Intergenerational Centre

CONNECTING GENERATIONS

Resolution Foundation

An intergenerational audit for the UK: 2023

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Executive Summary

Five years ago, our Intergenerational Commission set out the numerous threats to the UK's promise of intergenerational fairness. It showed that younger generations have struggled to meet lifecycle milestones, like job security and home ownership, at the same age as their parents, and that household-income progress has stalled. These challenges were not unique to the UK and were evident across a number of other developed nations. This evidence raised concerns that millennials – those born between 1981 and 2000 – might become the first generation to fare worse economically than their parents.

Recently, the spotlight has once again fallen on intergenerational progress, this time in the US, where the latest data has started to suggest that livings standards for the millennials are catching up with, and on some measures even surpassing, the generations that came before them. Improvements have been seen across a range of measures of living standards, from earnings and disposable incomes to wealth accumulation. For example, American millennials are less likely to live in poverty in 2019 than the generations that came before, and could expect to have an additional $9,000 in annual income compared to generation X at the same age, and $10,000 more than the baby boomers (in 2019 dollars).

This fifth Intergenerational Audit for the UK – part of the ESRC-funded Connecting Generations research programme – provides a comprehensive assessment of how living standards have changed for younger generations, in an attempt to shed

some light on whether millennials in the UK have experienced a comparable improvement in their economic fortunes.

Jobs, skills and pay

It is well established that the UK economy has seen strong employment growth in recent decades, reaching record levels prior to the pandemic. Successive generations have benefitted from these employment increases, with millennials continuing to enjoy higher employment rates compared to the generations that came before them. However, this has failed to translate into generational pay progression. And as cohort-on-cohort pay progression ground to a halt, it is the millennials, in particular, who remain behind their predecessors in terms of pay. For example, younger millennials, born in the late 1980s, earned on average 8 per cent less at age 30 than members of generation X, born 10 years prior, at the same age.

Stagnant generational pay progression is not unique to UK: it is also a feature in the US. However, stalled generational pay progress in the US primarily affects the non-graduate population. In 2018, US millennials with a college degree could expect to earn comparable levels to their gen X predecessors when they were of a similar age, while the earnings of US millennials without a college degree lagged behind prior generations.

Yet, more recently, young workers in the US have begun to see their pay performance improve: the average weekly earnings of 25-34-year-olds grew by 8 per cent in real terms between 2018 and 2022, surpassing the 5 per cent growth for those aged 35-54. This suggests an improvement in generational pay progression in the US. In addition, this recent wage growth in the US has been progressive, and so between 2018 and 2022, real median hourly earnings grew by 4.9 per cent among non-graduates, compared to 2.6 per cent among graduates. While, overall, US non-graduate workers have experienced slower pay growth since the financial crisis, recent years have marked a positive shift in pay performance for non-graduates compared with graduates.

This also suggests even younger nongraduates may be starting to see an improved picture on generational pay progress.

Unlike in the US, UK millennials have not seen their weak pay performance unwind. A severe lack of pay growth in the UK has held back pay progress for younger workers. Between 2007 and 2022, real median weekly pay grew by just 2 per cent in the UK compared to 14 per cent in the US. And unlike the US, young graduates in Britain have fared worse than non-graduates since the financial crisis: the typical weekly pay of graduates aged 30-34 has fallen by 16 per cent between 2007 and 2023, while the typical weekly pay of non-graduates is down by only 6 per cent.

So why have UK graduates seen worse pay outcomes for non-graduates since the financial crisis? Many have suggested this is down to an 'oversupply' of graduates caused by the increase in educational attainment among younger generations in the UK. In 2022, over half (58 per cent) of 25-34-year-olds had some form of tertiary education, up from a quarter (25 per cent) in 1997.

It is reasonable to expect the graduate premium to fall as the supply of graduates rises, but this argument overlooks two other significant trends in the UK. First, rather than becoming overly focussed on the 'oversupply' of graduates, more attention should be given to the lack of demand for these workers. In London, only 22 per cent of graduates aged 25-34 were working in traditionally 'non-graduate' occupations in 2023. But this share rises to around half of graduates aged 25-34 in Scotland, Wales and the North East. Outside of London, many parts of the UK are just not making the best use of our graduate workers. These disparities are reflected in the pay outcomes of graduates in different regions and nations, where graduate wages in 2023 outside the South East are between 17 and 31 per cent lower than in the capital.

Second, and on a more positive note, the introduction of the National Living Wage in 2016 and the Government's ambitious approach to increasing it over time have also contributed to reducing the graduate premium by disproportionately benefiting non-graduates and compressing the wage distribution. For example, the share of low hourly-paid

employees aged 25-35 with qualifications at GCSE or below has fallen from around 38 per cent in 2014 to 28 per cent in 2023.

On the surface, a decline in graduate pay relative to non-graduate pay might seem positive, particularly if it reflects positive labour-market initiatives. However, the lack of any wage growth since 2007 is not indicative of a successful economy. It reflects the UK's broader inability to create highly-skilled jobs, and is a symptom of Britain's low productivity and economic decline.

Household incomes and costs

A more comprehensive understanding of whether the living standards of younger generations in the UK have improved in recent years can be obtained by studying household-income progress. As well as pay progression, disposable incomes will be affected by the generosity of the social security system, taxes, and the housing costs facing different generations.

Millennial cohorts were the first to see no cohort-on-cohort income progress over much of the decade proceeding the financial crisis. For example, in the first half of the 2010s, the typical annual income for millennials born in the early 1980s was almost £1,400 (or 5 per cent) lower at age 30 than those born 10 years earlier. However, as these cohorts have got older, they have started to experience modest income progress over the cohorts that came before them: millennials born in the early 1980s had average incomes at age 35 that are 3 per cent higher than the income of those from generation X born 10 years earlier.

But the income progress experienced by British millennials has fallen short of the income progress experienced by millennials in the US. There are two key drivers of this. First, overall income growth was higher in the US: median household incomes for 20-80-year-olds grew by 17 per cent between 2007 and 2021 in the US, while in the UK incomes grew by just 2 per cent. Second, the age profile of income progress was also more favourable to millennials in the US: income progress for younger adults (21-40-year-olds) was above average in the US, but the opposite was true in the UK. Combined, this has left those in their early

thirties in the UK with lower incomes now (in 2021) than their predecessors had at the same age pre-financial crisis; while in the US, incomes for this group were 21 per cent higher in 2021 than in 2007.

The drag from lower pay progress for graduates may be playing a role here. The income of a young UK graduate aged 30-34 was 9 percentage points lower in 2021 than in 2007. In the US, this age group saw strong income growth for both graduates and non-graduates. Some might be tempted to blame changes to university fees and student loan reforms in the UK – which have meant that younger graduates are taking on larger loans than their predecessors – but younger cohorts affected by these changes have so far actually made smaller repayments than the cohorts that came before. Nonetheless, these changes are still highly likely to negatively affect recent graduates' future incomes in the years and even decades to come, as these graduates took on larger debts and fewer have fully repaid their loans compared to the past repayment cohorts at the same age.

Another natural place to look for an explanation of the weaker performance of UK millennials are the personal tax and benefit policy decisions. The impacts from policy changes implemented during this Parliament have been dominated by tax increases, most notably the decision to freeze income-tax thresholds. But the impact of this is fairly uniform across adults of different ages, with typical disposable incomes for all those aged 25 and above expected to be between 2 and 3 per cent lower by 2027-28 after accounting for personal tax and benefits choices made in the current Parliament.

But, looking further back to 2010, there have been several policy decisions with much larger age-specific impacts. These include explicit cuts to working-age benefits and the switch from RPI to a default of (usually lower) CPI-based benefit uprating on the one hand, and the introduction of the triple lock for the basic state pension on the other. The combined impact of these personal tax and benefit changes implemented since 2010 has left non-pensioners more than £2,200 a year worse off on average, while pensioners are less than £200 a year worse off.

This has contributed to a dramatic shift in the relative incomes of pensioners and non-pensioners in the UK, with our latest income forecasts suggesting that pensioner incomes may now exceed working-age incomes across the income distribution, with even high income (90th percentile) working-age households expecting lower incomes than their pension-aged counterparts.

But although recent policy changes have not been favourable to millennials' incomes today, some may argue that millennials, and more recent generations, are set to benefit from the UK's more generous welfare state as they grow older. Indeed, a key principle behind the UK's welfare state is the intergenerational exchange: children benefit from education that is paid for by older generations; they grow up to be adults who pay the taxes that fund the next generation's education, and the previous generation's help in old age; and then they, in turn, reach old age and receive pensions and health care provided by the younger generations. Under various assumptions, it is possible to estimate by how much each generation will benefit from the welfare state over their lifetime, comparing the value of social security benefits and free education and health care received, less the taxes paid to fund the welfare state. This work suggests that, if our current approach to health care and pensions remains unchanged, then the millennial cohorts would, in fact, be larger net beneficiaries from the UK's welfare state than other birth cohorts – gaining more than the baby boomers, for example.

But behind this finding is one very significant assumption – that no future governments alter social spending levels on older age groups. But to afford such an approach, future governments would need to raise the tax share by around a third by 2070, leaving it higher than the tax share of Sweden, Norway and Finland in 2019. If instead future generations decide that the way the welfare state supports the elderly is unaffordable, then today's younger generations may end up paying for the benefits going to today's older generations, but then receive less when they reach old age. If this happens, then millennials would benefit less over the lifetimes than the generations that came before them. In particular, if spending on the welfare state was

capped at 25 per cent of GDP, it would be the baby boomers that would be the biggest net beneficiaries.

Housing costs and security

One of the most profound shifts in the socio-economic circumstances of the generations has been in housing tenure patterns. Young people today are far less likely to own their own home, and more likely to find themselves in the private rented sector, than previous generations. The share of family units aged 19-29 who were home owners more than halved between 1989 and 2013, from 23 per cent to a mere 8 per cent.

In the US too, today's young have faced lower home-ownership prospects than previous generations at the same age. Yet, young adults have seen home ownership rates start to bounce back, with the home ownership rate of those in their early 30s up 4 percentage points in the five years to 2021. The UK has also experienced an uptick in youth ownership rates over this period, although it has been weaker than in the US: home ownership rates for 30-34-year-olds increased by just 2 percentage points over the same period.

But it is important to view these changes within the longer-term trends in home ownership. Despite relatively modest improvements in youth home ownership in both the UK and US, millennials in the UK have been far less successful in narrowing the generational divide: young adults in the UK experienced both much larger initial falls in home ownership rates, as well as a smaller recovery. The UK experienced a more pronounced age-related decline in home ownership in recent decades: home ownership rates for individuals aged 30-34 dropped by 20 percentage points between 1986 and 2021, while rates increased by 48 percentage points among those aged 75-79. Over the same period, home ownership rates in the US fell by only 3 percentage points for 30-34-year-olds and improved by just 5 percentage points among those aged 75-79.

The fact that younger generations continue to face far lower youth home ownership rates means that millennials will spend longer stuck in the private rented sector, the least-affordable

form of housing tenure. In 2021-22, a typical private renter spent over a third (34 per cent) of their net income on housing costs, more than three times the proportion of net income that a typical mortgagor devoted to their mortgage interest payments (10 per cent). These higher costs not only make it harder for young renters to save for a deposit, but the growing disparity with mortgagors has pushed against improvements to millennials living standards – both by reducing living standards today and leaving them less able to save wealth for later life. Higher interest rates are projected to go some way in narrowing these disparities between tenures, with mortgagors anticipated to have to spend 16 per cent of their net income on mortgage interest payments by 2025-26. However, the gap in housing costs between private renters and mortgagors over the next five years is still projected to remain significantly wider than it was throughout the 1960s, 1970s and 1980s.

Stubbornly low youth home ownership rates have also left a much larger home ownership gap for younger generations to close. A thought experiment on the trajectory of home ownership for millennials in the UK can help us understand whether this recent uptick, alongside more favourable economic conditions, could enable them to catch up with earlier generations. The results indicate that, even under a very optimistic scenario, millennials will, on average, experience delayed home ownership. And although ownership rates could catch up with gen X, they would remain more than 8 percentage points below the baby-boomer generation. This optimistic scenario is one where millennials experience the same underlying conditions as their counterparts did during the decade with the strongest growth rate in home ownership (1981-1991) – a period that was characterised by credit liberalisation, a relatively slow rise in the ratio of house prices to incomes and the introduction of the 'Right-to-Buy' policy for social renters.

Wealth and assets

Total net wealth in Britain has surged in recent decades, from around three-times GDP in the mid-1980s, to over seven-times GDP on the eve of the pandemic, and growing by £5.9 trillion

in real terms between 2006-08 to 2018-20. Older-age groups have been the largest beneficiaries of this wealth increase. For example, the typical person in their early 60s in 2018-20 had nearly £170,000 more wealth than their counterparts of the same age in 2006-08. In comparison, the typical person in their late 30s in 2018-20 had almost £30,000 less wealth than those of the same age in 2006-08.

These gains to older-age groups can be explained by the distribution of the post-financial-crisis wealth increases among birth cohorts. Around 40 per cent of the £5.9 trillion increase in wealth between 2006-08 and 2018-20 went to cohorts born between 1956-65 (those in their late 50s and early 60s in 2018-20), and another 33 per cent went to those cohorts born between 1966-75. These cohorts accumulated larger shares of the post-financial-crisis wealth increase for several reasons. First, these cohorts were at the point in their lifecycle when wealth accumulation tends to be at its fastest – that is, nearing retirement. Second, these cohorts were more likely to be asset owners in 2006-08, enabling them to capitalise on 'passive' gains since that period. Finally, older cohorts are more likely to have defined benefit (DB) pensions, the implied value of which rose sharply during the period of historically low interest rates that followed the financial crisis.

In previous Intergenerational Audits, we have outlined that generational wealth progress came to a halt with the cohort born in the early 1960s. But the substantial accumulation of wealth among those born between the late 1950s and early 1970s since the financial crisis has resulted in some recent improvements in cohort-on-cohort wealth progress. For example, the typical person born in 1961-65 had around £50,000 more wealth (in real terms) at age 50 compared to their counterparts born just five-years earlier had at the same age. Similarly, someone born in 1971-75 held about £15,000 more wealth at the age of 40 than those born five-years earlier.

However, not all cohorts experienced such progress. In 2018-20, millennials held less wealth in comparison to their generation X counterparts when they were at a similar age. Nevertheless,

although the eldest millennials have made progress in closing the wealth gap between themselves and the cohort born five-years before, millennials in 2018-20 still held less wealth than their generation X counterparts when they were at a similar age. For example, the cohort born in 1981-85 had 14 per cent less wealth than those born in 1976-80 at age 29. But, just four years later, that gap had narrowed to 2 per cent.

The UK is not alone in experiencing a slowdown in generational wealth progress. Millennials on the other side of the Atlantic have also, on average, lower family wealth compared to their generation X and baby boomer counterparts. However, US millennials have also experienced a catch up in recent years. In 2019, older millennials (born in the 1980s) were 11 per cent below wealth expectations based on the previous generations' wealth trajectory; this was a significant improvement on the 40 per cent deficit they faced in 2016.

Nevertheless, there are grounds for optimism for younger cohorts in Britain. The era of low interest rates, which inflated asset values and exacerbated wealth gaps between ages in recent decades, has come to end, at least for now. Higher interest rates have triggered a sharp fall in asset prices, wiping around £2.2 trillion from the total value of household wealth in Britain since the start of 2022. The impact of falling asset prices has been unevenly distributed across cohorts, with older cohorts experiencing more substantial falls in wealth as a result of rising interest rates. For instance, those born in 1956-60 will have seen their wealth fall by more than £200,000, on average, between Q1 2022 and Q2 2023, equivalent to a 22 per cent drop.

Although there is significant uncertainty around the future path of long-term interest rates, the trajectory of generational wealth accumulation could look very different for younger cohorts if higher interest rates persist. There are several reasons for this. First, higher interest rates put downward pressure on house prices, with house prices across the UK falling by 13 per cent in real terms since June 2021. Should house prices continue to fall, prospective first-time buyers would face lower deposit requirements and would potentially see a reduction

in the lifetime cost of buying a home. Second, higher interest rates lead to higher returns on pension saving, making it easier for those with a defined contribution (DC) pension to secure a comfortable retirement. If interest rates settle at 3 per cent, then those born between 1991-95 could expect to have approximately £18,000 more in their DC pension pot at age 60 compared to a world where future interest rates reverted to their 2015 to 2020 average.

But Britain's youth shouldn't pin all their hopes on interest rates remaining high. The future of long-term interest rates is highly uncertain. If we return to the low-rate environment of the pre-pandemic world, wealth could once again outpace income growth, potentially jeopardising younger generations' aspirations of becoming home owners and a comfortable retirement.

Conclusion

Overall, we do not find that improvements to millennials living standards in recent years have gone far enough to close generational gaps or to eradicate the threat to the promise of intergenerational fairness within the UK. Across several economic measures UK millennials have experienced considerably less progress than their US counterparts. This lack of progress ultimately results from the combination of a stagnant UK economy, limiting economy-wide prospects for pay and income progression, and millennials (and other younger Britons) getting a disproportionately low share of the rewards that have materialised.

Introduction

The Resolution Foundation's Intergenerational Commission, published five years ago, set out a number of challenges that threatened our ability to deliver on the promise of intergenerational fairness.[1] It revealed that young people today are struggling to match lifecycle milestones that earlier generations enjoyed, such as a secure job and a home that they own. It also found that improvements in households' disposable income between cohorts – something that would have been taken for granted throughout the second half of the 20th century – has also slowed, or stopped, for the most recent cohorts.

These generational trends are not specific to the UK, with the economic challenges facing the millennial generation apparent across several developed nations.[2] Even in the US, where income levels are comparatively higher, the challenges faced by millennials have emerged as a prominent issue.[3]

The evidence of the economic challenges facing younger generations today has led us to believe that millennials could be the first generation to do worse than their parents. But recently for the US, the stereotype of the 'broke millennial' has started to be re-examined, and the emerging evidence suggest that millennials' economic prospects have improved. It is possible that, despite "a rough start, the generation is thriving".[4]

Indeed, across several measures of living standards, millennials in the US have seen improvements relative to the generations that came before them. Millennial households across the Atlantic can now expect higher incomes than households headed by the baby boomers and those in generation X at the same age – with the average millennial expecting to have an additional $9,000 in annual income (in 2019 dollars) compared to generation X at the same age, and $10,000 more than the baby boomers. Millennials were also less likely to live in poverty in 2019 than the generations that came before them at the same age. Millennials' home ownership and wealth accumulation prospects have also brightened: the current average home ownership rate for millennials aged 25-39 in 2020 was 48 per cent, just shy of the 50 per cent for baby boomers at the same age.[5] And,

1 L Gardiner et al., A new generational contract, Resolution Foundation, May 2018.
2 F Rahman & D Tomlinson, Cross countries: International comparisons of intergenerational trends, Resolution Foundation, February 2018.
3 See, for example: J Filipovic, Ok Boomer, Let's Talk: How My Generation Got Left Behind, One Signal Publishers, August 2020.
4 J Twenge, The Myth of the Broke Millennial, The Atlantic, April 2023.
5 J Twenge, The Myth of the Broke Millennial, The Atlantic, April 2023.

although millennials' wealth expectations remain below those of the previous generation, older millennials (born in the 1980s) have closed the gap to just 11 per cent by 2019, marking significant progress from the 40 per cent deficit they faced in 2016.[6]

This report – produced by the Resolution Foundation as part of the ESRC-funded Connecting Generations research programme – assesses recent developments in intergenerational fairness in the UK. It attempts to understand whether we can see the early signs of a reversal of the fortunes of millennials in the UK, comparable to what appears to be unfolding in the US. It does so by taking stock of generational living standards in Britain, as shown by the most recent data on incomes and wealth.

The explicit approach of this and past annual intergenerational audits is to evaluate living standards through an intergenerational lens, distinguishing between different cohorts and generations according to when they were born. Throughout this analysis, our focus is mainly on five-year birth cohorts. In order to bring these findings together, and aid interpretation, we sometimes talk about generations using the definitions that are commonly used in the UK. These are:

- The lost generation, born 1881-1895;
- The forgotten generation, born 1896-1910;
- The greatest generation, born 1911-1925;
- The silent generation, born 1926-1945;
- The baby boomers, born 1946-1965;
- Generation X, born 1966-1980;
- The millennials, born 1981-2000;
- Generation Z, born 2001-2015;
- Generation Alpha, born 2016-to date.

