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Research Note

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Accumulation of wealth in Britain: What the distribution of wealth tells us about preparedness for retirement

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FCA occasional papers in financial regulation

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Contents

Summary

The FCA and The Pensions Regulator (TPR) have identified the prospect of people not having an adequate income, or the income they expect, in retirement as the overarching harm in the pensions and retirement income sector.[1] The major determinant of an individual's income and lifestyle in retirement is their accumulated level of wealth.

In this note we look at the distribution of wealth holdings in Britain using the latest wave of the ONS' Wealth and Asset survey (WAS), and consider what this can tell us about individual preparedness for retirement.[2]

The paper sheds light on three main questions:

1. **What is the distribution of wealth accumulation by age cohort?**

   We look at levels of wealth accumulation in Britain by age cohort, considering both pension and non-pension wealth. The main message from this analysis is that patterns of wealth accumulation follow the lifetime savings model[3] but that wealth is also very unevenly dispersed, both between cohorts and within cohorts. There are significant numbers of individuals in the older cohorts either in or close to retirement who have accumulated substantial wealth. In the wealthiest cohort - 60 to 69-year-olds – the median individual has total wealth of £280,000, the top quartile has approximately £630,000 and the top decile more than £1.25 million. But even within this group, there is evidence of hardship, with more than 10% of individuals having no private wealth. Looking at younger generations, half of all 20 to 29-year-old have no retirement resources, and of those aged 30 to 39, half have less than £30,000 saved.

2. **How does the distribution of wealth relate to differences in expected lifetime income?**

   According to the lifecycle model, how much people save is related to their expectations around the level and variability of their lifetime earnings. An individual who expects a high lifetime earning which fluctuates considerably over their lifetime would be expected to save more and accumulate greater levels of wealth than would otherwise be the case. Lifetime earnings are not observable so we proxy these for each individual using their currently observed level of relative deprivation.[4] We examine the relationship between our proxy for lifetime earnings and wealth accumulation and find

[1] Regulating the pensions and retirement income sector: our joint regulatory strategy (October 2018)

[2] A similar exercise was undertaken for the DWP by Banks, Crawford and Tetlow (2010) using an earlier wave of this survey.

[3] The lifetime savings model claims that individual make their choices on how much to save and spend at each point in their lives based on the resources they expect over their whole life rather than the income at any particular point in their life. See FCA (2016, 2018) for a discussion of the role of the lifetime savings model and how it remains an important lens through which to assess today's challenges around pensions and retirement income.

[4] The Index of Multiple Deprivation is a regional indicator of the relative levels of economic and social deprivation in Britain, and is measured at the small area level. See www.data.gov.uk/dataset/index-of-multiple-deprivation.

strong evidence that on average, individuals we estimate will have higher lifetime career earnings accumulate greater amounts of private wealth, while individuals estimated to have lower lifetime income accumulate the least wealth, consistent with the life cycle hypothesis.

3. How prepared financially are those closest to retirement?

Focusing on those aged 60 to 65, who are closest to retirement, we are able to say something about how prepared they are in terms of savings. Our findings suggest this is something of a mixed picture. Based on the resources they have accumulated to date, the average individual might expect to achieve a gross annual retirement income of £14,200 to £17,000, but this varies greatly across individuals. For wealthier (less deprived) individuals, the majority can expect a modest or comfortable retirement. While at least half of poorer (more deprived) individuals are not expected to achieve the minimum income standard[5] and are likely to be dependent on the state pension and benefits.

A fuller examination of savings adequacy for future pensioners would require building a microsimulation model to simulate the distribution of incomes into retirement. This is reserved for future research.

[5] The Minimum Income Standard was proposed by the Joseph Rowntree Foundation as the acceptable minimum standard of living in the UK.

Accumulation of wealth in Britain

Broadly speaking, wealth accumulation (or savings) is the sum of all the assets minus the liabilities of the individual. This section considers how individuals save for retirement:

- what levels of individual wealth have been accumulated
- how the overall level of wealth is dispersed, especially between and within different cohorts of savers

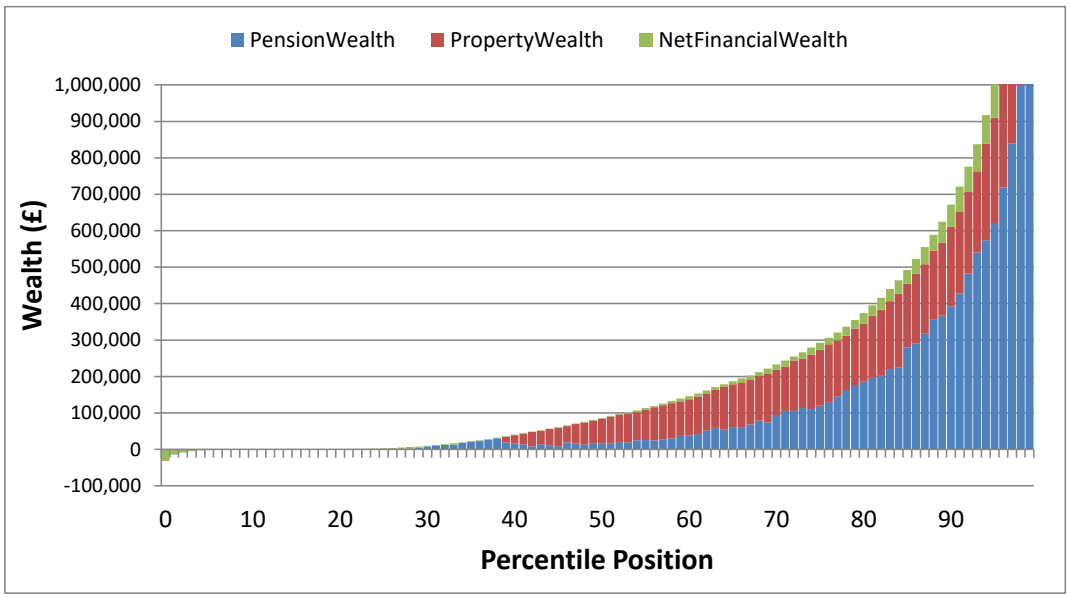
Private wealth accumulation is considered by examining the cross-sectional differences in the latest wave of the ONS' Wealth and Asset survey. Wave 5 provides a representative sample of the wealth holding of individuals in Britain using information collected between 2014 and 2016. To examine their main periods of accumulation and decumulation we track individuals between the ages of 20 and 80. Collectively, these individuals represent 45 million people, and have combined total private wealth[6] of £10.9 trillion, of which £5.2 trillion (48%) is private pension wealth, £4.2 trillion (38%) is property wealth and £1.5 trillion (14%) is net financial wealth.

Figure 1 shows how total individual wealth is distributed in Britain. The distribution is heavily skewed, revealing in aggregate a very unequal distribution of wealth. While 14% of 20 to 80 year olds have more than £500,000 in total wealth, 30% of individuals – approximately 14 million - have little or no wealth. The median individual level of wealth is £86,000, of which 19% is pension wealth, 79% is property wealth and the remainder net financial wealth.

Where individuals hold wealth, we typically observe that poorer individuals hold a larger share of their wealth in property and wealthier individuals hold a relatively larger share of their wealth in pension assets.

[6] Total wealth is estimated as the sum of private pension, property and net financial wealth. We have not included physical wealth in our estimates of total wealth given the subjective way in which it is estimated. Physical wealth includes household contents, possessions and valuables such as antiques and any vehicles owned. Information on state pension accrual is not collected by the survey, and so this is also excluded from this estimate of total wealth.

