge from the report and looks at policy options for raising retirement incomes. In particular, it assesses the advice to 'save more' and 'work longer' as mitigating strategies, and the policy challenges that they present.

2. Underpinning the Analysis: Methodological Framework, Assumptions and Data Sources

2.1 Behind the HIS model

The research undertaken for this project is based on a proprietary Household Income and Savings (HIS) model, which tracks the development of household earnings, savings and wealth formation in order to determine eventual retirement incomes. This model has been facilitated by the recent initiative of the Office for National Statistics to produce detailed data on household wealth[4]

in the *Wealth and Assets Survey 2006/8* (*WAS*). *WAS* has been used in tandem with existing comprehensive cross-sectional data covering UK household income and pension schemes.[5] This detailed information on wealth accumulation by asset class,[6] the first of its kind, has defined the foundations of the HIS model. The *WAS* data are supplemented by information on the composition of retirement incomes in terms of state and private pensions,[7] as well as a set of macroeconomic variables.[8]

Within the framework provided by the HIS model, incorporating projections for economic trends, estimates are derived for lifetime earnings, consumption, savings and wealth accumulation for working households up to pension age. Then, on the basis of cumulated wealth, the model determines the associated income streams that can be drawn down post-retirement. By adopting a partial equilibrium, top-down approach,[9] the HIS model puts the focus on representative households' differing patterns of savings, wealth accumulation and retirement incomes.

This analytical framework has a number of advantages for investigating household wealth formation and the resulting income stream. First, it uses the *WAS* dataset to incorporate a range of asset classes, including property. This allows identification of the build-up and valuation of wealth by age group and income group, as well as illustrating the patterns of wealth accumulation across different asset classes for each of these groups. Moreover, by selecting and tracking a set of representative households[10] over time, the model allows intertemporal analysis of household consumption and savings patterns,

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4   The methodology and implications of using household rather than individual data are discussed in the Technical Appendix. In a few isolated instances where only individual level data are available, such as pension scheme membership, these have been taken as representative of a household. This will have little effect on the overall analysis as the HIS model only identifies households that are broadly representative (an average) of the population. We note that the household is also the unit used by national statistical agencies when considering issues such as poverty.

5   A discussion of the comparability of *WAS* and other cross-sectional data is included in the Technical Appendix.

6   Covering pension wealth (annuitized DB pension rights and other private pension savings) and also property, financial and physical wealth.

7   Namely, data on retirement incomes in the Department for Work and Pensions' *Households below Average Income (HBAI)* dataset, data on pension scheme membership from *WAS*, and data on pension scheme contributions from the ONS's *Annual Survey of Hours and Earnings (ASHE)*.

8   Wage growth is taken from long-run trends identified in the ONS's *Average Weekly Earnings*, while data for trend inflation, the deposit rate and bond yields are taken from the Bank of England.

9   This means that macroeconomic conditions, such as inflation and employment rates, influence households' incomes, savings, wealth and retirement incomes but the household sector does not feed back into other variables such as investment, trade or inflation – that is, the solution is partial. Some economists (Auerbach and Kotlikoff, 1987; Hviding and Mérette, 1998) have adopted restricted benchmarked general equilibrium models with overlapping generations (OLG). As noted in the Technical Appendix, we consider such models to be outside the scope of the analysis of this report and not essential for bringing out the key characteristics of wealth formation and generation of the various retirement income components.

10   A representative household is defined as a household with the average income and wealth for each quintile and age group. As the model moves forward from 2010 to 2050 and the representative household ages, four new cohorts enter (W, X, Y, Z) and four drop out (E, F, G, H).

the accumulation of household wealth, the switch to retirement income, the drawdown of wealth in retirement and final bequests. Another advantage of the model is that it allows distributional analysis of retired households' sources of income such that overall retirement incomes and potential shortfalls can be identified across income groups. Finally, using a representative household method allows for the interaction of consumption and savings decisions with background macroeconomic parameters.

The HIS model covers the period 2010–50 in order to assess wealth and pension scenarios over an extended time-frame. This period encompasses all of the currently legislated pension system reforms for the UK. Pension policies, unlike other public policies, are exceptionally long-term by nature, are slow to change and have commensurately long-run repercussions. Demographic shifts also occur slowly. Moreover, existing pension funds and entitlements have considerable in-built momentum, implying that the full effects of any adjustments and modifications need a significant time to materialize.

The HIS model is based on a sample of forty representative households, one for each of five income quintiles and eight age cohorts (Figure 2.1). In any year, the whole of the working age and retired population is represented by these forty households, each reflecting the average for its income and age group. Such a simplification reduces the complexity of the model while capturing key variations in household behaviour.[11] Where this may be important for the arguments presented we look in more detail at the disaggregated data, but a greater degree of granularity across the board would be both impractical and unnecessary.

The five income quintiles[12] are described in Tables 2.1 and 2.2. The 1st quintile represents low income and the 5th high income households, while the 2nd, 3rd and 4th quintiles are defined as the middle income group.[13]

Table 2.1 also shows the average income of working age households in each quintile, weighted by the number of households in each age group.

Figure 2.1: Representative households tracked across eight age cohorts and five income groups (2010–50)

Table 2.1: Net income range and average household net income by quintile (£ p.a., 2010 data)

Quintile group	Net income range*	Average household net income	
1st	10–18,000	13,000	→ Low income group
2nd	18,000–25,000	22,000	
3rd	25,000–33,000	29,000	→ Middle income group
4th	33,000–44,000	38,500	
5th	> 44,000	60,500	→ High income group

*Net income range derived from the DWP's *HBAI* dataset, uprated in line with trend earnings in HIS model.
Source: Chatham House estimates based on data from the ONS and Department for Work and Pensions (DWP)

Table 2.2: Number of households, total and per quintile, by age group (2010 data, '000)

Age group	Total households			Households per quintile		
	2010	2030	2050	2010	2030	2050
15–24	970	965	990	195	195	200
25–34	4,000	4,230	4,735	800	850	1,945
35–44	5,030	5,465	5,465	1,005	1,095	1,095
45–54	5,045	4,865	5,205	1,010	975	1,040
55–64	4,315	4,895	5,340	865	980	1,070
65–74	3,320	4,570	4,560	665	915	910
75–84	2,595	3,930	4,705	520	785	940
85+	1,045	2,110	3,650	210	420	730
Total number of households	26,315	31,050	34,650	5,265	6,210	6,930

Note: Household numbers rounded to nearest 5,000. Numbers may not sum to total owing to rounding.
Source: Chatham House estimates based on ONS data

The life-cycle and permanent-income hypotheses, developed by Modigliani and Brumberg (1954) and Friedman (1957) respectively, underpin the analytical structure of the HIS model. According to the life-cycle hypothesis, the expected net present value of lifetime income determines each period's consumption and savings decisions. Consumption and savings decisions are therefore relatively independent of short-run variations in current income and are based on permanent (long-run average) income. This implies that young households, constrained by their lower income, borrow to consume. As their earnings increase and they move to a different stage of their life-cycle, households increase their savings. They will then reduce savings and/or disinvest during retirement. Individuals are assumed to use credit and savings in order to 'smooth'

consumption over the life-cycle. Thus the life-cycle model implies that workers will build up net savings in order to finance continued spending after they retire rather than face a very sharp drop in consumption.

The life-cycle is visible in the savings profiles derived from the *WAS* cross-section data across the age cohorts that are embedded in the HIS model (see Figures A1 and A2 in the Technical Appendix). As savings are a function of income, high income households have higher savings than low income ones and the poorest households may be unable to save at all. It should be noted, however, that the life-cycle profile may appear less prominent when using household level rather than individual level data. This is because households in the youngest age bracket are subject to sample selection bias – such households are dispropor-

tionately high income, high savings households that also benefit from bequests.[14]

Savings feed into wealth accumulation, which also benefits from revaluation effects depending on annual returns on the various asset classes.[15] The different forms of wealth treated in the model follow those identified in *WAS* (Figure 2.2). They are:

- *private pension wealth* (that is workplace or personal pension wealth), estimated as the equivalent annuity value of a household's pension rights as well as the value of private pension funds[16] which are revalued in each period (using the average of long-term bond yields and the total return on equities as a rough proxy for average annual returns);
- *physical wealth* (vehicles, jewellery, etc.) which is all revalued using the consumer price index (CPI) as we make no distinction between types of goods;

- *net financial wealth* (financial assets less outstanding liabilities such as consumer debt) – gross financial wealth is simply revalued in line with savings deposit rates; and
- *net property wealth* (housing assets revalued using property price inflation less outstanding mortgages).

In principle, household financial wealth could be drawn upon or converted into income streams earlier or later in life.[17] In practice, however, the average behaviour pattern of households is to cumulate wealth until retirement and at that point convert this into an income stream.

Retirement income is generated from several sources:

- state provision, which can come from several sources: the BSP, SERPS/S2P and pension credit;
- private pension income, derived from pension funds that are annuitized (such as workplace DC schemes and individual personal pension plans) together with

Figure 2.2: The composition of net household wealth (2010, £)

Note: Chatham House projections follow the methodology described in this report and are based on data from the ONS, the DWP, Nationwide, the Bank of England, Towers Watson and the Office for Budget Responsibility (OBR)

Source: Chatham House projections

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14   The problem of sample selection bias, when using household level data, is discussed in more detail in the Technical Appendix. See Demery and Duck (2006) for a discussion of how household data may dampen the life-cycle savings profile (in particular, by over-estimating savings for younger households and under-estimating savings for households aged 45–60).

15   Simplifying assumptions have to be adopted here, as described below and discussed further in the Technical Appendix.

16   State pension provision is not included in pension wealth as it takes the form of an entitlement and does not reflect a private saving decision or pool of wealth.

17   There are, however, legal constraints on the conversion of pension wealth into income before the agreed age of retirement.

pension income rights accrued from workplace DB schemes;

- income from cumulated financial wealth;

- contributions to income from employment earnings. This affects a small proportion of households aged 65–74, particularly in the high income bracket. DWP earnings data show that some 12% of all households aged 65–74 years have some gainful employment but

this rises to 18% of the high income group;

- property-related income – property wealth can be realized as an income stream through rentals, trading down and schemes such as equity release. However, there is only weak evidence of such drawdowns (mostly among middle income households) and property does not appear to be widely used as a means of generating retirement income.

Figure 2.3: An overview of the HIS model and its key transmission mechanisms
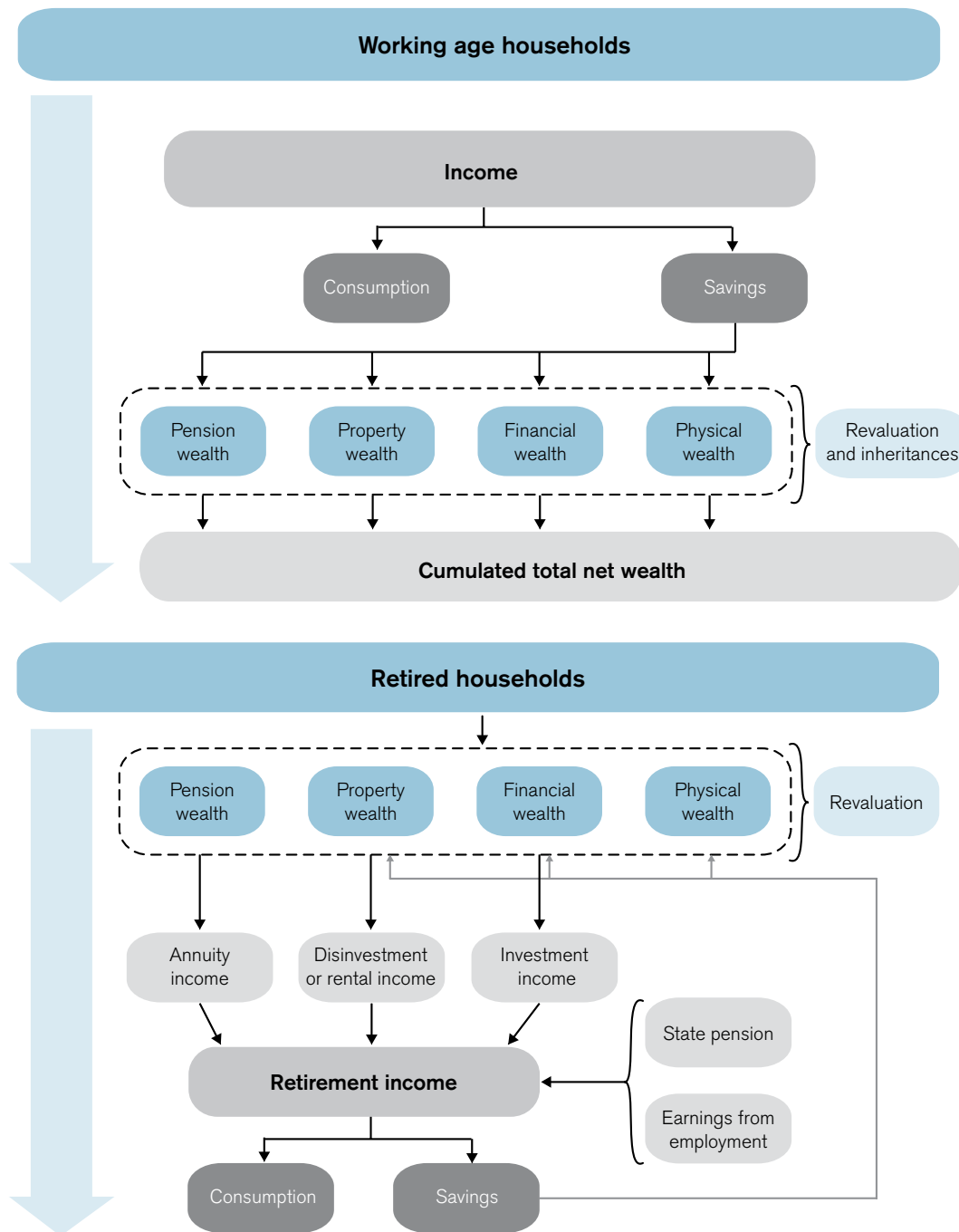
2.2 Rationale and limitations of this methodology

Detailed examination of (and projections for) wealth formation and decumulation across age and income groups has been possible largely as a result of the potential offered by the release of the *WAS* dataset. However, as the *WAS* has only been published once, in 2009, the dataset is limited in terms of historical series provided, and inferences drawn from the survey will need to be re-examined in the future.[18] For example, it is not certain from the one-off snapshot provided how much the observed fall in wealth for the over-65s (and especially the over-75s) compared with today's under-65s is due to weaker savings in this cohort's earlier years rather than to their drawdown of wealth in old age. Evidence from savings as well as information on other cohorts nevertheless suggest that declining wealth is a symptom of disinvestment.

The collection of national statistics at a household level also presents a few problems even though they have little impact on key results. For example, there is a potential bias in the *WAS* as reporting is based on data for household heads – the ONS's 'household reference person'. This will tend to inflate the income profile of the youngest household group as younger workers with low incomes will tend to live with other family members.[19] To some extent, such omissions flatten the reported 'wage curve' over age groups (indeed, low variation is observed in the data). Estimates based on other labour market data tend to suggest that the reference household method may add as much as 15–20% to the reported income of young workers.[20]

A second drawback, which is potentially a more important factor for retirement income analysis, is that household surveys do not cover people in institutional housing, including nursing homes. This means that some element of the retired population disappears from the income and wealth datasets prematurely. Nevertheless, the number of people in institutional care represents a small proportion of the old-age population[21] and in any case there is little reason to believe that their incomes (mainly pensions) are significantly different from those of pensioners included in the survey. Therefore loss of data for this segment is likely to have only a moderate effect on the average income and wealth statistics, chiefly relating to the drawdown of housing wealth, which tends to be high within the omitted group.

For both the young household bias and the loss of observations in the old–age group, the relevant question is how much these omissions impact on the research results. As each age and income group is represented by an 'average' household, and the approximate numbers of people that are being 'lost' in the household survey are relatively small, the overall bias is unlikely to be serious. The bias among the young worker group is the largest and therefore the HIS model adjusts ONS household data to take this into account.

These drawbacks are not substantial and have been addressed where possible. The use of the household as a unit of analysis is necessitated by the availability of wealth data, while corresponding ONS and DWP data are available for income and savings flows to provide a full and consistent dataset.[22]

2.3 Measuring replacement rates – the preferred yardstick

In order to make the results from the HIS model comparable over time and across income groups, this report adopts the concept of replacement rates, which estimate the ratio of retirement income to pre-retirement income. Although there are a number of methods for measuring

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18   The ONS is planning improvements and new *WAS* releases, which will validate results and facilitate further work in the future.
19   Similarly, this sampling method may overestimate retired household incomes.
20   This is adjusted in the HIS base. For a detailed discussion on methodology and data issues see Technical Appendix.
21   For example, the Registered Nursing Home Association (2004) recorded some 164,000 places at 4,400 nursing homes (in 2004) and quoted a total of 21,000 nursing plus residential care homes. This suggests numbers in institutional care at that time were probably in the region of 1 million, representing some 10% of the population aged over 65 (nevertheless, this proportion may be much higher for the population aged over 75).
22   See footnote 7.

this ratio,[23] this report uses the net replacement rate based on households' disposable retirement income compared with disposable pre-retirement income. We construct and analyse replacement rates across the income distribution by tracking representative households for each income group and illustrating how these rates vary across groups.

The net replacement rate assesses the actual income a household has available for consumption or savings, post- and pre-retirement. It incorporates all forms of income as well as specific effects of the UK's taxation system (e.g. the more favourable tax treatment of earnings for retired people but also taxation of private pensions). Furthermore, and most relevant for this report, the net replacement rate provides a guideline for measuring the adequacy of retirement income. While it is plausible to assume that retirees do not aim to achieve the same income level as their last salary, they will expect to attain a level that allows a lifestyle commensurate with the one they enjoyed pre-retirement (and that is above the poverty level,[24] supported if necessary by social benefits). The net replacement rate indicates to what extent a household's retirement income permits a standard of living similar to the one enjoyed before retirement.

This raises the question of what should be considered a 'fair' or 'target' replacement rate. While some attempts have been made to compare pension provisions across countries and to adopt benchmarks for developed countries,[25] international reviews often suffer from lack of comparable data and there has been little progress towards a consensus view on the appropriate target ratio. Replacement rates are typically in the 40–60% range across the UK's income groups (based on the methodology adopted here; slightly higher when based on the ratio of pensions to wage income alone); this is roughly in line with rates seen in most similarly developed economies.

High income households – with their substantial wealth holdings – can effectively choose their own preferred replacement rate, and evidence points to this typically being as low as 40–50%, which nevertheless represents a high level of nominal income. Low income households, with meagre pre-retirement incomes, generally achieve much higher replacement rates through state provision (around 60%). The appropriate replacement rate clearly depends upon each household's own expectations and whether previous income was close to the minimum wage or not. Nevertheless, the replacement rate is a useful yardstick for comparing results across time (as income variables rise over time in model projections) and for assessing the extent to which alternative scenarios can alter retirement incomes. Current data and estimated outcomes for retirement incomes and replacement rates over the period to 2050 are discussed further in Chapter 3.

2.4 Assumptions adopted in the HIS model to derive the base case[26]

For the base-case projections, forward-looking estimates are calculated using the HIS model, incorporating stated government policies (for the future, as known today), the ONS[27] demographic forecasts and long-run economic trends. Given the recent economic crisis, there is understandably a heightened degree of uncertainty about when and if there will be a return to long-run trends for the key macroeconomic indicators (such as wage growth, employment and inflation, returns on assets such as bond yields, equity and property prices). However, as the HIS model covers a 40-year time span, short-run fluctuations in macroeconomic indicators will have a very limited effect and need not be treated in detail. The HIS model broadly assumes that macroeconomic conditions normalize over the next few years. This is corroborated by other forecasts for the UK, notably, in the short run, by those of the OBR, as depicted in Table 2.3.

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23   A commonly used measure is the ratio of an individual's gross pension income to final salary; see for example OECD (2009). Another (such as is used in Aon, 2008) is the ratio of gross retirement income to pre-retirement gross income.