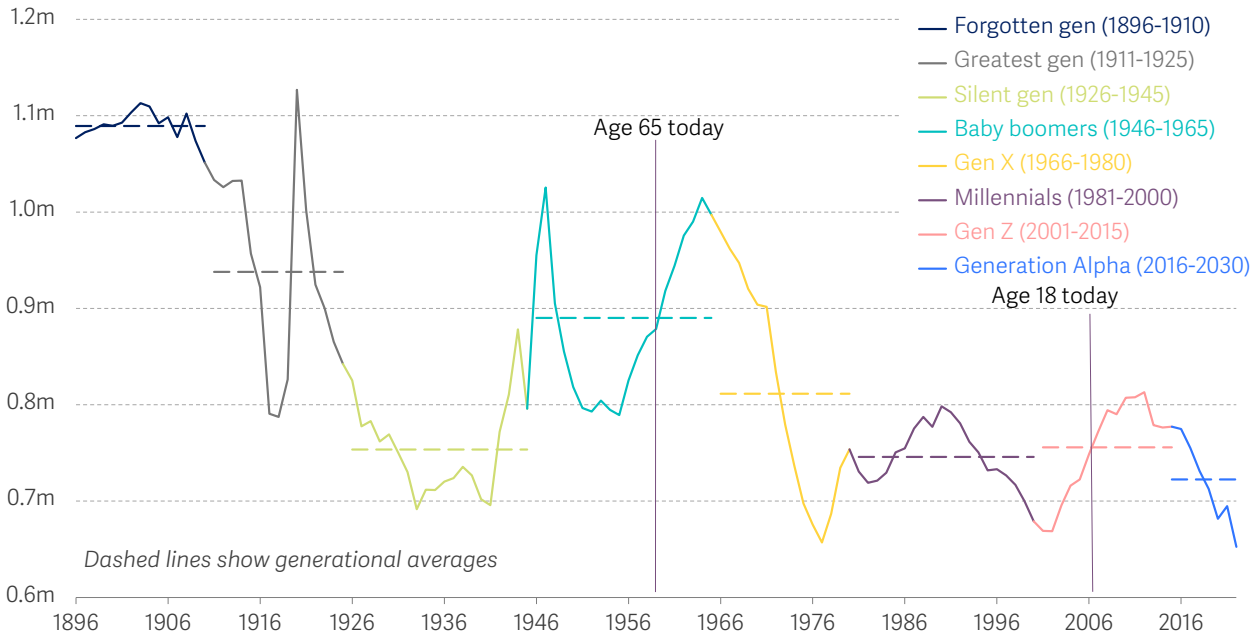
Using generations as an analytical framework derives its significance from two interrelated factors. The first factor is that generations tend to share, to varying extents, common economic experiences, values, and cultural norms, especially those developed during their formative years. This commonality fosters a sense of collective identity within each generation. These have included wars, a range of global economic shocks, such as the oil price shock of the late 1970s and its inflationary consequences, or the financial crisis, and more recently the Covid-19 pandemic.

6 A Kent & L Ricketts, Millennials Are Catching Up in Terms of Generational Wealth, Institute for Economic Equity, March 2021.

The second factor that supports a generational framework for analysis is that the relative size of generations can play an important role in determining their shared experiences and outcomes. Birth numbers have tended to fluctuate with birth booms and busts, as shown in Figure 1. Public policy and the economic outcomes for different generations has been affected by three recent birth cycles: baby boomers with a (second) birth peak in the 1960s; the millennials with a peak in the 1980s; and generation Z with a peak in the 2010s. (In Section 3 we explicitly consider what these fluctuating cohort sizes means for the relative generosity of the welfare state over the lifetimes of different generations.)

FIGURE 1: **Birth patterns have fluctuated dramatically over time in the UK**

Births per year and generational averages: UK



NOTES: Northern Ireland data is unavailable for 2022, and so is estimated based on births in 2021.
SOURCE: ONS, Birth Characteristics (England and Wales); NRS, Births Time Series Data (Scotland); NISRA, Live births, 1887 to 2021 (Northern Ireland).

It is important to note that examining generational disparities is just one tool available to us to help us understand societal trends and economic developments, and is complementary to analysis focussed on different perspectives, including those based on gender, ethnicity, geographical location, income bracket and social class.

This report goes on to look at whether millennials have experienced material improvements to and catch up with past generations' living standards, by looking across four domains:

- Section 2 discusses the stalled pay progression of millennials and the key role that graduate pay progress has played.

- Section 3 reviews the extent to which millennials in the UK have experienced the recent income progress their US counterparts have and the role the state has played, through tax and social security spending decisions.
- Section 4 reviews what has happened to millennials home ownership rates and the implications for both current and future generational gaps in home ownership rates.
- Section 5 reviews whether intergenerational wealth gaps facing millennials have shrunk, and the implications of higher interest rates, both for generational wealth gaps and private pension accumulation.

Section 2

Jobs, skills and pay

Millennials have benefitted from record-high employment rates. However, this employment success hasn't translated into generational pay progression: millennials born in the late 1980s earned, on average, 8 per cent less at age 30 than their counterparts from the generation X cohort when they were the same age.

Stagnant pay progression for younger generations is also a feature in the US, but this issue appears to be confined to the non-graduate population. Moreover, in recent years, the US has seen progressive pay growth and strong growth for young workers, suggesting even younger non-graduates may be starting to see some improvements to their experience of stalled, or even negative, generational pay progress.

UK millennials, on the other hand, have not seen their weak pay performance unwind, reflecting the ongoing lack of pay growth: between 2007 and 2022, real median weekly earnings in the UK increased by just 2 per cent, compared to a 14 per cent increase in the US. But unlike in the US, UK graduates have fared worse than non-graduates since the financial crisis: the typical weekly pay of graduates aged 30-34 has fallen by 16 per cent between 2007 and 2023, compared to just 6 per cent for non-graduates.

One explanation for why graduates have seen weak pay outcomes is that the significant improvement in educational attainment has resulted in an 'oversupply' of graduates putting downward pressure on the graduate premium. But this argument overlooks two other significant trends in the UK. First, rather than becoming overly focused on the 'oversupply' of graduates, more attention should be given to the lack of demand for these workers, particularly outside of London. This mismatch has led to lower pay for graduates, again especially for those living outside the capital. Second, the introduction of the National Living Wage in 2016 has disproportionately benefited lower-skilled individuals, resulting in a narrowing of the wage gap between graduates and non-graduates.

A decline in graduate pay relative to non-graduate pay is not necessarily a bad thing, but the overall wage stagnation since 2007 is not indicative of a thriving economy.

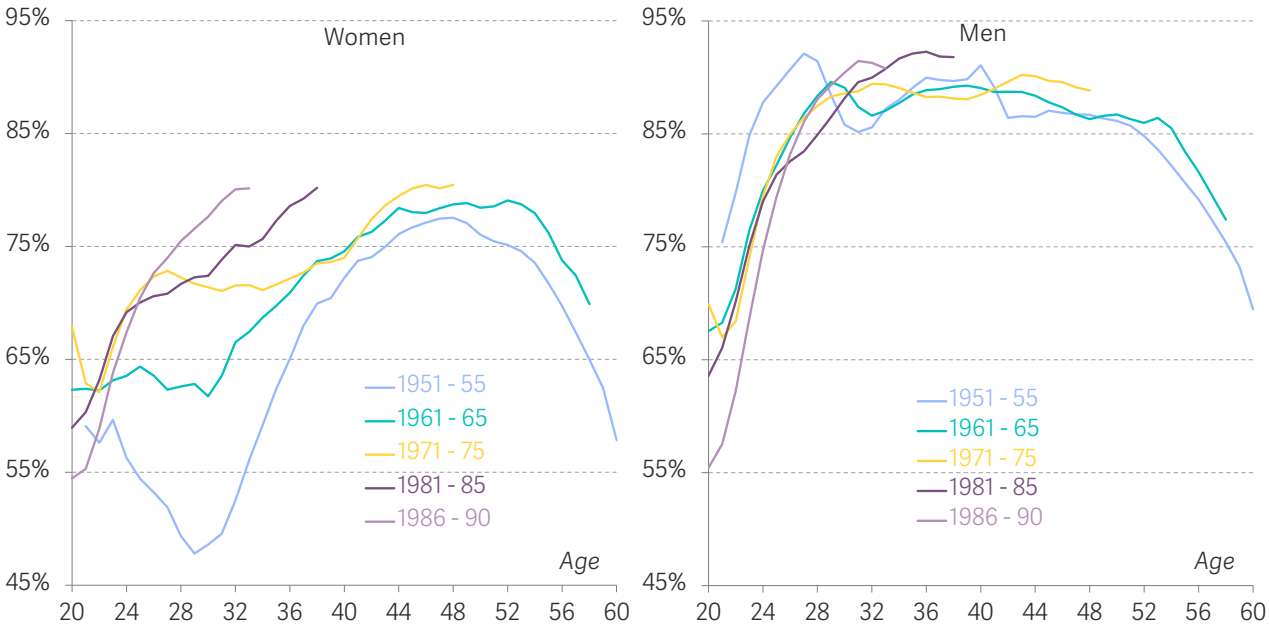
It mirrors the broader issue of the UK's inability to create highly-skilled jobs, and is a symptom of the country's low productivity.

Successive generations – particularly women – have benefitted from strong employment growth

The UK economy has seen strong employment growth in recent decades, reaching record levels just before the Covid-19 pandemic.[7] Figure 2 highlights that record employment has fed through to all generations that are working-age. Younger cohorts of men and women have higher employment rates than their predecessors (most notably those in their late 20s and early 30s.

FIGURE 2: **Successive generations – of women particularly – have benefitted from strong employment**

Employment rate, by age and cohort, women (left panel) and men (right panel): UK, 1975-2023



NOTES: Figures for each cohort are derived from a weighted average of estimates by single year of age; cohorts are included if at least five birth years are present in the data.
SOURCE: RF analysis of ONS, Annual Labour Force Survey (1975–91); ONS, Quarterly Labour Force Survey (1992–2018).

Women, in particular, have made impressive generational gains in employment across all age groups. The average employment rate for women between the age of 22 and 30 has risen by an impressive 18 percentage points comparing those born between 1951-55 (baby boomers) and 1986-90 (millennials). As a result, women born in the 1980s have had

7 N Cominetti, A record-breaking labour market – but not all records are welcome, Resolution Foundation, February 2020.

higher employment rates from their early 20s onwards than those born in the 1950s or indeed 60s. This will reflect cultural changes, including women tending to have children later in life, but also important government policy changes on equal pay legislation and improved childcare support. This extremely positive development should not be overlooked, particularly considering that many other advanced countries, including the US, have not experienced such sustained progress since the initial employment gains made by baby boomers.[8]

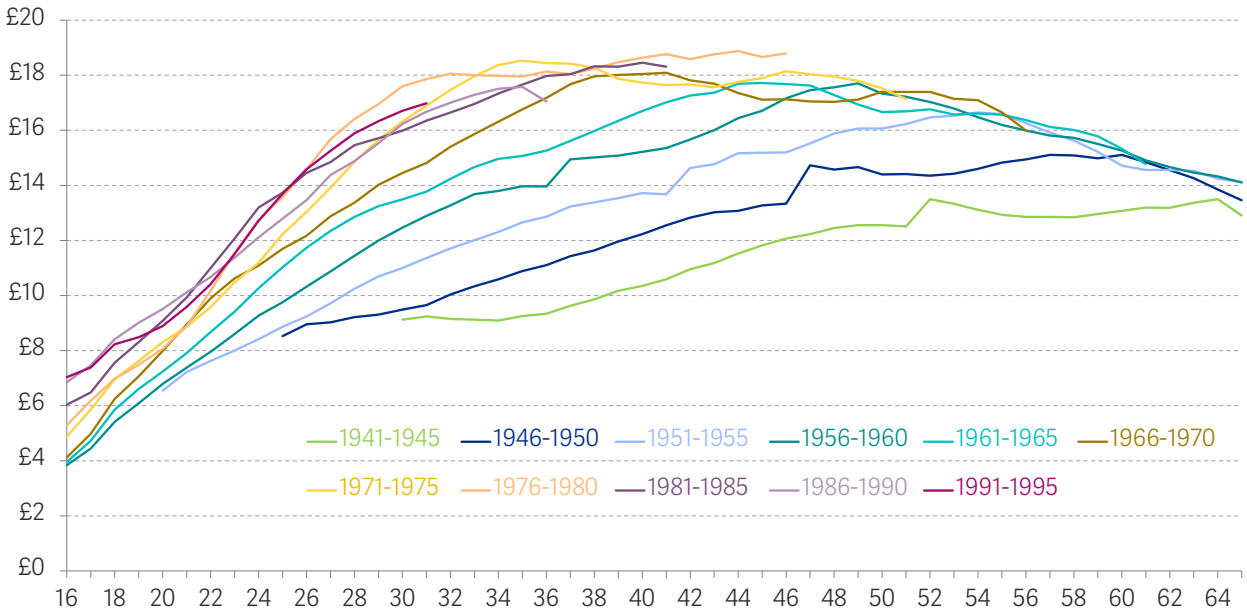
Strong employment growth has not translated to generational pay progression

But although younger cohorts have benefitted from high levels of employment, there is one aspect of the labour market where young millennial workers have fared miserably: pay.

Those born before the 1980s could expect to be paid more than those from previous generations when at the same age, as shown in Figure 3.

FIGURE 3: **Generational pay progress has stalled for millennials**

Median real hourly employee pay, by cohort: UK, 1975 to 2021-22



NOTES: Adjusted to 2022 prices using CPIH. Figures for each cohort are derived from a weighted average of estimates by single year of age; cohorts are included if at least five birth years are present in the data. Data is smoothed using three-year rolling averages.
SOURCE: RF analysis of ONS, New Earnings Survey (1975-97); ONS, Annual Survey of Hours and Earnings (1997-latest).

8 Pew Research Center, Millennial life: How young adulthood today compares with prior generations, February 2019.

But this cohort-on-cohort pay progression has stalled for millennials, and in some cases reversed. For example, at age 30, a millennial born in the late 1980s could expect to earn 8 per cent less than those from the gen X cohort born 10 years before them. And in the latest year's pay data, millennials born in the late 1980s or early 1990s are still earning less in real terms than those born in the late 1970s at the same age.

This bleak picture of pay progress is also seen in the US. Earnings for young workers in the US have remained broadly flat over the past 50 years: the typical weekly earnings of a full-time worker aged 25-34 were only 9 per cent higher in real terms in 2018 than they were in 1979.[9] By contrast, the typical weekly earnings of a full-time worker aged 55-64 were 31 per cent higher.

However, stalled generational pay progress in the US appears to have been constrained to the non-graduate population. In 2018, US millennials aged 25-37 with a degree had comparable annual earnings to their gen X counterparts at the same age, while US millennials without a degree saw lower annual earnings than their predecessors. For example, millennial workers with a high school diploma reported making $31,000, lower than the $37,000 early baby boomer workers made at the same age in 1982.[10]

Nevertheless, in recent years, young workers in the US have experienced rapid wage increases. The average weekly earnings of 25-34-year-olds grew by 8 per cent in real terms between 2018 and 2022, surpassing the 5 per cent growth for those aged 35-44 and 45-54, and the 2 per cent growth for those aged 55-64. This suggests progress on closing the pay gap between US millennials and the generations that preceded them. Additionally, recent wage growth in the US has been progressive:[11] between 2018 and 2022, real median hourly earnings grew by 4.9 per cent among non-graduates, compared to 2.6 per cent among graduates over the same period.[12] While non-graduates have still experienced slower pay growth since the financial crisis, recent years have marked a positive shift in pay performance for US non-graduates, potentially contributing to an improved picture on generational pay progress among younger non-graduates.

Graduate pay performance in the UK has been particularly weak since the financial crisis

Unlike in the US, neither millennial graduates nor non-graduates have experienced generational pay progress in the UK. A major contributing factor behind this difference

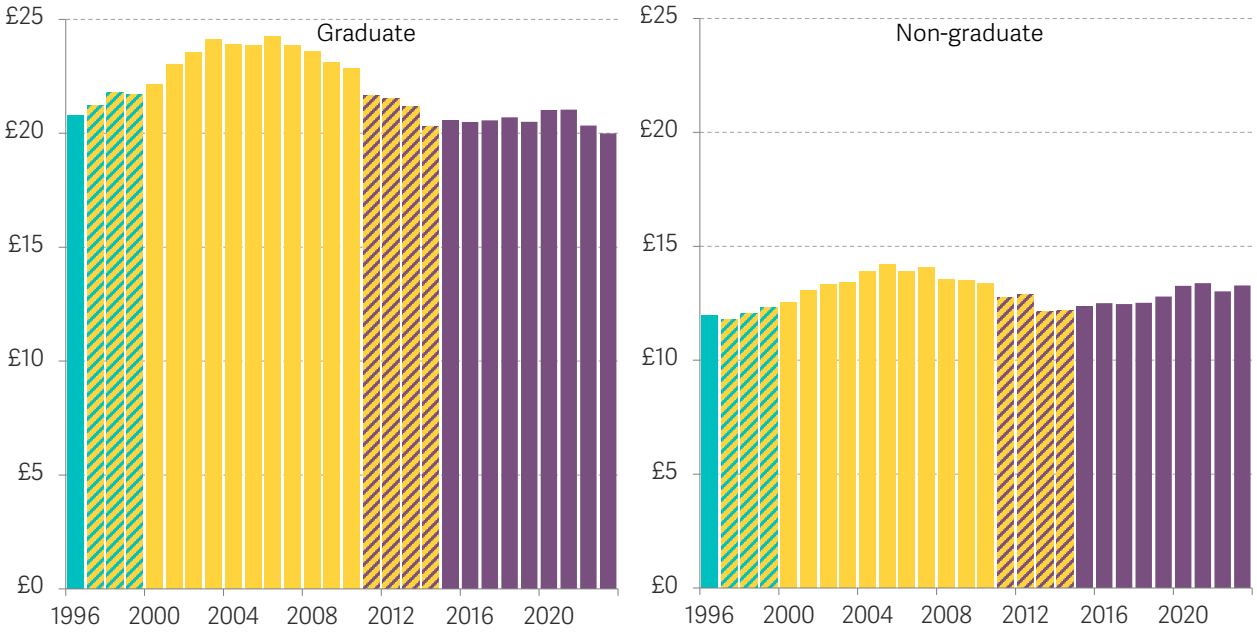
9 Pew Research Center, Millennial life: How young adulthood today compares with prior generations, February 2019.
10 Pew Research Center, Millennial life: How young adulthood today compares with prior generations. February 2019.
11 For further discussion, see: D Autor, A Dube & A McGrew, The Unexpected Compression: Competition at Work in the Low Wage Labor Market, National Bureau Of Economic Research, March 2023 and V Guida, Historic gains: Low-income workers scored in the Covid economy, Politico, May 2023.
12 Financial Times analysis of US Current Population Survey. For further analysis of this source, see: J Burn-Murdoch, Britain's graduates are being short-changed while America's are rich, Financial Times, October 2023.

is that pay growth in the US far outstripped that in the UK since the financial crisis: the UK saw median weekly pay grow by 2 per cent between 2007 and 2022, compared to the 14 per cent in the US over the same period. The UK's poor pay performance meant that the wages of graduate and non-graduate millennials in their early thirties have slumped below previous generations.

In further contrast to the US, pay for graduates has fallen by more than for non-graduates since the financial crisis. Real graduate hourly wages for adults in their early 30s fell by 16 per cent between 2007 to 2023 compared to just 6 per cent for non-graduates (see Figure 4). In fact, graduates aged 30-34 today can expect to earn marginally less than the same age group 27 years ago (£20 an hour vs £20.80).

FIGURE 4: **Pay progress has been poor over the past 15 years, particularly for recent graduates**

Real median hourly pay for 30-34-year-olds, graduates (left panel) and non-graduates (right panel): UK



NOTES: Adjusted to 2023 prices using CPIH. Purple bars refer to millennials, yellow bars refer to generation X, blue bars refer to baby boomers and hatched bars refer to overlapping birth cohorts.
SOURCE: RF analysis of ONS, Labour Force Survey.

Increases in educational attainment have put downward pressure on the graduate premium

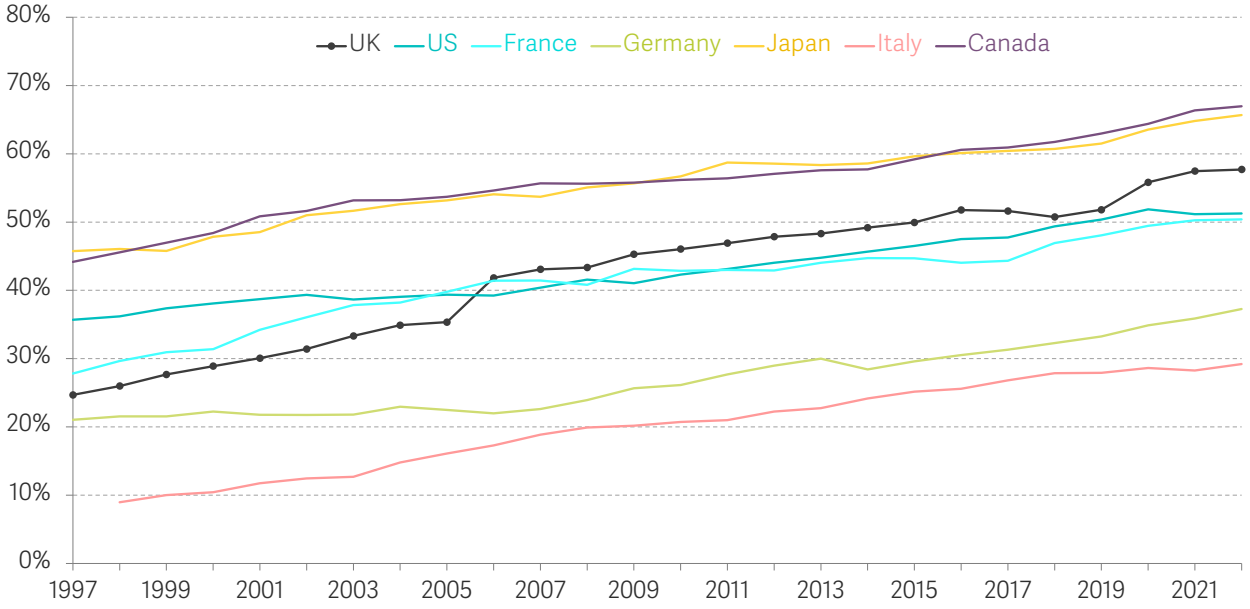
The analysis in the previous sub-section raises the question: why have graduates done so much worse than non-graduates since the financial crisis?