Figure 1: Plot of the weighted distribution of individual total wealth (Aged: 20-80)*



* Individual wealth estimates are ranked from lowest to highest and then reported as percentiles. Within each percentile we take the median for each of the components of wealth and then scale to the total.
No account is taken for state pension wealth

Source: FCA analysis of the Wealth and Asset survey (Wave 5: 2014-6)

An alternative way of looking at the distribution of wealth is through the lens of lifetime savings model (or life-cycle hypothesis[7]). The lifetime savings model suggests that individuals make decisions about spending and savings behaviour continuously throughout their lives and these decisions reflect their uncertainty over expected lifetime earnings and life expectancy.

Lifetime earnings are important because both theory and evidence indicates that average lifetime earnings reflect the standard of living which individuals are trying to obtain in retirement, rather than current earnings, which tend to fluctuate. The model suggests that individuals seek to smooth their spending to maintain a balanced quality-of-life by accumulating wealth when they are earning and dis-saving when they are retired. Therefore, an individual who expects high lifetime earnings and expects a long life, would be expected to save more and accumulate greater levels of wealth, than would otherwise be the case.

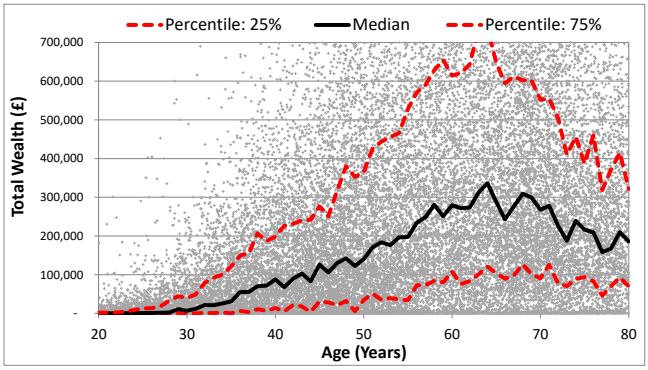
We examine these lifetime effects with the WAS in Figure 2, which shows individual reported wealth as a series of scatter plots, by type of wealth accumulated. Imposed on the scatter plot are line plots, which represent the weighted lower quartile, median and upper quartile value of wealth for all individuals[8] within each age band. Figure 2a illustrates individual total wealth and Figure 2b-d the contribution of the different components.

7 The life-cycle hypothesis of saving was proposed by Modigliani and Brumberg (1954), who observed that people make consumption and savings decisions based on the resources available to them over the course of their lifetime, and on their current life stage.

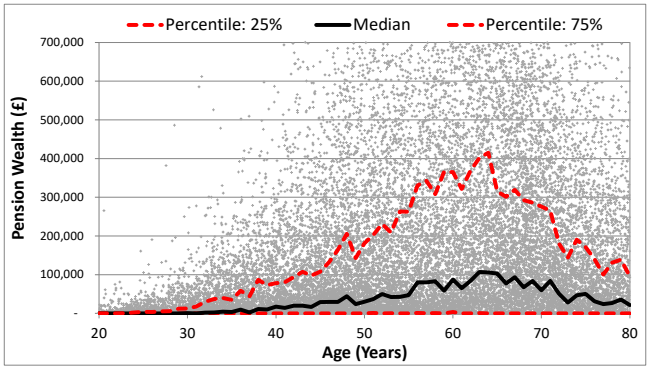
8 These percentiles estimates are adjusted by the cross-sectional weights in the survey. Each respondent in the sample is weighted so that they are representative of the appropriate number in Britain's population. For instance, the estimates of individuals who are aged 50 in the sample are weighted to reflect 963,000 individuals in the population. To illustrate, we

Figure 2: Scatter plot of type of wealth by the age of the individual*

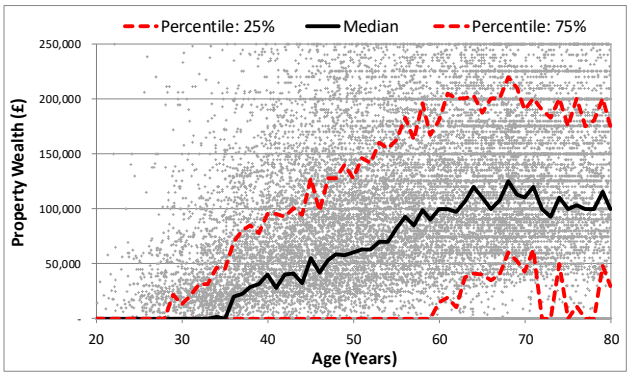
a. Total wealth



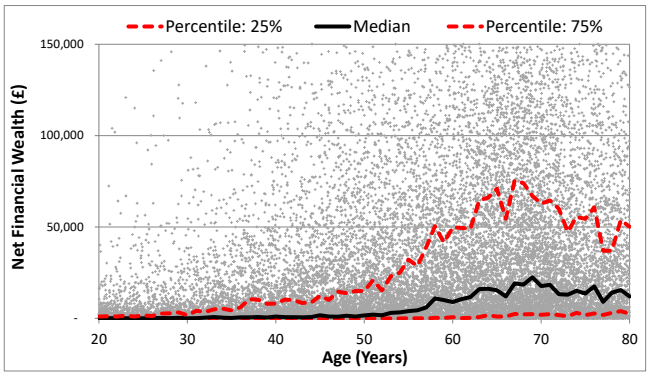
b. Pension wealth



c. Property wealth



d. Net financial wealth



* No account is taken for state pension wealth

Source: FCA analysis of the Wealth and Asset survey (Wave 5: 2014-6)

Wealth accumulation is found to be consistent with the idea of lifetime saving. With levels of wealth highest amongst individuals who are approaching the retirement period and lower for younger individuals and those who are already in retirement. It is clear however that there are large variations in wealth among individuals of the same age.

Considering total wealth (and the components of wealth) separately, we observe that:

- Total wealth peaks at 64 years of age, with the median individual accruing wealth of £340,000. At this point the wealthiest 25% have accumulated £740,000, while the bottom quartile has accrued less than £120,000. A particular concern is the very low levels of wealth accumulation amongst younger poorer cohorts. With 40 year-olds in the bottom quartile having accumulated less than £15,000 and individuals under the age of 35 typically having no wealth – see Figure 2a.

- Pension wealth is a more significant source of wealth for wealthier individuals, and the least significant for poorer individuals. Pension accumulation peaks on average at 63 years of age, with the median accumulation being £107,000. For the wealthiest 25%,

observe in figure 2a that, for this group, the 25th percentile of individuals have total wealth of £34,000, the 50th percentile of individuals have total wealth of £140,000 and the 75th percentile have total wealth of £365,000.

pension wealth peaks at £415,000. The bottom quartile of individuals has accumulated no wealth in the form of pensions. This is the case for all cohorts irrespective of age - see Figure 2b.

- Property wealth accumulation peaks just before retirement with median individual wealth of £120,000. Beyond this point, property wealth remains broadly constant. A similar pattern is observed for wealthier individuals, where for the top quartile wealth peaks at £220,000. The fact that property wealth remains constant, even after the age of retirement, indicates little evidence of downsizing. Perhaps this is because using property wealth to fund retirement has its challenges. For instance, to use housing equity to part fund retirement, without sacrificing the benefits of rent-free living, requires the homeowners to either trade down – and purchase a small property - or purchase an equity release product. This is complex and will be easier for some groups of individuals to accomplish than others.

  Among poorer individuals, property accumulation is less common, although there are strong cohort effects at play. For instance, amongst the bottom quartile under 60 years of age there is little evidence of property accumulation, but between individuals aged 60 and 70 there is modest accumulation of approximately £40,000. Property accumulation among poorer individuals may be a consequence of the introduction of the 'right to buy' policy in the 1980s.[9]

- Net financial wealth[10], is typically the smallest component of wealth for most individuals. Net financial wealth is strongly correlated with age and only becomes significant beyond the age of 60, which probably reflects the importance of the tax-free cash lump sum at retirement.[11] For under 50-year olds, average net financial wealth is less than £1,000, with the top quartile having wealth of £15,000. Net financial wealth peaks in the late 60s, with average wealth of £22,500 (or £74,000 for the top quartile), but the bottom quartile having less than £2,500.