24   Following the ONS, this is defined as below 60% of the median household's net income. This will later be compared with income projections.

25   For example, the OECD's discussion of a 70% yardstick for the pension-to-wage earnings ratio; see the Technical Appendix.

26   See the Technical Appendix for more details on the assumptions used in the model.

27   These vary slightly from UN data but are assumed to be more accurate and consistent with the other data sources used.

Table 2.3: Assumptions adopted in the HIS model base case

	Average (2002–08)[a]	2010 projection[b]	OBR forecast (2015)	HIS model long-run assumption (2015–50)
GDP growth (% p.a., real)	2.2	1.8	2.7	2.25
CPI (% p.a.)	2.0	3.0	2.0	2.25
Wage growth (% p.a.)	4.1	2.3	4.4	4.5
House price inflation (% p.a.)	9.1	6.7	4.3	5.25
Total return on equities (% p.a.)	3.6	12.0	n/a	5.25
Bond yields (% return)	4.6	3.1	5.0	4.75
Savings deposit rate (% return)	4.2	0.8	3.9[c]	4.2
Unemployment (% of working age population)	5.2	7.9	6.1	5.5

a   The period 2002–08 is used as indicative of the last business cycle. For total returns on equity the measure used is the pension fund rates of investment return on UK equities (including income reinvested).

b   Latest OBR forecast.

c   OBR defined as short-term interest rate.

Source: Based on data from ONS, Bank of England, Nationwide, Towers Watson and OBR

While estimates of long-term trends are based upon own calculations from historical data (and assumptions adopted err on the cautious side), in the short term the macroeconomic background for the base case of the HIS model is broadly aligned with the OBR estimates available to 2015. The greatest variations in forecasts compared with historical data are for the return on equities and house prices, where the HIS model adopts very conservative estimates compared with past performance.[28]

The UK's taxation system (as regards rates, thresholds and indexation) is presumed to be unchanged during the period analysed.[29] In addition, the pension system is only projected to change in line with the broad trends already under way (such as the decline in DB schemes) and according to existing legislation (see Box 2.1).

For the base case, we assume that active private sector DB membership will decline from 2.4 million to around 800,000 by 2030. This will be in line with the existing downward trend in active membership (numbers fell from over 5.6 million in 1991 to 2.4 million in 2009, an annual decline of 150,000–200,000 per annum).[30] All those previously in DB schemes are assumed to be absorbed into workplace DC schemes (an increase of 1.6 million). Meanwhile, of the rest of the employed workforce not enrolled into workplace pension schemes, 30% are assumed to opt out of auto-enrolment.[31] Furthermore, we assume a decrease in public sector pension scheme membership of 330,000 by 2015, reflecting the expected public sector job losses following the most recent OBR projection.[32]

The model also incorporates demographic assumptions covering the next 40 years. Over this period, according to the ONS's demographic projections (Figure 2.4), the UK is expected to see a sharp rise in its elderly population, while the rest of the population (including the potential workforce) increases only slightly. The rise will be particularly marked for the population aged 75 and above, for which numbers will probably more than double from around 4.9 million today to over 11.3 million by 2050. This increase accounts for about 40% of the anticipated increase of 15 million in the total population.

28   This is discussed in the Technical Appendix, along with the calculation of housing affordability over the long run.

29   Although, as Disney and Emmerson (2005) convincingly argue, 'the highly complex details of pension arrangements, such as changes in floors and ceilings, types of post-retirement indexation and so on, have significant implications for pension entitlements'.

30   Data from the ONS (2010b). However, a significant number of people also hold rights in DB schemes to which they no longer belong (e.g. after moving job). The case of a more accelerated decline in DB schemes is treated in the sensitivity analysis (in Section 4.1.3).

31   In line with DWP (2009) estimates and with estimates in AEGON (2011).

32   OBR (2010).

In contrast to the steadily rising number of people aged 75 and over, the number of 65–74-year-olds will increase until the 2030s but then decline. This is because the baby boomers just retiring now will have moved into the 75+ range – notably, while the baby-boomer impact is visible, it is actually far smaller than the effects of increasing longevity.

According to population projections from the ONS, demographic trends will significantly increase the UK's dependency ratio – the ratio of non-working age population (aged 15 or below or 65 and above) to working age population (aged 16–64) – from 54% today to 71% in 2050. This is due to the rise in the number of people aged 65 and over (Table 2.4).

According to consensus forecasts, the rise in the US dependency ratio will be quite modest compared with the UK. However, the UK will suffer a less sharp rise in the dependency ratio than countries such as Japan and Germany. From an international perspective, the UK is under only moderate demographic pressure. This pressure is mainly caused by increasing longevity leading to a projected increase in the population aged 75 and over.[33] This method is useful for international comparisons of ageing populations; however, if country-specific factors are taken into account, the UK is under even less demographic pressure.

However, applying the SPA (rather than the age of 65) as the cut-off point for working age individuals implies that the UK's true dependency ratio in 2050 will be around 61%, roughly the same as in 2010. Over the coming decade, this ratio will actually decline as the SPA for females is raised to 66 by 2020 and gradually increases thereafter. Essentially, the rise in the SPA will mitigate the effects of an ageing population in the UK.

Table 2.4: Dependency ratios based on assumed SPA of 65 (%, non-working age to working age population)

Country	2010	2050
UK	54	71*
Germany	51	82
Japan	56	96
USA	50	63

Source: UK projections from the ONS, others from the UN. These forecasts assume a constant rate of net migration; for example, the ONS includes net migration of about 0.9 million for every five years. (*) Working age is defined as population aged 16–64 for the purpose of international comparison, whereas adjusting the UK's figure for increases in the SPA indicates a dependency ratio of only 61%.

Figure 2.4: UK population projections by age group
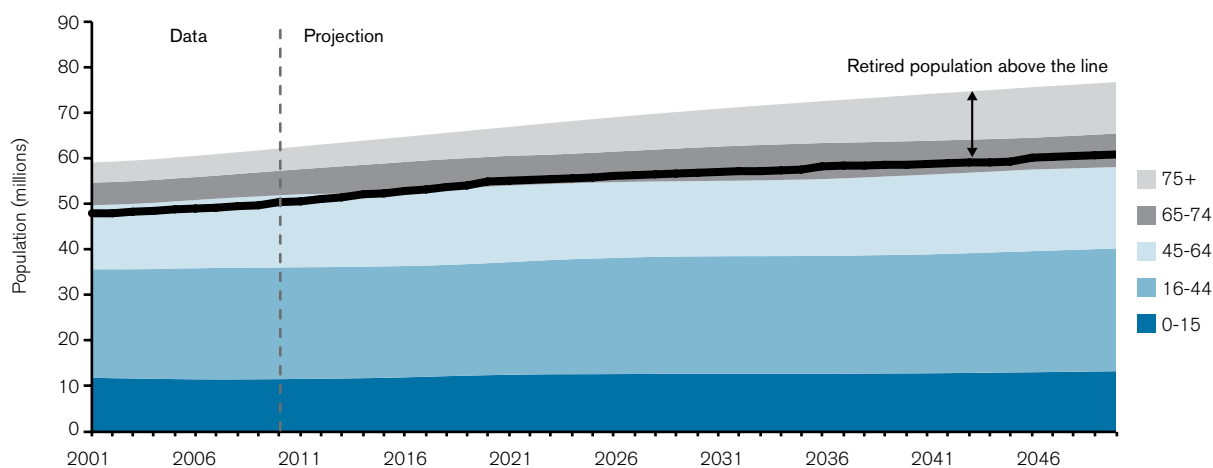
Source: ONS

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33   The UN and ONS population projections for the UK are broadly consistent. However, the ONS projects slightly higher population growth in the UK driven primarily by higher expected growth in the segment of the population aged over 75 (with the sharpest rise coming in the population aged 85 and over, projected to grow from 1.3 million in 2010 to 4.9 million in 2050).

Box 2.1: Existing and proposed pension legislation incorporated into the HIS model

The UK currently operates two state pension schemes: the Basic State Pension and the Second State Pension. Both components of the state pension provision are set to undergo significant reforms under existing legislation.

As indicated in Box 1.1 above, the state pension age for males and females will be equalized at 65 in November 2018, and rise to 66 in 2020. It is then projected to rise to 67 in the mid-2030s and 68 in the mid-2040s.

Income from the BSP will rise according to a 'triple lock' – an annual increase which will be the higher of national average earnings growth or inflation, with a minimum guaranteed default rate of 2.5%. This new rule takes account of objections to the fact that previous projections estimated a decline in the contribution of the BSP to the replacement rate owing to its indexation to prices rather than earnings.[a]

The SERPS (second pension) accrual is projected to become flat-rate (i.e. not earnings-related) in 2030, as outlined in the Pension Act 2007.[b] The possibility of contracting out of the State Second Pension into private pension schemes (a complexity introduced about twenty years ago that proved unpopular and a source of disputes over mis-selling) will be abolished from 2012.

New efforts will be made to attract increased contributions from both employers and employees into pension savings. Auto-enrolment is due to come into force in 2012. This obliges employers to enrol eligible employees into a workplace pension scheme (a DB scheme meeting certain standards or a National Employment Savings Trust scheme).[c]

The National Employment Savings Trust (NEST), to be introduced in 2012, is a low-cost savings scheme to encourage savings for retirement. Specifically designed to meet the needs of low-to-moderate earners and their employers, NEST is a universal, defined contribution scheme. It acts as a public service provider and can be used by employers to meet new legal obligations under the auto-enrolment policy. Although employees are automatically enrolled, they will have the opportunity to opt out of the scheme.

a   For instance, Banks et al. (2006) assume the decline of the BSP's contribution to the replacement rate will follow its downtrend since the 1970s, with the SERPS/S2P contribution also declining from its peak in the 2000s.
b   Pensions Policy Institute (2010).
c   The minimum contribution to these schemes is 8% of qualifying earnings (of which the employer must pay a minimum of 3%). Qualifying earnings are earnings between £5,715 and £33,540 in 2010/11.

3. Expectations Betrayed? The Outlook for Retirement Incomes and Replacement Rates

3.1 The HIS base case

Projections for wealth formation and retirement incomes to 2050 are essentially driven by demographic shifts, imposed pension policy adjustments and the continuation of long-run economic trends embedded in the HIS model, as described in Section 2.4. Given the slow rate of change in all these trends, the HIS model naturally produces a base case for the future that looks remarkably like the past, except for a few key points (Figure 3.1):

- In real terms, wealth increases as nominal returns on assets are greater than the inflation rate, in line with long-run historical data. Unless otherwise stated, data presented throughout this report are in constant 2010 prices – that is, nominal values are deflated by a price index of base year 2010 (rising in line with inflation). This aims to reflect growth in real wages and wealth over the period to 2050.[34]

- There is slightly higher nominal wealth accumulation just before retirement, especially for the middle income group, as the pension age rises during the period 2020–50; therefore many households benefit financially from an extra few years of working and saving pre-retirement.

- A later retirement age will have a marginally positive impact on annuity conversion rates – although, in the base case, the dominant influence on conversion rates is the damping effect of the longevity factor.

Figure 3.2 shows the current breakdown of retirement incomes according to households' pre-retirement incomes. The data point to the fact that the second and third quintiles (that is, households with incomes between £18,000 and £33,000), in spite of having higher earnings over their working life than the first quintile, generate around 50% or more of their retirement income from the state pension. In contrast, substantial private pension income along with financial returns and extra earnings boost the overall retirement incomes of the fourth and fifth quintiles and, even if replacement rates appear low, their nominal incomes in retirement are relatively generous.

The base-case projections suggest that this position could actually deteriorate slightly over time, in part as a result of the known changes in pensions policies incorporated into the base case (Figure 3.3). For the first quintile households, the state pension makes the largest contribution, replacing more than 50% of pre-retirement disposable income. Their remaining income comes chiefly from private pensions, including from government employment, with a small contribution from interest income on savings accounts (financial wealth). In contrast, high income households benefit from large private pensions and returns on substantial financial wealth as well as from their realized potential to continue earning income.[35] However, for middle income groups, overall replacement rates are relatively low at approximately 40–45%. This is because the state pension, which is the largest source of retirement income, only replaces 20–30% of pre-retirement earnings and other sources of income are insufficient to make up the shortfall, as shown in Figure 3.3.

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34   It should be noted that a number of studies on the UK pension system deflate nominal prices by wages.
35   They also benefit from more favourable income tax treatment than non-retired high income households.

Figure 3.1: Build-up of households' net real wealth by age group from 2010 to 2050
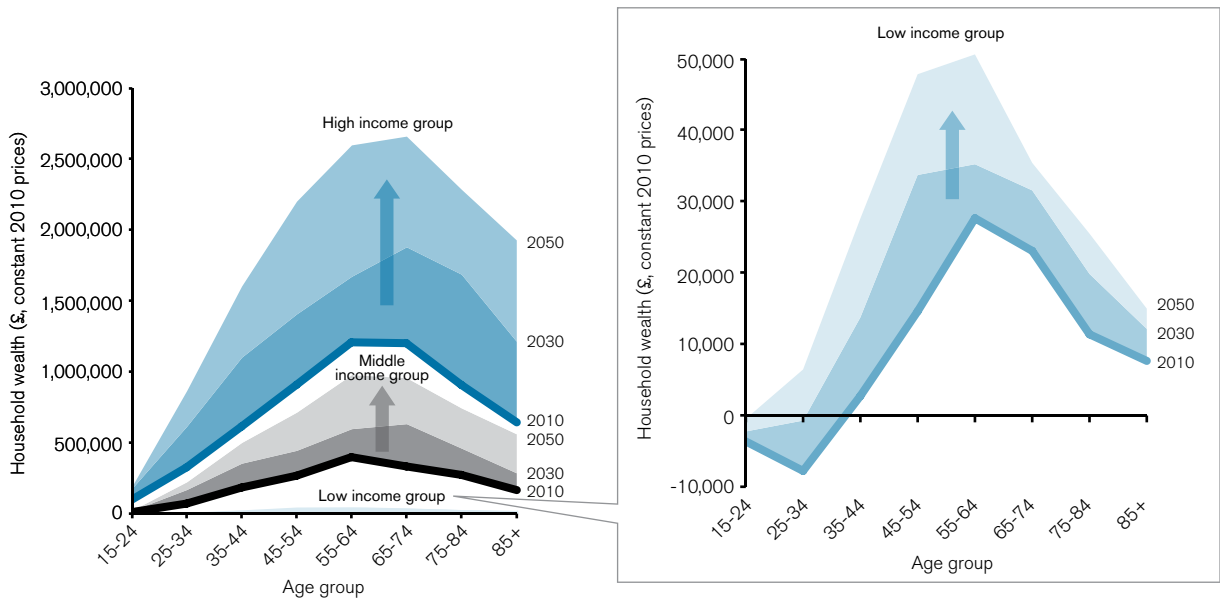
Source: Chatham House projections

Figure 3.2: Breakdown of retirement income by income streams (2008/09)

Source: Based on ONS data

Figure 3.3: Net replacement rates (%, lhs) and income projections (£ constant 2010 prices, rhs) in the base case for all retired households (2010–50)
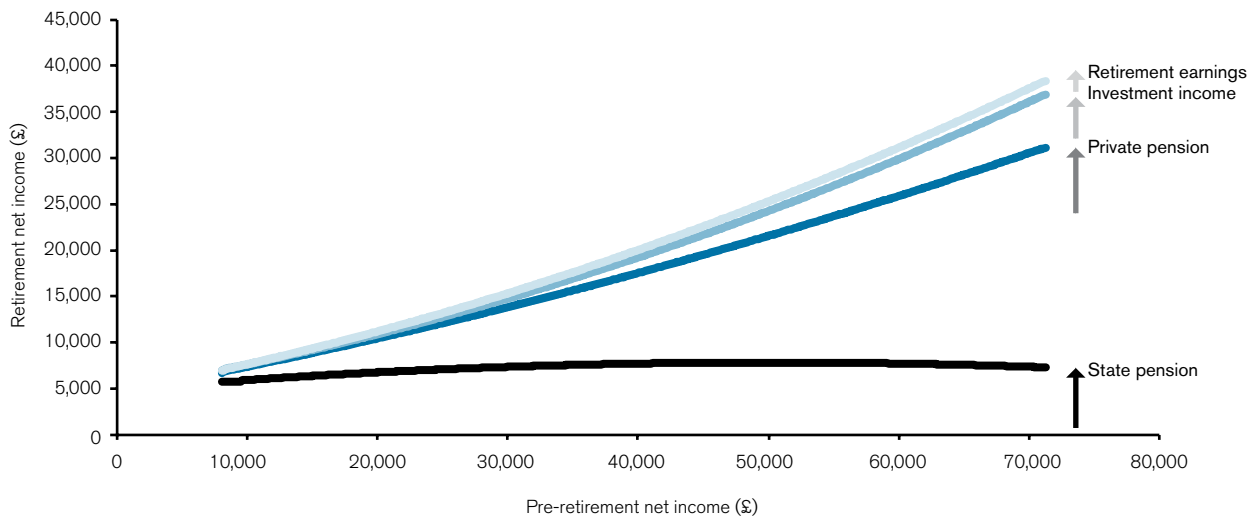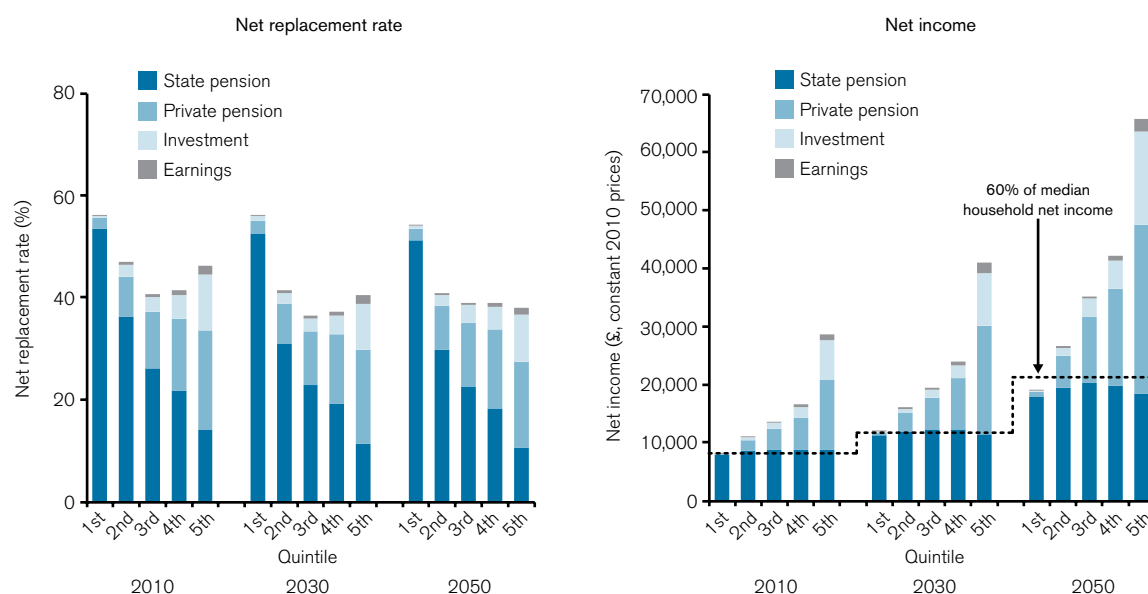

Source: Chatham House projections

The base-case projections suggest that the net replacement rates of middle and high income retired households may actually be slightly lower in 2030–50 than in 2010, and that the gap in replacement rates will widen slightly between these groups and the low income group. There are a number of reasons why this is estimated to occur.

- The projected decline in private and public DB pension scheme membership will reduce workplace pension income (as DB schemes tend to be more generous than DC schemes – this feature is assumed to continue in the base case). This will have the strongest impact on the highest income households as workplace pension scheme membership is greatest in this group. However, other forms of wealth holding are sufficient to maintain a relatively high income level and replacement rate for this segment.