The backdrop to this is that educational attainment among younger generations in the UK has been substantially improving over recent decades. As Figure 5 highlights, the

share of the population aged 25-34 with some tertiary education has more than doubled since 1997 from one-in-four (25 per cent) to more than half (58 per cent). In fact, the UK has seen the largest rise in the G7 over the last 25 years, and only Japan and Canada still have a greater concentration of young people with some tertiary education than the UK, where in both two-thirds of their young workers had some tertiary education in 2022.

FIGURE 5: **The UK stands out internationally for the size of the increase in the share of young adults with a tertiary education**

Proportion of 25-34-year-olds with tertiary education: G7 countries



SOURCE: RF analysis of OECD, Education at a glance: Educational attainment and labour-force status.

The improvement in educational attainment over recent decades has meant that young adults today are more educated than their parents or grandparents. In particular, they are much more likely to have a university degree: 40 per cent of millennials (born 1981-2000) are degree educated, compared to just 23 per cent of gen X (born 1966-1980).[13]

The significant growth in educational attainment since the late 1990s has sparked debates about an 'oversupply' of graduates. With a larger pool of highly-educated individuals entering the labour market, employers have a greater number of similarly qualified candidates to choose from. This reduced competition for highly-educated workers among employers puts downward pressure on wages. This has been experienced in countries including Spain, New Zealand and South Korea, where the massive expansion of university education has been met by a fall in the graduate pay premium.[14]

However, this argument overlooks two other significant trends that have occurred in the UK in recent decades.

13 RF analysis of ONS, Labour Force Survey.
14 S Machin & S McNally, Tertiary Education Systems and Labour Markets, OECD, January 2007.

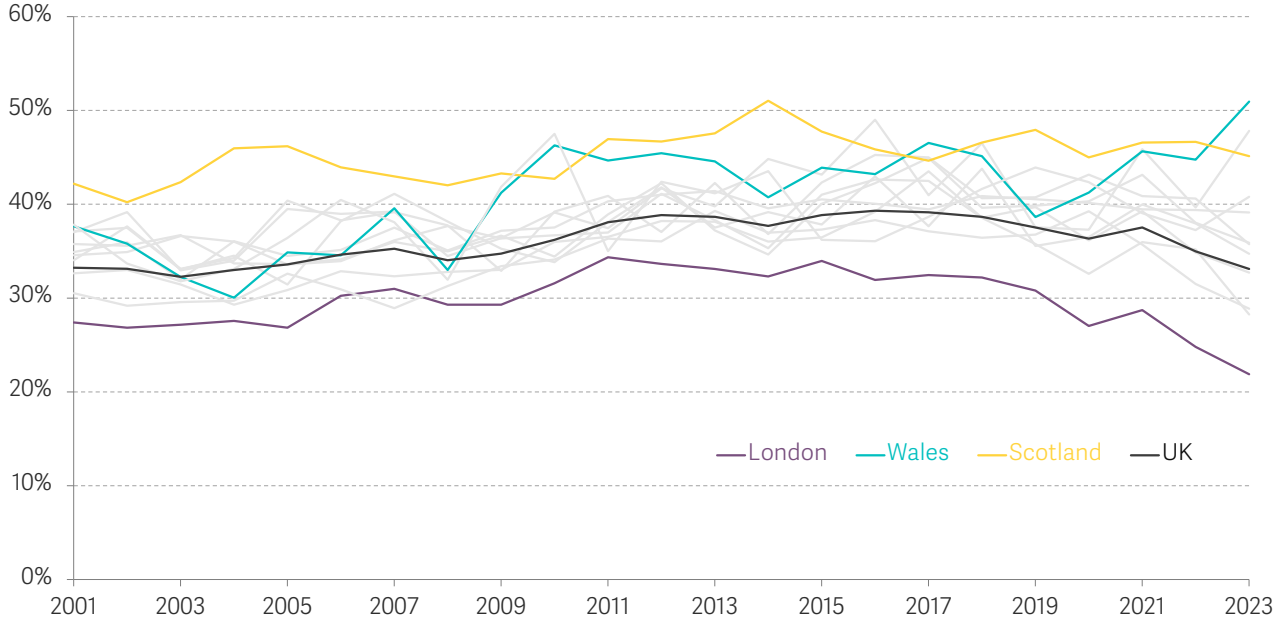
The UK has a poor track record of using degree-educated workers

The focus should shift from concerns about an 'oversupply' of graduates, to the lack of demand for these workers. Since the financial crisis, the UK labour market has struggled to effectively utilise our degree-educated workers. At the top-end of the jobs market the proportion of graduates in the highest-paid managerial occupational classification has declined. This occupational downgrading has resulted in worse pay outcomes for graduates. For example, had the shares of graduates across occupations stayed constant at their 1996 level, typical hourly pay for young graduates could be 4 per cent higher than it is today.[15]

Furthermore, on some measures graduates are increasingly over-qualified for the roles they work in: in 2023, for example, 33 per cent of young graduates were working in occupations traditionally filled by non-graduates.[16] However, Figure 6 shows that certain parts of the UK, notably London, have been more successful in creating a demand for highly-educated workers.

FIGURE 6: **Outside of London there are larger shares of graduates working in non-graduate roles**

Proportion of graduates aged 25-34 in 'non-graduate' occupations, by region and nation: UK



NOTES: We use the definition of non-graduate occupations supplied by P Elias & K Purcell, Classifying graduate occupations for the knowledge society, Institute for Employment Research, University of Warwick, February 2013.
SOURCE: RF analysis of ONS, Labour Force Survey.

15 RF analysis of ONS, Labour Force Survey. Occupations are based on major Standard Occupational Classifications.
16 This measure (also used by the ONS) categorises students into non-graduate Standard Occupational Classifications using the definition in: P Elias & K Purcell, Classifying graduate occupations for the knowledge society, Institute for Employment Research, University of Warwick, February 2013.

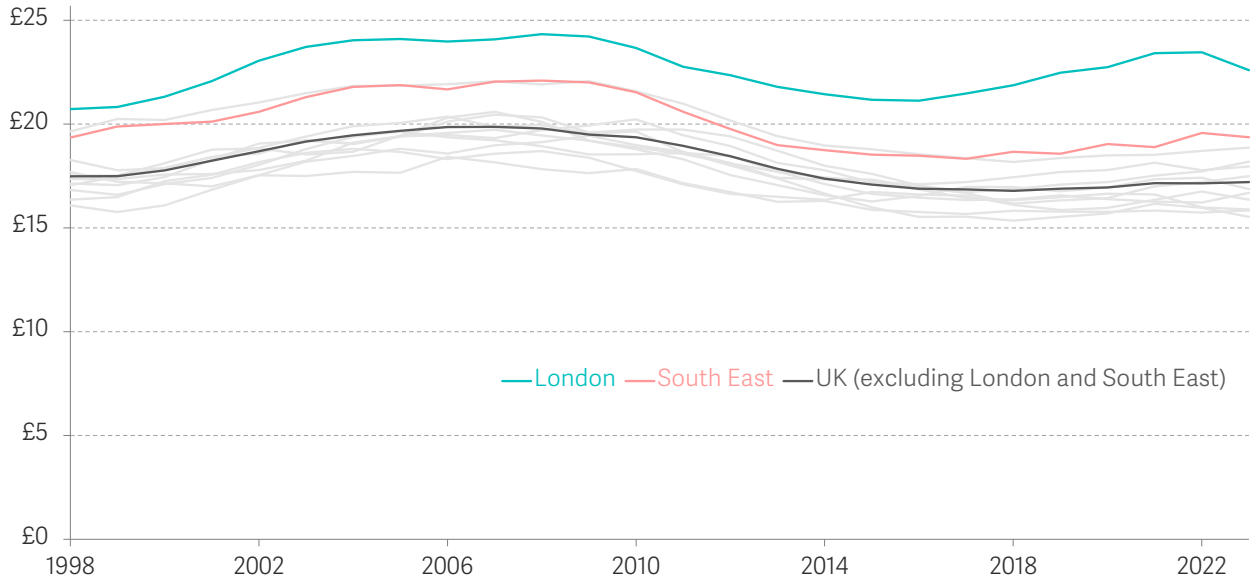
The proportion of graduates working in non-graduate occupations was 22 per cent in London in 2023. In contrast, over half (51 per cent) of graduates aged 25-34 in Wales were working in non-graduate occupations in 2023. Scotland and the North East also had a relatively high proportion of graduates working in traditionally non-graduate roles (45 per cent and 48 per cent respectively).

The disparities in graduate utilisation across nations and regions has resulted in very different pay outcomes for graduates across the UK. Figure 7 shows that in 2023 graduate hourly wages outside the South East are between 17 and 31 per cent lower than in the capital (where wages were £24.30 per hour in 2023).[17]

Overall, most parts of the country are unable to make effective use of their existing graduates. Across the UK (bar London) there appears to be insufficient demand relative to supply for graduates compared to other groups of workers in order to drive up their wages.

FIGURE 7: **There is a large gap between graduate pay in London and the rest of the UK**

Real hourly pay for graduate employees aged 25-34, by region and nation: UK



NOTES: Adjusted to 2023 prices using CPIH.
SOURCE: RF analysis of ONS, Labour Force Survey.

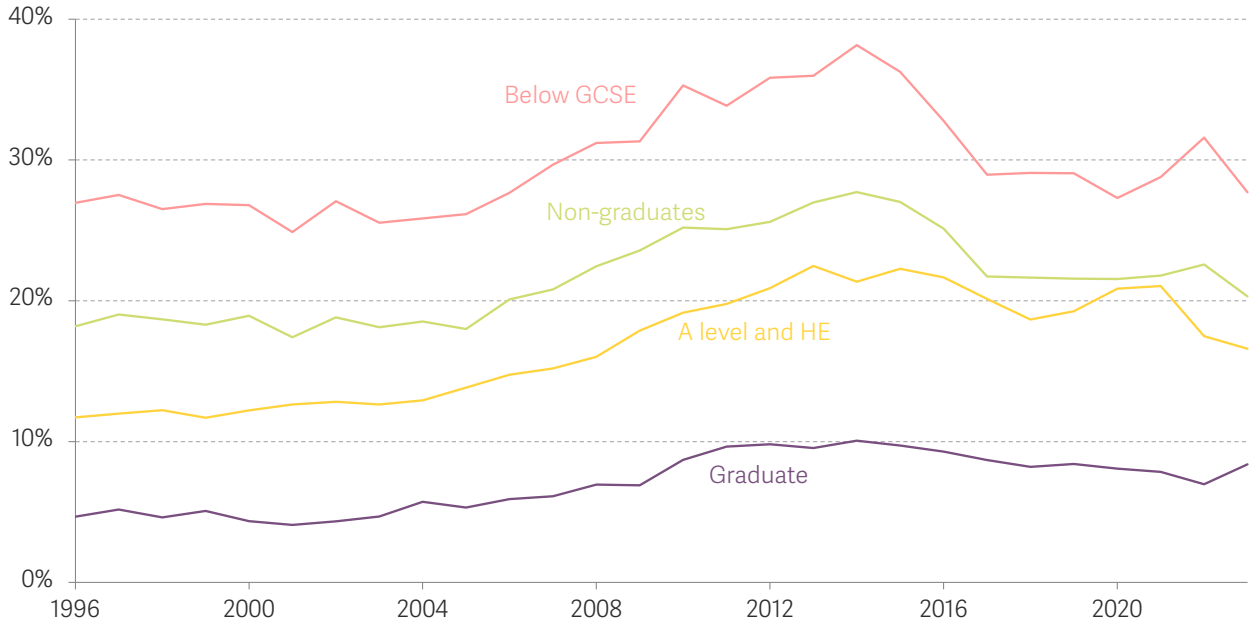
17 Other work has also shown that the graduate premium is low in the UK outside the capital, and has, in fact, fallen over the past 20 years. See: A Stansbury, D Turner & E Balls, Tackling the UK's regional economic inequality, Mossavar-Rahmani Center for Business and Government Working Paper, March 2023; P Brandily et al., A tale of two cities (part 2): A plausible strategy for productivity growth in Greater Manchester and beyond, Resolution Foundation, September 2023.

Policy has also narrowed the pay gap between graduates and non-graduates

On a more positive note, the introduction of the National Living Wage in 2016 and its subsequent increases have also contributed to reducing the graduate premium by disproportionately benefiting non-graduates and compressing the wage distribution. The prevalence of low pay (defined as hourly pay below two-thirds of the median) has fallen considerably for employees without degrees: the share of low-paid employees aged 25-35 with qualifications at GCSE or below has fallen from around 38 per cent in 2014 to 28 per cent in 2023 (as shown in Figure 8).

FIGURE 8: **The incidence of low pay has fallen considerably for non-graduate employees**

Proportion of employees aged 25-35 in low hourly pay, by highest qualification level: UK



NOTES: Low pay defined as hourly pay below two-thirds of the median.
SOURCE: RF analysis of ONS, Labour Force Survey.

This section has highlighted that young millennials have enjoyed record employment rates and significant educational achievements, but their earnings fail to mirror these advancements. The overall wage decline for both graduates and non-graduates since 2007 is not indicative of a thriving economy. Unless the UK can reverse the past 15 years of economic decline and begin to create high-paying, productive jobs, then millennials cannot expect to see the pay growth experienced by previous generations.[18]

18 Resolution Foundation & Centre for Economic Performance, LSE, Stagnation nation: Navigating a route to a fairer and more prosperous Britain, Resolution Foundation, July 2022

Section 3

Household incomes and costs

When it comes to intergenerational trends in household income, the distinct feature is that younger adults in the UK have experienced much less income progress than previous generations. But cohort-on-cohort income progress has started to improve in the last few years, and millennials now have incomes that are slightly above what those from the cohorts before them had at the same age: for example, millennials born in the early 1980s had incomes 3 per cent higher at age 35 than those from generation X who were born in the early 1970s.

However, this modest income progress pales in comparison to the progress seen by young millennials in the US. There, the average (before housing cost) income for someone in their early thirties was 21 per cent higher in 2021 than in 2007; in the UK, incomes for the same group fell by 1 per cent over this period. The slower income progress of the young in the UK can be attributed to two reasons. First, the more sluggish economic growth in the UK meant that overall income growth was lower. Median all-age incomes grew just 2 per cent between 2007 and 2021, compared to 17 per cent in the US. Second, the age profile of income growth favoured millennials in the US, with incomes of those under 40 growing faster than average; in the UK, the opposite is true.

Part of the drag on incomes has been the lack of pay progress for graduates in the UK discussed in the previous section. In the US, both graduates and non-graduate millennials experienced strong income growth, but in the UK young graduates, aged 21-40, had incomes that were 9 per cent lower than their pre-financial crisis levels (2007 to 2021). It is notable that the difference in income growth between graduates and non-graduates was largest for older age groups, and so this isn't simply explained by reforms to UK student loans.

Wider tax and benefit policy changes implemented by recent governments have also contributed to the slower income progress experienced by younger adults in the UK. The tax hikes that have dominated this parliament are expected to reduce incomes, but their impact varies in relatively small ways across differently aged

adult households. After accounting for personal tax and benefits changes, typical disposable incomes for all those aged 25 and over are expected to be reduced by between 2 and 3 per cent by 2027-28. However, decisions taken since the start of this Government (in 2010) have left non-pensioners over £2,200 a year worse off on average, while pensioners are less than £200 worse off a year, principally due to the impact of the triple lock. The median pensioner's income first exceeded that of the median non-pensioner in 2010, but our forecasts now suggest that even rich pensioners will outperform their non-pensioner counterparts by the end of this year.

Although these recent policy changes have favoured older age groups in the UK, currently benefiting the incumbents from the baby boomer and silent generations, the argument could be made that these gains will also be enjoyed by the millennials once they in turn reach state pension age. This intergenerational exchange is a key principle of the UK's welfare state: children benefit from education that is paid for by older generations, they grow up to be adults who pay the taxes that fund the next generations' education and the previous generations' help in old age, and then they in turn reach old age and receive pensions and health care provided by the younger generations. Under various assumptions, it is possible to estimate how much each cohort could benefit from the welfare state – given the value of benefits, education and health and care received by each cohort, less taxes paid to fund this spending. This does indeed suggest that if current policy is unchanged, the millennial cohorts would in fact be the largest net beneficiaries.

However, for these gains to materialise for future generations, then future governments would need to raise the tax share of GDP by around a third by 2070, higher than the 2019 tax share of Sweden, Norway and Finland. If this doesn't happen, then spending will need to be adjusted down in future, and the younger generations will see far smaller net benefits from the welfare state than the generations that came before them. If spending on the welfare state was capped at 25 per cent of GDP, it would be the baby boomers that would be the biggest net beneficiaries.

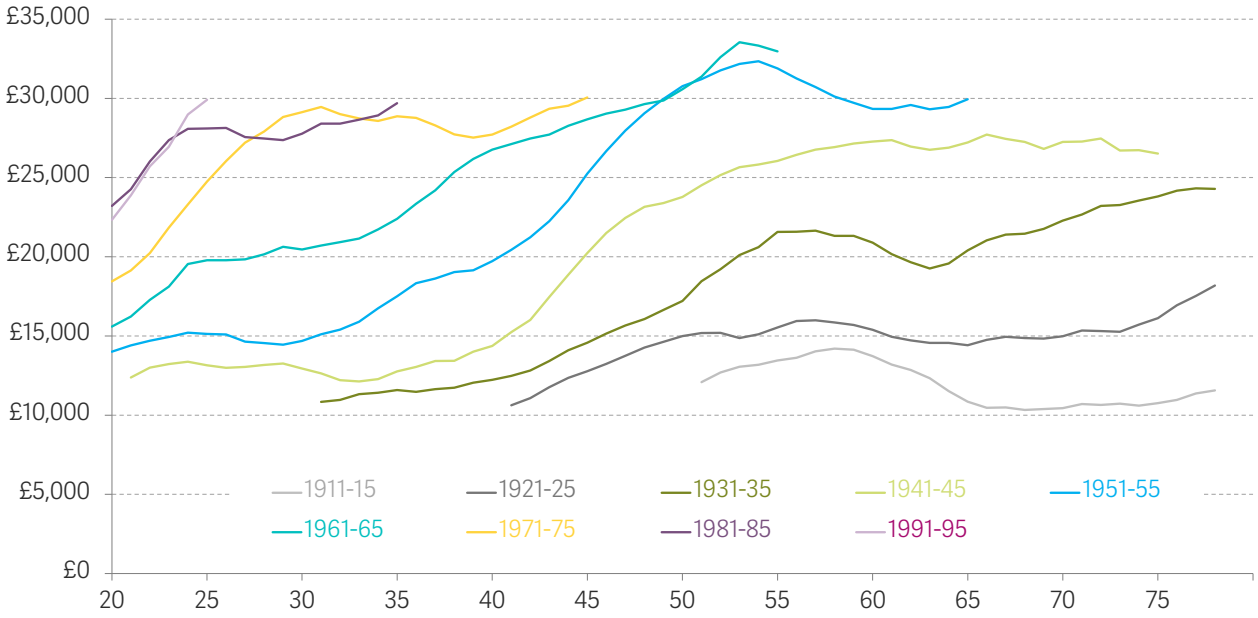
The previous section discussed that, despite rising educational attainment, pay progression in the UK remains stalled. This section turns to how disposable incomes have been impacted in the UK, to assess whether millennials in the UK have experienced the recent income progress their counterparts in the US have. It also considers the role the state has played through personal tax and social security decisions, including considering if policies like the triple lock will in turn benefit the millennials later in life.