Figure 2 illustrates the difficulties experienced by younger individuals, and the challenges they face accumulating wealth, particularly those in the bottom quartile who have accumulated little private wealth. The IFS (2016) found that younger generations now have lower wealth than current older generations did at their same age. Individuals who were born in the early 1980s have accumulated approximately only half of the average wealth holdings of the 1970s cohort at the same age. The Resolution Foundation (2017) argue the younger generation face challenges which are significantly different from those who came before. Compared to older cohorts they have experienced prolonged weak earnings growth, a decline in home ownership and less generous private pension provision. This will have serious long-term consequences for the adequacy of their retirement provision.

[9] The 'Right to Buy' policy in the United Kingdom, was introduced by the Thatcher government in 1980 to give secure tenants of councils the legal right to buy their council house, often at a large discount.
[10] Net financial wealth is the difference between an individual's gross financial wealth and financial liabilities.
[11] At retirement, an individual can usually take up to 25% of the amount built up in any pension as a tax-free lump sum.

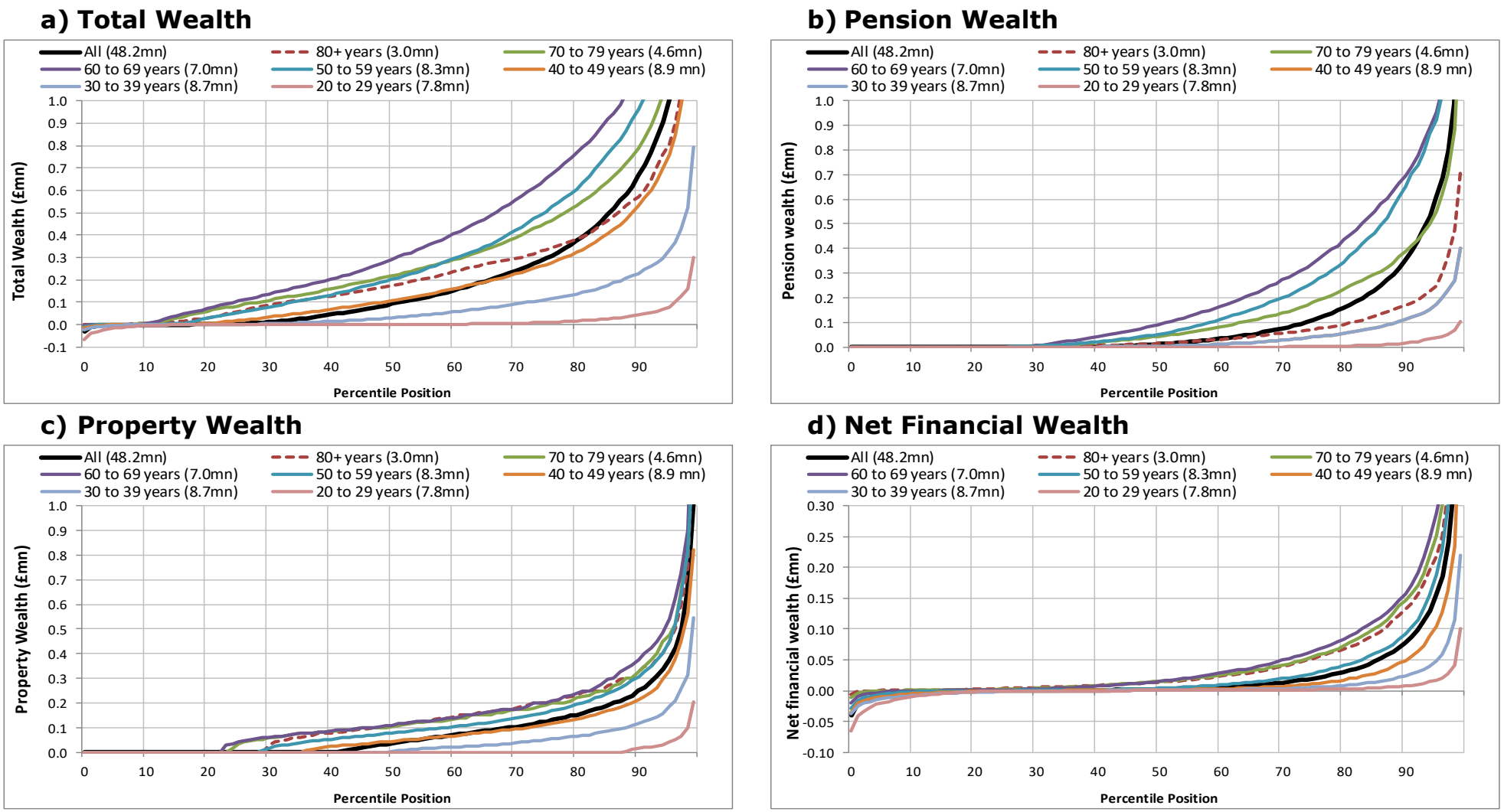
Accumulation by Cohorts

As highlighted, significant wealth inequalities exist both between and within birth cohorts. To better understand the accumulation challenges which different groups face, we consider the distribution of accumulated wealth for different age cohorts alongside one another.

Figure 3 illustrates the distribution of total wealth – and each component of total wealth – using cohorts constructed at 10-year intervals. Each distribution is constructed by ordering individual's wealth from lowest to the highest. All wealth distributions are heavily skewed, indicating that wealth is highly concentrated. It is clear from the cohort analysis that average estimates of wealth based on the median (or mean) alone are not fully representative of the wider distribution of savers, even though they are a helpful starting point.

For the median individual in Figure 3, total wealth in Britain is £80,000, property wealth is £33,000, pension wealth £17,000 and net financial wealth of £2,000. It should be clear that median total wealth does not equal the sum of the median wealth from the individual components. This is because particular groups of individuals tend to concentrate their wealth in particular classes. For instance, self-employed individuals tend to hold significant property wealth but relatively little pension wealth.

Figure 3: Distribution of individual private wealth organised by cohorts



Source: FCA analysis of the Wealth and Asset survey (Wave 5: 2014-6)

Next, we consider how wealth is distributed amongst the different components of total wealth – property, pension and net financial. With respect to:

- **pension wealth:** Almost 40% (over 14 million) of individuals of working age[12] have no private pension wealth at all[13], while a quarter of these individuals have more than £100,000[14]. The low levels of accumulation look particularly acute for under 40-year-olds, with over half (or 8.5 million) having no pension wealth and approximately 70% (or 12 million) having less than £10,000 in private pension savings.
- **property wealth:** While 55% of individuals own property, ownership is most prevalent amongst older cohort, with almost 80% of the 60 to 69-year-old cohort owning property. This compares with 50% of 30 to 39-year-olds and less than 20% of 20 to 29-year-olds.
- **net financial wealth:** Low levels of net financial wealth on average are common to all cohorts, with median wealth of approximately £1,000. It is the least significant in terms of a source of retirement income. Levels are lowest amongst the youngest cohort, with 30% of individuals reporting negative financial resources, and approximately 7% reporting financial liabilities of more than - £10,000. Net financial wealth is highest amongst cohorts who have reached retirement, with 30% of the 60 to 69-year-old cohort having more than £50,000 in net financial resources.