- Most of the negative impact on private pension incomes should have fed through before 2050, after

which auto-enrolment may at least sustain private pension income (according to the assumptions made on the effectiveness of auto-enrolment).

- The S2P is expected to accrue at a flat rate from 2030 (rather than being earnings-related). This is likely to reduce the amount of state pension provision for higher and middle income retired households.

- Growth in the number of those aged over 75 will also depress the average replacement ratio for the whole retirement segment (as shown in Figure 3.4). Specifically, demographic shifts imply that retired households over the age of 75 – which tend to have lower retirement incomes – will have a greater weight within the retired population in the future. Currently the numbers of retired households aged below 75 and above 75 are about the same, but by 2050 there may be twice as many households in the latter group than in the former.

Figure 3.4: Net replacement rates for households disaggregated by age group
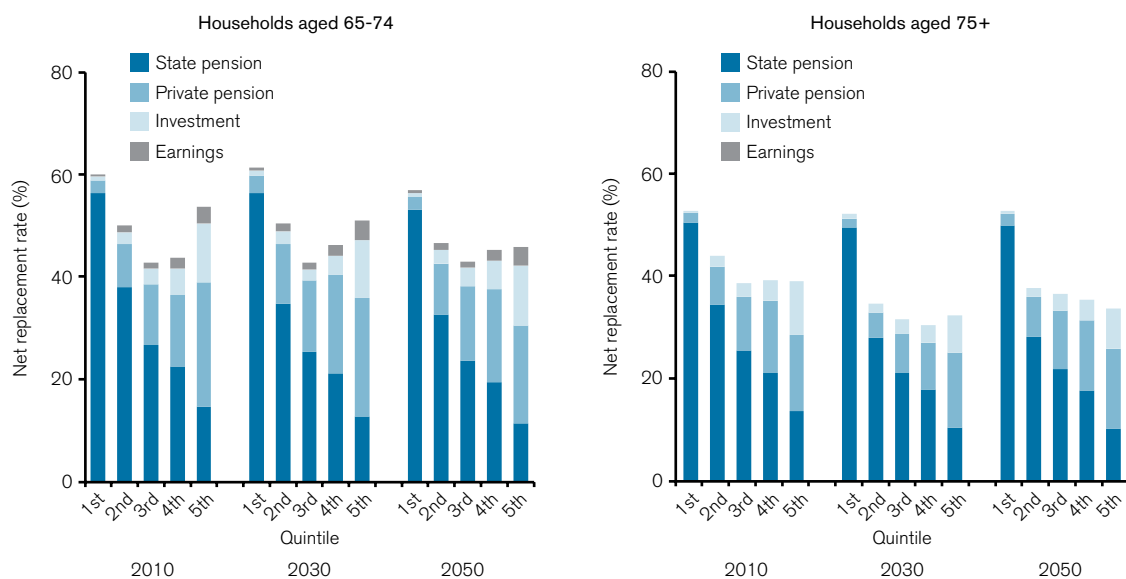
Source: Chatham House projections

3.2 The potential for property wealth to support retirement income

Although this is seen as controversial by some or simply ignored,[36] property ownership does represent a potential source of retirement income – whether from rental payments or gradual disinvestment of housing wealth either through trading down or by using financial products such as equity release schemes.

As evidence of the importance of property trading, 29% of respondents to a survey by the Association of British Insurers[37] answered that they planned to downsize their house to support retirement income. Other sources[38] claim that some 45% of people over 50 (chiefly homeowners) indicate that they would consider a pre- or post-retirement move – but they also point to the actual numbers doing this being low. The International Longevity Centre also suggest that among households aged 65 and over, 56% may be so-called 'house-blockers' with under-occupied

housing (defined as two or more bedrooms per house more than necessary), which compares with 46% for the general population. Further evidence of the importance and mobility of property investments is the growth in buy-to-let properties as well as the number of smaller-scale properties and sheltered accommodation units designed specifically for sale to the retiree market.

Nevertheless, a number of factors work against using property wealth to support retirement income. These include the bequest motive and attachments to a long-standing home/locality and, with regard to rental incomes, the administrative and upkeep burden and a preference for privacy.

Currently, uptake of commercial equity release products is low.[39] Rental income could increase, yet this seems to be discounted in most assessments of future retirement incomes. Indeed, the most identifiable boost to retirement living standards appears to be that property ownership reduces households' housing costs.[40]

36   For example, OECD (2009) and Aon (2008).
37   ABI (2008).
38   For example, the International Longevity Centre, UK (2007).
39   The *WAS* indicated that only 1% of households had taken a commercial equity release scheme.
40   Pensions Policy Institute (2009).

As Figure 3.5 illustrates, the lowest income households have very little property wealth. For the 2nd and 3rd quintiles, net property wealth increases until retirement age, at which point property holdings appear to decrease quite significantly (reaching about half the pre-retirement peak value for the 85+ age group). For high income households, property wealth stabilizes during retirement rather than falling. As housing values are assumed to be rising, this flattening off does imply some households in this group may be drawing down property wealth. A higher level of home ownership among the 55–64 age group offers a partial explanation for the pattern of increasing then decreasing property wealth over age groups; other reasons include depreciation of the housing stock (with lower maintenance) and issues of self-reporting for property values.[41] However, another factor may be disinvestment of property wealth – with homeowners probably purchasing a smaller residential unit to replace an existing property in order to reduce living costs and provide funds for retirement spending.

In the HIS model, the decline in housing wealth for the elderly, visible in the *WAS* data, is assumed to continue (but not progress) over time and this is treated as a partial drawdown of housing wealth in the future.[42] In reality, the income from trading down property would come in the form of a lump sum; however, this can be modelled in terms of a smooth income flow by assuming that a steady proportion of property wealth (benchmarked on the data from the *WAS* snapshot) is traded down for each retired cohort over each ten-year time period and converted into a constant annual income stream (see Figures 3.6 and 3.7).

In fact, on the assumption that property price inflation continues to be higher than average CPI (as built into the base case), it is possible that households with substantial property wealth and relatively low property drawdowns (particularly those in the 4th and 5th quintiles) could actually see their property wealth increase during retirement. In theory, they could gradually withdraw capital from their property portfolio yet still enjoy an increase in its overall value.

Figure 3.5: Households' net property wealth in 2010 and 2050
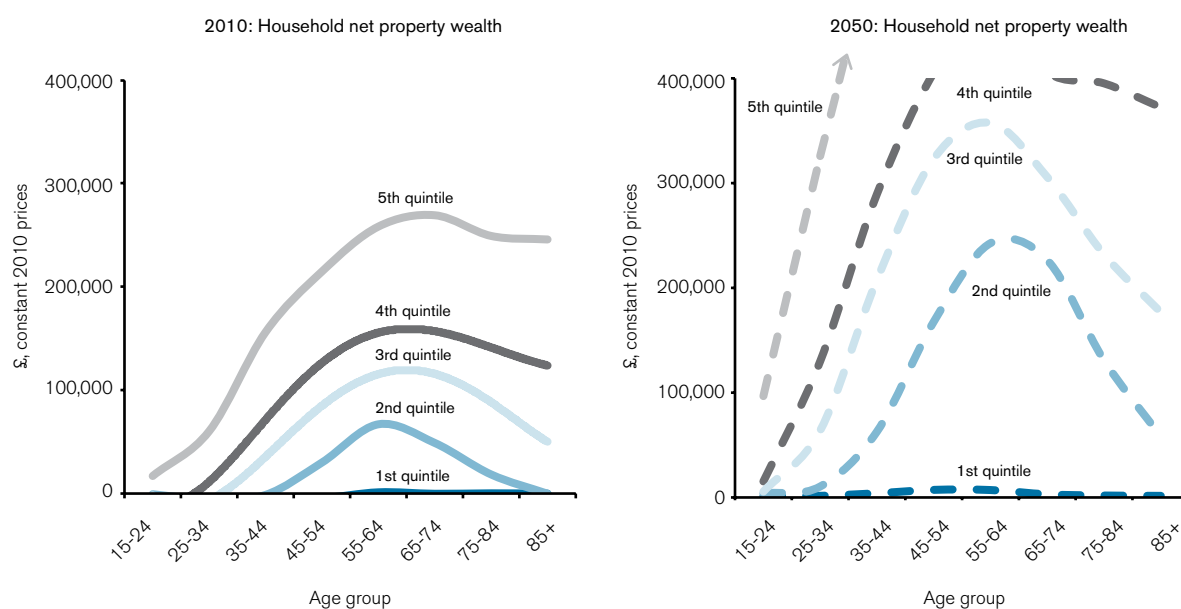
Source: ONS

41   For further discussion on the potential for home ownership rates to influence the *WAS* data, see the Technical Appendix.

42   In total, aggregate property drawdown as estimated by the HIS model is less than 2% of the total property market, of which approximately 20% is owned by the 65+ age group. For the age group 65–74, the estimated property drawdown amounts to approximately 5% of their total property wealth, rising to 6% for the 75–84 group. Arguably, given the rise in homeownership rates over the last 50 years, drawdown should become more prevalent.

Figure 3.6: Net replacement rates (%) including drawdown of property wealth

Households aged 65-74

Households aged 75+
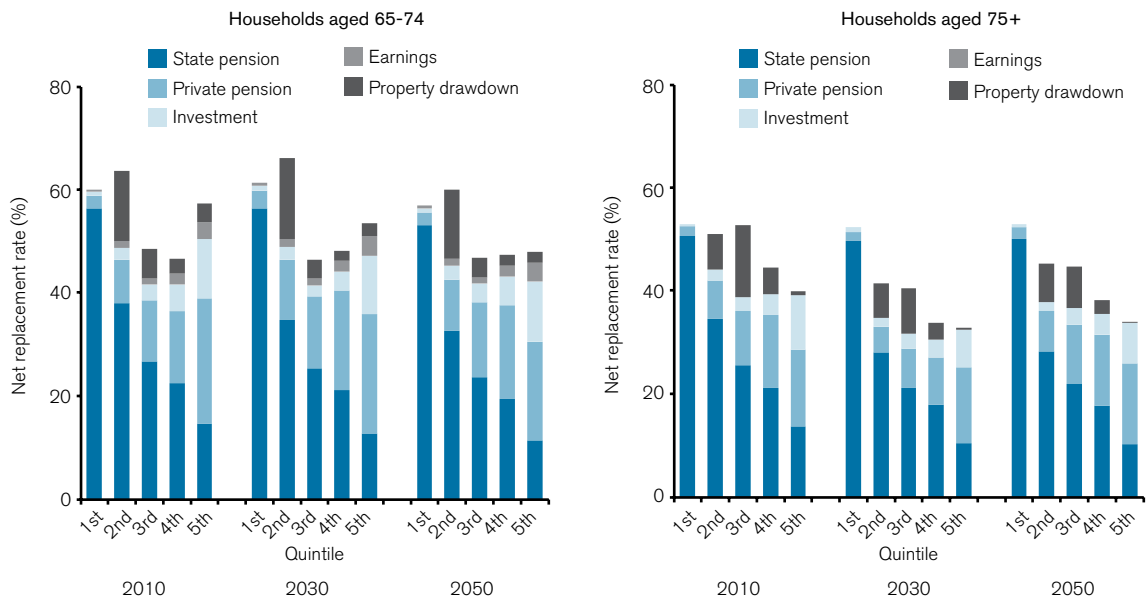
Source: Chatham House projections

Figure 3.7: Net income including drawdown of property wealth

Households aged 65-74

Households aged 75+
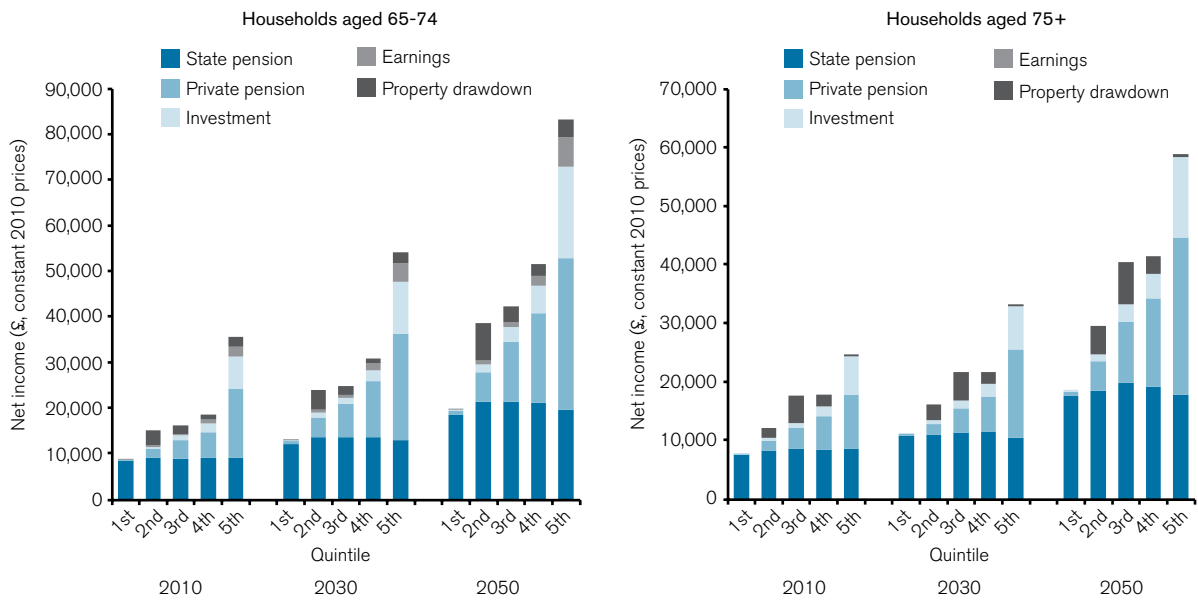
Source: Chatham House projections

Figure 3.8: The use of property wealth by the 2nd and 3rd quintiles to top up net retirement income
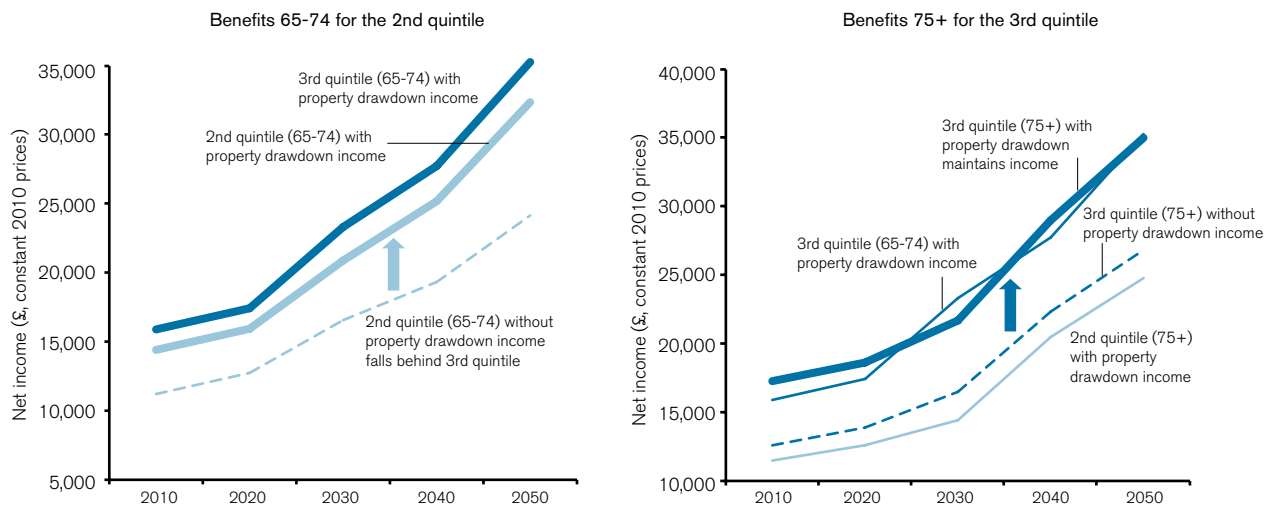
Source: Chatham House projections

As illustrated in Figure 3.8, property wealth drawdowns may provide a significant form of top-up in retirement income for middle income households, with variations in the results across quintiles suggesting slightly varying opportunities and targets. For the 2nd quintile group aged 65–74, it appears that property drawdown may be used to bring disposable income in line with that of the 3rd quintile (with income rising from just over £10,000 without property drawdown to almost £15,000 including property drawdown in 2010). For retired households aged over 75, property wealth drawdown may be used by the 3rd quintile group to top up net income so that it is broadly in line with equivalent households aged 65–74.

However, as the base case suggests, the replacement rate decreases through to 2050. Thus if middle income households attempt to maintain the same replacement rates over time – or match the higher rates of first quintile households – then their drawdown of property wealth would have to be much greater than assumed in the HIS base case.

4. Could It Get Even Worse? Risks Ahead for Retirement Incomes

In this chapter, the HIS model will be used to examine the impact on the base-case projections of worsening conditions at the macroeconomic level and/or changes in the policy framework on the estimated outcomes for wealth formation and retirement incomes. The purpose is to introduce additional risks into the analysis to assess their effect on projected retirement incomes, and illustrate how a deterioration of the base-case scenario could modify policy targets and augment concerns about particular segments of the population.

Specifically, we examine the following scenarios:

- persistently low interest rates and their implications for wealth formation and annuity conversion rates;
- lower property price inflation;
- an accelerated trend from DB towards DC pension schemes.

4.1 The implications of persistently low interest rates

The recent crisis has resulted in central banks – including the Bank of England – lowering interest rates to near zero, accompanied by a sharp drop in bond yields. Long-run projections for the UK economy predict that rates will eventually return to their long-run trends. However, there are a number of reasons why this might not happen, raising concerns for the viability of company pension schemes as well as for individuals coming up to annuity conversion deadlines.

Although the UK is almost certainly not likely to mimic Japan, which has seen inflation hover near zero since the mid-1990s, a low interest rate environment could persist rather than being a temporary occurrence. Economic recovery could prove to be a 'slower for longer' process, with inflation dropping back after the increases caused by a falling pound and higher VAT rates from 2009 through to 2011. In this case, encouraged also by a weak global interest rate environment, UK short-term interest rates and bond yields may remain at historically low levels. This scenario would favour both the government and private debtors, keeping the cost of debt low. Low real rates are also good news for borrowers and for boosting growth in the economy. However, the implications for pension plans and retirement income are not positive. The often harsh negative impacts on older cohorts are all too often overlooked in assessments of the damage done by the global recession and low interest rates.

Interest rates clearly impact on wealth formation pre-retirement and also determine the income generated by savings accounts, which mostly affects retirees. More importantly, they determine the conversion of pension savings into pension income. Lower bond yields have significantly reduced annuity conversion rates over the last two decades and, after stabilizing in 2002–08, both yields and rates dropped again in the last couple of years (see Figure 4.1). As a result, retirees pay much higher prices for each unit of retirement income bought in an annuity package as a direct result of the global recession.