Younger cohorts have recently seen some income progress

A distinct feature of the post-financial crisis period has been that younger generations experienced less income progress than the generations that came before them. This is clearly shown by Figure 9 which shows the age profiles of typical incomes after housing costs for individuals from a series of five-year birth cohorts. It shows that those born before the 1960s had consistently experienced income progress relative to the cohorts that came before them; however, several younger cohorts' incomes fell below that of the cohorts proceeding them.[19] For example, in the first half of the 2010s, the typical annual income for those born in the early 1980s was almost £1,400 (or 5 per cent) lower at age 30 than those born 10 years previously (as indicated by the 1981-85 cohort line crossing the 1971-75 cohort); indeed, people in this cohort had lower average incomes than the 1971-75 cohort for six years between the age of 28 and 33.

FIGURE 9: **Cohort-on-cohort income progress has improved for younger adults in recent years**

Typical real household disposable income, after housing costs, by age group and birth cohort: UK/GB, 1961-2021



NOTES: From 1994-95 to 2001-02 data only covers GB. Figures in 2022-23 prices and are deflated using CPI, after housing costs. Figures for each cohort are derived from a weighted average of estimates by single year of age for each single birth year; cohorts are only included if all five birth years are present in the data. Data is smoothed using three-year rolling averages.
SOURCE: RF analysis of IFS, Households Below Average Income (1961-93); DWP, Family Resources Survey (1994-2021).

However, as Figure 9 shows, cohort-on-cohort income progress has improved for younger adults in the last two years – the latest data is from 2021-22 – with each cohort shown in

19 See also: P Bourquin, M Brewer & T Wernham, Trends in income and wealth inequalities, IFS, November 2022.

Figure 9 now experiencing at least modest income progress relative to the cohort that came 10 years before them. The early 1980s cohort can now expect annual incomes to be £800 (or 3 per cent) higher, at age 35, than the generation X cohort born in the early 1970s had at the same age.

But UK millennials have experienced considerably less income progress than their US counterparts

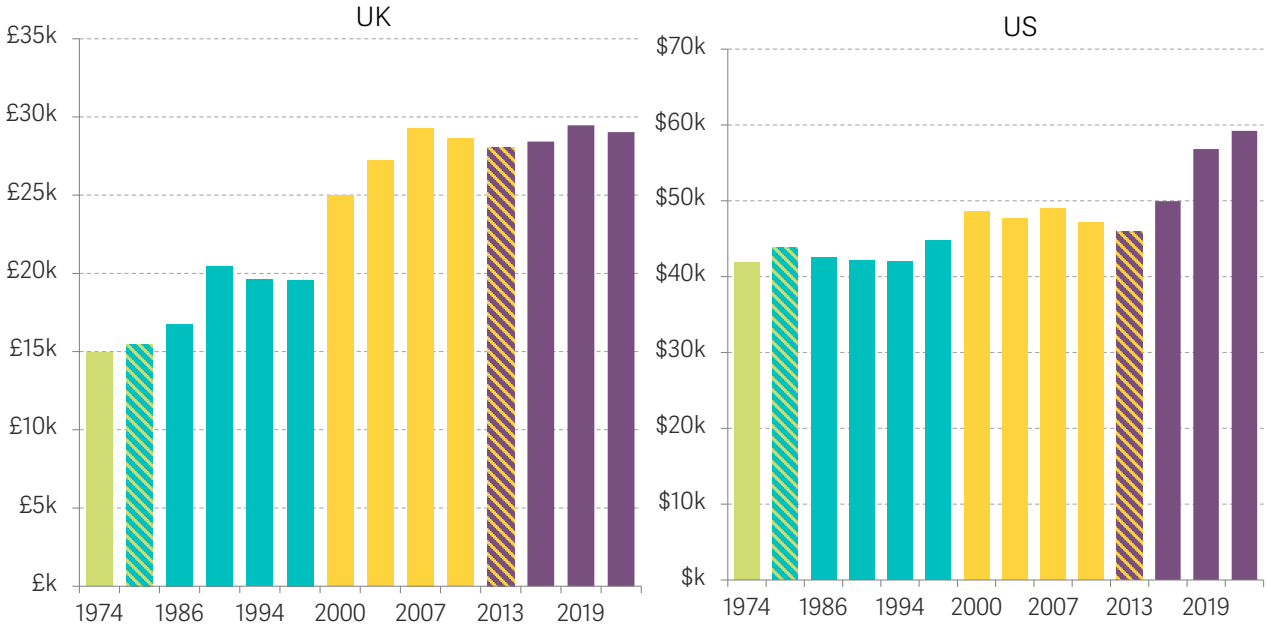
The income progress now visible in Figure 9 aligns with the generational story emerging in the US, which finds that the fortunes of the previously downtrodden millennials have started to turn around. A recent article concluded that the "millennial income rebound has been broad as well as steep": millennials in the US were found to have higher median incomes at a given age than any of the generations preceding them.[20]

A detailed comparison of the UK and US shows that, although millennials' incomes now exceed the generations that came before them in both countries, income progress in the UK has been substantially weaker than in the US. Figure 10 illustrates this by showing incomes for those in their early thirties over time. In the US, this group's typical income exceeded its previous (2007) peak by 21 per cent in 2021, meaning that the currently incumbent millennials had higher incomes than past generations at the same age. On the other hand, millennials in the UK in their early thirties in 2021 had incomes no higher than someone from gen X almost 15 years prior (incomes were 1 per cent lower in 2021 than in 2007 for this age group)

20 J Twenge, The Myth of the Broke Millennial, The Atlantic, April 2023.

FIGURE 10: **British millennials have seen less income progress than Americans**

Median real household disposable income, before housing costs, at age 30-34 by year: UK (left panel) and US (right panel)



NOTES: Figures in 2017 prices and are deflated using CPI (Luxembourg Income Study CPI deflators) to assess trends in both countries across time, but not to compare incomes level changes between countries. Bar colours refer to which generation was aged 30-34 in a given data year: purple refers to millennials, yellow gen x, blue the baby boomers, green the silent generation and hatched bars are used for years with overlapping generations.
SOURCE: RF analysis of Luxembourg Income Study (US) and DWP, Family Resource Survey (UK).

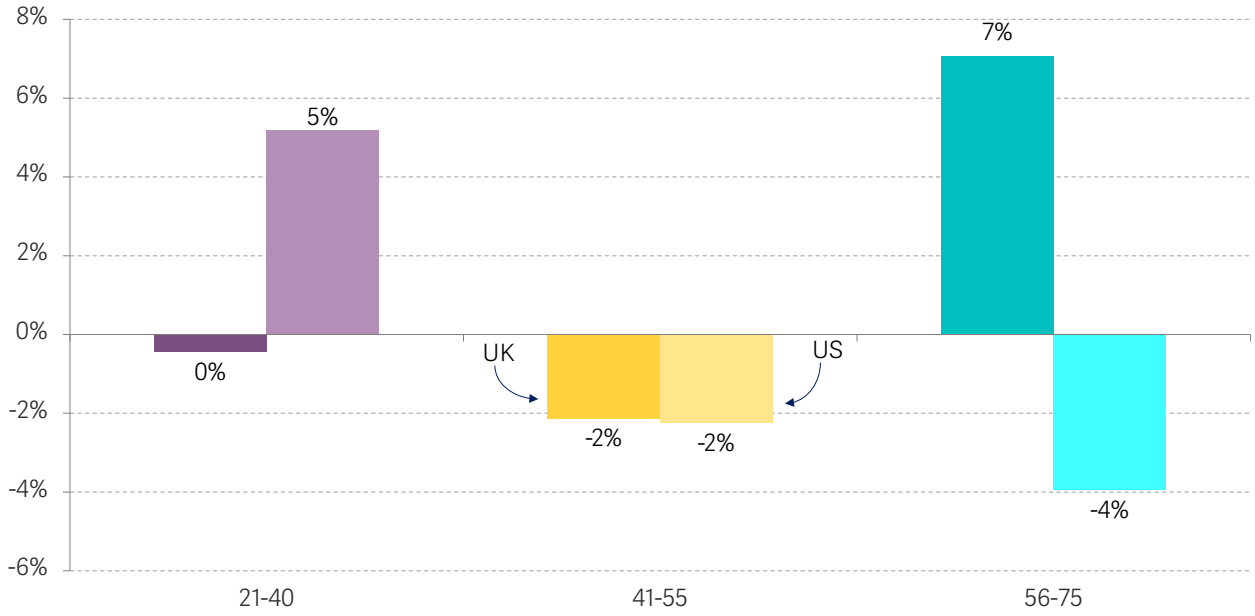
The progress of UK millennials has fallen short of their American peers for two reasons. First, overall US income growth outpaced the UK. US median all-age incomes grew 17 per cent between 2007 and 2021, but UK income growth was just 2 per cent.[21] Of course, we would expect income progress to be faster in the US, as the US economy's growth has outstripped the UK's since the global financial crisis. Between 2007 and 2021, GDP per capita increased by 14 per cent in the US, compared to just 3 per cent growth in the UK.[22]

But second, in addition to faster overall growth, the age profile of income growth has been considerably more favourable to millennials in the US, as shown in Figure 11. In particular, the growth in income received by 21-40-year-olds (i.e. the ages spanned by millennials in 2021) was 5 percentage points higher than growth in all-age (20-80-year olds) typical income in the US, but marginally below the all-age typical income growth in the UK. Conversely, the income received by people aged 56-75 (the ages of the baby boomers in 2021), was above the economy-wide average in the UK, but below in the US. So, millennial households in the US were boosted by faster-than-average income growth, helping to unwind past generational inequality, but the opposite was true in the UK.

21 RF analysis of the disposable incomes in Luxembourg Income Study (LIS) Database, (US, 2007 and 2021), 2017 prices (CPI deflator) and ONS, Family Resources Survey (UK incomes, 2017 prices CPI deflator).
22 RF analysis of GDP per capita growth using OECD, GDP (Constant prices, 2015 base year) divided by OECD, Total population, national concept.

FIGURE 11: **The age profile of income growth was less favourable for British millennials than Americans**

Change in median real household disposable income, before housing costs, between 2007 and 2021 relative to the all-age (20-80) average change, by age group: UK and US



NOTES: Changes are estimated using incomes in 2017 prices and are deflated using CPI (Luxembourg Income Study CPI deflators) to assess trends in both countries across time, but not to compare income level changes between countries. Age groupings are aligned with the ages of the different generations in 2021 (the last year of data available).
SOURCE: RF analysis of Luxembourg Income Study (US) and DWP, Family Resource Survey (UK).

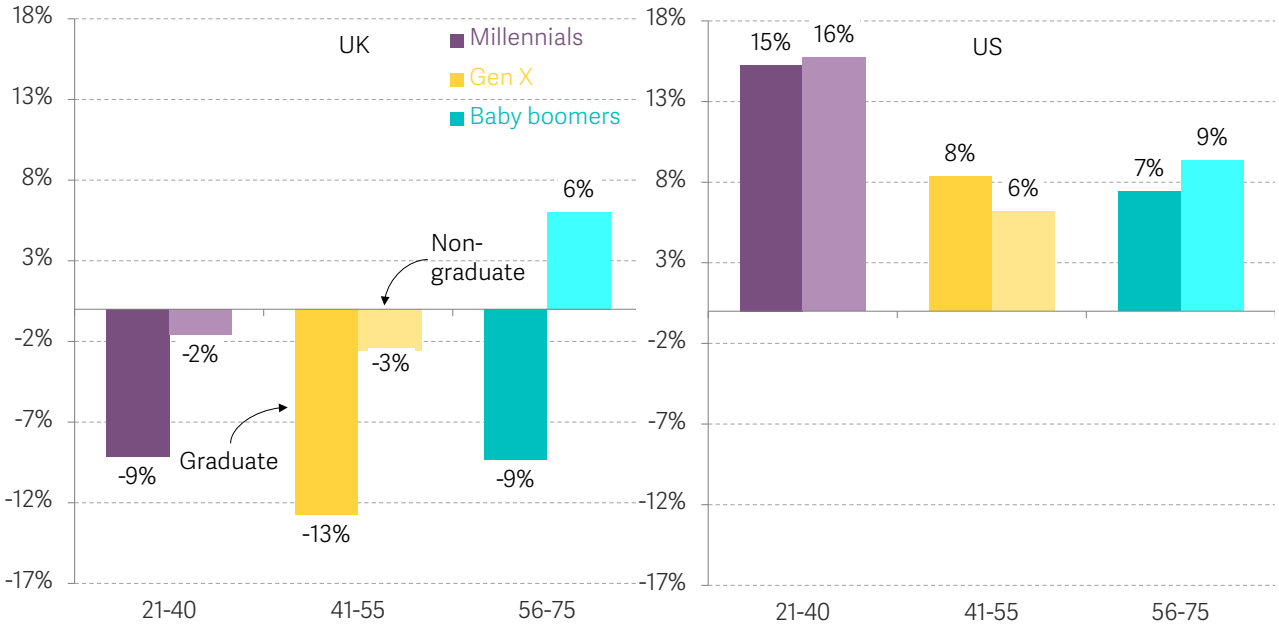
US graduates, in particular, fared much better than their UK counterparts

As discussed in Section 2, the relative experiences of graduates and non-graduates in the labour market has differed for UK and US millennials. The revival of the fortunes of US millennials relative to the previous generation (gen X) was initially marked by distinctly stronger income growth for those with a college education and those without. Past research found that households headed by graduate millennials aged 25-27 (in 2018) had median adjusted household incomes $56,000 higher than those of high school graduates', but this gap was just $41,000 for late boomers (in 1989).[23] Figure 12 indicates that the success of graduates and non-graduates in the US has been more similar in the period to 2021 since the financial crisis. Middle-aged graduates (representing gen X in 2021) experienced faster income growth than non-graduates, but younger and older gradates (i.e. millennials and baby boomers) fared worse than their non-graduate counterparts, so it is no longer a simple story of graduate incomes dragging up the average, with non-graduates left behind.

23 Pew Research Center, Millennial life: How young adulthood today compares with prior generations, February 2019.

FIGURE 12: **UK graduates have seen slower income growth than non-graduates, relative to a more mixed picture in the US**

Change in median real household disposable income, before housing costs between 2007 and 2021, by age group and whether a graduate: UK and US



NOTES: Changes are estimated using incomes in 2017 prices and are deflated using CPI (Luxembourg Income Study CPI deflators) to assess trends in both countries across time, but not to compare income level changes between countries. Age groupings are aligned with the ages of the different generations in 2021 (the last year of data available). Graduate is defined as having bachelor or above qualifications (for the UK 2021 and for the US) or, where data unavailable, by having at least 16 years of education (UK 2007).
SOURCE: Luxembourg Income Study (US) and ONS Family Resource Survey (UK).

However, Figure 12 shows that the UK story is very different from the US. Since the financial crisis, income growth among UK graduates has clearly underperformed non-graduates across ages (and generations). For example, the incomes of younger graduates (aged 21-40) in 2021 were 9 per cent lower than similarly aged graduates in 2007, on average, but non-graduates' incomes were just 2 per cent lower.

Figure 12 shows that the divergence between graduate and non-graduate income growth is even starker for older households; this suggests that the recent and substantial policy changes to student debts and loans are unlikely to explain these differences (more details on student loan reform are provided in Box 1). Instead, this is consistent with lower graduate pay since the global financial crisis, discussed in the previous Section.

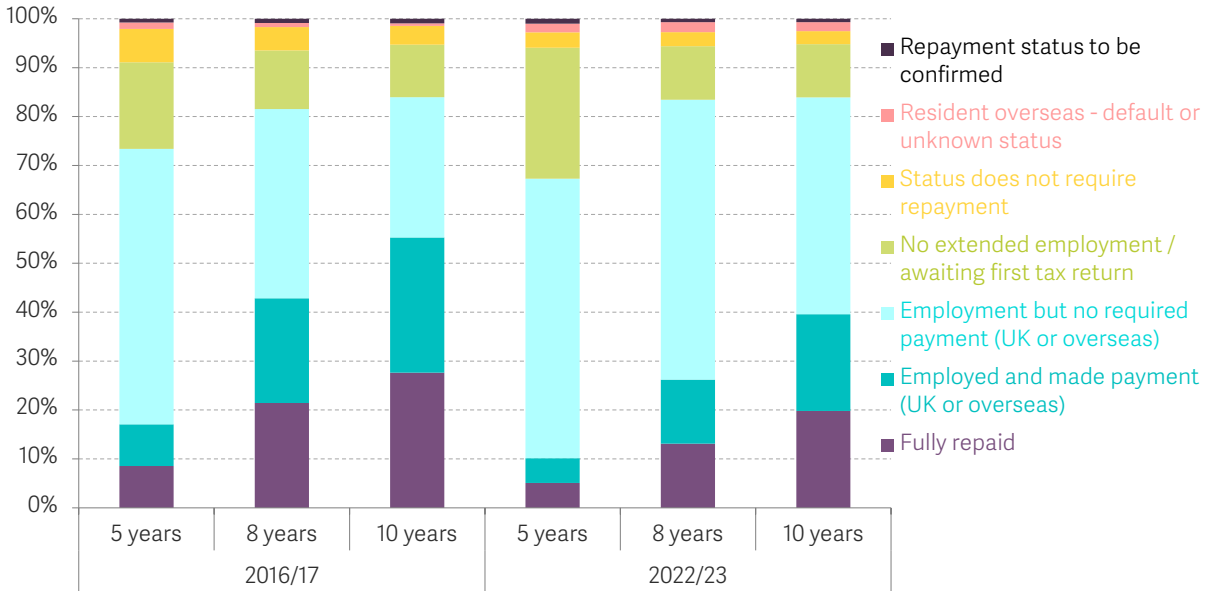
BOX 1: **The impact of student loan reform on young graduates' incomes**

Students starting university from 2012/13 took on higher student debt, as the Government raised the cap on annual tuition fees to £9,000. They also faced different loan repayment terms: a higher repayment threshold,

so they make student loan repayments only when their income is around £7,000 higher than under plan 1 loans conditions, and loans are written off after 30 years (compared to 25 years for previous repayment cohorts).[24]

FIGURE 13: **Changes to student loans are not (yet) reducing graduate incomes but full repayment rates have fallen**

Share of student loan recipients by repayment status and year of repayment: UK



NOTES: Shows repayment cohorts in 2017 and 2023 after 5, 8 and 10 years – the 5 years represents the 2011 and 2017 repayment cohorts in 2017 and 2023 respectively. Fully repaid includes cancelled loans such as write-offs due to death.
SOURCE: Student Loans Company, Student loans for higher & further education in England, Financial Year 2022-23 and 2016-2017.

The average repayments made by those paying their loans are lower for those in repayment cohorts 2016 onwards – those on plan 2 loans. Those in 2016 to 2018 repayment cohorts are paying on average around three quarters of what those in 2013 to 2015 repayment cohorts paid in the same repayment year in real terms.[25] Students starting university from 2012/13 took on higher student debt, as the Government raised the cap on annual tuition fees to £9,000. They also faced different loan repayment terms: a higher repayment threshold, so they make student loan repayments only when their income is around £7,000 higher than under plan 1 loans conditions, and loans are written off after 30 years (compared to 25 years for previous repayment cohorts).

24 These conditions were changed again for students starting after September 2023, who will make repayments on slightly lower incomes (£25,000) and repay over 40 years, but there is no repayment data for cohorts on these conditions.
25 RF analysis of Student Loans Company, Student loans for higher & further education in England, Financial Year 2022-23, payments deflated using CPI deflators.

Figure 13 also shows that those entering their fifth year of repayment in 2023, who would have the larger plan 2 loans, have a higher share that are employed but not repaying their loan, due to the higher repayment threshold. In the short-run, this suggests that the introduction of plan 2 loans should be raising graduates' disposable incomes for those (mostly) in their early twenties, as a smaller share are making payments, and those that are repaying are typically paying less.

However, student debts are likely to impact graduate household incomes in the future, as graduates are increasingly required to pay off larger (plan 2) student loans. Figure 13 also shows a declining share of loan recipients fully paying off loans in later repayment years between 2017 and 2023. The combination of higher initial loans, later initial repayments and extended repayment periods will leave graduates paying more later in their lifetimes than before these policy changes, potentially better smoothing lifecycle incomes but dragging on older graduates' incomes in future.

Personal tax and benefit policy changes have also held back income growth for UK millennials

As well as the underlying labour market differences, policy decisions taken by this government on the levels of taxes, benefits and pensions have also impacted the incomes of different age groups.