The main message to come out of this cohort analysis is that wealth is very unevenly dispersed, both between cohorts and within cohorts. There are a significant number of individuals in the older cohorts either in or close to retirement who have accumulated significant wealth. In the wealthiest cohort - 60 to 69-year-olds – the median individual has total wealth of £280,000, the top quartile has approximately £630,000 and the top decile more than £1.25 million. But even within this group, there is evidence of hardship, with more than 10% of individuals having no private wealth.[15]

Figure 3 provides further insight into the challenges which younger people face in accumulating wealth. Half of all 20 to 29-year-old have no retirement resources, and among 30 to 39-year-olds, half of individuals have total wealth of less than £30,000. The introduction (and extension) of auto-enrolment [16] has greatly boosted pension participation, but this is mostly at very low contribution rates. Where individuals have been auto-enrolled, they are placed on occupational defined contribution (DC) pension schemes which are much less generous than existing DB schemes in terms of employer contributions. Rates of home ownership have declined in the last few decades, especially amongst younger people who have found it difficult to get onto the housing market.[17] Higher house prices mean affordability is a key problem, leading to extended periods in private rental accommodation. According to the Resolution Foundation (2018), it would take a typical household in their late 20s today, 19 years to save for an average-sized

[12] The working age population is defined as all individuals between the age of 20 to 65.
[13] The FCA's Financial Lives indicated that 15 million adults who are not yet retired are not paying into a pension.
[14] The data captures the position of individuals sampled in 2014 to 2016, and therefore does not fully reflect recent changes to the auto-enrolment policy.
[15] According to the DWP (2018), 16 per cent of pensioners in the UK were living in relative poverty in 2016.
[16] To encourage workers to start building up retirement benefits, the Government introduced pension reforms through the Pensions Act 2008 that requires all employers to offer workplace pension schemes and to enrol eligible workers into their schemes.
[17] According to the ONS (2016), between 1991 and 2014, levels of homeownership among 25 to 34 year olds declined from 69% to 36%.

deposit, compared with 3 years in the 1980s. Housing inequalities mean that younger people are likely to accumulate less wealth than their predecessors.

State pension: What is it worth?

Wealth accumulated by the individual in the form of the state pension is a key source of future retirement income, especially as its value is indexed in real terms. Unfortunately, the value of state pension entitlement is not recorded in the WAS[18] and therefore we cannot link the actual value of state pension an individual expects to receive to their other sources of wealth. There are however approximately 95% of individuals over age 60, who, when asked, report that they expect to receive a state pension or pensioner benefits.

Understanding what state pension an individual will receive is difficult. The state pension has evolved in a way which has created a complex system. The complexity arises from the fact that in the past, along with the basic state pension, individuals had also been able to accrue other, earnings-related state pension benefits, or even contract-out.[19] However, in 2016, the state pension system underwent significant reform, with previous schemes replaced by a new single tier new state pension (nSP).[20]

Give that most individuals will have accrued under multiple schemes, the actual state pension benefits they receive at State Pension Age (SPA) will be a combination of benefits accrued under the new scheme and their existing national insurance record prior to 2016. Therefore, until they reach (SPA) it is difficult to determine with certainty what state pension benefits will be received.

The DWP's projections[21] indicate that approximately 90% of people reaching SPA in 2016 can expect to receive an amount at least equivalent to the full nSP. In 2016 the value of the full nSP was £8,094 a year.[22] Where an individual qualifies for a full nSP they have in effect accumulated retirement resources in the form of a deferred state pension fund, worth approximately £270,000.[23]

[18] The ONS will address this information gap in round 7 of their survey (April 2018 to March 2020), where information on the state pension, and the amount an individual expects will be collected.

[19] Contracting-out was where an employee could give up their right to additional state pension, and in return, they and their employers paid reduced national insurance.

[20] To qualify for a state pension an individual is required to make national insurance contributions or credits (known as qualifying years) during their working life. Under the nSP, an individual requires at least 10 qualifying years to be eligible for any pension and 35 years to qualify for the full state pension. Under the old state pension, 30 qualifying years were required for the full rate, and there was no minimum threshold. The basic state pension was worth approximately £6,400 a year.

[21] See DWP (2016), figure 5, page 17 for further details.

[22] Pensioners with an income below the nSP may also be entitled to claim pension credit.

[23] For an individual who is aged 65, to buy an index-linked annuity that guarantees an income equivalent to the full nSP, they would require a fund of approximately £270,000.

How the distribution of wealth relates to differences in lifetime income

According to the lifetime savings model, how much people save is related to their expectations around the level and variability of their lifetime earnings. An individual who expects high lifetime earnings which fluctuate considerably over their lifetime would be expected to save more and accumulate greater levels of wealth than would otherwise be the case.

In this section, we revisit the predictions of the lifetime savings model and consider how lifetime income is related to wealth accumulation, and what implications this has for an individual's preparedness for retirement. This issue is important, with the FCA and TPR having identified the prospect of people not having an adequate income, or the income they expected, in retirement as the overarching harm in the pensions and retirement income sector.

Unfortunately, lifetime earnings are not observable and therefore we need a method of proxying them. There is no single factor or determinant which fully explains differences in lifetime earnings. Rather they arise from a combination of factors, such as differences in education, skills and training, employment opportunities, housing and health prospects, which all impact an individual's life chances, earnings potential and well-being. To proxy expected lifetime earnings we differentiate between individuals based on their currently observed level of relative deprivation,[24] as measured by the index of multiple deprivation.[25]

To examine the differences in lifetime earnings which arise from segmenting the individuals in this way, we group the individuals in the WAS survey into four equal segments based on this index. Where segment 1 represents individuals with the lowest level of deprivation (highest level of well-being) and highest expected lifetime earnings, while segment 4 represents individuals with the highest level of deprivation (lowest level of wellbeing) and lowest expected lifetime earnings.

Figure 4 reports the median gross income by age, for each of the 4 income segments and overall. The findings suggest that relative wellbeing or deprivation (as measured by the IMD) is a good proxy for capturing differences in the level and shape of individual lifetime earnings. With individuals in segment 1 having the highest median lifetime earnings and individuals in segment 4 having the lowest median lifetime earnings.[26] The income profile for segment 1 is the most pronounced, with average gross income peaking in the early 40s at £35,000, while the profile for individuals in segment 4 is much flatter with gross income

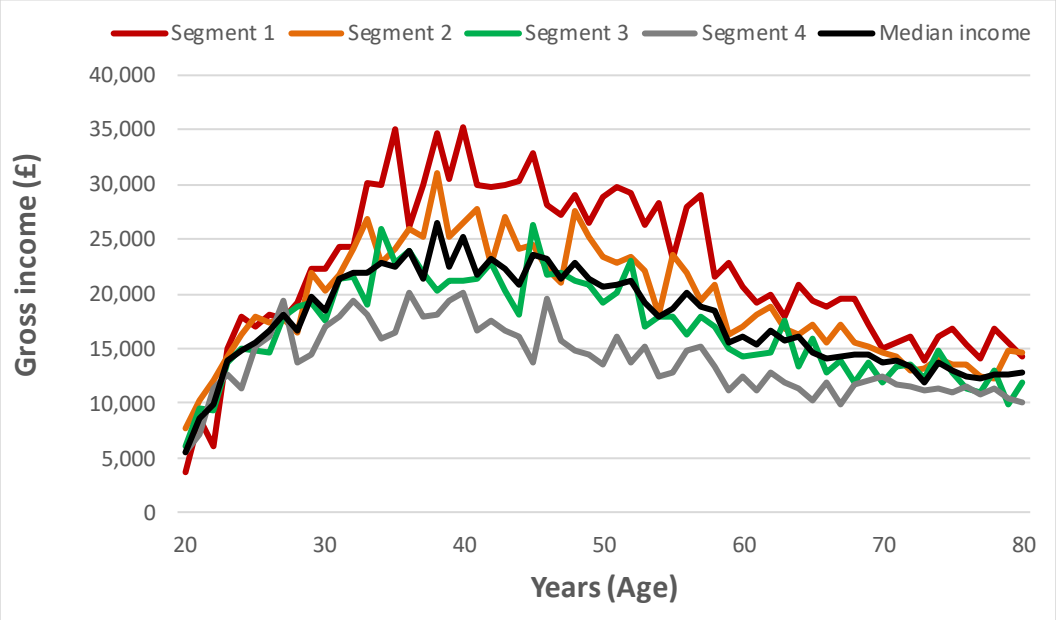
[24] Mayhew (2018) shows that deprivation and poor health outcomes is strongly correlated with low income and low educational attainment. He found economic activity declines from age 50 – significantly so from 55 - with ill health and disabling conditions an important cause of this inactivity. In 2015, the proportion of people who are inactive rises from approximately 15% of 50-year-olds to 35% of 60 year olds.