If interest rates were to remain low, at about half their historical level (of about 4.5–5% in nominal terms), households might have to double the size of their savings pot to achieve the same annual income as in the base-case scenario. For households just reaching pension age this would be impossible. These households would suffer an unanticipated collapse in their retirement incomes if they were to be forced into converting savings pots into annuities during a low

Figure 4.1: Bond yields (lhs, %) and annuity conversion rates (rhs, annuity purchased by £100,000)
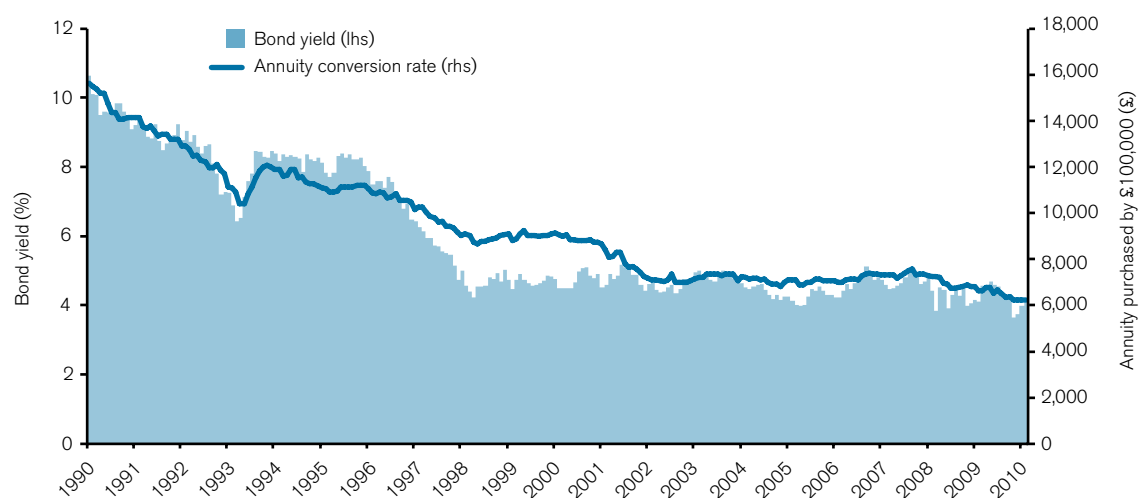
Source: Bank of England, William Burrows Annuities.
Note: tracks an annuity for a male aged 65, single life, guaranteed five years, level payment; bond yields are for 15-year government bonds.

rate period. If they could delay, annuity rates might improve. This would help them avoid being locked into a low-rate pension. But there would be no guarantee – and pension providers would be unable offer more generous payments as they too would face the problem of market uncertainty.

The HIS model is used to examine the impact on retirement incomes of a low interest rate scenario. In this scenario, we assume that bond yields, interest rates and inflation all remain 50% below their long-run trends to 2050.

As Figure 4.2 shows, the key points are as follows.

- The 5th quintile high income group is the most affected in absolute terms, suffering income losses of up to £7,000 p.a. by 2050 (at 2010 prices). However, the 4th quintile also experiences income losses of around £4,000 p.a. Losses in investment income and annuity rates are the main contributory factors.

- Replacement rates drop by 6 percentage points for the 5th quintile (mainly owing to loss of investment income) and by 2.5–5 percentage points for the middle three quintiles.

- The negative impact on annuity conversion rates contributes about 2 percentage points to the drop in the replacement rate of the 2nd to 5th quintile groups through lower private pension income. This effect is more pronounced in later time periods as private sector DB schemes (unaffected by annuity rates) become a smaller component of private pension income.

- The 'triple lock' of the state pension, which increases by the highest of 2.5%, national average earnings or inflation (i.e. at a minimum rate of 2.5% per annum) ensures that this component of pension income is fairly robust in the face of the economic risks, including deflation.

- Low income households, the 1st quintile group, are virtually unaffected by changed conditions except that nominal pension payments drop slightly because of the fall in inflation

Everything being equal and assuming no policy change, younger workers might be able to mitigate the impact of low interest rates by saving more to address more adverse conditions. However, this could further damp

Figure 4.2: Low interest rate environment: net replacement rate (lhs) and changes in household net income (rhs)
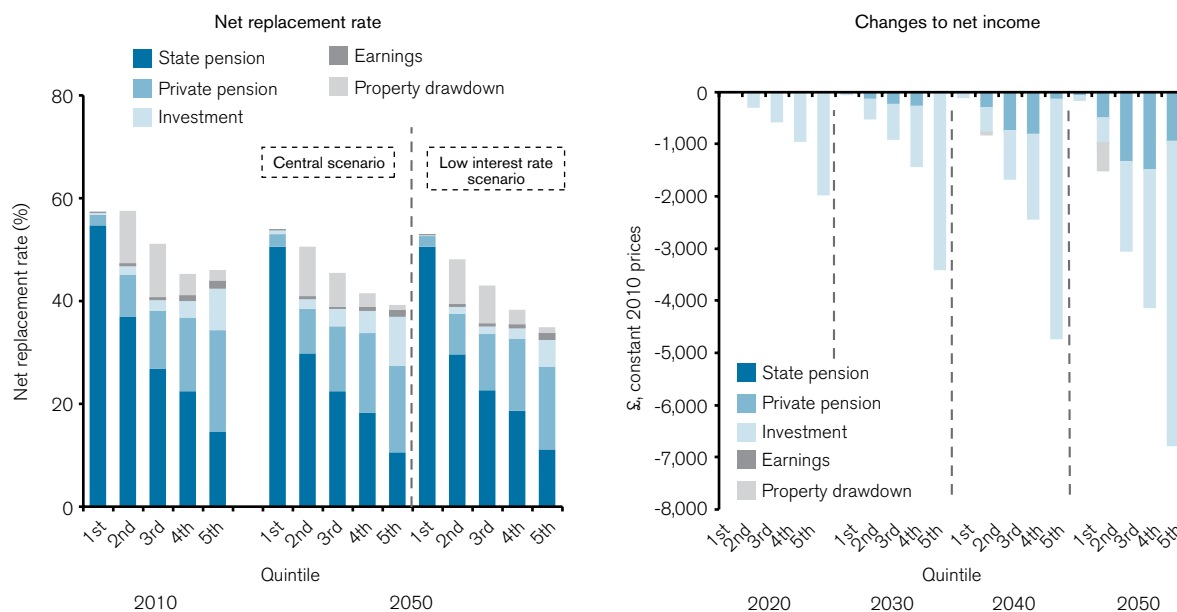
Source: Chatham House projections

down interest rates – greater investment into pension funds tends to lead to higher demand for government bonds, for example, depressing the return on such assets.[43] But it may be difficult for older workers to alter their savings behaviour, potentially adding to the pressure on government social spending over the long run if rate structures do not revert to historical trends.

As far as the implications for poverty in old age and public sector expenditure are concerned, the middle income quintiles are once more in the spotlight. This reinforces the initial view that this group is not only poorly provisioned in the base case but very vulnerable to adverse conditions.

4.2 The lower property prices scenario

As discussed in Section 3.2, a significant proportion of wealth in the UK is held in the form of property and this offers households the opportunity to raise income through property rentals or disinvestment. According to the *WAS* data snapshot for 2006/08, retired cohorts, especially those in the 75 and older age group, hold less property than working age cohorts. In part, this may be explained by lower rates of home ownership when these older cohorts were working in the 1960s and 1970s.[44] However, another reason may be the release of housing wealth through practices such as trading down. This opportunity may have been taken up by some retired households, especially in the second and third income quintiles where the *WAS* data show lower housing wealth for older retirees.

Over the long term, the return on property assets has been higher than that on pension and financial assets.[45] However, property prices are vulnerable to economic conditions and volatility generated by housing market boom and bust cycles.

Given the uncertainty still hovering over the UK and many other property markets (such as the US, Spain and

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43   This situation is similar to that currently occurring in Japan, which risks creating a vicious cycle.

44   See the discussion in the Technical Appendix.

45   In the 20 years up to 2008, the return on the property assets was, on average, around 2% greater than the return on benchmark government bonds and 1% above the average return on the equities (based on data from Nationwide and Barclays Capital).

Figure 4.3: Lower property prices: net replacement rate (lhs) and changes in household net income (rhs)

Net replacement rate

Change to net income

Legend (left chart):
- State pension
- Private pension
- Investment
- Earnings
- Property drawdown

Central scenario

Low property price scenario

Net replacement rate (%)

Quintile

2010   2050

£, constant 2010 prices

Legend (right chart):
- State pension
- Private pension
- Investment
- Earnings
- Property drawdown

Quintile

2020   2030   2040   2050
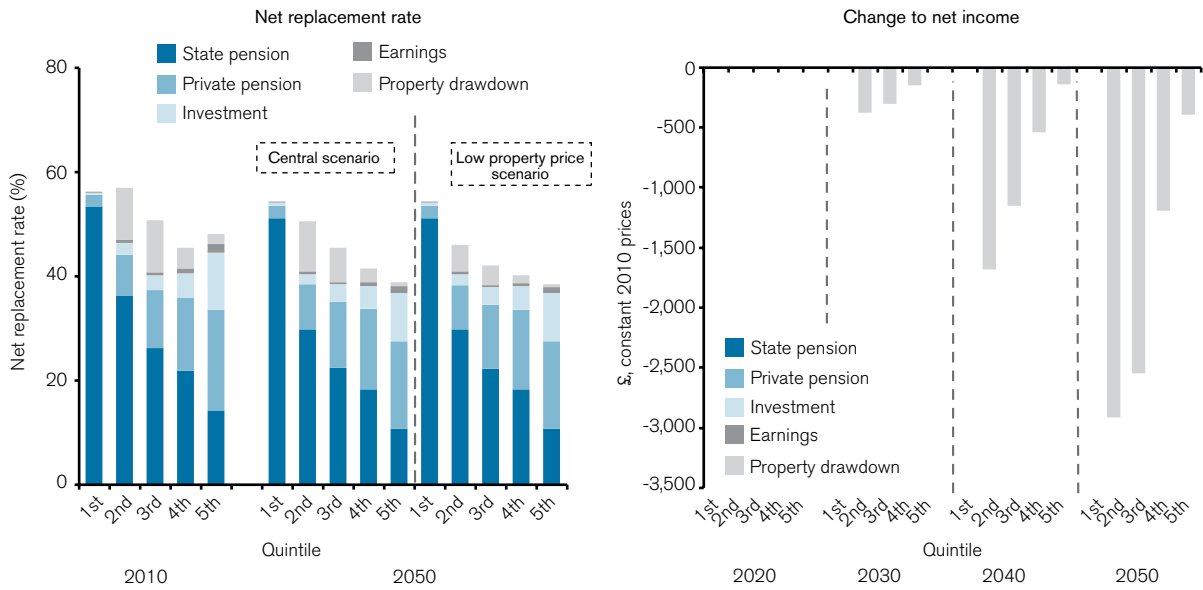
Source: Chatham House projections

Figure 4.4: Household net property wealth in 2050 (£, constant 2010 prices): the base case (lhs) and the lower property price scenario (rhs)

2050 central scenario:
Household net property wealth

2050 low property price scenario:
Household net property wealth

£, constant 2010 prices

5th quintile
4th quintile
3rd quintile
2nd quintile
1st quintile

Age group

£, constant 2010 prices

5th quintile
4th quintile
3rd quintile
2nd quintile
1st quintile

Age group
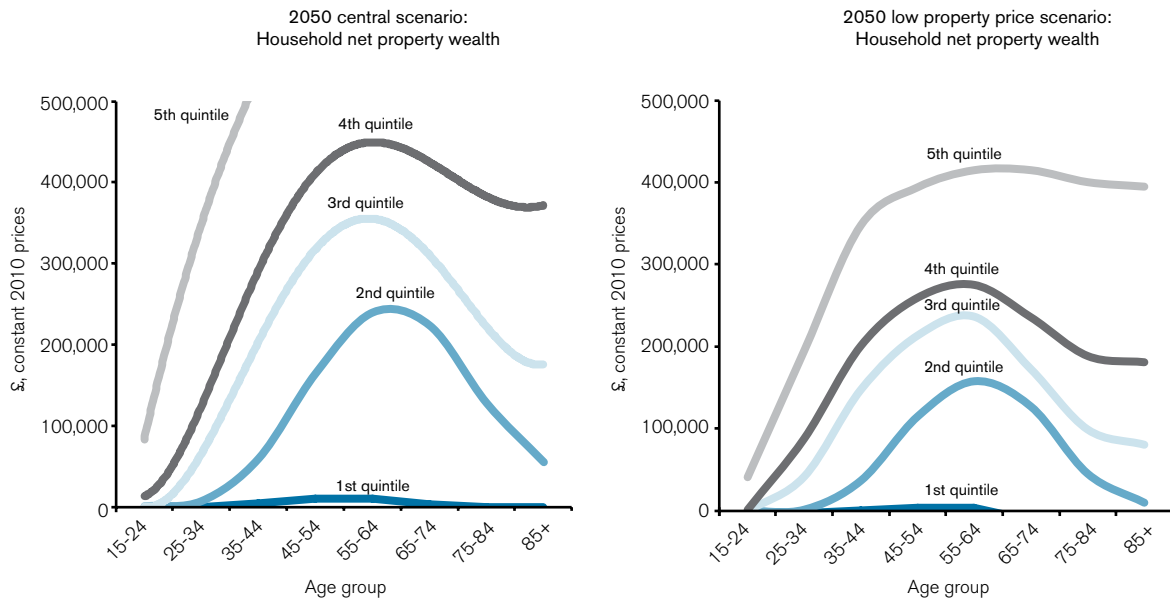
Source: Chatham House projections

Ireland) following the recent crisis, it is unclear whether investor enthusiasm for this sector in the UK will die down or remain strong. According to official (OBR) forecasts, over the next five years, property price growth is expected to pick up again from its current low (near zero) to around 4–5% and the HIS model actually assumes that the rate edges up again after 2015, reaching about 5–6% over the longer run. This is still considerably less than the 9% rate seen during the 2000s. In real terms, the model assumes that house prices rise by just over 3%, in line with the long-run historical trend. However, property price inflation could well remain much lower, rather than picking up after 2015.

To demonstrate the effects of lower property price inflation, we use the HIS model to examine a scenario in which real property prices rise at only 50% of their historical long-run trend – that is, assuming real annual property inflation of 1.5% rather than the rate of 3.0% incorporated in the base case (3.75% rather than 5.25% respectively in nominal terms).

Figure 4.3 illustrates the impact of lower property prices on retirement incomes. The key points are:

- The 1st and 5th quintile groups are largely unaffected – the 1st quintile has little property, while the 5th quintile makes few drawdowns.
- In contrast, the 2nd and 3rd quintiles suffer a decline in their overall income replacement rate (including property) of about 4–5 percentage points, which translates into losses as high as £2,500 p.a. at 2010 prices by 2050. The 4th quintile also loses approximately £1,000 p.a. in income.
- There is a significant impact on older retired households – there would be little they could do to address the property wealth shortfall other than disinvesting yet more heavily in housing to boost income.

Weaker property prices depress property wealth (see Figure 4.4), thus reducing the scope to use this wealth to supplement retirement income.

Everything else being equal and assuming no change in policies, pre-retirement cohorts (those aged 55–64) face four options in this scenario regarding their savings plans:

- Do nothing: this means accepting either a lower income in retirement or the more rapid drawdown of a greater proportion of property wealth.
- Increase overall savings rates into all asset classes.
- Diversify savings out of property if this begins to be seen as more risky.
- Invest even more into property either to achieve the same value for property wealth ahead of retirement, thus maintaining retirement income, or in the hope that prices will eventually rebound and boost wealth.

For other age groups the response is likely to vary depending on age and income as different time horizons, tolerance of risk and preferences are likely to affect choices. For instance, very young cohorts might be inclined to use the market weakness to step up investment in the property sector, having many more years to either reap a profit or modify this plan according to future economic conditions and changes in their own income and wealth profiles. Their response, however, might be constrained by mortgage limits and by how much more they could afford to save.

4.3 The risk of an accelerated shift in workplace pension schemes

The impact on retirement incomes of the switch from DB to DC pensions is not straightforward. Not only are DB schemes being phased out but, in spite of efforts to encourage uptake, it is also uncertain whether contributions into DC schemes will increase significantly. In addition, estimates such as those by the OECD (2009) suggest a disturbing disparity in the replacement rate between those in DB schemes and those in DC schemes. Even if all the contributions that had previously been made to DB schemes were to be placed into DC schemes, the pension wealth accumulated would probably deliver a markedly lower pension. DB schemes appear to have been more generous than average market conditions as well as offering greater certainty over retirement income for households.

The shift in workplace pension schemes from DB to DC is already well under way, with active membership of private sector DB schemes declining from 5.6 million in 1991 to just 2.6 million in 2008 (just under 200,000 per annum).[46] As legislation and accounting standards have increased the risk burden of providing DB pension schemes, employers have been closing membership rapidly.[47]

This will have marked impacts on retirement incomes because of the following features of DC schemes:

- There are no guaranteed pension benefits – the income stream derived on retirement is dependent on the investment performance of the funds chosen as well as the annuity conversion rate available when the fund's holder converts to a retirement income.
- Annuity rates have probably been more volatile than many expected, adding to uncertainties over the final income to be derived from DC pension savings.
- Decisions on contributions, administration and the risk burden are placed on the employee rather than the employer.
- Employer contributions to DC schemes are typically less generous than to DB schemes even before taking account of the displacement of risk and costs to employees.

The base-case projections already incorporate ongoing trends in phasing out DB schemes, with employees being increasingly enrolled into DC schemes. However, it will be many years before the full effects of the shift from DB to DC are realized. For the next decade, many retirees will still be benefiting from the relatively generous pension rights already accrued. This can be seen in the base-case projections estimated with the HIS model. Assessments indicate that changes in workplace pension schemes will tend to depress income replacement rates for middle to higher income households by around 2030, before improvements start to show through by 2040–50 as policies such as auto-enrolment have a positive effect.

Two changes in policy will help to offset the prospective loss in pension incomes owing to the shift to DC schemes.

- The policy of auto-enrolment – compulsory enrolment of full-time employees into workplace pension schemes unless the employee opts out – will come into effect from 2012. This is likely to increase private pension savings into the newly formed NEST scheme – although the mandatory contributions to such schemes are small.
- The legislated rise in the state pension age, and therefore the likely rise in the age at which households convert pension wealth into annuities, should improve the offered annuity conversion rates as longevity risk is reduced.

However, it is possible that DB schemes will end more abruptly, perhaps prompted by more adverse background conditions such as a low real interest rate environment. The phasing-out of DB schemes, shifting the emphasis to DC schemes, could progress far more quickly than we assume in the base case, which simply phases them out at the historical rate. To illustrate the risk posed by this faster shift in workplace pension provision, the HIS model can be used to estimate the impact of a rapid phasing-out of private sector DB schemes, such that these are almost all closed over the next decade (rather than two decades according current trends).

4.4 Worst of all: the three scenarios combined

The shift out of DB schemes would probably be accelerated if the 'low interest rate' scenario were to materialize. This is because the lower return on pension assets and less favourable annuity rates would be charged as a cost to employers. They would be required to honour employees' DB pensions by topping up company pension schemes. Furthermore, in such a low interest rate/low inflation environment, property price growth is also likely to be depressed.

The following scenario therefore combines all three features based on the alternative assumptions in the 'low

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46   Data produced by the Pensions Regulator and Pension Protection Fund (2009).
47   For example, accounting standards mandate that pension deficits be declared on companies' balance sheets at market prices. See Davis (2004).

interest rate' and 'low property price' scenarios as well as an accelerated shift in workplace pension provision. The key points are as follows (as shown in Figure 4.5).

- The 1st quintile remains relatively impervious to the change in conditions but it is still negatively affected in terms of weaker nominal pension incomes.
- There would be a further loss in pension incomes for the middle and higher income groups compared with

the low interest rate scenario – the net replacement rate for the three middle income groups and the 5th quintile drops by 6–8 percentage points.

- For the 5th quintile, this combined scenario implies overall losses in retirement income of over £3,000 p.a. in 2030, £5,000 p.a. in 2040 and £7,000 p.a. by 2050 (in 2010 prices).
- The 3rd and 4th quintiles lose £5,000–6,000 p.a. by 2050 and the 2nd quintile around £3,000 p.a. (all in 2010 prices).