In the current parliament, the personal tax and benefits changes have been dominated by tax rises; within these, the largest impact is coming from the six-year freeze of Income Tax thresholds from 2022-23 to 2027-28, where the expected impact has expanded considerably since announced, to £40 billion a year by 2027-28, due to higher-than-anticipated inflation.[26]

Figure 14 shows that the expected impact of the personal tax and benefits policy changes announced this parliament has been relatively even across adult age groups, with typical disposable incomes for all those aged 25 and over expected to be around 2 to 3 per cent lower by 2027-28 than if no policy changes had been made.[27] Those over the state pension age will also see incomes hit by the tax changes (note that we do not include the triple lock here, on the basis that this was a policy decision announced before 2019). The household incomes of those under 18s will fall by less than most groups, in

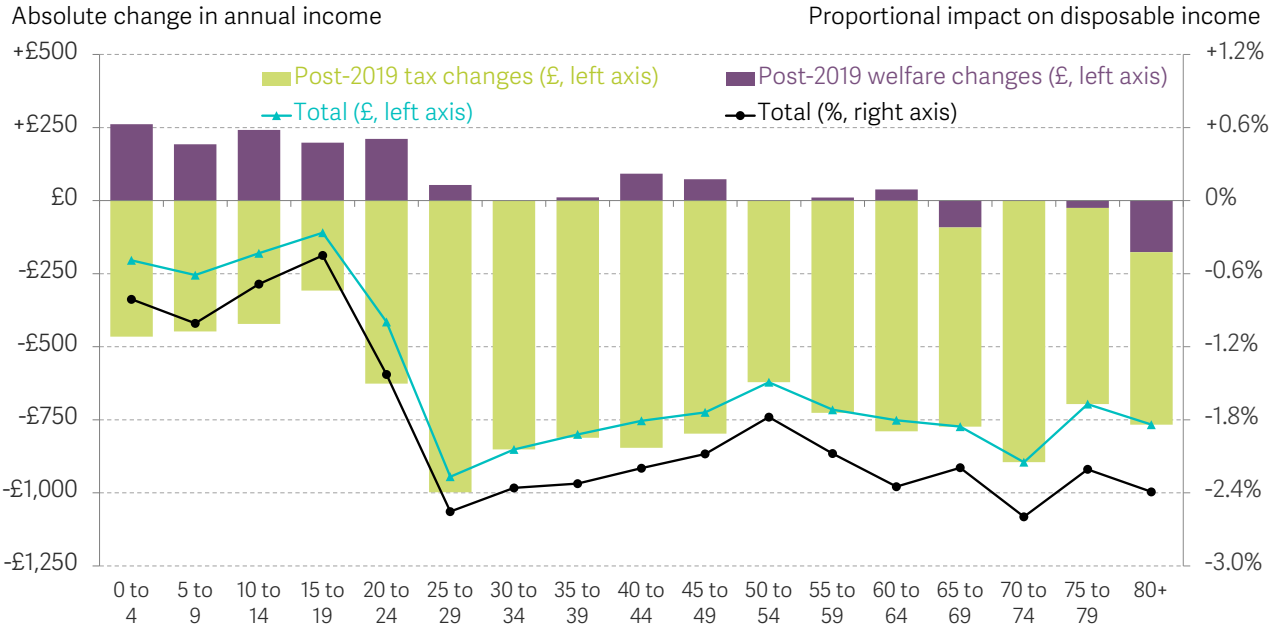
26 A Corlett,Britain's record tax rise on incomes is set to raise £40 billion a year by the middle of the next Parliament, Resolution Foundation Press Release, October 2023.

27 Pew Research Center, Millennial life: How young adulthood today compares with prior generations, February 2019. Post-2019 personal tax and benefit policy changes include tax threshold freezes, increases in the National Insurance threshold, a lower UC taper rate and higher work allowances and Local Housing Allowance changes. Our focus is on the impacts in 2027-28: the impacts of temporary policies implemented during the Covid-19 pandemic and the cost of living crisis would be different.

large part due to the positive changes in welfare policy, specifically the reduction in the UC taper rate and increase in work allowances that were introduced in 2021.[28]

FIGURE 14: **The long-term impact on incomes of personal tax and benefit policy changes announced in this Parliament has been dominated by Income Tax threshold freezes**

Impact of policy changes since the 2019 general election on median equivalised household disposable income, after housing costs, by individual age group in 2027-28: UK



NOTES: Policy changes include tax threshold freezes, increases in the National Insurance threshold, a lower UC taper rate and higher work allowances and Local Housing Allowance changes.
SOURCE: RF analysis of DWP, Family Resources Survey using the IPPR Tax Benefit Model.

However, although tax and benefit policy decisions taken this parliament are expected to have a relatively even impact across adults' typical incomes, these changes come off the back of a decade of reductions to the generosity of working-age benefits. Figure 15 shows the combined impact of almost all personal tax and benefit choices made since 2010: this has varied significantly across age groups. The typical household income of non-pensioners will be £2,200 (or 7 per cent) lower than if pre-existing policies had continued up to 2027-28, while those above pension age will face income hits of less than £200 (or 1 per cent). Those in their early seventies (aged 70-74) will, if anything, be slightly better off.

The biggest change has been the switch from uprating most non-pensioner benefits in line with inflation measured by RPI to a default of (the usually lower) CPI.[29] However, even if we exclude this change, there have been significant cuts to working-age benefits,

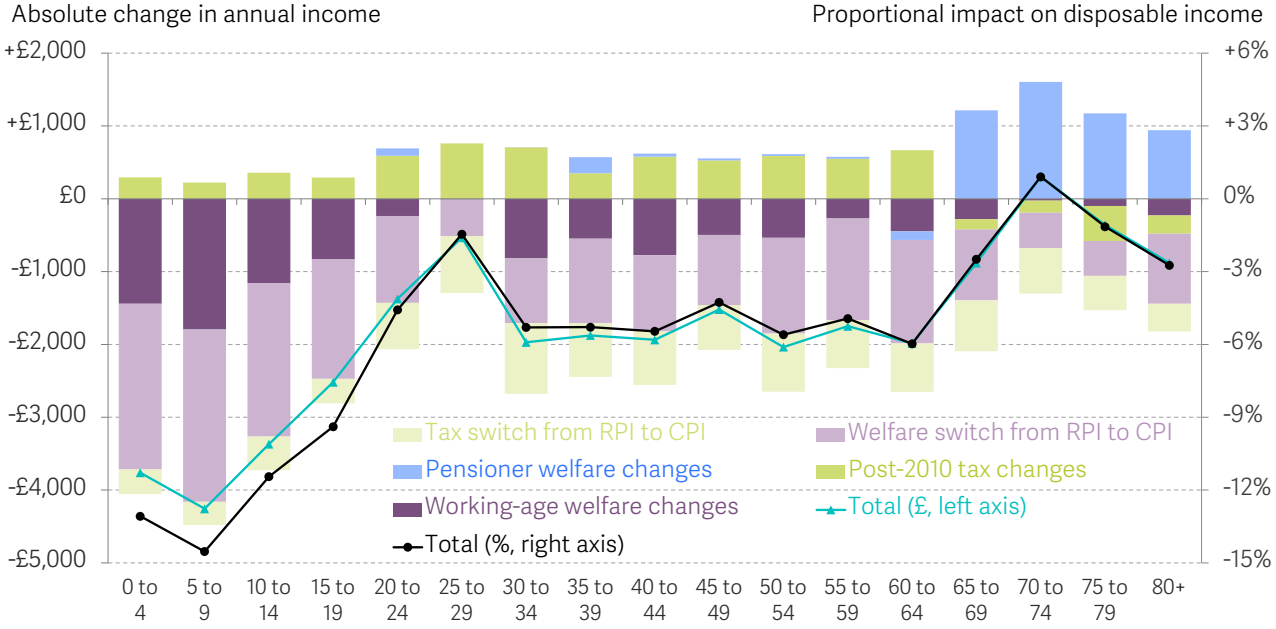
28 The expansion of free childcare entitlements announced in the Spring 2023 Budget is an additional boon for parents, but does not affect disposable income as conventionally defined, and so is not included here.
29 Means-tested benefits were previously uprated in line with the Rossi variant of RPI, and we account for this in our analysis.

including several years of below-CPI uprating, the introduction of the two-child limit and the benefit cap, and the current freeze to Local Housing Allowance rates. Combining the impact of these policies, but excluding the impact of tax changes, suggests that the typical household income of non-pensioners will be £2,000 (or 6 per cent) lower than if pre-existing policies had continued up to 2027-28, while those above pension age will be £500 (or 1 per cent) better off.

Meanwhile, personal tax policy has had relatively little net effect, with recent threshold freezes – together with the switch from RPI to CPI for default uprating – being offset by various threshold increases. Pensioners have lost out from the ending of age-related tax allowances in the 2010s, but this has been greatly outweighed by the operation of the triple lock, relative to pensions simply tracking earnings.[30]

FIGURE 15: **Tax and benefit policy changes made since 2010 have favoured those above pension age**

Change in average annual family income for individuals by age as a result of changes to tax and benefit policy since 2010: UK, 2027-28



NOTES: Policies include but are not limited to benefit freezes and under-indexations; the two-child limit and family element abolition (only partially rolled-out by 2027-28); child benefit means-testing; the benefit cap; cuts to Council Tax Support; the freeze in Local Housing Allowances since 2020; reductions in the UC taper rate; changes in UC work allowances; the State Pension triple lock; changes to Pension Credit age rules; the switch from RPI/Rossi to CPI uprating (including interactions with other policies); and tax threshold increases and freezes. Full roll-out of UC is assumed. Scottish Government policy changes are not included.
SOURCE: RF analysis of DWP, Family Resources Survey using the IPPR Tax-Benefit Model.

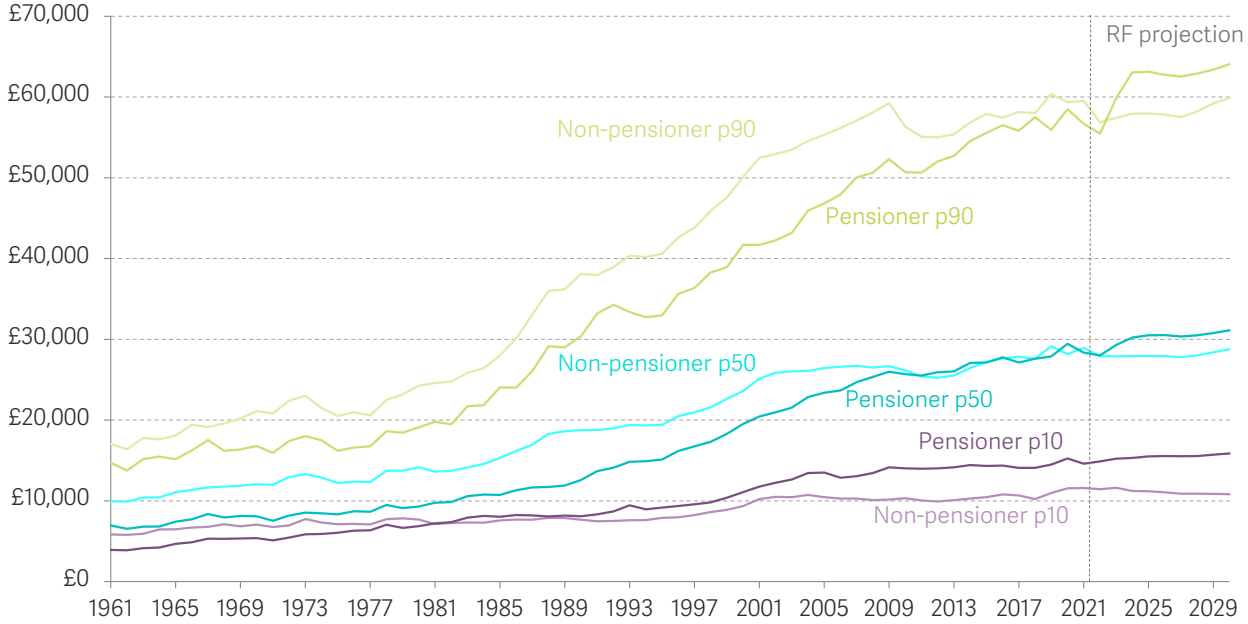
30 Earnings uprating of the basic state pension was not yet in operation at the time of the 2010 election, but it had been legislated for in the Pensions Act 2007.

As Figure 11 showed, disposable income progress since the global financial crisis was limited to older age groups in the UK, covering the ages that the baby boomers occupied in 2021. Past Intergenerational Audits have shown that low-income pensioners have long had higher incomes than their working-age counterparts, and that, in recent years, typical pensioner incomes had also started to match typical working-age incomes.[31] Several policy decisions have contributed to this, most notably the introduction of Pension Credit in the mid-2000s and the triple lock in 2010 as discussed above. But the fact that pensioners are retiring with more in private pensions than their predecessors and working more in retirement is also playing a role.[32]

Figure 16 shows that the growing affluence of people above the state pension age means that pensioner incomes are forecast to exceed non-pensioner incomes across the distribution, with even high income (90th percentile) non-pensioner households expecting lower incomes than their pension aged counterparts.[33]

FIGURE 16: **Pensioners incomes may now exceed working-age incomes across the distribution**

Levels of real equivalised household disposable income, after housing costs, in 2022-23 prices: GB/UK



NOTES: Adjusted for inflation using CPI excluding housing costs. Projections after 2021-22, including interest rate projections made in August 2023. GB from 1994-95 to 2001-02.
SOURCE: RF analysis of DWP & IFS, Households Below Average Income; and RF projection including use of the IPPR Tax Benefit Model; DWP, Households Below Average Income; ONS, Wealth and Assets Survey; ONS data; Bank of England forecasts; OBR forecasts.

31 M Broome et al., An intergenerational audit for the UK, Resolution Foundation, November 2022.
32 J Cribb & C Emmerson, Recent and future patterns of work around state pension age, Institute for Fiscal Studies, June 2022.
33 Based on income projections previously published in: A Corlett, The Living Standards Outlook – Summer 2023 Update, Resolution Foundation, September 2023. An important factor in our projections, particularly for the 90th percentile of pensioner income, is a large rise in savings interest. Note that interest rate expectations have fallen somewhat since these projections were made, and that future household income surveys may not accurately record savings interest.

This shows that the decisions of policy makers and the actions of successive governments have played a central role in shaping living standards outcomes for different generations – with children seeing the largest direct negative consequences. These policy choices will have contributed to the age profile of income gains shown in Figure 11, and help to explain why UK millennials have not seen the income progress of their US counterparts.

Younger generations' net lifetime benefits from the welfare state are dependent on whether current levels of spending on older people can be sustained

Some of the recent debate about the merits of the triple lock has framed it as creating an intergenerational divide.[34] A counter argument, though, is that policy decisions taken now that favour older people will in turn benefit younger generations when they in turn get to state pension age.[35] In other words, rather than the triple lock being a generational issue, benefitting the boomers at the expense of millennials and gen z, it instead reflects changes in how, as a country, we have chosen to redistribute national income across age groups, in order to better smooth income over the lifecycle.

To assess the long-term generational implications of current and alternative projections for spending on the welfare state, below we use an approach first adopted by the late John Hills in his research on transfers between generations.[36] This research estimates to what extent each generation has, or can expect to, benefit from the welfare state over the course of their lifetime, when considering both what they receive from the welfare state and the taxes paid each year to finance it. The focus is not on all aspects of public spending or taxation, but on key parts of the welfare state – spending on education, health care and social security benefits – where the manner in which they are funded leads to an implicit intergenerational contract. This relationship arises because, as children, we benefit from state provision of education that is paid for by older generations; children then grow up to be adults who pay the taxes that fund the next generation's education and the previous generation's help in old age; they then reach old age, and receive pensions and health care funded by younger generations.

If the generosity of the welfare state did not change, and if all generations were the same size as each other, then this sort of analysis would conclude that each generation stands to benefit equally from the welfare state, averaged over their lifetimes. In reality, neither of those is true: changes in longevity and health-care technologies mean that the amount

34 For example: A Hanton, The wretched ratchet of the triple lock on the state pension, Intergenerational Foundation, June 2021.
35 For example: O Jones, It's pointless attacking Britain's pension increase. Ultimately we'll all benefit from it, The Guardian, 8 July 2021.
36 J Hills, Inequality and the State, Oxford University Press, October 2004. This was then updated in: G Bangham, D Finch & T Phillips, A welfare generation: lifetime welfare transfers between generations, Resolution Foundation, February 2018.

that the welfare state devotes to the elderly is changing, and we saw in Figure 1 that not all generations are equally sized.

So, the exercise that we have attempted below is to estimate by how much each generation is set to benefit from the welfare state over their lifetime, comparing the value of social security benefits, state-provided education and health and care received, less the taxes paid to fund the welfare state. We express this as a 'net lifetime benefit from the welfare state' - to represent the value of benefits, education and health and care received by each cohort, less taxes paid (and see Annex 1 for full details).

As the left panel of Figure 17 shows, if future governments continue with the current approach to the welfare state, then the millennial cohorts (and the youngest generation X five-year cohort) would benefit more from the welfare state than any other generation, averaged over their lifetimes. This is because, under this assumption, millennials and the generations that follow will in future benefit from the policies that are currently increasing welfare state spending in later life, such as the ratcheting effect of the triple lock.

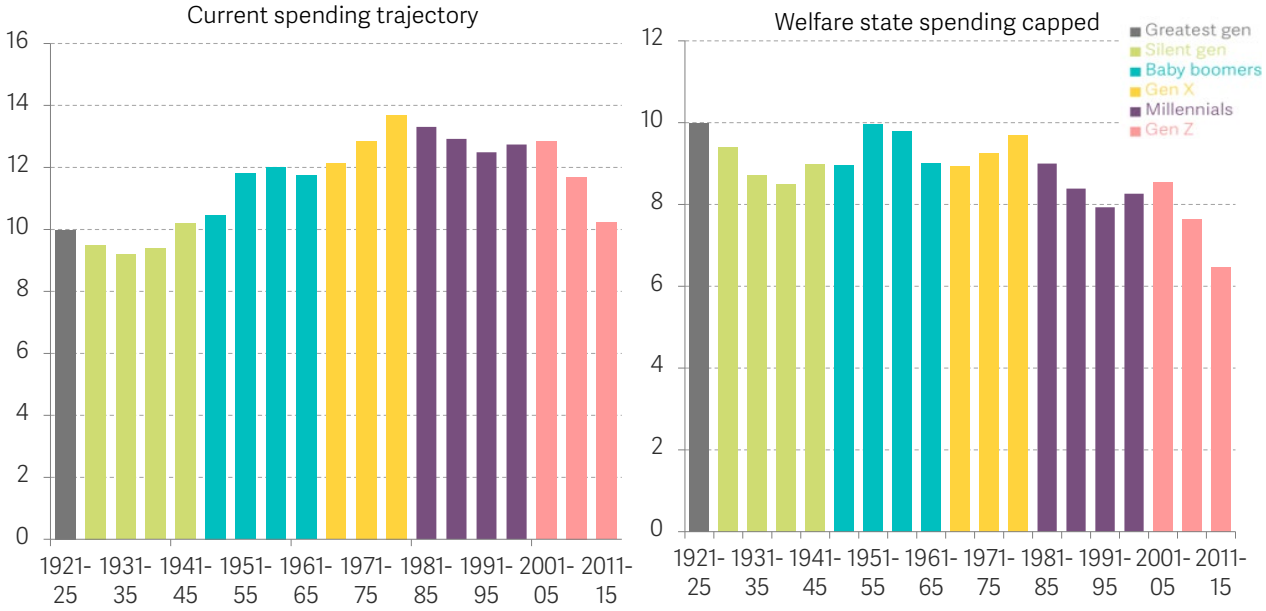
However, falling fertility rates (shown in the introduction in Figure 1) combined with longer life expectancy means that the generations that follow the millennials are likely to face a rising old-age dependency ratio (the average number of economically dependent population per 100 economically productive population), which is expected to rise from 280 in 2020 to 393 by 2070.[37] As a result, the youngest cohorts shown (from generation Z) are set to benefit less from the welfare state than the millennials, on account of there being fewer of them to share the tax burden of paying for the pensions and health care of the millennials.[38]

37 Old-age dependency ratio estimates based on DWP's calculations using ONS 2020-based interim national population projections, assuming the currently legislated State Pension age rises to 67 and 68 from DWP, Policy paper: State Pension age Review 2023, March 2023.

38 We assume that generation Z receive a similar standard of welfare state spending in later life than earlier generations, but they receive less over their lifetimes because of a higher tax burden in working-age compared to earlier cohorts.

FIGURE 17: **Continuing our current approach to the welfare state would mean millennials gained more than any other generations, but capping future spending – to prevent large tax rises – would leave the boomers as the largest net beneficiaries**

Estimated average net lifetime benefit from the welfare state, by welfare state spending scenario and by birth year: UK



NOTES: Net lifetime gain from the welfare state estimates the multiples of GDP per capita that each cohort receives in social spending less their average contributions. Full details of the modelling methodology are available in Annex 1.
SOURCE: RF analysis of OBR, Fiscal sustainability report – July 2023; HMT, Public Expenditure Statistical Analyses; ONS, 2020-based midyear population estimates; ONS, 2020-based population projections; J Hills, Inequality and the State, Oxford University Press, October 2004.