[25] The Index of Multiple Deprivation is a regional indicator of the relative levels of economic and social deprivation in Britain, and is measured at the small area level. See www.data.gov.uk/dataset/index-of-multiple-deprivation.

[26] To get a sense of the magnitude of average lifetime earnings we approximate this by summing estimates of median gross income for each age. Over a working life - between the age of 20 to 65 - we estimate average gross incomes of £1.12 million, £0.97 million, £0.84 million and £0.68 million for segments 1 to 4 respectively. These estimates are averaged over all individuals, but would be significantly higher for individuals who experience continuous full-time employment.

peaking age 40 at approximately £20,000. As individuals approach retirement, average gross income estimates begin to converge, becoming more stable in retirement, beyond the age of 70.

Figure 4: Weighted median gross income by age (20 to 80 years)



Source: FCA analysis of Wealth and Asset survey (Wave 5: 2014-6)

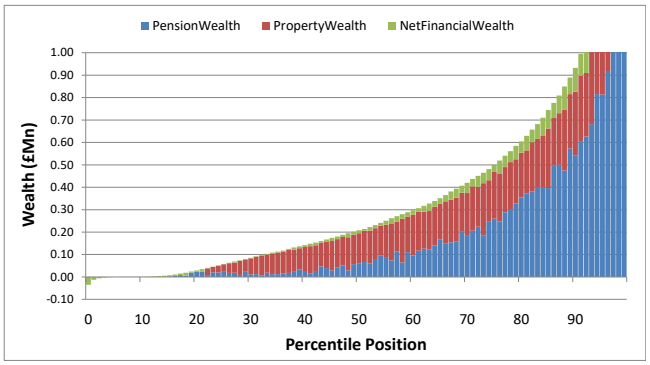
Next, we consider the relationship between our proxy for lifetime earnings and wealth accumulation. Figure 5 illustrates the level and patterns of wealth accumulation for individuals in each of the 4 income segments. Where Figure 5a illustrates the distribution of wealth holdings for each of the four segments and Figure 5b shows how it disperses across each of the different age bands. To understand what wealth could be relevant to retirement, we report median total wealth and median total pension wealth for each segment. To give a sense of how this is dispersed, we also report the 75% and 25% percentile in each category.

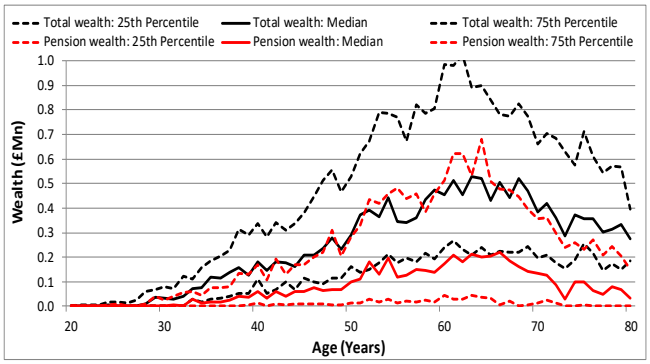
There is strong evidence that on average, individuals who we expect to have higher lifetime career earnings will accumulate greater amounts of private wealth, while individuals who we expect to have lower lifetime income accumulate the least wealth. This is consistent with the lifetime savings model, because individuals who might expect to have higher career incomes need to save more to smooth expenditure in retirement. Individuals who expect low lifetime earnings save less, in part due to their limited surplus, but also because state pension and benefits are likely to be sufficient to help them maintain a significant proportion of their consumption in retirement.

Figure 5: Distribution of individual private wealth organised by well-being and lifetime income (Age: 20 to 80)

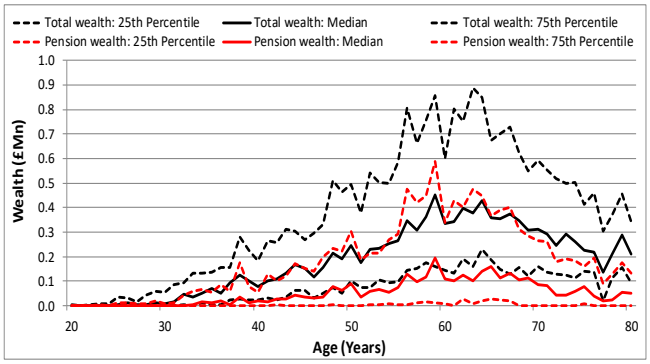
a. Distribution of wealth holdings **b. Total (and pension) wealth by age**

i. Segment 1

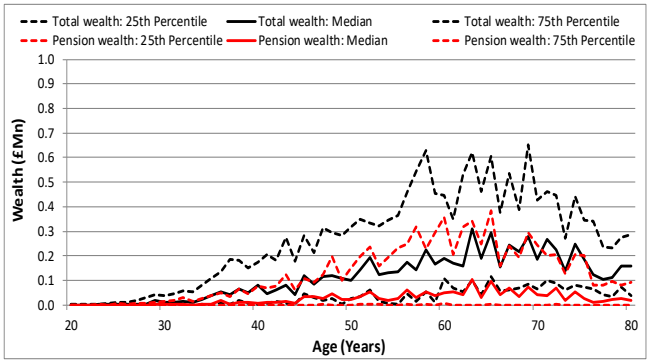




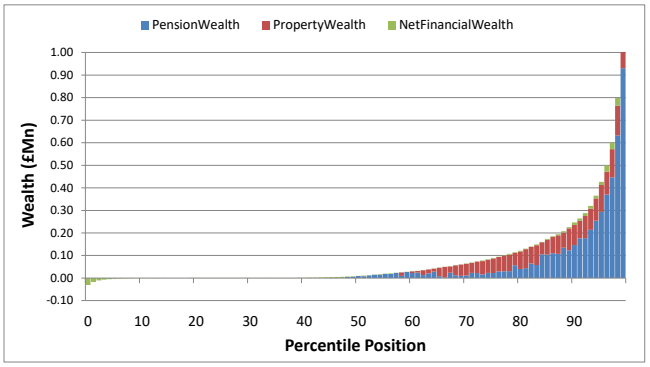
ii. Segment 2

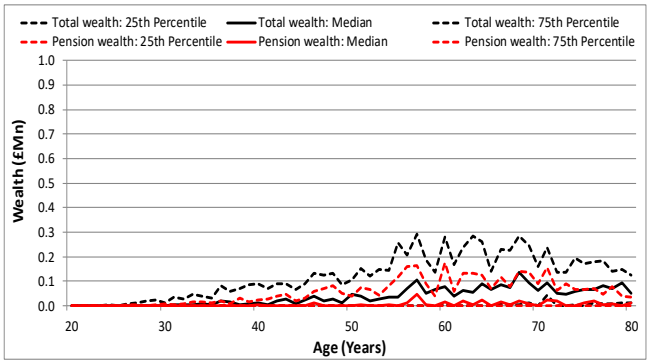


iii. Segment 3



iv. Segment 4





Source: FCA analysis of Wealth and Asset survey (Wave 5: 2014-6)

Figure 5a summarises the main effects of segmenting individuals using a proxy for their expected lifetime earnings. We find that, with respect to:

- Total wealth accumulation, over 80% of individuals in segment 1 have private wealth, with almost 40% having over £300,000. While almost half of individuals in segment 4 have no private wealth, with less than 25% having wealth of over £100,000.
- Pension wealth accumulation, almost half of segment 1 individuals have accumulated £50,000, and 25% have accumulated over £200,000. For individuals in segment 4, over half have no pension wealth, and less than 20% have accumulated £50,000.