Figure 4.5: Accelerated exit from DB schemes under unfavourable background conditions: net replacement rate (lhs) and changes to household net income (rhs)
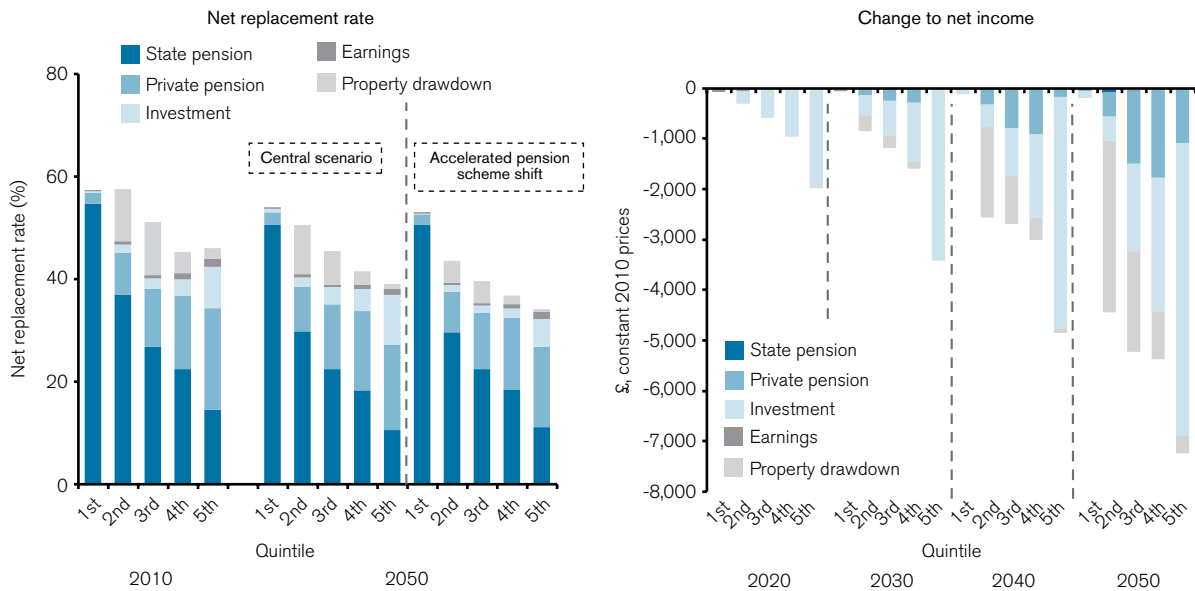
Source: Chatham House projections

5. The 'Squeezed' Middle: Can Policies Mitigate the Problem?

The UK should not have a pensions crisis. In countries such as Germany and France, populations are likely to shrink as well as age, basic pension provisions are generous and there is resistance to raising the retirement age. In contrast, the UK is due to experience only a slight rise in the dependency ratio. Pension entitlements are modest and there is already an agreed increase in the state pension age, set to reach 68 in about thirty-five years' time. These factors already alleviate potential pressure on government resources and they inculcate only modest expectations of retirement benefits in the working age population.

But the UK is due to experience a 'squeeze' and even an impoverishment of its middle class in retirement. The projections generated by the HIS model identify middle income households, in particular the second quintile, as those most at risk of suffering a very sharp drop in income upon entering retirement. This means that households in this group might be unable to ensure a retirement lifestyle commensurate with the one enjoyed during their working years.[48] And, as the scenarios show, the situation could get worse.

The low savings rates prevalent among middle income households explain this gap between pre- and post-retirement incomes and lifestyles. This group is at risk of failing to meet its financial needs and possibly falling back to poverty-level incomes. Such a risk could increase in the event of adverse economic conditions that result in a 'squeeze' on investment returns, especially bond yields and interest rates. This might have a particularly negative impact on households nearing retirement, as such households tend to move into more secure financial instruments to consolidate retirement wealth and must also plan for conversion of savings into annuities. In addition, the possibility of an accelerated shift in workplace pension schemes, characterized by the phasing-out of DB schemes, is likely to exacerbate the existing pension deficits of the middle income groups. These shifts will put yet more households into schemes that have variable returns and are vulnerable to changes in annuity conversion rates. In general, the results are less generous to employees.

Given that the middle income groups encompass 60% of the UK's households, their savings deficit must be seen as a pressing political issue, with systemic implications for government welfare spending and public finances in future years. Hence the key policy questions that emerge from this study[49] are:

- Why do middle income households not save more in order to provide for their future?
- How many in this group may seek additional benefits from the welfare state in order to make up for the shortfall in their retirement incomes?
- What solutions are available to reduce the risk of welfare dependency and disappointment with respect to retirement incomes?

Looking specifically at the 2nd quintile, these households have low nominal incomes that are probably not significantly higher than those of the 1st quintile after taking into account social benefits that accrue to very low income families. In the 2nd quintile alone, some 4–5 million households may have savings that barely provide a minimum living standard in retirement. This number is likely to increase to

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48   Of course not all of the 2nd quintile is necessarily in danger of failing to have adequate retirement income (or potentially falling into poverty); the risk is largely confined to a certain proportion of the group.
49   These issues are also raised by other experts; see, for instance, the Turner Report (2004).

almost 8 million households by 2050,[50] while their income replacement rate is set to deteriorate through to 2050 according to the projections generated by the HIS model.

5.1 Assessing the potential to raise retirement incomes

Using the HIS model to assess the potential gains from adapting pension savings or plans, this chapter considers the two scenarios highlighted by the Turner Report (2004):

- *'Save more'*: the potential for increased savings, especially across 'squeezed' middle income households, to boost pension wealth and retirement incomes. Households may respond themselves to perceived threats to their lifestyles but in order to significantly boost the lowest replacement rates, further incentives such as larger savings subsidies or tax breaks may be needed.
- *'Work longer'*: deferred retirement boosts replacement rates; thus working until 70 might help raise wealth

and retirement income, resolving the dilemma of the middle income group. Although the UK has just announced a phased-in increase in the age at which state pension benefits will be paid, change could be accelerated and a further increase could be seen.

This chapter also examines the impact of recently proposed pension reforms, which could provide a significant boost for the most vulnerable income groups.

5.2 'Saving more' as a mitigating strategy and a policy challenge

5.2.1 'Save more': the impact of extra savings and wealth on the 'squeezed' middle

UK households appear to start reducing their savings rates quite quickly after entering the 55–64 age range (Figure 5.1).

This is particularly worrying in relation to the middle income quintiles. Consumption levels actually rise quite markedly (rather than remaining stable as the life-cycle model might predict),[51] as many households prefer to spend more of their peak disposable incomes on additional

Figure 5.1: Financial savings in 2010 (savings rate % of disposable income, lhs, and savings level in £, constant 2010 prices, on rhs)
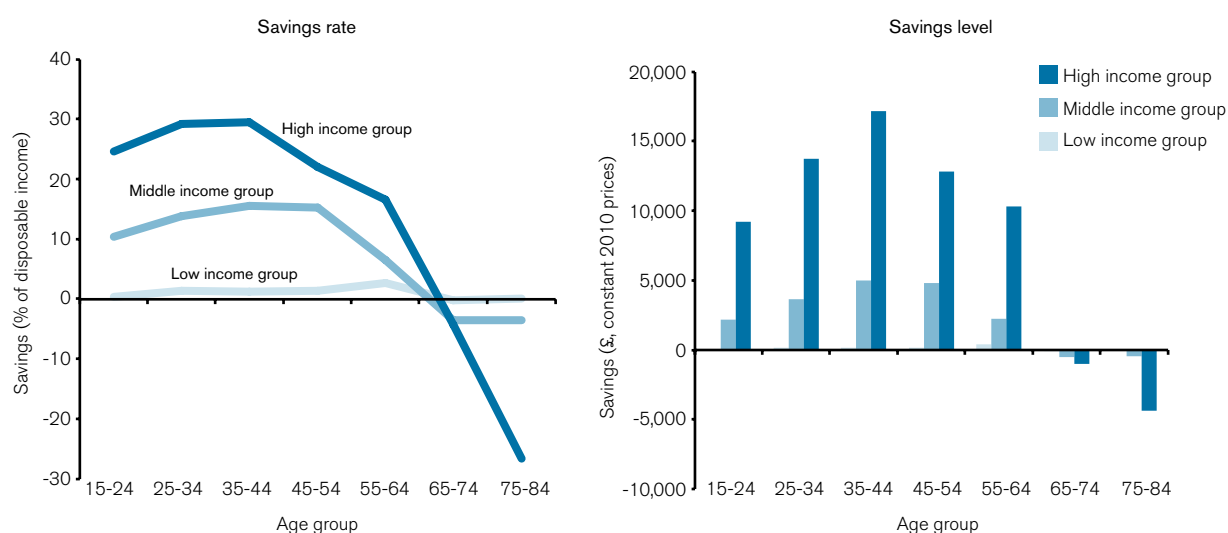
Source: Chatham House calculations (for financial savings, excluding mortgage payments) based on ONS and DWP data

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50   Equivalent to around 15% of total households in 2010, rising to over 20% by 2050.
51   Also, see Figure A1 in the Technical Appendix.

consumer goods and services rather than increasing savings, for example, into pension funds.

The HIS model is used to estimate the extra savings needed for the middle income group to address its pension deficit and to achieve what might be considered an adequate replacement rate. If the households in the middle income group aged 45–64 – taken as an aggregate – were to reduce consumption and raise their savings rate over the period 2010 to 2050, with the extra savings being funnelled specifically into pension assets in order to

address the estimated pension shortfall, then it would be possible to achieve a significantly higher replacement rate by 2050.

If the additional savings (Figure 5.2) are equivalent to an increase of around 10 percentage points in the savings ratio (for the middle income group between the ages of 45 and 64), which is a large swing, then wealth on retirement could be as much as 25% higher (in real terms) by 2050. Annual savings would rise by about £2,000–2,500 p.a. (in 2010 prices) per working household in quintiles 2–4 for

Figure 5.2: Higher savings rates: savings and wealth profiles for the middle income groups combined (savings rates as % of disposable income, lhs and wealth in £ constant 2010 prices, rhs)
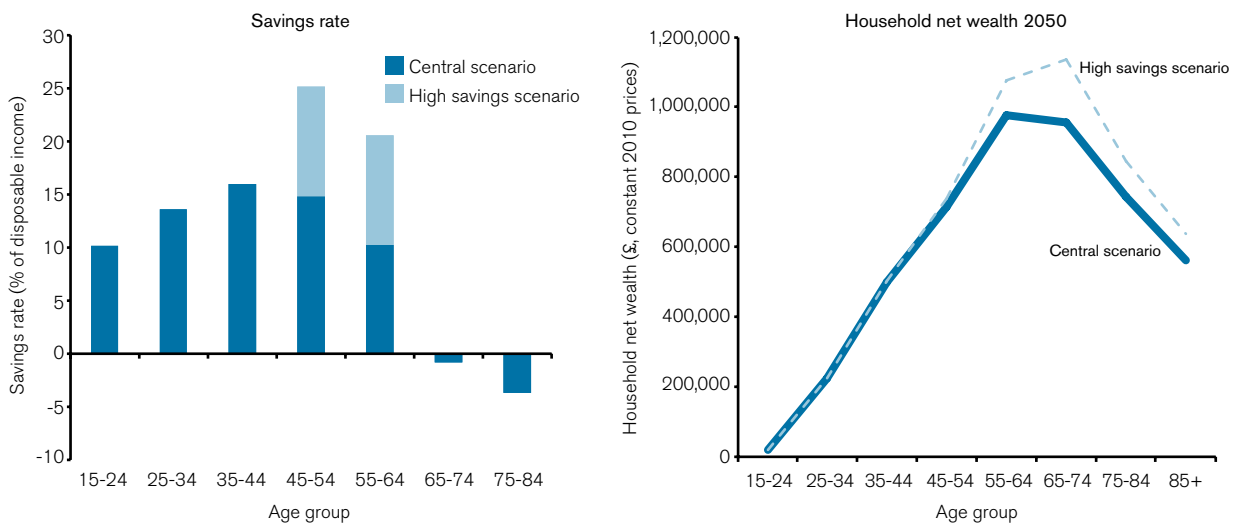
Source: Chatham House projections

Figure 5.3: Higher savings rates: net replacement rate compared with the base case

Source: Chatham House projections

the 45–64 age group. In this case, middle income households would all be able to boost their net income replacement rate to over 50%, reaching a level commensurate with or greater than their current replacement rate and thereby more than offsetting the potential losses projected through to 2050 (Figure 5.3).

While we cannot include assessments of the macroeconomic implications in this report, clearly there would be impacts from this temporary drop in spending within the economy, until retirees' spending picks up. Over a period of 20–30 years, the adjustment would tend to depress consumption in favour of net trade and investment. However, it should be borne in mind that any change would be spread over many years and therefore the changes in annual growth rates for consumption and other macroeconomic variables would be very small and would fade out.

Three key messages can be drawn from this assessment:

- Even if savings increases are fairly substantial and prolonged, the impact on the replacement rate builds up only very slowly.
- Just a modest increase in the savings rate may be very demanding on middle income working households with relatively low disposable incomes. In any case, within a realistic range for such households' savings rates, a radical increase in retirement incomes solely by building up personal savings would be hard to achieve.
- An improved incentive system, such as subsidies or larger tax breaks, may be needed to reach the 'adequate' rate of replacement income demonstrated in this scenario.

5.2.2 Savings versus consumption: a tough choice

The results above clearly show how difficult it is to increase retirement incomes through the route of building up personal savings. Even if savings increases are fairly substantial and prolonged, the impact on the replacement rate builds up slowly and is also subject to the vagaries of uncertain financial returns. In particular, conversion of pension savings into annuities makes retirement income very vulnerable to the actual conversion rate applicable at the time of retirement. This rate

fluctuates according to macroeconomic conditions – and the impacts of the 2009 recession created a dramatic drop in both bond yields and annuity rates. Given all these constraints and concerns, perhaps it is not so surprising that saving rates are low.

For low income individuals and households there is a tough trade-off between savings – i.e. postponing consumption – and current consumption. Indeed savings are a function of disposable income and tend to be the residual, or 'left-over', after essential living costs and whatever else individuals and households deem necessary to their welfare are satisfied. In choosing between savings and consumption, individuals as well as households are guided by their previous consumption patterns. In the context of pensions, households' intertemporal choice is influenced by their pre-retirement lifestyle. In other words, they assess the future benefit of extra savings against the present benefit of extra consumption. However, while the present benefit of today's consumption is certain, deferring consumption and making additional savings might not result in the same or higher benefit in the future. That is, there is no guarantee that the extra savings will translate into commensurate future consumption.

Given their income constraints, middle income households and individuals cannot afford to take risks. For them the opportunity cost of saving is higher than for high income households and individuals, and therefore the risks and uncertainties regarding decisions and choices for the long term are a greater obstacle to increasing savings. Opportunity cost and uncertainty may well explain the significant gap in savings across the middle income quintiles.

Any policy initiative aimed at increasing savings for the long term should therefore look at how individuals and households make their savings decisions and consider all factors that reduce the incentives to save. Policy measures should be aimed at reducing uncertainty around future benefits as well as cutting the opportunity cost of saving (making savings more affordable).

5.2.3 Incentives to save: tax relief versus other options

The savings deficit for middle income households indicates a failure of current incentives to encourage pension savings in this group. The present system relies heavily

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on tax relief, yet the existing gap indicates that current relief on pension contributions has had limited effectiveness in encouraging low to middle income groups to save. Households may need bigger or different incentives to boost savings into pension accounts.

Auto-enrolment may ensure that significant extra numbers of young workers make pension savings but this mechanism should not be relied upon entirely. First, estimates for how many people will make extra savings vary widely.[52] Secondly, even though auto-enrolment may capture younger workers, it will not necessarily prove sufficient to ensure that the most critical middle age, middle income groups actually make substantial extra savings. Finally, the current minimum contribution, for automatically enrolled DC schemes or NEST, of 8% of qualifying earnings[53] (of which the employer must pay a minimum of 3%), may prove to be inadequate.

The current system of tax relief is not so much a subsidy for savings as a deferment of tax payments – basic rate tax is claimed back on pension contributions, which benefit from compounding returns to investment, but the eventual pension annuity income is taxed as income at the basic rate. In the past, higher rates of tax relief on pension contributions have encouraged savings among the highest earners. However, this may be attributable to better financial advice as well as the fact that the tax relief was more valuable to the top quintiles. In addition, it is not clear whether the high income group's pension savings increased the level of savings overall or simply skewed a constant level of savings towards pension products.

Rather than operating through tax relief incentives, the government might offer matching contributions instead. These could prove a more effective incentive for savings by middle income groups. First of all, if they are genuinely a subsidy for savings rather than a deferment of tax payments, it will be rational for households to increase savings. Furthermore, even if the matching contribution is actually a deferment of tax payments, the language itself may be important. The very use of the term 'tax relief' may have less positive connotations. 'Matching contributions'

from the government into pension savings may be more appealing and households may more readily understand the direct benefit. To appeal particularly to middle income groups, such government matching could be capped at an amount that would be interesting to this segment but not to higher income groups. This would limit the total amount of subsidies paid out compared with proportional schemes or higher rate tax relief to all savers.

For example, taking the example of the increased savings scenario discussed earlier, if middle income households saved half this amount (an increase of 5 percentage points in the savings ratio instead of the 10 percentage points discussed in Section 5.2.1) and government made a matching contribution (but only on the additional top-up savings to pension pots), this might provide an effective incentive. The annual cost to the government would be about £20–25 billion (at 2010 prices) with some payback likely over time through tax revenue and savings in social benefits that the government might otherwise have been forced to pay out. An alternative specification for a scheme targeted at raising pension savings might be for government to supplement all additional contributions into specific pension funds, with a subsidy capped at, say, £1,000 p.a. per working household (the maximum of £1,000 being payable on additional contributions of £2,000 p.a.). A fairly full take-up across quintiles 2–5 might achieve the savings increases described in this scenario at a lower annual cost to government of about £16 billion (at 2010 prices). Clearly it is difficult to assess the precise response of savers but it is clear that incentives need to be increased from those currently on offer.

5.2.4 Flexible pension savings and annuities

Improving the flexibility of pension schemes can also provide an incentive for households to make pension savings. As savings into a pension fund are locked up until retirement age, the opportunity cost of saving includes not only the forgone consumption today but also reduced liquidity. This constraint is most prominent for younger households where the income constraint on consumption is already tighter than

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52   The DWP (2009) estimates that 5–9 million of the 10–11 million eligible workers will be newly saving or saving more into pension funds as a result of auto-enrolment.
53   Qualifying earnings are earnings between £5,715 and £33,540 (2010/11).

for other age groups, and there are large financial outlays that need to be taken into account, especially home purchases. It is also critical for all lower income households.

A number of policies can be used to promote greater flexibility in pension savings, taking into account the motives that drive household savings behaviour over their life-cycle. For younger households, linking pension schemes to Individual Savings Accounts (ISAs), a popular and tax efficient form of financial savings, would allow savings to remain in flexible accounts. Furthermore, the Canadian Registered Retirement Savings Plan offers some guidance. This incorporates a Home Buyer's Plan and a Lifelong Education Plan, setting limits on the savings that can be withdrawn from a pension fund for expenditure on housing and education.

For older households, the bequest motive may also play an important role in determining their (dis)savings behaviour, and purchasing a pension annuity typically does not satisfy this preference. Phased retirement income drawdown does allow unused pension savings to be left as a bequest. However, this form of retirement income is mainly used by the very wealthy (with access to financial advice and planning) and it is unclear whether there could be greater uptake of such flexible pension arrangements in the future.[54] Most people currently convert their pension fund into an annuity at the point of retirement – in fact, they cannot afford not to.

Annuity policies could be modified to allow for some intergenerational transfer of wealth to take into account the bequest motive. For example, a proportion of the pension fund could be left as a bequest, varying in relation to the difference between the actual and the average expected years of annuity payment. The trade-off for receivers of annuities is that, for a given pension pot, their income would be lower in order to accommodate the extra cost of the bequest. By increasing the choice of annuity policies, households would be able to take charge of decisions about retirement income to suit their own preferences regarding drawing income and making bequests.

To encourage uptake of such options, inheritance tax could be adjusted as an incentive. From April 2011, the tax rate for all lump sum death benefits from unused drawdown pension fund will be 55%. Policy options include reducing (or removing) inheritance tax if the bequest is placed into another designated pension fund, or treating the market value of the bequest as the deceased's income, which is then taxed at its marginal rate.[55]

5.2.5 Simplifying savings decisions – capturing the reluctant saver

As the UK's pension system appears to be poorly understood by savers – particularly low to middle income households – it may be beneficial to simplify the decision-making process, reducing the opportunity cost for savers of obtaining information and operating varying savings plans. This can be done through further automation of savings decisions and streamlining the actual process of turning savings into pension plans.