However, this conclusion rests very strongly on our assumption that future governments are able to continue providing the welfare state in its current form. In particular, the OBR projects that maintaining current policies would mean that welfare state spending (as defined in this exercise) is set to rise from 21 per cent to 32 per cent of GDP between 2019 and 2070, given current demographic forecasts. As a result, current spending would rise much faster than tax receipts (under current policies), leading to a primary deficit (i.e. the difference between government revenues and spending, excluding interest payments) of 10.3 per cent of GDP, and public sector debt reaching 287 per cent of GDP by 2070. Preventing an exploding debt path while preserving the welfare state and other public services in approximately their current form would require increasing the UK's tax take from 33 per cent (in 2021) to 46 per cent of GDP – a figure currently exceeded by only two other OECD countries (France and Denmark).[39]

The alternative is that future governments bear down on growth in spending on the welfare state. The right panel of Figure 17 therefore shows how each generation would

39 Demographic pressures on public spending are not specific to the UK, so other OECD countries facing similar challenges may raise their tax takes in future, leaving the UK's relative position lower. Source: RF analysis of OECD, Tax revenue statistics.

fare if spending on the welfare state was capped at 25 per cent of GDP (i.e. limiting it to the level expected in 2024).[40] In this scenario, the baby boomers are the generation expected to receive the highest net gains from welfare state spending on average.

However, it is important to recognise that this exercise is limited to certain areas of policies that can be thought of as key to the intergenerational exchange behind the UK's welfare state. Neither scenario captures the impacts of the 'right to buy' policy introduced in the 1980s, which increased home ownership rates (discussed further in Section 4 on housing), and which was of substantial benefit to the baby boomer generation. And the modelling exercise is limited to government policies, so does not consider, for example, that the far more generous 'defined benefit' pension schemes have become significantly less common for younger generations (discussed further in Section 5 on wealth).[41]

Ultimately, how much millennials and younger generations should expect to receive in old age depends to a large extent on how much future governments choose to push up tax as a share of GDP. If large tax rises are not possible – and we can't ease the demographic challenges of an ageing population in other ways – then welfare state spending will need to fall, and the younger generations paying for today's older generations are likely to see smaller net benefits from the welfare state.

40 We hold constant the age profile of spending, so this scenario means that spending is reduced proportionately across education, healthcare and social security.

41 See for further discussion: D Willetts, The Pinch: How the Baby Boomers Took Their Children's Future - And Why They Should Give It Back, Atlantic Books, November 2019.

Section 4

Housing costs and security

One of the most profound shifts in the socio-economic circumstances of the generations has been in housing tenure patterns. This is particularly stark among the young: the share of family units aged 19-29 who were home owners declined from 23 per cent in 1989 to a low of 8 per cent in 2013. At the same time, the proportion of these younger households living in the private rented sector more than doubled, surging from 12 per cent to 32 per cent.

However, recent years have seen a modest improvement in home ownership among young people, rising to just over 12 per cent in 2021. Their counterparts across the Atlantic are also experiencing an uptick in home ownership, but in the US these improvements have closed more of the generational divide between young millennials and the generations before them. The weaker progress made by millennials in the UK reflects both that the recovery was smaller (the improvement in youth home ownership rates for households aged 30-35 was half what it was in the US) and the gap to make up much larger. This trend has been experienced most severely by young non-graduates in the UK, who have seen much sharper declines in home ownership rates than their graduate counterparts since the financial crisis.

As a result of the later home ownership, millennials spend longer in the private rented sector. This is worrying given issues of quality, security, and above all, cost: in 2021, private renters dedicated over a third (34 per cent) of their net income to housing costs – more than three times the proportion that mortgagors devoted to their interest payments (10 per cent). These higher costs not only make it harder for young renters to save for a deposit, but the growing disparity with mortgagors has pushed against improvements to millennials living standards – both today and tomorrow, by leaving them less able to save wealth for later life.

The more muted recovery of UK youth home ownership rates has also left a much larger home ownership gap between millennials and the generations that came before them. It is extremely challenging to accurately predict the future trajectory of home ownership rates, but we use a thought experiment to examine whether even

extremely favourable economic conditions will be sufficient to enable millennials to catch up with earlier generations, or if lower home ownership rates will be permanent. This exercise suggests that even under a very optimistic scenario, millennials will likely fall well short of home ownership levels enjoyed by the baby boomer generation, with the 1981 and 1991 cohort expected to see home ownership rates more than 8 percentage points lower than the baby boomer cohorts by age 40.

The young remain significantly less likely to be home owners than two decades ago but are starting to close the gap on previous cohorts

One of the most profound shifts in the socio-economic circumstances of the generations has been in housing tenure patterns. The share of family units aged 19-29 who owned their homes fell by two-thirds between 1989 and its lowest point in 2013, falling from 23 per cent to 8 per cent. Over the same period, the proportion of young family units living in social rented accommodation fell by over a third, from 11 per cent to 7 per cent. Meanwhile, the number of young family units living with their parents saw a slight increase, from 46 per cent to 48 per cent, while the proportion living in the private rental sector more than doubled, rising from 12 per cent to 32 per cent.

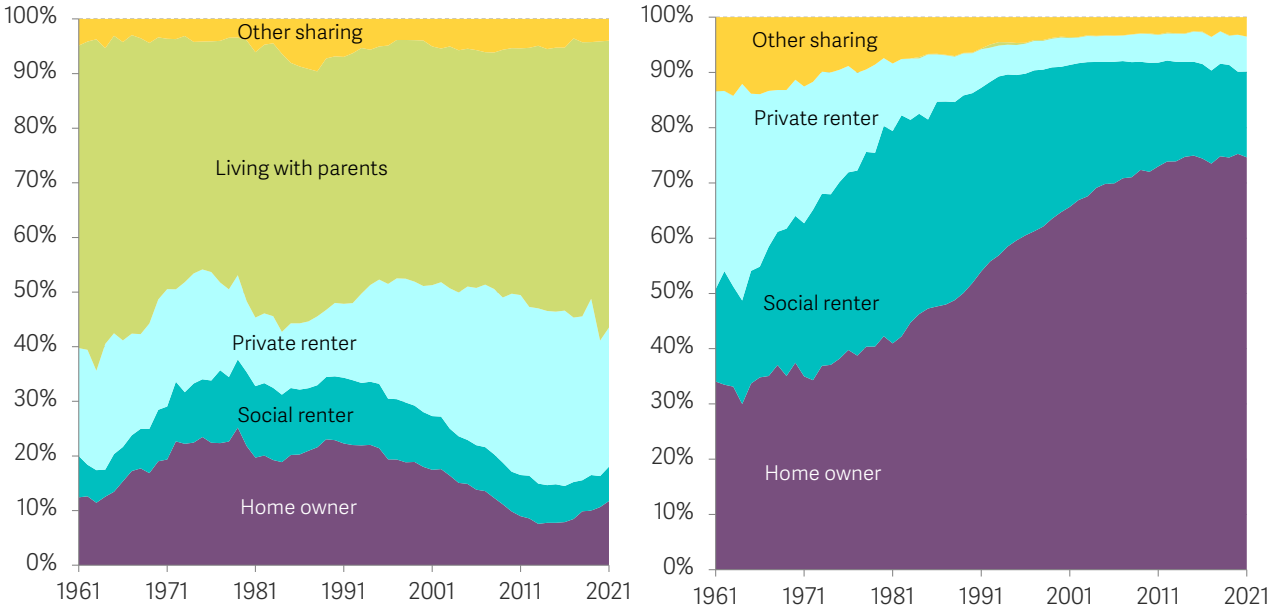
In recent years, though, as shown in Figure 18, there has been some good news, with a modest uptick in home ownership among young families, rising from 8 per cent in 2013 to just over 12 per cent in 2021.[42] Nevertheless, young people in 2021 were still just half as likely to own their own home than young people thirty years earlier were. Accompanying this change is a rise in the share of young family units living with their parents, which grew by a further 5 percentage points to 53 per cent (with the share of young people in the private rented sector falling by 7 percentage points over the same period).

In contrast, the opposite trend can be seen among older adults, as show in the right panel of Figure 18. In 2021, three-quarters (74 per cent) of family units aged 65 and above owned their home, more than double the 34 per cent that did in the early 1960s. The share that either rented privately or socially has fallen: social renting fell gradually from the 1990s, and private renting fell from the late 1970s, so that, by 2021, 16 per cent of family units aged 65 and above lived in the social rented sector, and just 6 per cent lived in the private rented sector.

42 Due to a change in sampling methodology of the Labour Force Survey (LFS), estimates of share in each tenure cannot be ascertained from 2019 onwards. However, the LFS tenure estimates pre-2019 are preferred to the Family Resource Survey (FRS) as they are based on a larger sample size. In this section we use the FRS data from 2017 to allow for short-term trends (since the RF Intergenerational Commission) to be assessed within one dataset.

FIGURE 18: **In recent years, youth home ownership has started to pick up**

Housing tenure for family units by age group (left panel: 19-29-year-olds; right panel: 65 and above): UK



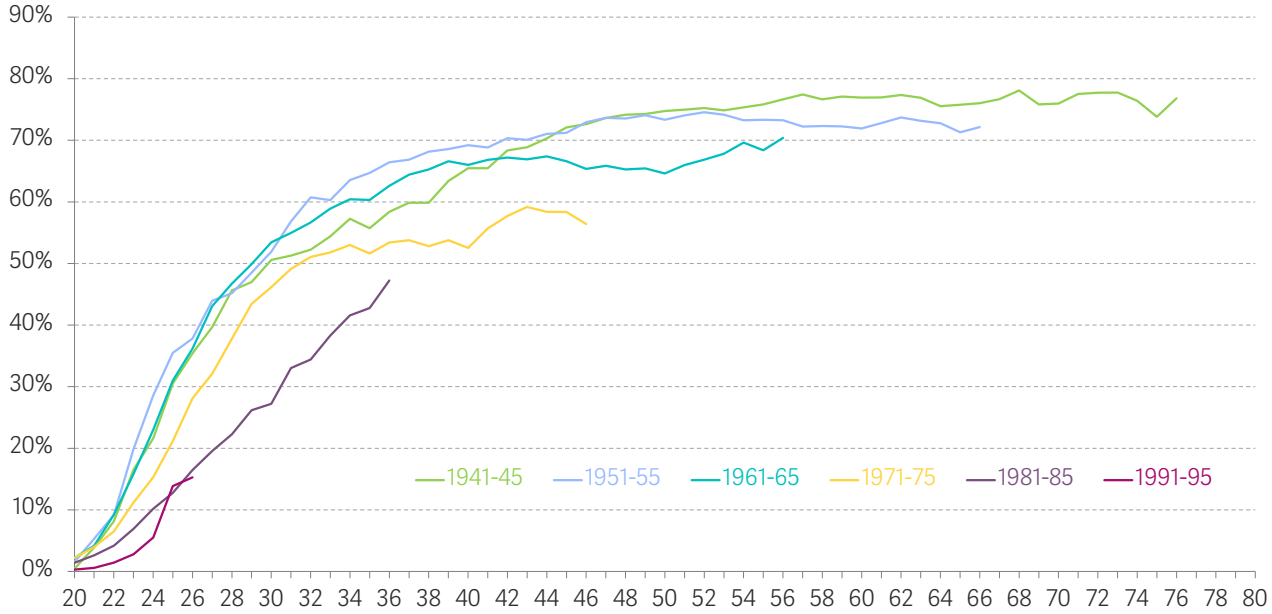
NOTES: A family unit is a single adult or couple, and any dependent children. 18-year-olds that live with parents and are not full-time students are not counted as separate family units and do not appear in these statistics. These people are likely to be in education at sixth form or college, and so are still 'dependent children'. 'Other sharing' refers to anyone sharing who is not a single adult without children living with their own parents, e.g. single parents living with their own parents, elder family members or lodgers. Prior to 2017, years are calendar years, from 2017, years are financial years.
SOURCE: RF analysis of IFS, Households Below Average Income (1961-83); ONS, Annual Labour Force Survey (1984-91); ONS, Labour Force Survey (1992-2016).; DWP, Family Resources Survey (2017-2021).

Figure 19 looks across cohorts' home ownership rates, rather than at cross-tenure trends for specific age-groups, to give a more comprehensive picture of how home ownership rates have varied by age and birth cohort. It reveals a persistent, generational pattern of declining home ownership for younger cohorts.[43] However, although those born in the 1980s spent more of their early life outside of home ownership than their counterparts born in the 1970s, they have narrowed the gap as they move into their mid-30s. Nonetheless, considerable gaps remain, particularly between millennials and baby boomers: 53 per cent of those born between 1961-1965 were home owners by the age of 30, compared to just 27 per cent for those born between 1981-1985.

43 See also: P Bourquin, M Brewer & T Wernham, Trends in income and wealth inequalities, IFS, November 2022.

FIGURE 19: **Younger millennial cohorts are starting to close the home ownership gap on previous cohorts**

Proportion of family units owning a home, by age of head of family unit and birth cohort: UK, 1961-2021



NOTES: Figures for each cohort are derived from a weighted average of estimates by single year of age; cohorts are included if at least five birth years are present in the data. Prior to 2017, years are calendar years, from 2017, years are financial years.
SOURCE: RF analysis of IFS, Households Below Average Income (1961-93); DWP, Labour Force Survey (1994-2016), Family Resources Survey (2017-18-2021-22).

UK millennials lag their US counterparts in closing the generational gap in home ownership rates

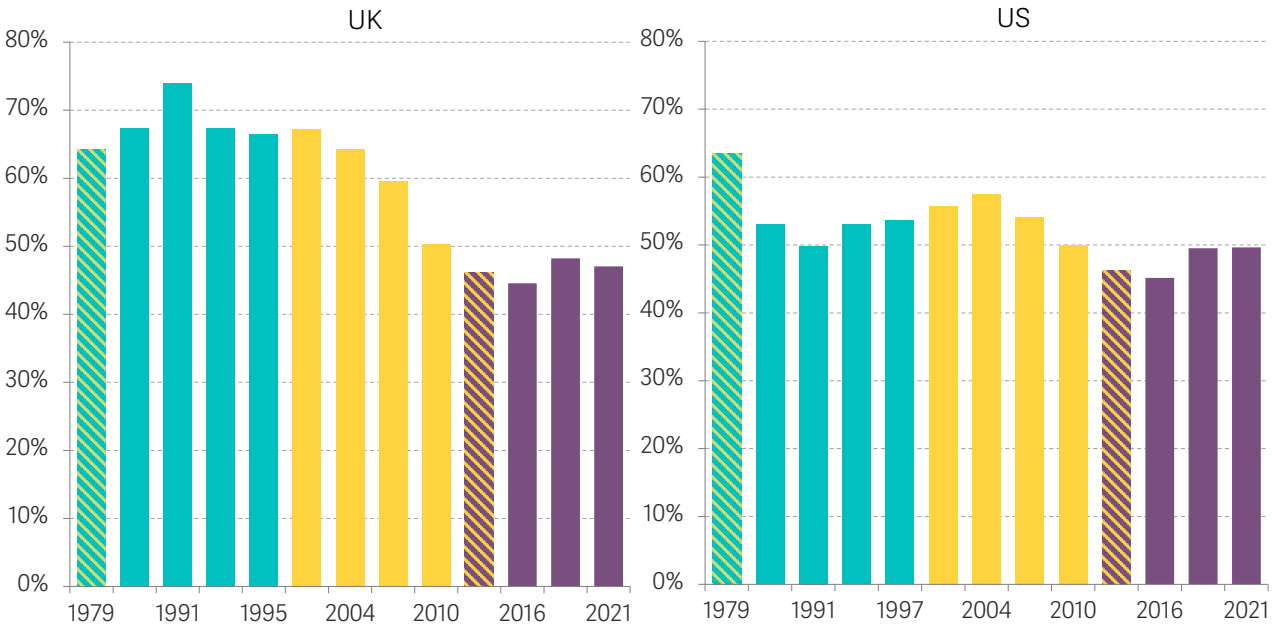
The uptick in millennial home ownership rates in the UK mirrors the trend observed among US millennials. However, as with income progress, the improvement has been more pronounced in the US (see Figure 20).[44] UK home ownership rates for those in their early thirties increased by 2 percentage points between 2016 and 2021, only half of the 4 percentage point increase seen in the US over the same period.[45]

44 To compare home ownership rates in the US and UK, we need to measure home ownership at the level of the households, not the family unit. The rates differ as households can contain multiple benefit units with different tenures, but are only recorded accordingly to the tenure (and age) of the head of the household. This means, for example, household youth home ownership rates may be higher, as young adults living with their parents are not included, as they fall within their parent's household.

45 The one exception to this, across the age groups occupied by millennials in 2021, was among those in their late twenties (25-29), where rates grew by 13 percentage points in the UK compared to 5 percentage points in the US.

FIGURE 20: **The recent uptick in UK home ownership among younger adults has closed less of the generational gap than in the US**

Proportion of households headed by someone age 30-34 who own their home: UK (left panel) and US (right panel), 1979 to 2021



NOTES: Bar colours refer to which generation was aged 30-34 in a given data year: purple refers to millennials, yellow gen x, blue the baby boomers, green the silent generation and hatched bars are used for years with overlapping generations.
SOURCE: RF analysis of Luxembourg Income Study and DWP, Family Resources Survey (for UK 2021 only).

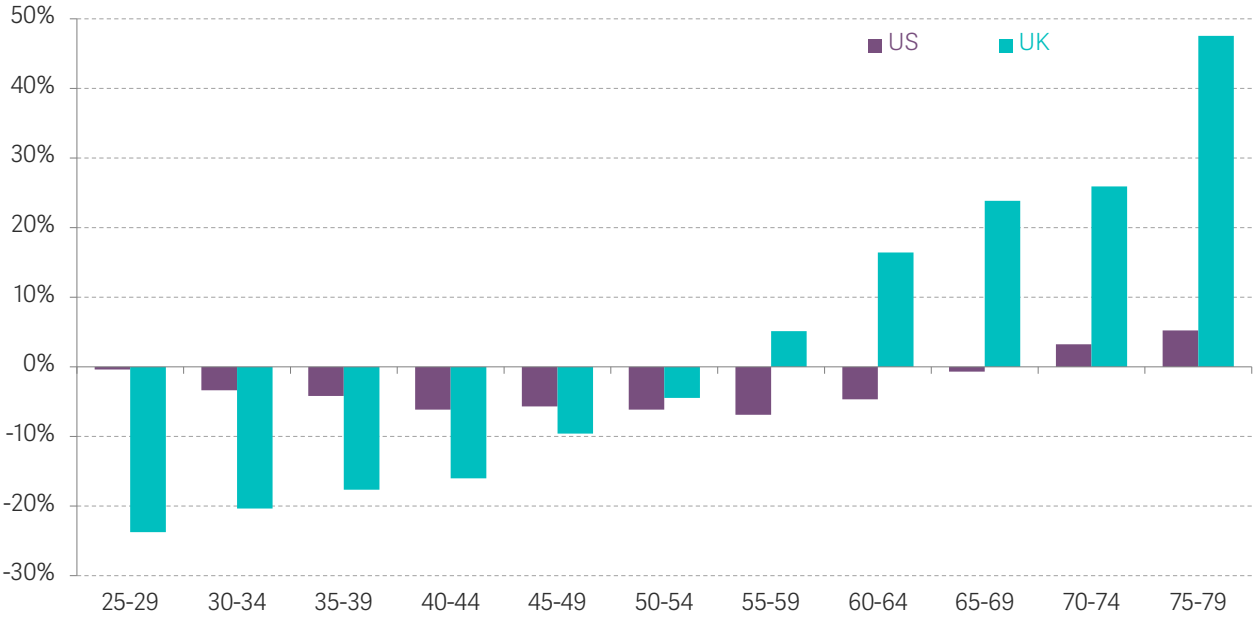
But these changes must be set against each country's historical context. As Figure 21 shows, there has been a much more significant divergence in home ownership rates across different age groups in the UK than in the US. Between 1986 and 2021, UK home ownership rates fell sharply among young adults, but rose substantially for those in their sixties and seventies: home ownership rates for individuals aged 30-34 dropped by 20 percentage points between 1986 and 2021, while rates increased by 48 percentage points among those aged 75-79. Older generations home ownership rates in the UK were boosted by looser credit conditions and one-off policies, namely Right to Buy, which, as discussed below, contributed to the decade with the strongest growth rate in home ownership in the UK. This one-off transfer from the state to households in these generations has had a material and lasting impact on the age profile of home ownership in the UK and helps to explain the differences with the US.

This means that, although both the UK and the US have witnessed relatively moderate improvements in home ownership in recent years, the historically lower home ownership rates for baby boomers and members of gen X at ages 30-34 in the US mean that it is considerably easier for US millennials to catch up to previous generations than it is for their UK counterparts. For example, around the turn of the millennium, 67 per cent of households aged 30-34 in the UK were home owners, but by 2021, this figure was still 20

percentage points lower at 47 per cent. In contrast, in the US, home ownership rates for the same age group fell by just 6 percentage points over the same period, from 56 per cent to 50 per cent.

FIGURE 21: **The UK has experienced a much more age-divided shift in home ownership rates**

Change in proportion of households owning their home between 1986 and 2021, by age group of head of household: UK and US



SOURCE: RF analysis of Luxembourg Income Study and DWP, Family Resources Survey (for UK 2021 only).