Figure 5b illustrates how wealth accumulation differs across different age groups, and how this varies over the particular segments. We observe that there are significant inequalities in levels of accumulation:

- Between individuals who are approaching retirement. Concentrating on those individuals who are closest to SPA (aged 60 to 65), on average those in the wealthiest segment have 7 times more total wealth and 18 times more pension wealth than those in the poorest segment (£480,000 versus £70,000, and £200,000 versus £11,000). These differences in wealth (especially pension wealth) will have important consequences for the income they might expect in retirement.
- Between younger cohorts and older cohorts. The retirement landscape and savings environment is likely to be more challenging in the future than it was in the past.[27] Future retirees are expected to live longer and have greater flexibility[28] in how they access their pension, but they receive their state pension later and accumulate through DC rather than the more generous DB pension entitlement, and can also expect rising social care costs.

[27] The PPI (2018) report considers how the retirement landscape has changed and what this could mean for future retirees. This includes factors such as the introduction of pension freedom reforms, changes in the wider pensions landscape – the shift from DB to DC accumulation, and the introduction of automatic enrolment - increases in longevity and differences in the way individual decumulate, moving from a single event to transitioning into retirement. This has created more risk and complexity which the individual rather than their employer is now largely responsible for managing.

[28] Since 6 April 2015 defined contribution (DC) pension savers aged 55 and over have been able to immediately access their pension savings.

Preparedness for retirement among those aged 60 to 65

The responsibility for making decisions and managing these risks around accumulation (and decumulation) is increasingly shifting towards the individual. Given the challenges which younger savers face in saving for retirement it is difficult to use the information in the wealth distribution to come to strong conclusion about how prepared these future pensioners are likely to be for retirement. To do so requires building a complex simulation model of retirement income adequacy, which is beyond the scope of this research note. However, for individuals who are approaching their retirement period, it is possible to reasonably impute what retirement income they might expect given the resources they have accumulated, and reach some view on the adequacy of their resources.

In this section, we concentrate on those individuals who are aged 60 to 65[29] and examine what their wealth distribution tells us about whether they have accumulated sufficient resources to produce a retirement income which can be thought of as adequate.

To do this, we need a method for converting the retirement wealth accumulated into an annual income stream. Clearly this is not straightforward, and we need to make some simplifying but reasonable assumptions. An individual can accrue pension wealth from multiple sources – DB, DC or personal - and where the wealth was accumulated from has important implications for how the wealth is converted to an income stream.[30] Estimates of the annual pension income expected for pensions in-payment and DB-type schemes are reported in the WAS.

For DC-type pension wealth, we need to impute the expected pension income.[31] To make the income stream for these sources comparable with the DB-type sources, we annuitise the fund values using the best available index-linked rate and impute the value of a guaranteed index-linked income paid through retirement. While using a guaranteed inflation-proof source of long-term retirement income is a useful benchmark, many individuals may want to maximise their initial retirement income at the expense of longer term income, and it might be more appropriate to annuitise using a level rather than an index-linked annuity.[32] This is particularly the case if individuals expect the current low inflation environment to persist. Evidence also indicates that expenditure tends to be higher in the earlier years of retirement where the individual is more active, than in the

[29] The WAS indicates that there are approximately 4.1 million individual aged 60 to 65 years in Britain.
[30] The WAS differentiates between pensions wealth which is in-payment and pension wealth in current and retained pensions from both occupational and personal pensions. DB-type pension wealth consists of current DB and retained rights in DB pensions, and DC-type pension wealth consists of current occupational pensions, current personal pensions, retained rights in DC pensions, retained pensions for drawdown and Additional Voluntarily Contributions (AVC).
[31] Defined benefit (DB) pensions provide a guaranteed level of retirement income based on the number of years an individual has worked for their employer and the salary they have earned. The retirement income from a Defined Contribution (DC) pension is much more uncertain, and is dependent on investment performance and choices around how the fund is decumulated.
[32] According to Moneyfacts, in June-2016 the best single life level annuity rate was 5.3% for a 65-year-old and 4.7% for a 60-year-old, compared with index linked rates of 3.0% and 2.4% respectively. For individuals aged between 60 and 65, annuity rates have been approximated by linear interpolation.

later less active years. We therefore use both index-linked and level annuity rates to impute the expected pension income for DC type pension wealth.

There are also timing issues to be addressed. Wealth estimates are reported in the survey between July 2014 to June 2016. We rebase to June-2016.[33] This simplifies the analysis, by allowing us to compare the estimates of retirement income at a single point in time, against a single set of assumptions or benchmarks.

Along with pension wealth, individuals also prepare for retirement by accumulating wealth in property or other financial assets. However, it is impossible to separate with any certainty the wealth which has been accumulated to fund retirement from that planned for other purposes. For instance, some individuals with property wealth may plan to downsize at retirement or release equity from their property, but others may have ringfenced their wealth and plan to leave it as a bequest to relatives.

As already discussed, the calculation of state pension is complicated. Although most individuals are entitled to a state pension, the value of the state pension entitlement an individual has accrued is not reported in the WAS. We make the simplifying assumption that everybody qualifies for the full new state pension, which in June-2016 was £8,094 per annum.

We estimate the retirement income for all individuals aged 60 to 65 using the wealth estimates they report at the time they are interviewed. Clearly not all individuals have either retired or reached SPA at this point, but our estimates of retirement income are calculated as if they were about to do so.[34]

To reflect the uncertainty, over what wealth an individual will use to fund retirement, we construct two measures of gross retirement income based on the following resources:

1. all pension wealth (private and state pension entitlements) only
2. all pension wealth, all net financial wealth and half the value of any property wealth

The latter measure reflects the fact that individuals have other resources which could be used to fund consumption in retirement in addition to pension wealth.

Measuring what can be thought of as adequate is complicated. It is not simply a question of how much is enough, but rather how much is enough for whom. Alternative measures which have been suggested are:

- replacement rates
- retirement income targets

Using replacement rates requires calculating what level of income will allow people to replicate their working life living standards (allowing for lower living expenses) post-retirement. The benchmarks used by the Pensions Commission (2005), ranged from 80%

[33] We use the RPI index to adjust the estimates reported in the survey and express in June-2016 prices.

[34] There is no compulsory age of retirement in the UK, although, the State Pension Age (SPA) for both males and females is now over age 65, and will rise to 66 in 2020. In June-2016, the SPA for females was 63, and 65 for men. The average age at which an individual retires has also been rising. According to the ONS (2018), between 1997 and 2017 the average age of exit from the labour market increased from 62.3 to 65.1 years for men, and from 60.8 to 63.6 years for women.

of pre-retirement earnings for a low-paid individual to 50% for a relatively high paid individual.

Although replacement rates are useful, they have been criticised as they do not always reflect what people want or need in retirement, and their 'one size fits all' approach does not account for differences in individual preferences. There are also concerns about their suitability for individuals on low incomes who are towards the bottom of the distribution, who would be classified as having an 'adequate' income, but who in fact can be considered deprived and lacking adequate resources.