Automation of savings decisions includes policies such as automatically uprating the proportion of salary that is used for pension contributions such that this proportion increases with the worker's age. Auto-enrolment schemes, including NEST, could be a prime ground for incorporating this measure, particularly as those enrolled are likely to be young workers or workers who otherwise fall outside the workplace pension scheme net. Automation of savings decisions could also incorporate linkages between different types of financial savings. For example, out of money built up in short-term (easily accessible) accounts, a certain proportion could be transferred to medium-term savings accounts. As the account holder ages, a certain proportion of these funds could then be transferred to long-term savings funds. This allows pension savings to build up gradually while also maintaining accessible savings. Essentially such policies shift the decision-making process, and the cost of acquiring information about savings schemes, from the household to the pension fund provider, therefore reducing the effort required on the part of the household.

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54   This is being encouraged from April 2011 with Flexible Income Drawdown and the end of compulsory annuitization at 75.
55   This latter policy is used in Canada if pension funds are converted into a Registered Retirement Income Fund (that is, the income drawdown option rather than annuity conversion).

Further costs are added to savings decisions by the complexity of the interface within pension funds. There is scope for this interface to be simplified. Pension funds could become better aligned with banks, for example, by making it possible to check pension fund status online and make changes to such plans, in the same way that bank accounts can now be accessed online. This would make it easier to transfer surplus financial savings into a pension fund or to change investments within pension funds.

Currently, it can be difficult for workers (particularly younger workers) who move across organizations to trace their pension funds and be aware of what they hold and the potential to transfer such pots at a later date. The NEST scheme will keep an individual's pot in the same place and may therefore provide a useful template for simplifying the consumer management and personal administration of pensions.

5.2.6 Access to financial advice

The UK pension system is notorious for its complexity.[56] As *WAS* identified, only 40% of those surveyed agreed or strongly agreed with the statement that they understood enough about pensions to make a decision about saving for retirement. More worryingly, among those aged 16–24, this figure is below 20%. Notably, the British public has not acquired the same level of understanding about the pensions system that it has about other financial products such as mortgages and even equity investments. Such lack of knowledge may be explained by the fact that many people have little contact with pension plans and providers. Because home ownership is high in the UK, most households are quick to learn about mortgages, how to negotiate loans and how to understand their regular statements regarding mortgage payments – so the product and costs are monitored and tangible. In contrast, few people have any experience of managing a pension, assessing the value of pension savings is more complex and the final benefits will be realized only at some distant point in the future.

Generally, access to independent financial advisers (IFAs) in the UK is in need of improvement. In particular, access is not easy for middle income households, and this situation was not helped by the Retail Distribution Review.[57] There is a vacuum in terms of financial advice and it is not clear whether the government's proposed annual family financial health check under the Consumer Education Financial Body (announced in the June 2010 Budget and due to start in spring 2011) will be sufficient to fill this.

With particular regard to advice on pension savings, there appears to be an information deficit. Whereas for most financial decisions, households can turn to banks for advice, the same level of consumer outreach does not exist for pensions. This suggests an opportunity for the industry to promote clear and widespread information about pension savings as well as more obvious ports of call for such advice. The bancassurance model – where a bank and an insurance company enter into a relationship so that insurance products are sold through bank branches – already offers a potential business model that can be better developed in the pensions area. Furthermore, pension providers need to consider carefully the key segments they are targeting – by age and income group – in order to tailor information and products to the relevant circumstances of the target group.

5.2.7 Guaranteed annuity rates

As the recent fall in annuity rates has demonstrated, savers face considerable uncertainty about the conversion of pension savings into future incomes; they cannot be sure what income to expect. This factor is exacerbated by the shift away from DB schemes – which, by their nature, offer certain returns – towards DC schemes.

If households were assured about the annuity rates they would be facing at the point of retirement, this would provide an incentive to make further savings into private pension schemes. To accomplish this, policies to encourage guaranteed annuity conversion rates should be proposed – that is, pension schemes could contain a

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56   As Lord Turner's Pensions Commission (2004) noted, 'the UK has the most complex pensions system in the world'.

57   The Retail Redistribution Review was launched by the Financial Services Authority in June 2006 to address the lack of consumer trust and confidence in the UK. Among other issues, it is raising the qualification standards for provision of advice. While this is likely to have a positive impact in the longer run, the transition period runs a significant risk of reducing the availability of IFAs.

guaranteed (or minimum) conversion rate. Such policies were typical between the 1960s and 1980s, when DB schemes were more common and annuity conversion rates were more generous. Nevertheless, establishing a guaranteed conversion rate or a minimum floor for this rate would provide more certain outcomes and also suit households with more risk-averse investment preferences.

However, a key complexity lies in who would shoulder the burden of the guarantee. Annuity providers have shown unwillingness in recent years to provide such policies. Yet if governments were to guarantee the annuity rate, they might become subject to large liabilities and encourage risk-taking behaviour on the part of pension investors. Preferably, the burden would be distributed between annuity providers, government and households. This could work if the government subsidized a certain proportion of any shortfall between the market annuity rate and the guaranteed rate while the household accepted a reduced annuity rate reflecting this 'insurance' as a low-risk investment strategy.

5.3 'Work longer': the other mitigating strategy and policy challenge

5.3.1 'Work longer' – boosting the 'squeezed' middle by a longer working life?

There has been steady pressure to raise retirement ages for many years – both from theoretical studies, starting as far back as the 1980s (for example, Auerbach and Kotlikoff, 1987) and more recently from a practical policy point of view (e.g. the Turner Report, 2004). This solution directly addresses the issue of a rising dependency ratio and its impact on the costs of state pension provisions.

Roughly speaking, raising the pension age largely displaces public sector expenditure on retirees from the pre-70 to post-70 age group and could neutralize the overall impact of the extension of population numbers above 75. If about half of the 65–75 age group (about 3 million in 2050) were to continue to work, this would imply a growing workforce and a lower proportion of non-working elderly dependants.

On average, people are starting work later in life, living longer and enjoying more active, healthy lives into old age,

so raising the state pension age seems an equitable way of burden-sharing. However, as some parts of the population are still starting work at a young age or do experience significant health problems in the later part of their working lives, some attention needs to be paid to ensuring fair treatment for these cases. It is notable that health and life expectancy vary across the population, with poorer households and manual labourers tending to fare worse than the better-off.

Is the UK's move to raise the pension age to 68 sufficient to 'rebalance' the pension system? What might be the impacts of accelerating the increase to, say, 70 by 2020? Depending on the effect on retirement incomes, might more people actually choose to continue working longer in exchange for enhanced final pension payments, especially if the government were to offer further incentives, for instance part-payment of pensions or even more favourable income tax treatment?

The HIS model is used to estimate how much incomes for 65–70-year-olds and final pension payments might increase in a scenario where retirement is deferred to 70 by 2020.

The most notable results are:

- The impact of reform will take time to feed through as many of those retired in 2020–30 will actually have retired pre-reform of the pension age.
- The 1st quintile is broadly unaffected in terms of its potential earnings and pension payments – and we again note that this low income group may be the most affected by poor health in old age and therefore many may be unable to continue in work.
- All other quintiles gain markedly for a number of reasons:
  - as higher earners, they gain substantially from additional income over the extra years of work – incomes would be about double the level of pension payments;
  - they also benefit from the delay in drawing down a pension as their pension funds gain in value over the period;
  - arguably, they may also increase their pension rights, depending on the regime in force and whether this incorporates further pension contributions;

Figure 5.4: Increasing in the retirement age to 70 in 2020: net replacement rate (lhs) and changes to net income (rhs)
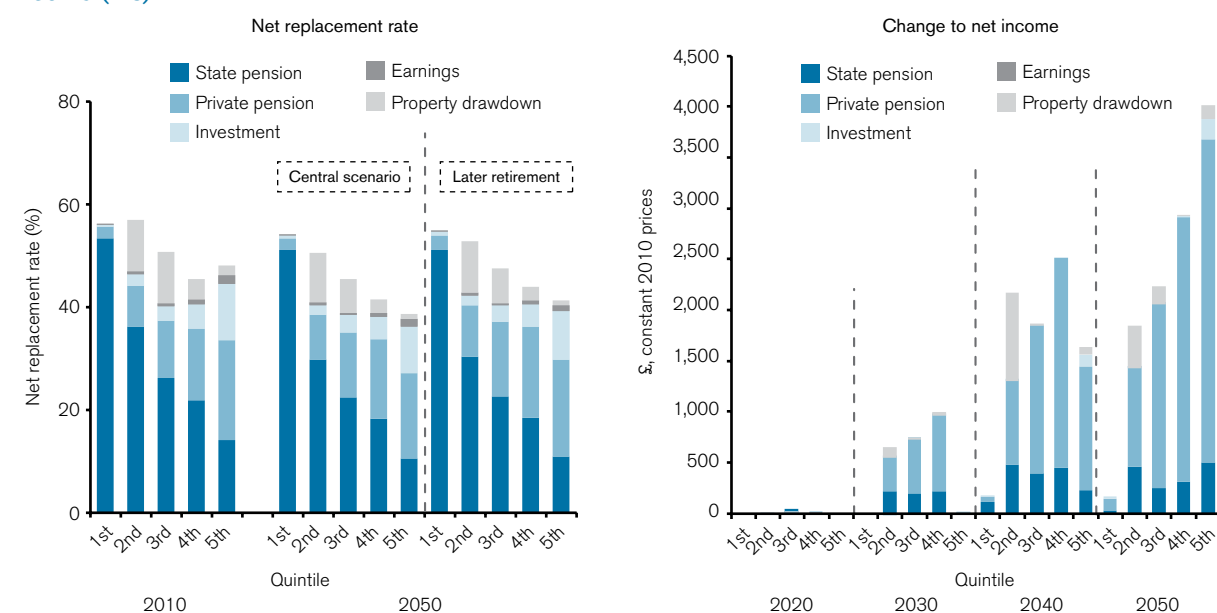
Source: Chatham House projections

- higher annuity conversion rates (because of delayed cashing-in and more favourable conversion rates at an older age) kick in and thus boost income streams.

- The net replacement rate will increase by some 2–3 percentage points for middle income groups by 2050, translating into a financial gain in incomes of around £1,500–£2,000 p.a. (in 2010 prices). If the 5th quintile decided to participate, the income gain would be only slightly higher, about £2,500 p.a.

- The 2nd and 3rd quintiles build up even higher housing wealth and have fewer years over which to draw this down, implying that the subsequent income stream will be higher.

- However, it should not be overlooked that these potential financial gains would accrue at the cost of leisure time and possibly health too.

The implications of this scenario, as shown in Figure 5.4, are that it could help close the middle income group's retirement income gap, reducing its vulnerability to risk and boosting pension incomes through extra earnings from employment as well as a larger property wealth back-up. The example demonstrated here is simply to

move retirement to 70 in 2020 and therefore the financial impacts only accrue gradually. But the payback does help lift middle income households to a more robust replacement rate.

5.3.2 Labour market policies to encourage later retirement

The 'work longer' solution to secure a better pension is conceptually similar to the 'save more' recommendation, with the work–leisure trade-off replacing the earlier consumption–savings trade-off. Given the current pressure on government resources, this change has also become an urgent national financial issue for the government. Thus it is desirable both for the security of individuals' incomes and to relieve pressure on the government's welfare budget. The main caveat is the need to take into account variations in health and capability to work longer, ensuring that low income workers in particular are fairly treated.

Working longer will produce higher wealth accumulation for a household and therefore a higher retirement income, but there is a clear trade-off between continued earnings and increasing leisure time – and households' preferences will vary. Policies aimed at encouraging the 'work longer' option therefore encompass two aspects: promoting

flexibility for households to make choices about when to retire and encouraging later retirement in general.

To improve labour market flexibility, policies should consider incentivizing flexible working patterns and particular career choices that support later retirement. In this sense, education and training are valuable tools – people may be more inclined to choose careers (or switch to careers) that 'last' and aim for jobs that offer greater flexibility in work time, location and methods. By improving flexibility in working arrangements as well as offering improved tax benefits, many people may be prepared to accept deferred retirement as a necessary trade-off, reflecting favourable changes in living conditions, health and longevity.

In order to encourage households to withdraw from the labour market at a later date, a number of policy tools could be used. Lower income tax rates on households in employment beyond the state pension age provide a strong incentive for workers to continue earning. An alternative policy would be to consider partial payment

of pensions, phasing these in as retirees cut back work time. The redistribution of part of the money saved by the government by delaying state pension payments could take various forms, from working subsidies to a higher state pension for older retirees.

5.4 Reducing the uncertainty of retirement income, boosting the minimum standard

5.4.1 Reform of the state pension system

Given the risk of reduced retirement incomes in the future, what role can the government play in boosting pensions, especially for the most vulnerable income groups and those that currently fail to qualify for a full state pension?

The recently proposed reform of the existing state pension system to create a simplified flat-rate payment is an important option that is now under consideration.[58] This proposal suggests replacing the current multilayered state pension arrangements – the basic state pension and

Figure 5.5: Universal state pension (from 2015): net replacement rate (lhs) and composition of net income in 2050 (rhs)
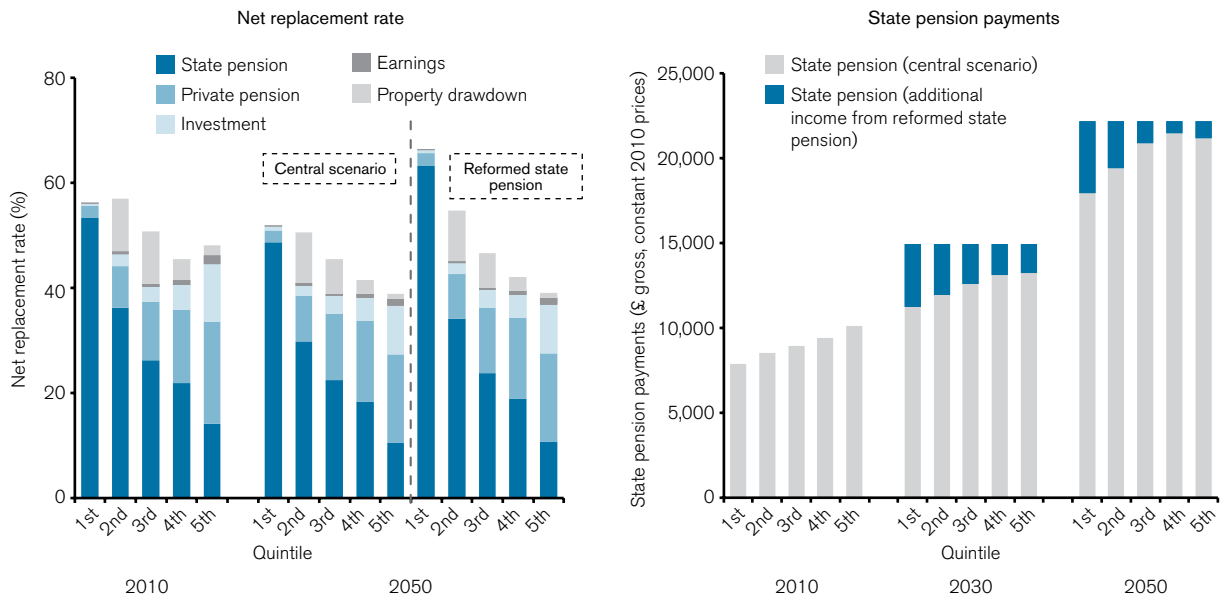
Source: Chatham House projections

58   This is akin to the proposal made by the National Association of Pension Funds for a 'Foundation Pension'. See NAPF (2010).

the state second pension as well as some social benefits – with a single pension of £140 a week per person (in 2010 prices). In this scenario, the HIS model assumes that the state pension reform is implemented in 2015 and that benefits revalue in line with the 'triple lock'. The proposal intends to improve the quality and accessibility of pensions, while cutting ballooning administration costs. The new pension system is likely to bring vulnerable segments of the population, such as non-working mothers or casual workers, into the state pension shelter. [59]

A higher, flat-rate basic pension would provide significant benefits and should increase the replacement rate from about 60% to near 70% for the lowest income categories. This payment would also ensure that all retirees were placed just above the definition of the poverty line. The HIS model suggests that the implementation of such a scheme (based on information to date) would be particularly favourable for low income households but with important gains for the middle income group as well (Figure 5.5).

The key points are as follows:

- As the reformed state pension would replace both the BSP and S2P, the boost to household income under the reformed state pension would depend on the entitlements accrued under the existing system. Hence the potential benefits to net retirement income range from approximately £1,000 to £4,000 p.a. (in 2010 prices).

- Low income households would stand to gain the most as their earnings and employment status are not sufficient to accrue significant income from S2P. These households would see their net replacement rate increase by almost 15 percentage points to 70%.

- Middle income households' replacement rates would rise by 2–5 percentage points in 2050, while the highest income households would see very little change.

However, these estimates assume that households do not react by modifying other savings and components of retirement income.

Reforming the state pension offers an alternative approach to mitigating the risks to retirement income. While the government would face significantly higher costs to state pension provision, estimated at around £25 billion p.a. (partly offset by lower administrative costs), such a reform would establish a critical safety net for retired households, particularly those that have experienced long periods out of the labour market. This would reduce specific instances of pensioner poverty and diminish the likelihood of a systemically important part of the population – retired households with insufficient pension savings – putting extra pressure on government provision of specific social benefits.

To achieve cost-effective reform of the state pension, such a policy needs to be accompanied by other policies to increase government revenues. These include increasing national insurance contributions[60] and policies to encourage later retirement and therefore later uptake (and fewer years of receipt) of the state pension.

The ramifications of state pension reform also need to be carefully considered. On the one hand, if provided with a significant boost to retirement income, middle income households may reduce their private pension savings to offset the expected gain in retirement income. On the other hand, if state pension reform is accompanied by a withdrawal of the complex set of means-tested benefits, this policy could encourage lower income quintiles to increase their savings. This is because, under means-tested benefits, savings and wealth translate into lower entitlement to benefits, so extra savings may even result in a lower overall retirement income. Without means-testing, the incentive to save is restored.

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59   This is likely to be done either through residency requirements or by making it significantly easier to achieve the 30 years of qualifying contributions.
60   A suggestion made by NAPF (2010).

6. Conclusion

Through a detailed analysis of household earnings, saving and wealth formation to assess prospects for retirement incomes, the report concludes that the middle class is due to experience an acute 'squeeze' in retirement over the next four decades, with the worst affected even facing the possibility of impoverishment.

The projections generated by the HIS model identify middle income households, in particular the second quintile, as those most at risk of suffering a sharp drop in income on entering retirement. On the basis of current patterns in consumption and savings, middle income households are not putting aside sufficient resources to provide a comfortable retirement. Therefore, households in this group are unlikely to be able to ensure a retirement lifestyle commensurate with that enjoyed during their working years or with their expectations.

Although the UK is facing an impending crisis of retirement incomes, this does not imply a crisis in the state pensions system. The reform of the pensions system implemented in the late 1980s, and the subsequent adjustments, have alleviated potential pressure on government resources from demographic imbalances and pension entitlements. State pension provision is modest and there is already an agreed increase in the state pension age, set to reach 68 in about thirty-five years' time. Furthermore, demographic dynamics suggest that the UK is not facing a sharp rise in its dependency ratio, unlike many other European countries such as Germany and Italy, where populations are likely to shrink as well as age.

How households plan for their future is a matter of personal choice (and ad hoc strategies), so the issue of middle class expectations for their retirement living standards is not a typical public policy question. However, is it correct to assume that future governments will be able to ignore the savings gap and the consequent inability to generate additional income in retirement for as much as 60% of the UK's households? We cannot underestimate the pressure that a significant and politically influential group of disappointed and discontented pensioners could put on any government. Responding to such pressure could have systemic implications for government welfare spending and public finances in future years.