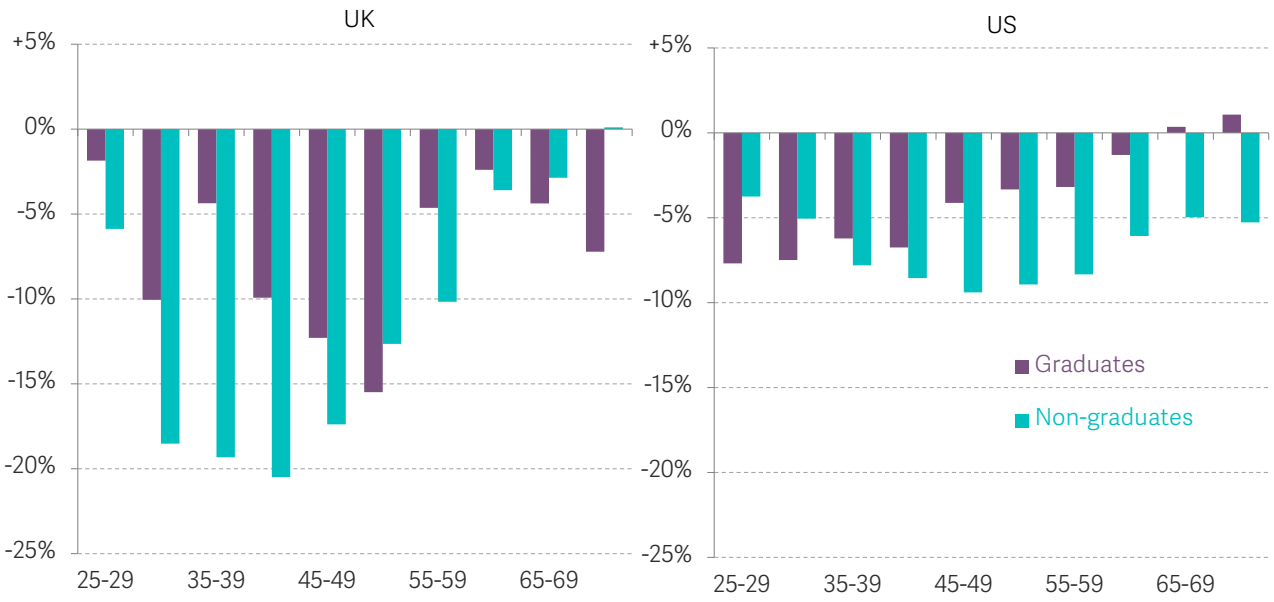
The decline in home ownership rates in the UK has been experienced most severely by young non-graduates. Figure 22 shows that non-graduates have witnessed a more substantial drop in home ownership rates across nearly all age groups in the UK. For example, those in their early thirties saw an 18 percentage point decline in home ownership rates, compared to just 11 percentage points for graduates. In contrast, young non-graduates in the US have experienced a smaller decline in home ownership rates post-financial crisis than young graduates, in part due to a stronger recovery of non-graduate home ownership rates since 2013, driving the recent catch-up.

As discussed in Figure 22, the UK has seen a larger increase in the proportion of graduates compared to the US. For this reason, one might expect a slightly larger negative impact on both graduate and non-graduate home ownership rates in the UK, as the UK would be expected to experience a larger positive compositional impact due to the increase in its graduate population (which have higher average home ownership rates).

However, as discussed in Section 3, graduates have experienced weak – and even negative – income progress since the financial crisis, with weaker growth than among non-graduates. Their relatively stronger performance in the housing market, therefore, may suggest that graduates have been more successful in finding other forms of financial support to help them on to the housing ladder. Research has shown that higher-income young adults are more likely to receive gifts than those on lower incomes, with non-graduates more likely to fall in the latter group – something that would help considerably with finding the money for a house deposit .[46] These gifts will likely increase inequality among younger generations, with young adults who have university-educated, home owning parents expected to receive around six times more in wealth transfers during their 20s and early 30s than the children of renters.[47]

FIGURE 22: **In both the UK and the US, non-graduates' home ownership prospects fared worse since the global financial crisis**

Change in home ownership rate by age group of head of household between 2007 and 2021: UK (left panel) and US (right panel)



NOTES: Graduate is defined as having bachelor or above qualifications (for the UK 2021 and for the US) and where data unavailable by at least 16 years of education (UK 2007).
SOURCE: RF analysis of Luxembourg Income Study (UK 2007 and US) and DWP, Family Resources Survey (for UK 2021 only).

46 J Leslie & K Shah, Intergenerational rapport fair? Intergenerational wealth transfers and the effect on UK families, Resolution Foundation, February 2022.
47 B Boileau & D Sturrock, Who gives wealth transfers to whom and when? Patterns in the giving and receiving of lifetime gifts and loans, Institute for Fiscal Studies, February 2023.

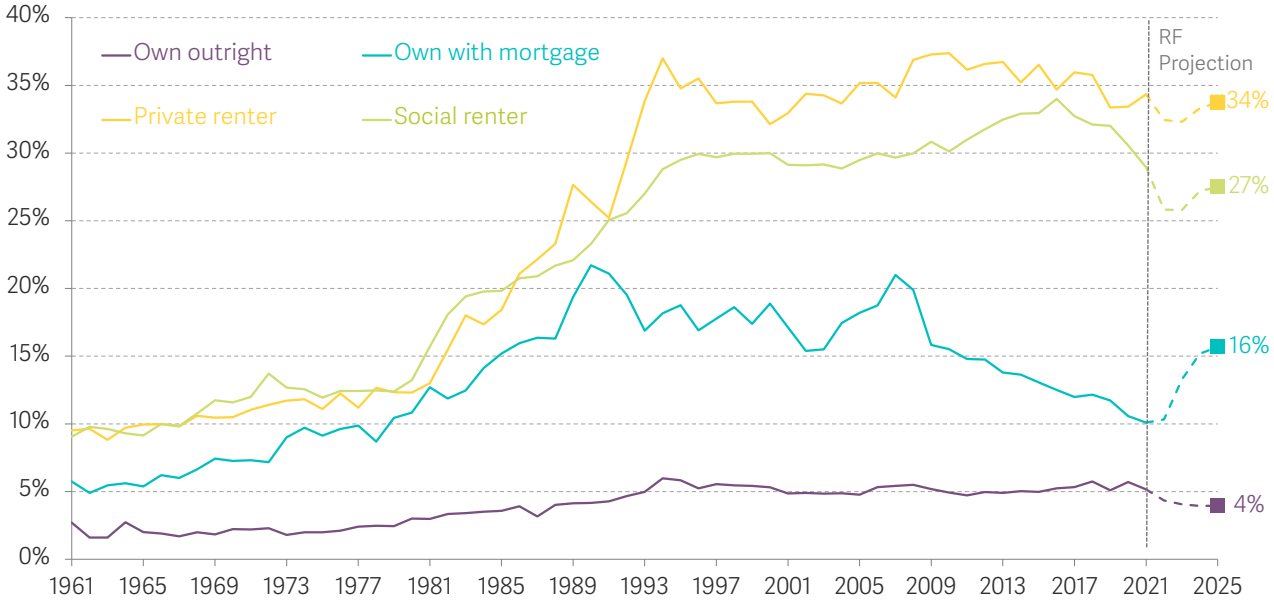
Delayed home ownership means millennials spend longer in the private rented sector, facing the highest housing costs

The long-term decline in home ownership rates in the UK has led to younger people today spending a much higher share of their net incomes on housing costs than previous generations. For example, those born between 1946 and 1950 spent roughly 10 per cent of their income on housing at age 30, but a thirty-year-old born between 1981 and 1985 now spends around 25 per cent of their income meeting their housing costs.[48]

This sharp increase in housing costs can be attributed to the fact the young are increasingly forced to remain in the private rented sector, as shown by Figure 18 at the start of this section, which happens to be the least affordable housing tenure. Figure 23 shows that, in 2021, private renters dedicated over a third (34 per cent) of their net income to housing expenses. This was more than three times the proportion of net income that mortgagors devoted to their mortgage interest payments, which stood at just 10 per cent.[49]

FIGURE 23: **Housing costs remain highest in the private rented sector but higher interest rates will shrink the gap with mortgagors**

Proportion of net income spent on housing costs (gross of housing benefit, excluding principal repayment), by tenure: GB



NOTES: Income includes housing benefit but housing costs do not net off housing benefit due to the rollout of Universal Credit. Incomes and housing costs are assumed to be shared equally within households. Prior to 1994, years are calendar years, from 1994, years are financial years.
SOURCE: RF analysis of IFS, Households Below Average Income (1961-93); DWP, Family Resources Survey (1994-2021-22); and RF projection including use of the IPPR Tax Benefit Model, ONS data, OBR and Bank of England forecasts (2022-2025).

48 Analysis of: IFS, Households Below Average Income (1961-93); DWP, Family Resources Survey (1994-2021).
49 The housing costs of mortgagors refer to mortgage interest payments. We do not include the capital – or principal – repayment as this can be thought of as asset accumulation, or in other words, saving.

Figure 23 also shows that, since the financial crisis, mortgage costs fell sharply as a result of very low mortgage interest rates. Previous work has shown that rising mortgage costs as a result of recent increases in interest rates will, unsurprisingly, make a significant impact to the living standards of mortgagors. Specifically, by 2025, on average mortgagors should expect a 6 percentage point rise in the proportion of net income spent on housing costs (reaching 16 per cent).[50] However, even this sharp rise in housing costs over the next five years represents only a partial undoing of the benefits that mortgagors enjoyed during more than a decade of historically low interest rates. So, although the housing cost gap between mortgagors and renters housing costs in expected to narrow, it still remains considerably larger than it was throughout the 1960s, 1970s, and 1980s.

Even a very optimistic future home ownership trajectory would leave millennials' mid-life home ownership rates below the baby boomers

A key question raised by the analysis above is whether millennials will be able to catch up with earlier generations, or whether instead they will face permanently lower home ownership rates.

Multiple factors influence home ownership rates across generations, including changes in affordability (which incorporates housing costs, income levels, and financing options), changes in social and demographic factors, and changes in policy, with a notable example being the Right to Buy policy from the 1980s and 1990s. It is impossible to know how these factors might change in the future, but it is important to unpick the potential impact each can have on shaping the future trajectory of home ownership.

With this in mind, we look below at the prospects of home ownership for today's young people. Using data from the past 50 years we have constructed a thought experiment that illustrates how prices, incomes, credit and supply have interacted at different points in time to produce the various ownership outcomes we observe for previous birth cohorts. We then use these to create projections into the future (see Annex 2 for further details).

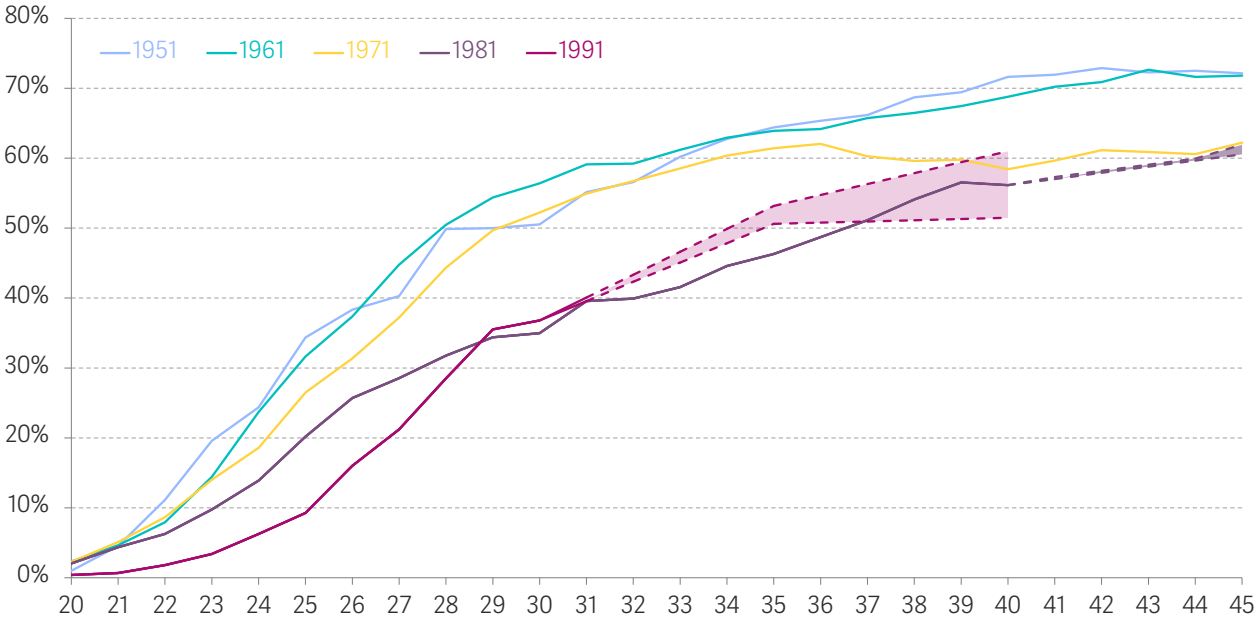
In Figure 24, the swathes on both the 1981 and 1991 10-year cohorts, represent upper and lower bounds of our projections of future home ownership rates for today's young people. The upper bound assumes that younger cohorts will experience the same underlying conditions over the next ten years that their counterparts witnessed in the decade with the strongest growth rate in home ownership (i.e. 1981-1991). This was a period characterised by credit liberalisation, a relatively slow rise in the ratio of house prices to incomes and the introduction of the 'Right to Buy' policy for social renters. Conversely,

50 Note that this is sensitive to interest rate expectations and market expectations have fallen somewhat since these projections were made. Based on income projections previously published in: A Corlett, The Living Standards Outlook – Summer 2023 Update, Resolution Foundation, September 2023.

the lower bound illustrates a projection where these cohorts instead experience a repeat of conditions observed during 2005-2015, when home ownership saw the weakest growth rate (during this period, the financial crisis ushered in a period of constrained credit conditions and low housebuilding, with the subsequent boom in house prices resulting in spiralling house price-to-income ratios).

FIGURE 24: **Millennials are still less likely to be home owners than gen X, but, depending on future conditions, could experience a catch-up**

Home ownership rate by age and cohort birth year, outturn and swathe of projections: UK



NOTES: Full details of this modelling can be found in Annex 2. Includes data and projections covering the period from 1971 to 2031.
SOURCE: ONS, Labour Force Survey; ONS, RPI; Bank of England, Millennium of Macroeconomic Data; E Fernandez-Corugedo and J Muellbauer, Consumer credit conditions in the United Kingdom, Bank of England, November 2006; Bank of England, Credit Conditions Survey; DLUHC, Live tables on housing supply; HM Land Registry, UK HPI; OBR, March 2023 EFO; DWP, Family Resources Survey.

The potential difference in home ownership outcomes is particularly large for the cohort born in 1991. Under the benevolent environment, ownership rates would catch up with the gen X cohort (born in 1971) by the age of 40. They would, however, remain over 8 percentage points lower than the baby boomer generations. Conversely, the 2005-2015 conditions modelled would see Millennial home ownership rates plateau at around 50 per cent, nearly 10 percentage points lower than their gen X counterparts by the time they reached the age of 40.

It is unlikely that the next ten years will see a significant easing of credit conditions, or a policy intervention on the same scale as Right to Buy but there are reasons to think that the path of home ownership may be closer to the optimistic end of our range of

projections. Our previous research suggests that, if a higher interest rate environment persists, then this could result in a world of lower house prices (by up to 25 per cent), returning house price-to-earnings ratios to levels last seen at the turn of the millennium.[51] In addition, after decades of low levels of housebuilding, there appears to be a growing consensus that expanding housing supply is a key priority in the decade ahead.[52] These factors would increase the chances of a catch-up with gen X by the age of 45. The home ownership rates of baby boomers, however, appear to be an unattainable goal for millennials.

However, one further complicating factor for today's younger generations is the extent to which the baby boomer generation's housing wealth is passed down through inheritance. To date, these trends remain highly uncertain. However, even if they do increase home ownership among younger cohorts, they are highly likely to exacerbate within-generation inequality.[53]

So overall, although millennials in the UK have seen home ownership rate start to creep back up, they have closed much less of the generational gap than their US counterparts. This has left them more likely to live in the private rented sector and to spend more of their incomes on housing, further limiting their ability to experience significant disposable income progress over past generations. And even in a very optimistic scenario, they are not expected to experience the home ownership rates achieved by the baby boomers.

51 M Broome, I Mulheirn & S Pittaway, Peaked interest?: What higher interest rates mean for the size and distribution of Britain's household wealth, Resolution Foundation, July 2023.
52 See for example, Department for Levelling Up, Housing and Communities and The Rt Hon Michael Gove MP, Long-term plan for housing: Secretary of State's speech, 24 July 2023, and Labour Party, Keir Starmer's speech at Labour Conference, 10 October 2023.
53 See for example: J Leslie & K Shah, Intergenerational rapport fair?: Intergenerational wealth transfers and the effect on UK families, Resolution Foundation, February 2022; P Bourquin, R Joyce & D Sturrock, Inheritances and inequality over the life cycle: what will they mean for younger generations?, IFS, October 2023; and D Goss & B Glover, The Inheritance Tax Puzzle: Challenging assumptions about public attitudes to inheritance, Demos, June 2023.

Section 5

Wealth and assets

Between 2006-08 and 2018-20, total household wealth increased by £5.9 trillion in real terms. Around 40 per cent of this increase went to cohorts born in 1956-65 (those in their late 50s and early 60s in 2018-20), while 33 per cent went to cohorts born in 1966-75. This was both because those cohorts were at peak life-cycle wealth accumulation as they neared retirement, and because those cohorts were more likely to be asset owners in 2006-08, enabling them to capitalise on the 'passive gains' from asset price appreciation since then. In addition, older cohorts are more likely to have DB pensions whose value have increased sharply during the period of historically low interest rates that followed the financial crisis.

The substantial accumulation of wealth among those born in the late 1950s, the 1960s and the early 1970s since the financial crisis has resulted in improvements in cohort-on-cohort wealth progress for these groups. However, not all cohorts experienced such progress: in 2018-20, millennials held less wealth in comparison to their generation X counterparts when they were at a similar age.

Nevertheless, the eldest millennials have made progress in closing the wealth gap with those born five years before them. For example, at age 29 the cohort born in 1981-85 had 14 per cent less wealth than those born in 1976-80 when they were at the same age. But by age 33, that gap had narrowed to 2 per cent. Millennials in the US have also experienced 'catch up' in recent years: in 2019, older millennials (born in the 1980s) were 11 per cent below previous generation's wealth trajectory, a significant improvement on the 40 per cent deficit they faced in 2016.

Looking ahead, there are further grounds for optimism about the rate of catch up. Higher interest rates have triggered a sharp fall in asset prices, wiping around £2.2 trillion from the total value of household wealth in Britain since the start of 2022. The impact of declining asset prices hasn't been evenly distributed among cohorts, with older cohorts experiencing the biggest falls in wealth. Lower-wealth levels among older generations make it easier for future cohorts to amass the same wealth levels as the generations that came before them when they reach a similar age. If higher

interest rates persist, it could lead to further improvements in generational wealth progress among younger cohorts. These higher rates may make home ownership more attainable, by putting downward pressure on house prices and make a comfortable retirement more achievable through higher returns on pension savings.