More recently, retirement income targets have been proposed which seek to replicate a particular lifestyle in retirement. Estimates for an acceptable minimum standard of living have been produced by the Joseph Rowntree Foundation. The PLSA (2017) have also proposed a modest and comfortable retirement income standard, each corresponding to a particular basket of goods and services.

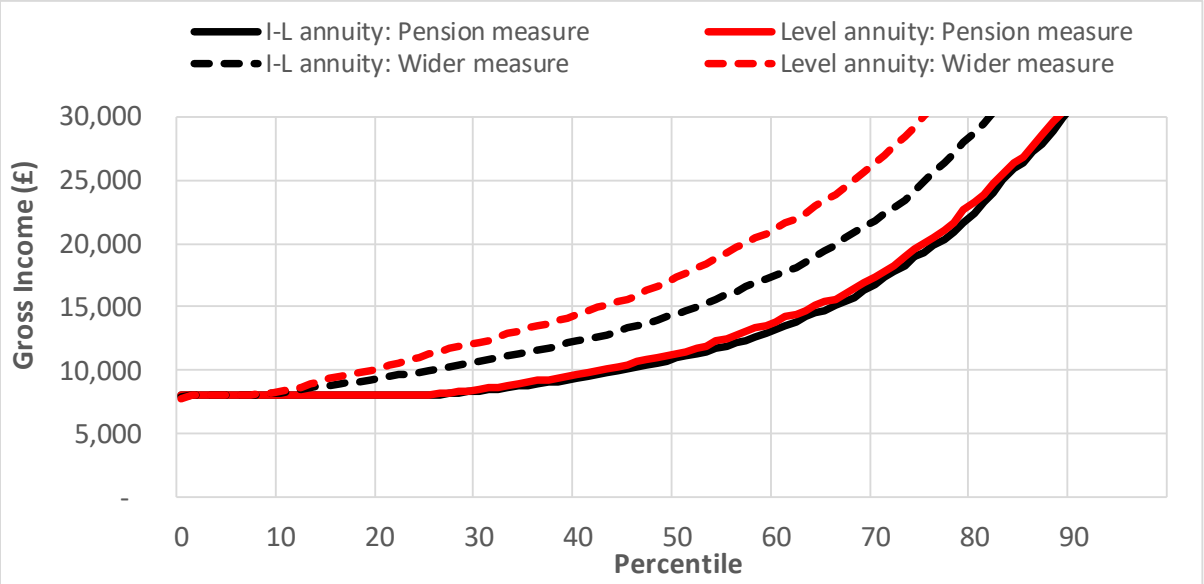
We use the following as adequacy targets:

- Minimum income standard (MIS): £9,700[35]
- Modest target: £17,500[36]
- Comfortable target: £25,000[37]

By comparing our imputed estimates of retirement income to the adequacy targets, we can get an understanding on how well prepared the 60 to 65-year-old individuals are as they approach retirement, and the extent to which they may be at risk of under saving and experiencing a shortfall in their expected retirement provision. Figure 6 reports the distribution of imputed annual gross retirement income.[38] Four measures are reported – income based on pension wealth and a wider measure of retirement wealth, using both an index linked and level annuity. The gap between the two measures represents the imputed income derived from non-pension wealth.

[35] Joseph Rowntree Foundation (2016) estimate the minimum income standard for a single pensioner is £9,712 a year, excluding rent and childcare. The estimate for a retired couple is £13,904.
[36] See PLSA (2017)
[37] Ibid footnote 36
[38] Reporting the imputed income as a distribution has the advantage of showing what impact changing the adequacy target or threshold has on the proportion of people who meet a particular state of preparedness.

Figure 6: Imputed retirement income (£: June-2016)*



* Individual gross retirement incomes are ranked from lowest to highest and then reported as percentiles.

The main findings are summarised below.[39]

- Using index-linked annualisation: Based on the pension-only measure, we estimate that median annual gross retirement income is £10,800. Using the wider definition which includes non-pension wealth this increases to £14,200. The top 25% of individuals have an income of £19,000 (£24,200 using the wider measure) but there is a significant proportion of individuals – approximately 25% - who have not accumulated any private pension wealth and their retirement income comprises entirely of state pension. However, using the wider definition which includes non-pension wealth the proportion of individuals who are completely reliant on the state-pension falls to less than 10%.
- Using level annualisation: The main effect of using a level rather than an index-linked annuity for the income conversion is the impact it has on non-pension wealth. The impact on the income derived from pension wealth is very modest. Although this should not be too surprising, given that the most common method of pension accumulation for this group has been through DB schemes. The retirement income for the median individual from annuitising using a level annuity increases to £17,000.
- Depending on the measure of retirement wealth which is used, and the choice of annualisation, the findings suggest a range of estimates. Given that we would expect individuals to use their non-pension wealth in retirement, the wider definition seems a more suitable proxy, and a sensible estimate for the average retirement income is the range £14,200 to £17,000.
- Using index-linked annualisation and the wider definition of wealth as our base case, we consider the proportion of individuals who achieve the adequacy targets:
    - 76% are expected to reach the minimum income standard of at least £9,700 (over 81% using level-annualisation).

[39] All estimates of retirement income are expressed in June-2016 prices.

  - 39% are expected to reach the 'modest' target of over £17,500 (49% using level-annualisation).
  - 24% are expected to reach a 'comfortable' target of over £25,000 (31% using level-annualization).
- According to the replacement rate approach, the median earner is expected to have a target replacement rate of approximately 60%. In 2016, median full-time earnings were £28,200[40], indicating a replacement rate of approximately £16,900. We find that 41% of individuals would achieve a retirement income equivalent to the replacement rate of the average individual (51% using the level annualisation rate).

Next, we examine what impact differences in lifetime earnings (as proxied by the index of relative deprivation) have on retirement income, by grouping individuals aged 60 to 65 based on the four segments. Figure 7 reports the distributions of retirement income using the wider wealth definition – for both types of annualisation – for each of the four segments. To help benchmark the results we also include the average income distributions from Figure 6. Figure 7a reports the estimates based on an index-linked annuity and Figure 7b reports the estimates based on a level annuity.

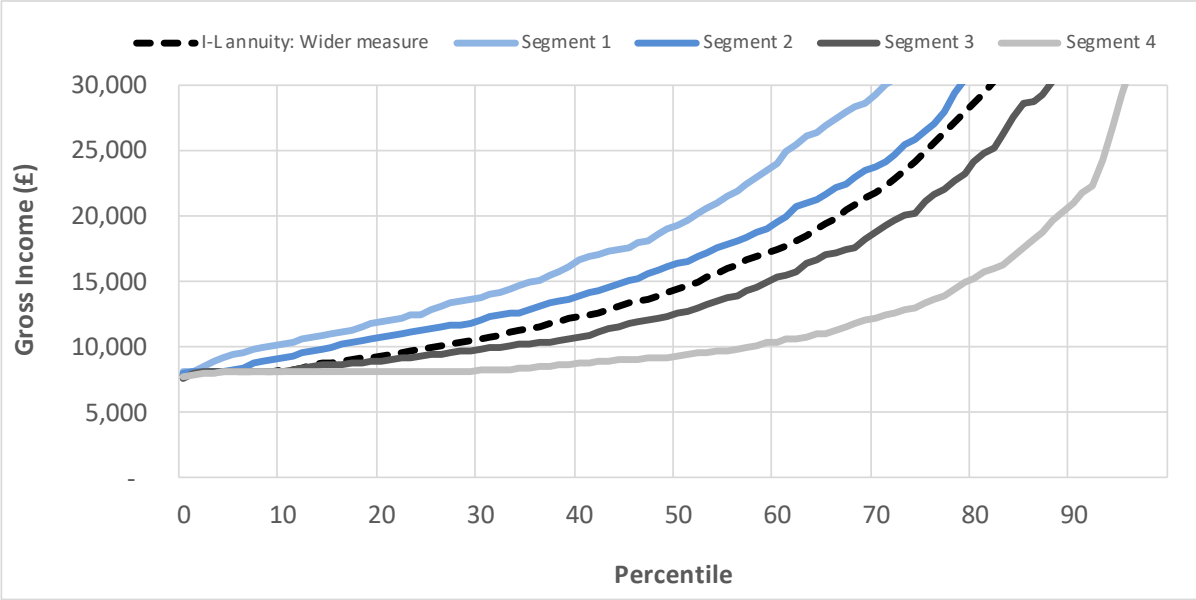
For the:

- Wealthier less deprived individuals in segment 1: Median retirement income is £19,000 (or £23,600 using the level annuity), with the top 25% within this segment expecting to achieve retirement income of £31,700 (or £37,200 using the level annuity). This indicates that the majority of individuals in this segment can expect at least a modest retirement and a significant proportion a comfortable retirement. Almost all individuals can expect a retirement income which is higher than the minimum income standard.
- Poorer more deprived individuals in segment 4 it is a very different story. Half of individuals are expected to achieve a retirement income below the minimum income standard of £9,700. Less than 20% of individuals can expect a modest income of £17,500, and approximately 7% a comfortable retirement income of more than £25,000.

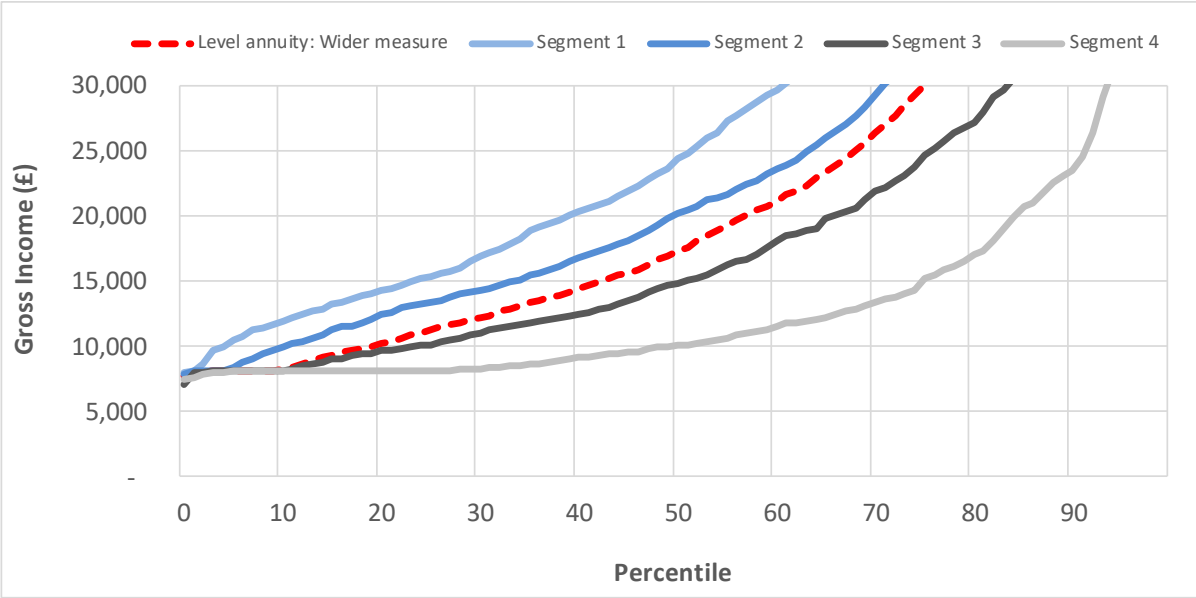
[40] According to the ONS' ASHE survey, median annual full-time earnings in 2016 was £28,200.

Figure 7: Imputed retirement income by income segments (£: June-2016)*

a. Index-linked annualization: Based on pension, property and net financial wealth



b. Level annualization: Based on pension, property and net financial wealth



* Individual gross retirement incomes are ranked from lowest to highest and then reported as percentiles.

Of course, it is important to caveat these findings. It is challenging to model how individuals transition into retirement and the complex choices they face. We summarise below the main simplifying assumptions we have made and their effect on our findings. A different set of assumptions would have led to different outcomes.

Important assumptions have been made with respect to:

- **Decumulation:** We have assumed that all DC-type pension wealth (and the share of property and net financial wealth used in constructing our income measures) has

been annuitised. We have also assumed single life annuity rates, with no spousal allowance or tax-free lump sums. However, since pensions freedoms in April-2015, individuals have much greater flexibility over decumulation. Annuity sales declined by over 80% between 2014 to 2017, with growing numbers of people choosing to withdraw their pension pots as cash or opt for drawdown. However, our reasoning for using annuitising is that it provides an objective and transparent method for transforming a stock of wealth to an annual income flow, and allows an objective comparison between individuals with different sources of wealth. Changes in the method lead to significant differences in the income estimates. It is also clear that where we assume that non-pension wealth is annuitised using a level rather than index-linked annuity this would have resulted in a significant increase in the initial retirement income, but at the expense of income in subsequent years.

- **State pension wealth and benefits:** We have assumed that all individuals receive the full new state pension. But it is clear that some individuals will not receive the full state pension (and the estimates will overstate their preparedness) while other individuals have an additional State Earnings Related Pension could qualify for more than the nSP (and the estimates will understate their preparedness). As individuals run down their retirement resources – or the value in real terms is eroded by inflation – they may become eligible for state benefits in later years. No allowance has been made for this.

- **Family unit:** We have imputed the retirement income at the individual level, although couples or family often make retirement decisions jointly at the household level, and given the cost savings from living together, a couple might reasonably need less income than two individuals.

- **Future employment status:** We estimate retirement income based on the resources the individual has accumulated to date. For those individuals who have not retired we do not make any assumptions about the subsequent wealth accumulation which may arise from continued employment. Some individuals may continue working (and accumulating) up to and beyond the SPA, and qualify for a much higher annuity rate. For these individuals, our findings would understate their retirement income.

Conclusions

We have looked at the cross-sectional distribution of wealth holdings in Britain using the latest wave of the ONS' Wealth and Asset survey (WAS), and considered what this can tell us about individual preparedness for retirement. The wealth distribution is heavily skewed, revealing in aggregate a very unequal distribution of wealth. While 14% of 20 to 80 year olds have more than £500,000 in total wealth, 30% of individuals – approximately 14 million - have little or no wealth.

We have estimated how prepared individuals aged 60 to 65 are for retirement. Our findings suggest this is something of a mixed picture. Based on the resources they have accumulated to date, the average individual might expect to achieve a gross annual retirement income of between £14,200 to £17,000. However, there is significant variation across the distribution. For wealthier (less deprived) individuals, the majority can expect a modest or comfortable retirement. While for the poorer (more deprived) individuals, at least half are not expected to achieve the minimum income standard and there is strong evidence of future dependency on the state pension and benefits.

To model the savings adequacy for cohorts of future pensioners would require building a microsimulation model to simulate the distribution of pensioners incomes into retirement. Such a model would allow us to study the effects of earnings and savings behaviour of the younger cohorts on their future levels of retirement income and preparedness for retirement.

The advantage of that approach is that it can be used to generate not only the average results but also examine the impact across the full distribution of outcomes. For instance, it can show how a particular policy change or economic scenario might impact individuals with low earnings differently from those with high earnings. Key risks – such as unemployment and pension participation rates, returns on investments, longevity, health and long-term care costs – which are faced by savers planning for retirement can be explored within this framework.

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