The middle income group should therefore be the key target for government policies aimed at addressing insufficient savings. For low income households, there is clearly little choice but to rely on state pension provisions as there is little opportunity to save. For wealthy households, the government offers very little and there will be more onus on private savings in DC schemes in the future as many DB pension schemes disappear. But with financial advisers and ample savings opportunities, these households are not typically part of the pensions problem. The key issue is therefore how to help middle income households raise their retirement income and reduce the vulnerability of this income – this is evident from the historical data and the results presented for the base-case projections to 2050, as well as being highlighted in other surveys and commentaries.[61]

There is currently a window of opportunity for the government to take action and prevent the projected deterioration in middle class retirement living standards. The HIS model demonstrates that a significant, but not necessarily over-burdensome, increase in the savings of middle income households, adding an extra 10% of income between the ages of 45 and 64, could substantially boost

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61   More generally, the question of the retirement 'savings gap' has led to many reports on the topic. For example, the Aviva Real Retirement Report (2010) notes that 39% of those nearing retirement do not make any pension savings at all. Furthermore, their savings, while looking healthy on average, are distorted by the skewed distribution. Overall, the Association of British Insurers (2008) estimates that over 13 million people (about half the present work force) are not saving sufficiently for retirement. It is also widely quoted that some 75% of annuity conversions are for pension funds of £30,000 or less.

retirement incomes. It is critical to capture this age group as disposable income reaches a peak at the same time as many household financial obligations – such as paying off mortgages – have been fulfilled or are near fulfilment. Successfully enhancing savings at this point could therefore begin to turn around the prospects for retirement income provision within a relatively short time-frame.

Hence we suggest that it would be better and more effective to address the middle class's saving gap now through introducing mitigating policies, rather than responding to future political pressure by increasing benefits, which will further burden the public purse. In the UK, the key choices that lie ahead have been well aired – including, notably, by Lord Turner.[62] If the future workforce wants to avoid a large tax hike and tomorrow's pensioners want to reduce the threat of inadequate retirement incomes and old-age poverty, there are only two ways of addressing the problem: save more – and by implication invest more; or be prepared to work longer.

This report recommends that policies should encourage people to understand how essential it is to save for retirement in order to ensure a future lifestyle that matches expectations. However, people should also be aware of the risks that can affect investment returns and reduce their anticipated future income, and be aided in mitigating those risks. Households nearing retirement need encouragement to move their savings into more secure financial instruments to consolidate retirement wealth, and they also need to be helped to plan for conversion of their savings into annuities.

The shift in workplace pension schemes, characterized by the phasing out of DB schemes and increase in DC scheme membership, is likely to exacerbate the existing pension deficits of the middle income groups. These shifts will put yet more households into schemes that, in addition to being less generous than DB schemes, have variable returns and are vulnerable to changes in annuity conversion rates. As DB systems are phased out and even public sector workers find themselves squeezed from 'gold-plated' to 'silver-plated' pension guarantees, possibly the most secure means of guaranteeing income in old age will be to work for longer.

The challenge from the point of view of public policy is how to address households' preferences and constraints through incentives, flexibility and the fair sharing of risks. Providing appropriate savings incentives, guarantees and regulations is crucial. Nevertheless, public policies should also gain widespread commitment. The multiple changes to the UK pension system have created unnecessary uncertainty and complexity which, arguably, have contributed to the erosion of public trust in the system. There is also a role for the financial sector to play in engineering solutions that meet people's needs and concerns – and from which they can prosper. There is an urgent need for policy action now to provide stronger incentives for people to save for retirement and to ensure they understand that the value of pension savings is critical to the quality of lifestyle they will be able to enjoy in retirement – an increasingly significant period of each person's life.

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62   Turner Report (2004).

Technical Appendix

The Technical Appendix explains in more detail the mechanisms and assumptions embedded in the HIS model developed specifically to analyse wealth formation and the generation of retirement incomes.

The model is largely a recursive system of relationships that takes demographic and macroeconomic assumptions, together with existing pensions legislation, as top-down inputs into a framework for deriving household incomes, consumption and savings and then, following on from this, wealth and retirement incomes. The model operates through the definition of 'representative' households that represent the 'average' for each of the income and age groups identified in the system. Representative households are defined for each of five income (quintile) groups across ten year age groups (the model covers eight of these). Data from the Office of National Statistics (ONS) and the Department for Work and Pensions (DWP) are input to benchmark the model, which is then used to extend the base from the current period (2010) to 2050.[63]

Representative households are effectively treated in two stages. For working age households, the model produces projections for incomes, consumption and savings, which are cumulated over their working lifespan into wealth held in various asset classes (pensions, property financial and physical wealth). At the state pension age, the model converts the cumulated pension funds and pension rights into retirement income streams that accrue to retired

households.[64] Income from financial wealth, housing (rentals and partial drawdowns) and earnings are also included. For simplicity, we do not include the under-15 age group (we assume that this group has no income and savings) and we assume that any remaining net financial and net property wealth of the representative household for the 85+ age group is distributed to working age households after ten years (as gifts or bequests).

In contrast to this partial equilibrium approach, some analysts have adopted general equilibrium models with overlapping generations, following the tradition of Auerbach and Kotlikoff (1987). We consider such models to be outside the scope of the analysis of this report and not essential for bringing out the key characteristics of wealth formation and generation of the various retirement income components. These highly stylized models have typically focused on the potential interaction between pension systems on the one hand and capital formation and productivity on the other. They usually do not treat household wealth formation and the various components of retirement income in detail (and they usually also adopt other simplifying assumptions, e.g. ignoring impacts on trade and capital flows). To some extent, a number of the early findings that relied on these benchmarked (theoretical) models have been tarnished, if not discredited, by the relatively poor results seen from attempts to shift pension systems away from state and DB systems towards DC and privately managed funds (e.g. the UK's failed experiment with 'contracting out' of SERPS; the collapse of the Hungarian private pension funds). There is little evidence so far of the claimed superior benefits for investment and productivity of moves to DC-type schemes. The more general claim that higher savings might lead to higher investment and productivity has more support but is extremely complex and would be better placed in a global context.

The key point is that use of a partial equilibrium system is not only convenient but justifiable given the

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63   While ONS and DWP data on wealth and incomes do not overlap precisely, for simplicity the HIS model assumes that they do (i.e. the first quintile for wealth holdings is also the first income quintile). While this neglects instances of households with high income and low wealth, or vice versa, in terms of aggregating households into five groups it is the most suitable method for establishing income streams and wealth holdings.

64   To encompass changes to the state pension age, the model takes the average state pension age for males and females. While this may cause some inconsistencies in the period 2010–18 between households headed by males and those headed by females, the state pension age equalizes thereafter.

uncertain benefits of using a more complex model and the focus in this report on the household sector rather than other variables such as investment or trade. However, in principle, the detailed model for households' savings and wealth by age and income group could be embedded in a large-scale macroeconomic model in order to estimate other feedback effects in a rigorous manner.

A1 Model mechanisms

As a simplified explanation of the main mechanisms of the model, for each of the 40 representative households treated at any one time, the model estimates income (from the wage rate for this household's age and income group) and consumption (where the consumption rate out of income is also specific to each age and income group). This means that the savings rates of each of the 40 representative households are all different. Thus a complete cross-section of the population is represented for each period.

The consumption rate tends to be high for low income workers (and retirees) and low for high income workers – saving rates are the mirror image of this. Also, the savings rate rises steeply during working life and is negative in old age for middle to higher income groups. But it has a much flatter profile for poorer households (indicating their reduced scope for both borrowing and saving).

Savings (net income less consumption) are subsequently distributed across the different asset classes in the model, both financial and physical (as described below), with institutional savings (such as workplace pension schemes) being allocated according to regulations and the rest of savings allocated to other investments. The model estimates the cumulative wealth for each asset class during each household's working life through both additional savings and revaluation effects (reinvesting returns on

assets). There is also inheritance of financial and property wealth from the eldest cohort (we assume this is simply spread across working cohorts as a bequest).

At the state pension age, we assume that, in addition to state pension benefits, wealth is converted into an income stream. This top-up of the state pension is chiefly based on accrued pension rights and conversion of private pension savings into annuities. However, especially for higher income households, financial wealth and continued earnings also augment the income stream. The most controversial component of retirement income is from property, which is discussed in detail in Section 4.1.2 of the report.

A1.1 Household income, consumption and savings

Gross income is tracked over time for each representative household in the model, on the basis of the existing data from the Department for Work and Pensions' *Households below Average Income (HBAI)* dataset and the trend rate of wage growth, identified from data provided by the ONS's *Average Weekly Earnings*. Household income is disaggregated into wage and non-wage income, both of which vary with the profile of income over the life-cycle. Both income components are uprated in line with trend wage growth. Wage income is also determined by trends in employment.[65] However, the use of representative households and household level data has an upwards bias on wages for all workers, although this is particularly marked for young workers. To counter the bias, we scale the wage profile for households in the HIS model to preserve a constant relationship between household level wage data and individual level wage data.

Consumption profiles for each representative household are derived from their income and stage in the life-cycle, with remaining income representing savings that are distributed into institutional savings schemes and the various forms of wealth (in line with existing patterns).

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65   As employment increases (falls), the representative household's wage income also rises (falls).

Figure A1: Consumption rates (lhs) and levels (rhs)

Consumption rate

Consumption level
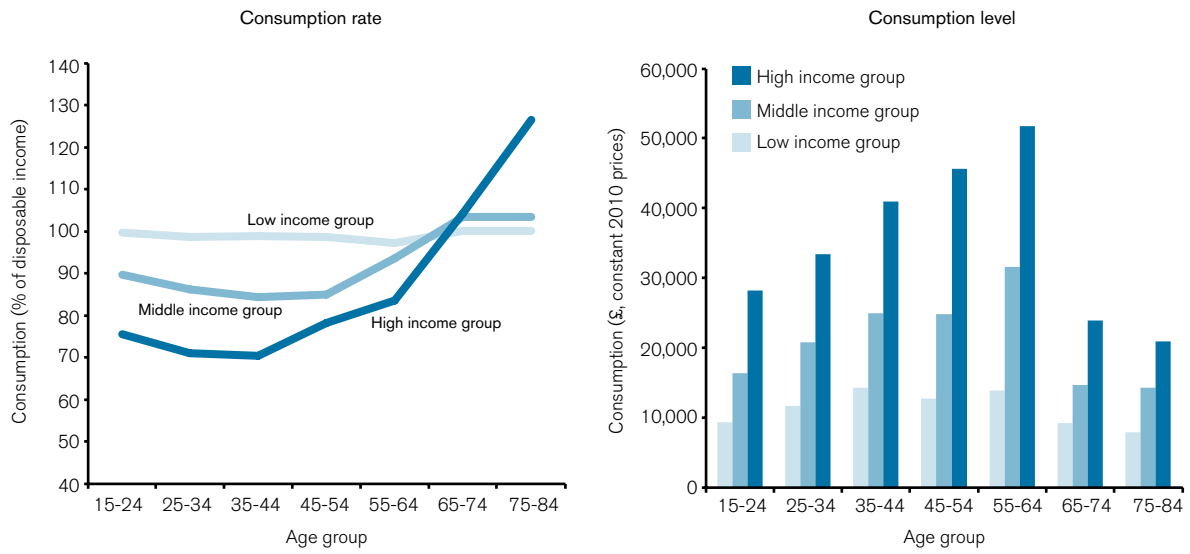
Source: Chatham House calculations based on ONS and DWP data

Figure A2: Financial savings rates (lhs) and levels (rhs)
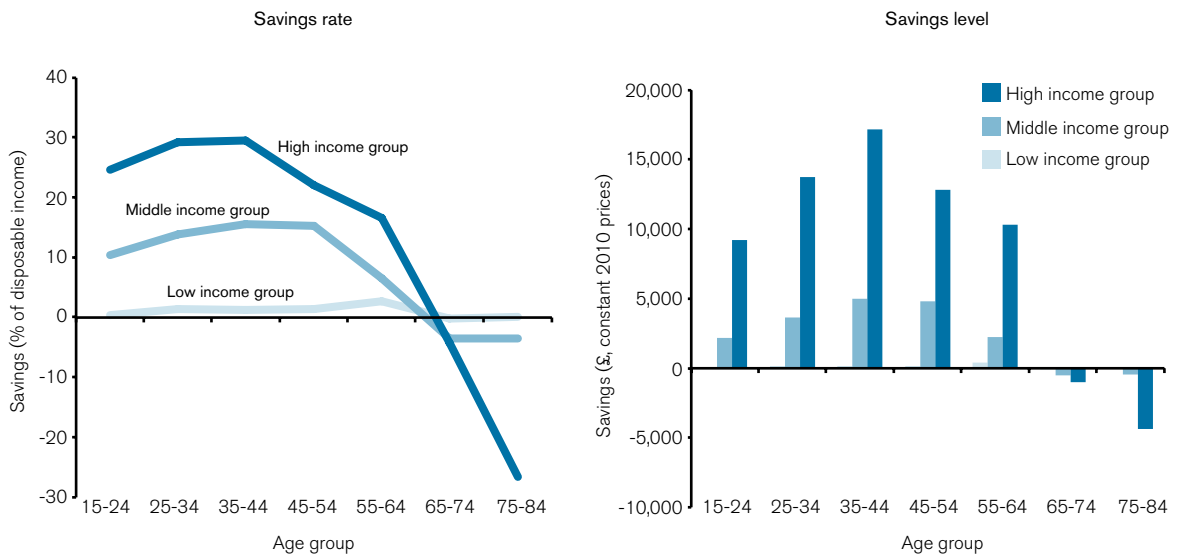
Savings rate

Savings level

Source: Chatham House calculations (for financial savings, excluding mortgage payments) based on ONS and DWP data

Savings into workplace pensions are calculated according to trend contribution rates (as a percentage of gross salary, with reference data taken from the ONS's *ASHE*) and the percentage of the workforce in each type of pension scheme (from the ONS's *WAS* – this varies according to the income group).

The remainder of savings are divided proportionally – with the proportion defined by the savings profile inferred from the *WAS* snapshot – between savings into property, financial wealth and personal pension funds.

The distribution of savings across asset classes is inferred from the life-cycle trend incorporated in the *WAS* snapshot – that is, cohorts are assumed to save into each form of wealth such that their holdings reach a target value (in constant prices) proportional to the wealth of the next cohort over the ten-year period.

Furthermore, the *WAS* snapshot offers an insight into the accumulation of both assets and liabilities for financial and property wealth (debt and mortgages). The acquisition of liabilities is assumed to correspond to the life-cycle trend identified in the *WAS* snapshot, with extra savings being used to acquire assets.

A1.2 Wealth

In order of importance, the different forms of wealth treated in the model are:

- pension wealth (the net present value of a household's future income provided by a private pension, i.e. annuitized workplace and personal pensions with state pension excluded);
- net property wealth (housing assets less outstanding mortgages);
- net financial wealth (financial assets less outstanding liabilities such as consumer debt);
- physical wealth (vehicles, art works, antiques, jewellery, etc.).

The initial wealth holdings for each cohort have been calibrated according to the data in *WAS* – with an additional breakout of assets and liabilities for financial and property wealth. Savings from household income feed into each component of net wealth.

Alongside the growth in wealth from annual savings, the model also continuously revalues each component of wealth (that is, it incorporates the total returns on wealth over each year):

- As a simplifying assumption, pension funds are revalued in line with the average of the total return on equity holdings and the yield on benchmark bonds (this applies to pension funds that are annuitized, i.e. workplace DC and individual personal pension schemes, not DB schemes where pension income rights are defined *ex ante*). The implied 50-50 split in fund holdings between equities and bonds will take account of the tendency to move towards bond holdings as savers approach retirement age. The ratio is not too influential in that the average return on bonds is set at 4.75% while the average return on equities is assumed to be 5.25%; thus the overall average return on pension assets would be 4.9% on a 25-75 split and 5.1% for a 75-25 split compared to the model assumption of an average return of 5.0%.
- Net physical wealth is a very small share of overall wealth and is simply assumed to revalue in line with CPI (we do not distinguish between different types of assets, whether depreciating cars or appreciating valuables).
- Gross financial assets are assumed to revalue in line with interest paid on deposit accounts (which follows a historical trend relationship with the yield on government bonds). Financial liabilities (debt) are not revalued but are paid down. In principle, it might be argued that the larger holdings of wealthy households could enjoy greater returns through alternative investments but this complexity is not incorporated in the HIS model.
- Gross property wealth is revalued in line with the average property price increase. Again, mortgages are not revalued but are gradually paid down.

There are a few further points to add concerning the likelihood of households trading down property and the impact of property wealth on the consumption potential of retired households (any rental revenues are, of course, included in household incomes).

Figure A3: Utility analysis demonstrates scope for a plausible reduction in 'housing services' consumed in favour of other goods, especially if housing costs are rising, pushing down the budget line

Utility curve: working age household

Utility curve: retired household

Housing

H*

H*

Other goods
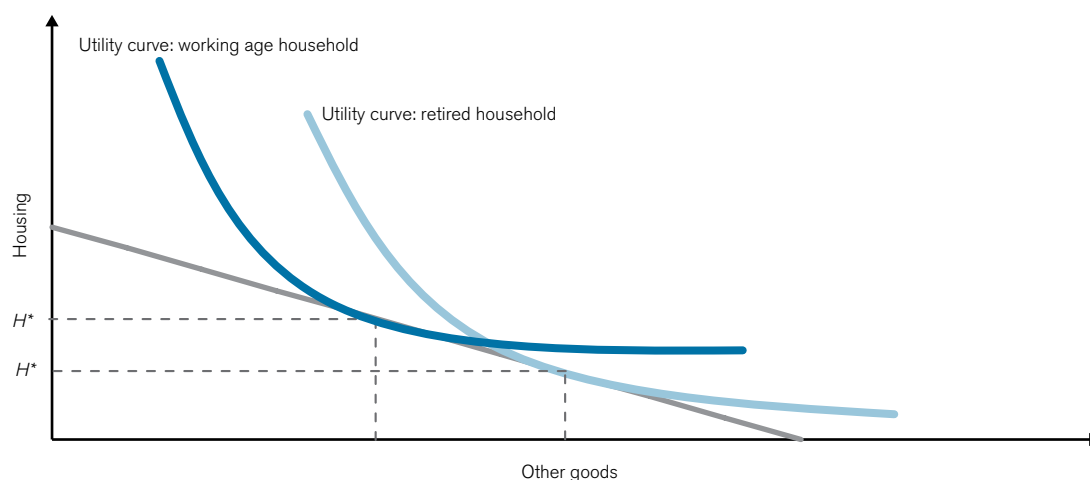
First, over time it is perfectly plausible for households to change their preferences regarding the type of housing services they want to use and pay for (or invest in). In principle, this suggests that some households could even choose to enlarge their property portfolio in retirement. However, consumer preferences combined with a budget constraint (and housing costs probably rising faster than consumer prices) are more likely to lead to a shift in favour of lower housing outlays and more spending on other goods during retirement. Disinvesting in property wealth would therefore be a rational choice for those wanting to change their housing type and this need not be seen as a symptom of hard times and a shortfall in pension income but simply as a reflection of consumer choice over the life-cycle.

In any discussion of the impact of property wealth on households' consumption, it is also important to make the distinction between the concept that property wealth in itself acts as a stimulant for consumer spending and the impact of disinvestment in property wealth by households, particularly retirees. In the case of housing disinvestment by retirees, property wealth is actually realized (as a lump-sum payment), rather than being simply a potential background stimulant to higher consumption rates – and

it is usually a permanent drawdown, just as financial assets are drawn down to supplement incomes in retirement.

A1.3 Retirement income

At the state pension age (which can be adjusted in the model), we assume that the representative households of this age group will draw their retirement income. This is composed of five income streams:

- Private pension income from DB schemes (public and private) is drawn down according to a typical formula of 1/80th of career average revalued earnings[66] multiplied by the number of years of employment. The number of years in employment is calculated via workforce employment and the percentage of employees in the particular type of pension scheme. The expected income in the *WAS* snapshot is used to calibrate how many qualifying years for a workplace pension have been accumulated for the period prior to 2010. Private pension income from workplace DC schemes and individual personal pension plan schemes are annuitized upon retirement. Annuity conversion rates are based on data from the Financial

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66   This reflects the trend in DB pension scheme membership and the most common practice in the public sector (ONS, 2010b). Typically, DB schemes with a 1/80th accrual rate also include a 3/80th tax-free lump sum, which the HIS model assumes to flow into financial wealth.

Table A1: Bond yields (%) and annuity conversion rates (annuity purchased by £100,000)

Bond yield	2.0%	4.0%	6.0%	8.0%
Age				
65	2,730	3,406	4,134	4,914
70	3,276	3,952	4,680	5,434
75	4,056	4,732	5,460	6,188

Source: Chatham House calculations based on FSA and GAD data
Note: 2010 data

Services Authority,[67] while the relationship between annuity rates and bond yields is determined by the Government Actuary Department's income drawdown tables.[68] Private pension provision is assumed to rise in line with inflation. Private pension income is assumed to be drawn at state pension age,[69] although the model can incorporate variations in the age at which each pension scheme type is turned into income.

● State pension provision consists of the Basic State Pension (BSP), SERPS/S2P and Pension Credit. The BSP is assumed to have 100% coverage[70] and will now be uprated in line with the 'triple lock' announced in the government's June 2010 Budget – that is to say, it increases by the greatest of 2.5%, national average earnings growth or inflation. SERPS/S2P provides an earnings-linked state-provided pension. The pension provision included in the model works on current accrual rates for the S2P.[71] The Pensions Act 2007 legislated for S2P accrual to be completely flat-rate so the earnings-related component will be removed. In the model, this is projected to enter into force in 2030. The final component of state pension provision is the Guarantee Credit, which provides pensioners with benefits if their income falls below a certain level.[72]

● Retired households receive investment income (essentially drawing down the income stream from financial wealth – for simplicity this is derived from the savings deposit rate applied to all financial assets).

● Earnings from employment provide a small component of retirement income, in particular for the wealthier and newly retired cohorts. Data for retired households' wage incomes are based on *HBAI* data.

● Income from the drawdown of property wealth is inferred from the life-cycle pattern of property wealth indicated in the *WAS* snapshot. While drawdown of property wealth will actually provide households with lump sums of money, for the purpose of modelling this is smoothed, with the proportion of property wealth drawn down for each retired cohort converted into the equivalent of a constant annual income stream.

A1.4 Bequests

Households in the 85+ age groups are presumed to leave outstanding net financial and net property wealth as a bequest that is inherited by households of working age.

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67   The annuity rate is based on a joint annuity rising in line with inflation.

68   These relate to the maximum income that may be withdrawn from unsecured pension funds or alternatively secured pension funds.

69   The state pension age broadly corresponds to the average age of withdrawal from the labour market as calculated by the ONS (2010b).

70   The HIS model assumes that households receive 90% of the full BSP in 2010, moving up to 100% by 2040. This controls for the proportion of the population (especially a significant number of females) not eligible for the full BSP owing to broken employment history or part-time working (ONS, 2010a).

71   'Contracting out' of S2P is not included within the HIS model. From 2012, the option to 'contract out' will be abolished for all but DB schemes and, given the decline in DB schemes, it will be an option unavailable to the majority of the workforce, and therefore would add undue complexity to the HIS model. However, S2P/SERPS accruals in the years prior to this have been deflated by the typical proportion of households 'contracting out'.

72   Other state benefits that affect pensioners but have not been incorporated in the model include housing benefit, Council Tax benefit and Savings Credit. Significant numbers of retired households draw on these benefits – although the income derived from them is small when compared with other sources. This omission may underestimate the retirement income and replacement rate for the lowest income households.

Figure A4: OECD replacement rates for individuals based on the ratio of pension payments to pre-retirement wage incomes

Source: OECD

A1.5 Replacement rates

Measurement of replacement rates is explained in the methodology section of the report. In terms of the cross-country comparisons mentioned, the OECD has published material on this, as shown in Figure A4. However, the OECD's definition of the replacement rate is different from that adopted in this report, so that statistics for the UK calculated here will not match the OECD figures. Other countries may also quote numbers that vary from the OECD publication. Nevertheless, this material provides some insight into the typical range of replacement rates across developed countries.

A2 Data issues

A2.1 Use of cross-sectional data

The ONS's relatively recent *WAS* is an extremely useful new product that gathers data on household wealth holdings in Great Britain. Nevertheless, by virtue of being the first of its kind, it requires further testing of the accuracy of the inferences regarding households' savings

profiles. Conclusions are somewhat restricted at this point. As the ONS is planning subsequent versions of this survey (it should become a regular release), the availability of panel data should allow more accurate modelling and verification of existing results. Nevertheless, assumptions were checked against other available data, even if this was only possible at the aggregate level.

A2.2 Measuring property wealth

The *WAS* dataset provides comprehensive data on household property wealth. However, as the accompanying report[73] clarifies, property assets have been measured according to the owner's reported valuation and this argues in favour of caution in interpretation. Households may value their property according to the sales value of neighbouring properties rather than the intrinsic value of their own property. To correct for the possibility of misreporting, the total gross property assets identified in *WAS* were rescaled in line with Great Britain's gross property assets calculated on a macro-basis – that is, taking data for average house prices and the housing

73   ONS (2009).

Figure A5: UK home ownership rates
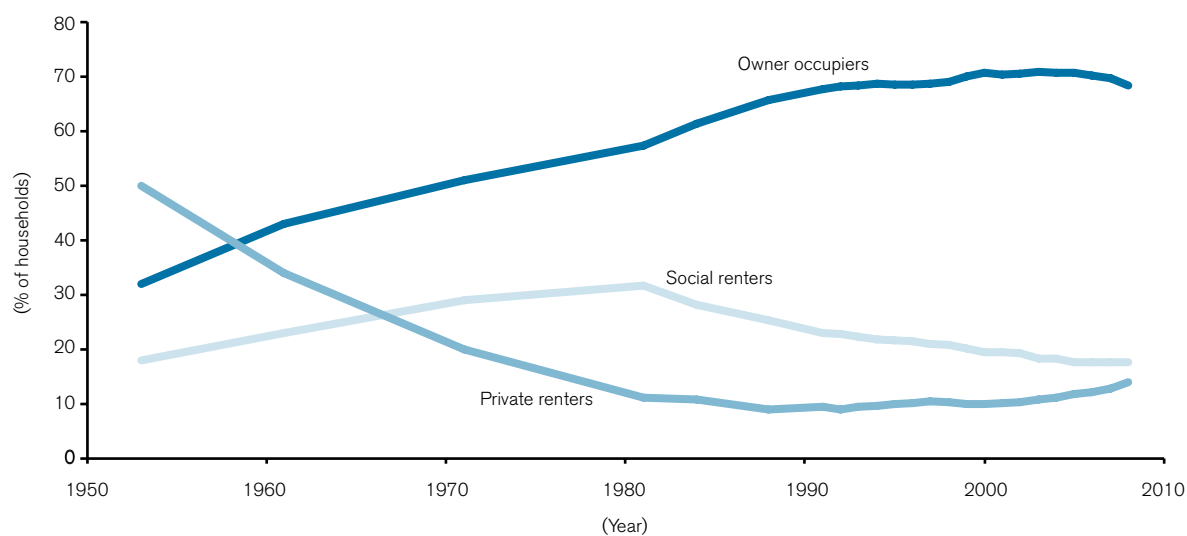
Source: Department for Communities and Local Government

stock from the Department of Communities and Local Government and from Nationwide (essentially, the *WAS* measure appears high compared with other indicators, so this was adjusted in the HIS model base).

The HIS model interprets the decline in property wealth observed across older cohorts as evidence of the drawdown of property wealth in retirement. It is plausible that cohort effects may also contribute to this pattern: that is, different age cohorts may have different property wealth according to the state of the housing market during their working age (see Figure A5). This may also be linked to varying rates of home ownership or other factors. In particular, the decline in the property wealth of households aged 75 and over in the middle income group may be in part attributable to this age group being active in household formation prior to the expansion of home ownership (in the 1960s and 1970s) and the decline in social renting (following the Right to Buy policy in the Housing Act of 1980). This may result in a tendency for the HIS model to incorporate a higher estimate for the income generated by housing drawdown in the future than in the past.

A2.3 Population and households

Demographic projections are taken from ONS data.[74] However, households are the unit referred to throughout when analysing wealth and retirement income because this study considers a broad spectrum of assets, many of which can only be calculated at the household level.

Existing data typically refer to a household reference person (HRP) to indicate the characteristics of the household. When there is more than one householder, the individual with the highest income is the HRP (or the eldest in cases where incomes are equal). However, the HRP method presents a number of problems. When considering the oldest and youngest households, sample selection bias may appear – household heads in these age ranges will presumably have above-average incomes, savings and wealth relative to their age range, whereas others in these age ranges may be obliged to live with other family members who can support them.

Household surveys also present a problem when attempting to estimate retirement incomes. These surveys take account of private households but not institutional housing. As a result, retired people who have moved

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74   Until 2033, ONS individual population projections are annual. Thereafter, projections come in 5-year intervals. We apply linear interpolation to acquire population projections for the intermediate years.

into nursing homes or other residential care will not be included in the data.

Furthermore, at an aggregate level, the projections for population do not directly feed into household numbers. The number of households relates not only to the absolute population but also to trends in household composition. For the purpose of the model, we assume that trends in household composition remain constant. To extrapolate data on the number of households by age range in the period 2010–50, we use current snapshots of the number of households by age group and the population by age group. We then take the ratio of individuals to households for each age range. Keeping these ratios constant and applying population projections, we project the number of households by age range. Hence a rise in the population within a certain age group will bring about a linear, but not necessarily equal, rise in the number of households in that age bracket.

A3 Assumptions

A3.1 Base-case projections

The base-case projections are based on estimates derived from historical trends. This assumes that key macroeconomic variables revert to long-run trends and that the taxation system remains as it is today (with income thresholds being uprated in line with wage growth). These trends are also fairly close to official forecasts for the economy (inasmuch as these are available over the longer run).

While property prices increase faster than wages (5.25% compared with 4.5%) over the long run, we have incorporated a slower growth rate over the next decade than was registered in the past to allow for currently weak market conditions. As a result, the projected affordability of housing (as measured by the ratio of house prices to average earnings) does not exceed previous peaks, reaching about 5.5 by 2050 (compared with a pre-crisis peak of 5.8 according to data from Halifax).

The returns to pension funds from equity investments are presumed to rise in line with property price inflation, which broadly reflects trends over the last 25 years.

The base case does, however, incorporate a number of specific trends regarding pensions. First, the state pension age moves up in line with current policy, with the male and female state pension age equalizing at 65 in 2018, reaching 66 by 2020 and gradually increasing to 68 by 2046.

Secondly, an assumption that annuity rates decline by around 10% over the next four decades is incorporated into the model. Increased longevity in the UK has acted previously as a depressant on annuity conversion rates. Increases to the SPA will bring about a stabilization in the number of years of retirement (i.e. the years between state pension age and life expectancy) according to ONS life expectancy projections. However, these projections assume that increases in life expectancy will taper off from the previous trend. The model therefore adopts a cautious annuity assumption relating to longevity risk, allowing for the fact that life expectancy may not taper off as sharply

Table A2: UK pension fund rates of investment return (including income reinvested) and government bond yields, % (average over time period)

	Nominal			Real		
	UK equities	UK property	Govt. bonds	UK equities	UK property	Govt bonds
1983–08	12.9	10.1	7.2	9.7	7.0	4.1
1992–07	11.3	11.3	5.9	9.4	9.4	4.0
1998–07	7.4	12.2	4.7	5.8	10.6	3.1
2002–08	3.6	7.8	4.6	1.6	5.8	2.6

Source: Bank of England, Towers Watson

Figure A6: Life expectancy and state pension age (SPA)
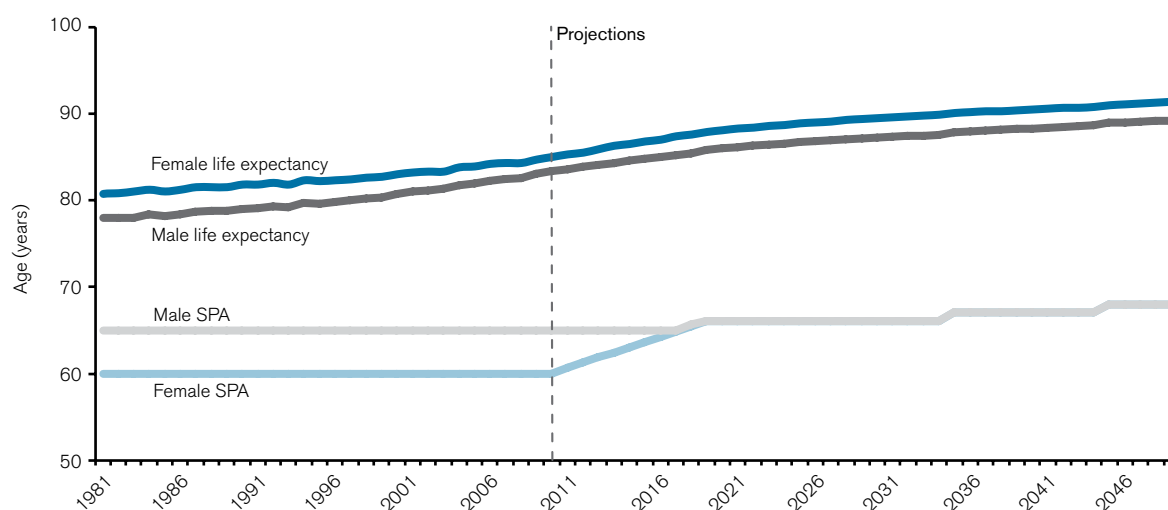
Source: ONS data on life expectancy. Note: period calculation of life expectancy at SPA

as the ONS has projected. If this tapering-off does occur as projected, there is the potential for retirement income from annuities to be higher than the cautious HIS model projection.

Thirdly, existing trends in pension scheme membership are projected to continue. We project that private sector DB scheme membership will decline to around 800,000 members by 2030. In the base case, workplace DC schemes are assumed to absorb the entire workforce no longer in a DB scheme (i.e. the aggregate workplace pension scheme membership remains constant). Meanwhile, overall public DB scheme membership is projected to decline by some 330,000 members between 2010 and 2015, in line with the expected fall in public sector employment outlined by the Office for Budget Responsibility in the November 2010 projections for the UK economy, following the Comprehensive Spending Review in October 2010.[75]

In addition, the legislated policy of auto-enrolment is incorporated into the model, such that it is phased in between 2012 and 2016. This captures the residual number of workers not in workplace pension schemes and places them into NEST. The base case assumes that 30% of workers opt out of auto-enrolment, in line with the DWP's projection that between 5 and 9 million of the 10–11 million eligible workers will be newly saving or saving more into pension funds.[76]

75   Office for Budget Responsibility (OBR 2010).
76   Department for Work and Pensions (DWP 2009).

A3.2 Scenarios

Table A3: List of parameters and modifications used in scenarios

Scenario and parameter	Modification
Low property prices scenario	
Property prices	1.5% real growth
Low interest rate scenario	
Savings deposit rate	Real 1.0%
Bond yields	Real 1.1%
Inflation	1.1%
Workplace pension scheme shift scenario (includes previous 2 scenarios)	
Private DB schemes	Membership declines to approximately 125,000 by 2030
DC schemes	Membership increases at 50% of the rate of the base case
Public DB schemes	Membership declines by 1 million by 2020
Reform to the Basic State Pension	
Basic State Pension	From 2015, a universal benefit of £140 per week (in 2010 prices) for all retired people, uprated in line with national average earnings. Retired households no longer receive income from SERPS/S2P or pension credit.
Later retirement age	
Retirement age	SPA assumed to rise to 70 in 2020 (all pensions are received at this age)

References

ABI (2008), Association of British Insurers, *The State of the Nation's Savings.*

AEGON (2011), *Towards More Effective Savings Incentives.*

Aon (2008), *Replacement Ratio Study: A Measurement Tool for Retirement Planning.*

Association of Independent Financial Advisors (2009), *Financial Planning through Retirement.*

Auerbach, A. and Kotlikoff, L. (1987), *Dynamic Fiscal Policy* (Cambridge: Cambridge University Press).

Aviva (2010), *Real Retirement Report*, February 2010.

Banks, J., Blundell, J., Disney, R. and Emmerson, C. (2002), 'Retirement, Pensions and the Adequacy of Savings: A Guide to the Debate', *Institute for Fiscal Studies Briefing Note No. 29.*

Banks, J., Blundell, R., Emmerson, C. and Oldfield, Z. (2006), 'State Pensions and the Well-being of the Elderly in the UK', *Institute for Fiscal Studies Briefing Note WP06/14.*

Barclays Capital (2009), *Equity Gilt Study 2009.*

Davis, E.P. (2004), 'Is There a Pensions Crisis in the UK?', *Pensions Institute Discussion Paper.*

Demery, D. and Duck, N. (2006), 'Savings–age Profiles in the UK', *Journal of Population Economics,* 19, pp. 521–41.

Disney, R. and Emmerson, C. (2005), 'Public Pension Reform in the United Kingdom: What Effect on the Financial Well-being of Current and Future Pensioners?', *Fiscal Studies*, 26 (1), pp. 55–81.

DWP (September 2009), Department for Work and Pensions, 'People Benefiting from Private Pension Reform: Explanation of Participation Estimates', *Factsheet.*

Friedman, M. (1957), *A Theory of the Consumption Function* (Princeton, NJ: Princeton University Press).

Hviding, K. and Mérette, M. (1998), 'Macroeconomic Effects of Pension Reforms in the Context of Ageing Populations: Overlapping Generations Model Simulations for Seven OECD Countries', *OECD Working Paper No. 201.*

International Longevity Centre (2007), 'House Blockers? Older-people and the Housing Stock in an Era of Under-occupancy', International Longevity Centre Conference, London, 22 May.

McMorrow, K. and Roeger, W. (2002), 'EU Pension Reform – An Overview of the Debate and an Empirical Assessment of the Main Policy Reform Options, *European Commission Economic Papers No. 162.*

Modigliani, F. and Brumberg, R. (1954), 'Utility Analysis and the Consumption Function: An Interpretation of Cross-section Data', in K.K. Kurihara (ed.), *Post-Keynesian Economics* (New Brunswick: Rutgers University Press).

NAPF (2010), National Association of Pension Funds, *A Foundation Pension: A PPI Evaluation of NAPF Proposals.*

OECD (2009), *Private Pensions Outlook 2008.*

OBR (2010), Office for Budget Responsibili*y*, *Economic and Fiscal Outlook,* 29 November.

ONS (2009), Office for National Statistics, *Wealth in Great Britain: Main Results from the Wealth and Assets Survey 2006/08.*

ONS (2010a), *Occupational Pensions Scheme Annual Report 2009.*

ONS (2010b), *Pension Trends.*

Pensions Commission (2004), *Pensions: Challenges and Choices* (The Turner Report).

Pensions Policy Institute (2009), *Retirement Income and Assets: How Can Housing Support Retirement?*

Pensions Policy Institute (2010), *The Pensions Primer.*

Pensions Regulator/The Pension Protection Fund (2009), *The Purple Book: DB Pensions Universe Risk Profile.*

Registered Nursing Home Association (2004), *20 Key Facts About Nursing Homes.*

Turner Report (2004), *see* Pensions Commission (2004).

Datasets

DWP, *Households below Average Income*

Government Actuary Department, *Income Drawdown Tables*

Halifax, *Housing Research*

Nationwide, *House Prices*

ONS, *Annual Survey of Hours and Earnings*

ONS, *Average Weekly Earnings*

ONS, *National Population Projections (2008-based)*

ONS, *Occupational Pensions Scheme Survey*

ONS, *Period and Cohort Expectation of Life Tables (2008-based)*

ONS Social Survey Division, *Wealth and Assets Survey, Wave 1, 2006-2008: Special Licence Access* [computer file]. 5th Edition. Colchester, Essex: UK Data Archive [distributor], December 2010. SN: 6415.

Towers Watson, *Statistics*, available at: http://www.watsonwyatt.com/europe/pubs/statistics/