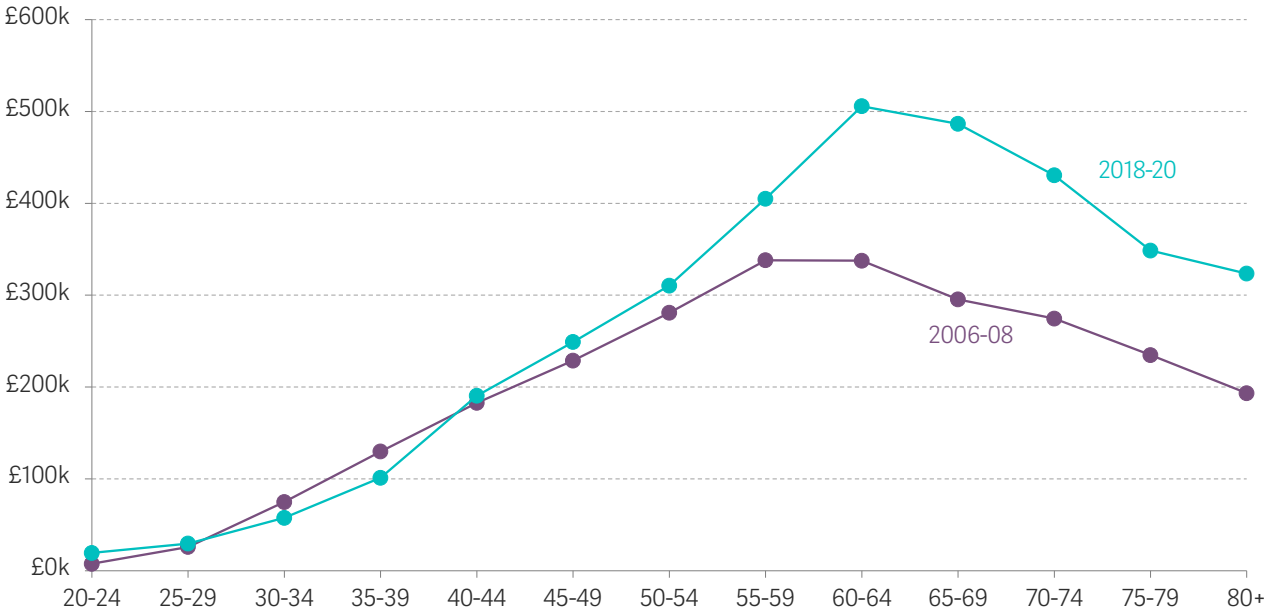
Wealth gaps between ages have grown since the financial crisis

Total household net wealth has been growing considerably faster than national income over recent decades – rising from around three-times GDP in the mid-1980s to over seven-times GDP on the eve of the pandemic, an increase of £5.9 trillion in real terms between 2006-08 to 2018-20.[54]

Older age groups have been the largest beneficiaries from the post-financial crisis wealth increase. Figure 25 shows that those in their early 60s in 2018-20 – that is, younger baby boomers – had nearly £170,000 more wealth than the typical person of the same age group in 2006-08. In contrast, the typical person in their late 30s in 2018-20 – the eldest millennials – had almost £30,000 less wealth than those of the same age in 2006-08. As a result, absolute wealth disparities between age groups have grown since the financial crisis: the wealth gap between those in their early 30s and those in their early 60s stood at £260,000 in 2006-08, by 2018-20 this had risen to £450,000.

FIGURE 25: **Wealth gaps between age groups have grown in recent years**

Median real total family net wealth per adult, by five-year age group: GB



NOTES: Data CPIH-adjusted to June 2023 prices.
SOURCE: RF analysis of ONS, Wealth and Assets Survey.

54 M Broome, I Mulheirn & S Pittaway, Peaked interest?: What higher interest rates mean for the size and distribution of Britain's household wealth, Resolution Foundation, July 2023.

There was some cohort-on-cohort wealth progress in the run up to the pandemic

Another way to look at the gains made by different age groups since the financial crisis is to look through the lens of birth cohorts. Figure 26 takes the changes in household wealth levels shown in Figure 25 but plots them according to our standard birth cohorts (the match is not perfect, but those aged 30-35 in 2018-20 generally fall into the 1986-90 birth-cohort, and those in their late 50s in 2018-20 generally fall into the 1961-65 cohort, for example).

The increase in wealth between 2006-08 and 2018-20 experienced by cohorts born in 1956-65 (i.e. the younger half of the baby boomers) was equal to two fifths (40 per cent, or £2.4 trillion) of the overall. Similarly, the wealth increases experienced by cohorts born in 1966-75 (i.e. older members of gen X) was equal to a third (33 per cent, or £1.9 trillion) of the overall increase (alternatively, those born between 1956 and 1970 saw 58 per cent of the rise in household wealth from 2006-08 and 2018-20).

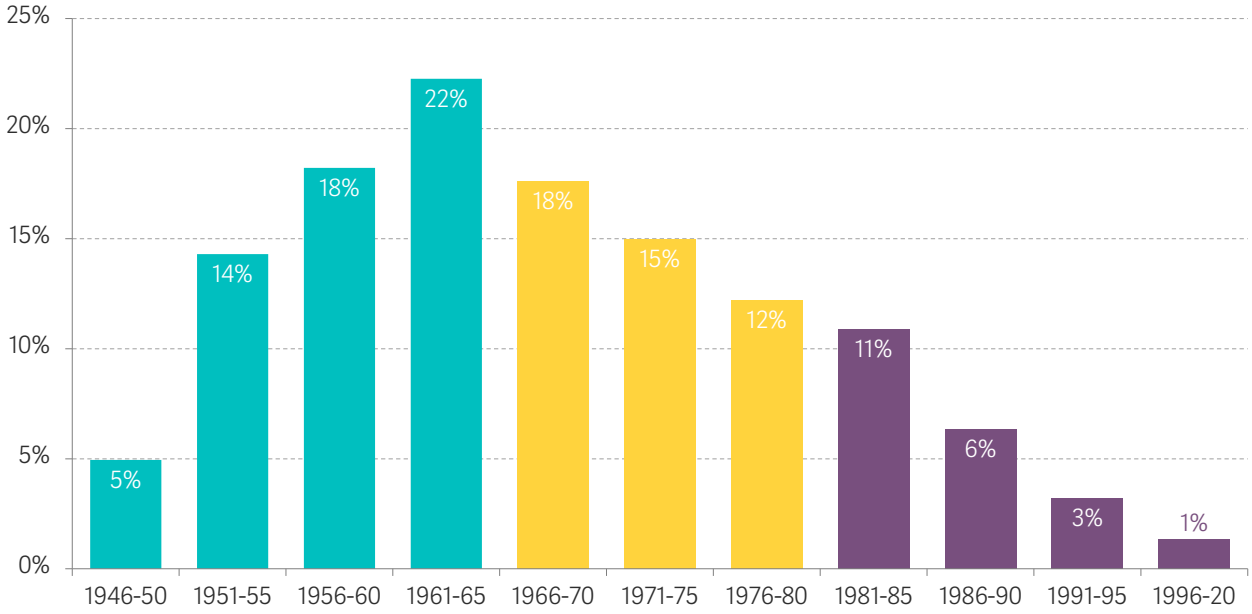
Three factors help explain the large gains for these cohorts. First, between 2006-08 and 2018-20 these cohorts were at the stage of their lifecycle when wealth rises rapidly – their incomes were high, and they were saving for retirement. Second, these cohorts were lucky enough to benefit from passive gains. Although a portion of the wealth accumulation since 2006-08 can be attributed to 'active' accumulation (such as saving money, or paying down debt, the majority (53 per cent) of the growth in total household wealth over this period has been the result of 'passive' wealth accumulation (where existing assets become more valuable due to asset price inflation).[55] Given that asset owners are typically older, the distribution of these 'passive' wealth gains has not been evenly distributed across birth cohorts. Finally, older cohorts are more likely to have DB pensions, and the implied value of these assets rose sharply during the period of historically low interest rates that followed the financial crisis.[56]

55 M Broome & J Leslie, Arrears fears: The distribution of UK household wealth and the impact on families, Resolution Foundation, July 2022.

56 Changes in the implied value of guaranteed income streams, like defined benefit pensions and pensions in payment, will make little difference to the living standards of their recipients. But valuation changes do signal a shift in the nature of wealth and the relative positions of different groups: the income stream promised by a defined benefit pension is worth less in a high-rate world because such an environment makes it easier for those without such a promise to achieve a meaningful income in retirement. For a more detailed discussion of these issues, see: M Broome, I Mulheirn & S Pittaway, Peaked interest?: What higher interest rates mean for the size and distribution of Britain's household wealth, Resolution Foundation, July 2023.

FIGURE 26: **The youngest baby boomers accumulated the largest share of the post financial crisis wealth increase**

Each cohort's share of the aggregate increase in total household net wealth: GB, 2006-08 to 2018-20



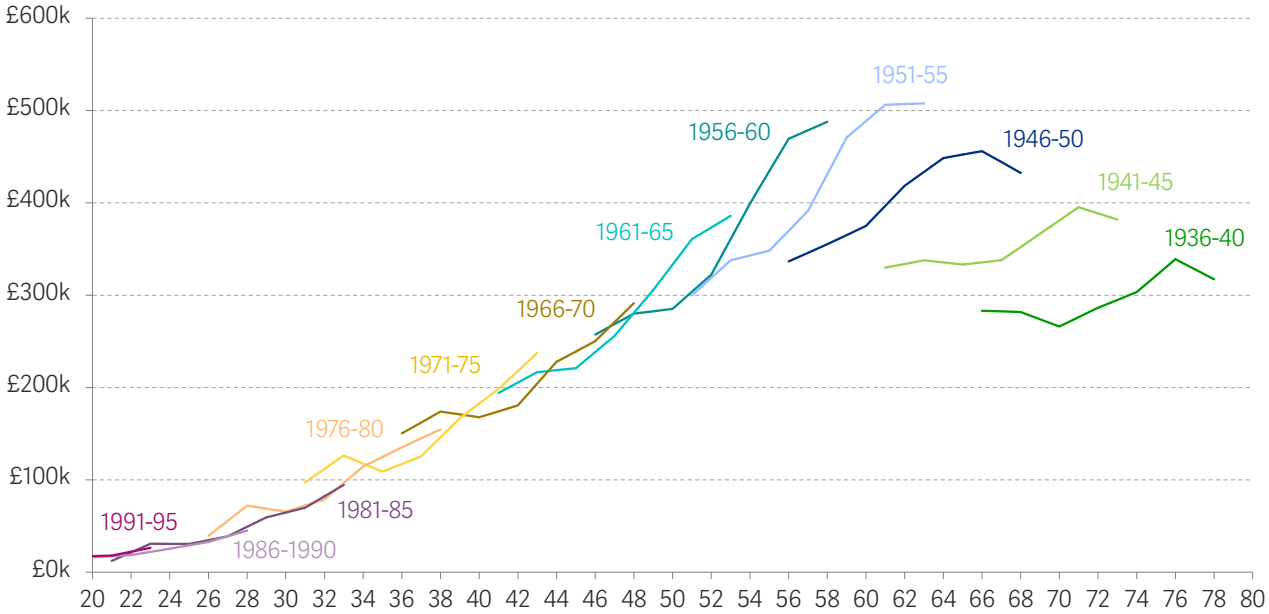
NOTES: The chart does not sum to 100 per cent because it does not show older cohorts that have decumulated wealth since 2006-08.
SOURCE: RF analysis of ONS, Wealth and Assets Survey.

In previous Intergenerational Audits, we have outlined that generational progress in wealth accumulation came to a halt with the cohort born in the early 1960s: cohorts born before then have tended to accumulate more wealth than their predecessors at every age, but that has not been the case for any cohort since.

But this story has changed to some degree. The substantial accumulation in wealth experienced by cohorts born in the 1960s and the 1970s during the period between 2006-08 and 2018-20 has resulted in improvements in cohort-on-cohort wealth progress among the youngest baby boomers and older members of generation X. For example, as shown in Figure 27, the typical person born in 1961-65 had around £50,000 more wealth (in real terms) at age 50 than their counterparts born just five years earlier. Similarly, someone born in 1971-75 held about £15,000 more wealth at the age of 40 compared to those born five years earlier.

FIGURE 27: **Cohort-on-cohort wealth progress stalled for those born after the 1950s, although there had been recent improvement among some cohorts**

Median real total family net wealth per adult, by age and cohort: GB, 2006-08 to 2018-20

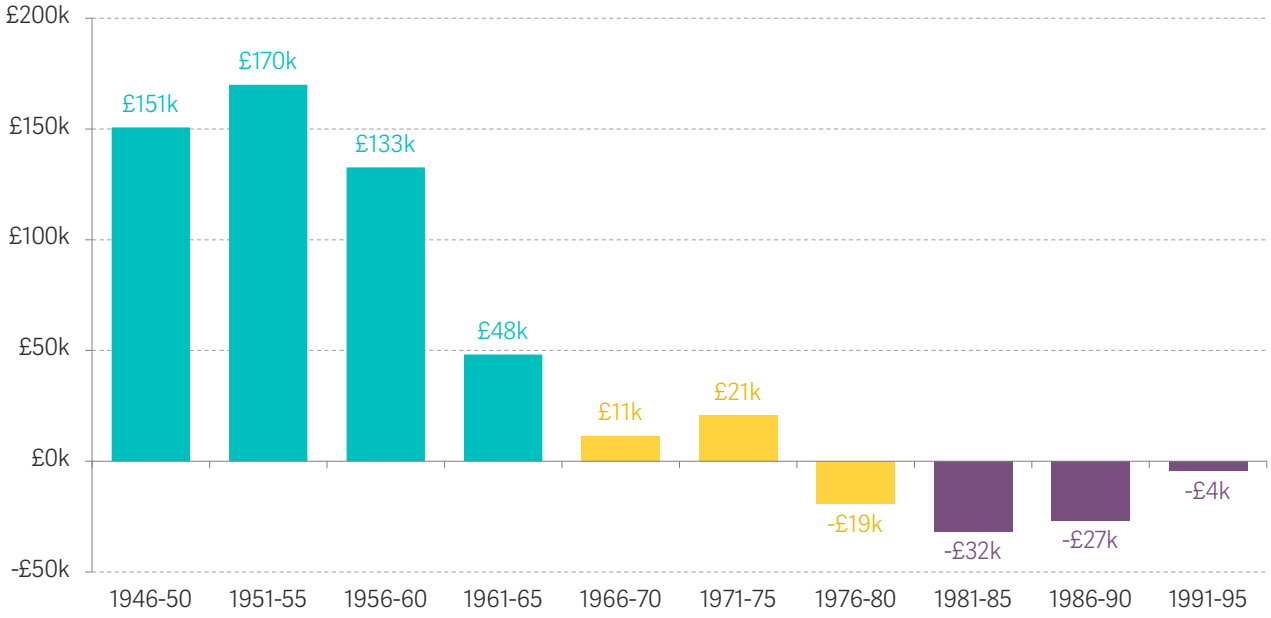


NOTES: Data CPIH-adjusted to June 2023 prices.
SOURCE: RF analysis of ONS, Wealth and Assets Survey.

Not all cohorts have experienced such wealth progress. Millennials had limited opportunities to benefit from passive-wealth gains following the financial crisis due to their comparatively modest initial wealth holdings. As a result, this generation has not experienced the same degree of cohort-on-cohort wealth progress as those born in the 1960s and 1970s. This has left millennials with lower family wealth in comparison to their generation X counterparts when they were at a similar age. For example, millennials born in 1981-85 had £32,000 less wealth in 2018-20 than the cohort born in 1971-75 did at the same age. In comparison, older members of generation X (born in 1966-70) had £11,000 more wealth than the 1956-60 cohort did at the same age.

FIGURE 28: **Millennials are yet to experience cohort-on-cohort wealth progress**

Difference in median real total family net wealth per adult between birth-cohort and the birth-cohort born 10 years earlier at the same age: GB, 2008-10 to 2018-20



NOTES: Data CPIH-adjusted to June 2023 prices.
SOURCE: RF analysis of ONS, Wealth and Assets Survey.

However, the oldest millennials have made progress in closing the wealth gap between themselves and the cohort born five years before them. For example, the cohort born in 1981-85 had 14 per cent less wealth than those born in 1976-80 at age 29. Just four years later, by age 33, that gap had narrowed to 2 per cent.

The UK is not alone in experiencing a slowdown in cohort-on-cohort wealth progress. Younger American families, primarily millennials and those in generation Z, had lower family wealth, on average, than their generation X and baby boomer counterparts did at the same age.[57] However, as in the UK, there have been recent improvements in the wealth progress of younger cohorts in the US. Research suggests that, in 2019, older millennials (those born in the 1980s) were 11 per cent below previous generation's wealth trajectory – a significant improvement on the 40 per cent deficit they faced in 2016.[58] In fact, more recent data suggests that, for a time, millennials had entirely closed the wealth gap with the previous generation (gen X), though they have since fallen behind again.[59]

57 A Kent & L Ricketts, The State of U.S. Wealth Inequality, Institute for Economic Equity, October 2023.
58 A Kent & L Ricketts, Millennials Are Catching Up in Terms of Generational Wealth, Institute for Economic Equity, March 2021.
59 A Kent & L Ricketts, The State of U.S. Wealth Inequality, Institute for Economic Equity, October 2023.

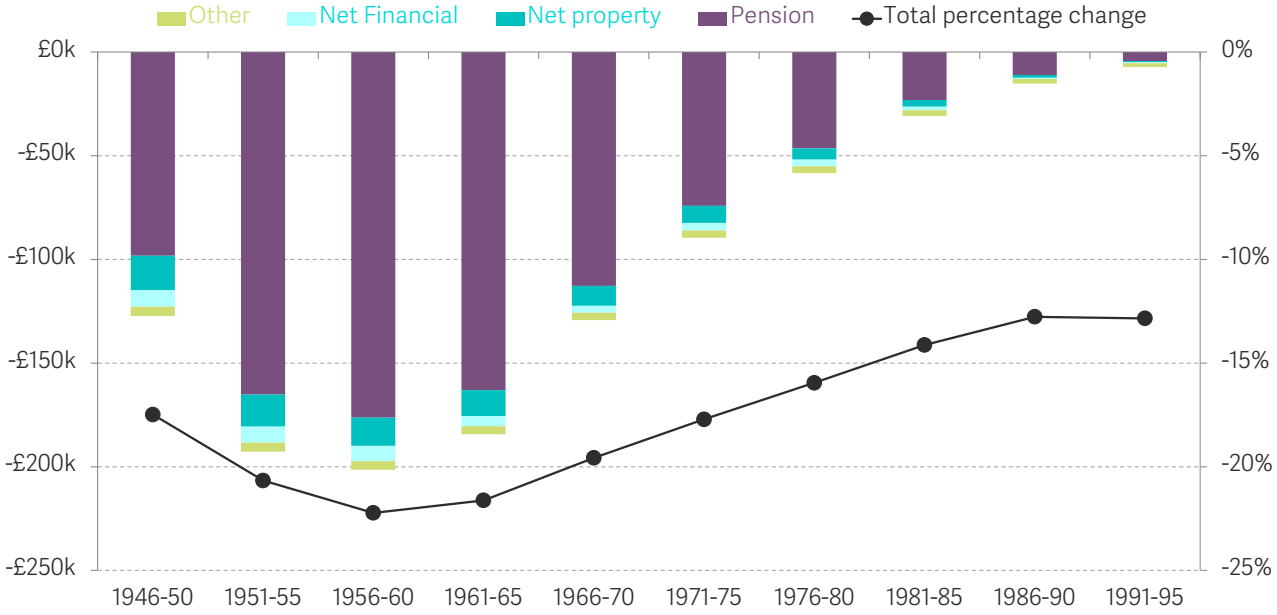
Higher interest rates are changing the trajectory of generational wealth progress

As the cost of living crisis took hold in 2022, surging inflation triggered a rapid monetary policy response, which, together with rising global long-term real interest rates, has prompted a sharp fall in asset prices more broadly. By the second quarter of 2023, we estimate that Britain's wealth-to-GDP ratio was around 630 per cent, a fall of nearly 160 per cent compared to Q1 2022.[60] In cash terms, this corresponds to around £2.2 trillion being wiped from household wealth since the start of 2022.

The impact of falling asset prices has been unevenly distributed across cohorts, reflecting the distribution of wealth holdings. As illustrated in Figure 29, older cohorts experienced a disproportionate impact from rising interest rates: we estimate that those born in 1956-60 saw their wealth fall by more than £200,000, on average, between Q1 2022 and Q2 2023, equivalent to a 22 per cent drop.

FIGURE 29: **The winners from asset price inflation have become the losers from higher interest rates**

Mean 'passive' change in real total family net wealth per adult relative to Q1 2022, by wealth type and five-year age cohort: GB, Q1 2022 to Q2 2023



NOTES: Data CPIH-adjusted to June 2023 prices. The value of household wealth is estimated by modelling changes in the value of individual wealth sources at the household level since the most recent wave (Q2 2018 to Q1 2020) of the ONS Wealth and Assets Survey (WAS). For details on the modelling methodology, see: M Broome, I Mulheirn & S Pittaway, Peaked interest?: What higher interest rates mean for the size and distribution of Britain's household wealth, Resolution Foundation, July 2023.
SOURCE: RF analysis of ONS, UK Economic Accounts; ONS, Wealth and Assets Survey; Bank of England, Effective interest rates; FTSE Russell, FTSE All-Share Index TR; MSCI, MSCI World Index TR; S&P Global, S&P UK Gilt Index; The Annuity Project from William Burrows; and ONS, UK House Price Index.

60 M Broome, I Mulheirn & S Pittaway, A wealth of variety: The variation in household wealth across Britain and what it means for policy, Resolution Foundation, October 2023.

Much of this fall in wealth (78 per cent) since the beginning of 2022 can be attributed to reductions in the implied value of guaranteed income streams, such as DB pensions and pensions in payment. Indeed, the overwhelming majority (88 per cent) of the wealth reduction among those born in 1956-60 is the result of a fall in the value of pension assets. Given that pension wealth typically peaks around retirement – with, for example, half (49 per cent) of the wealth held by those born in 1956-60 in 2018-20 being held in pensions – these cohorts are particularly susceptible to fluctuations in the value of these assets.

While higher interest rates may have caused asset prices to tumble, they have also had a direct impact on incomes through higher interest on savings. Using data from the Bank of England, we project that total (pre-tax) interest income will reach £60 billion in 2024-25 – equating to over £2,000 per household on average – up from £5 billion in 2021-22.[61]

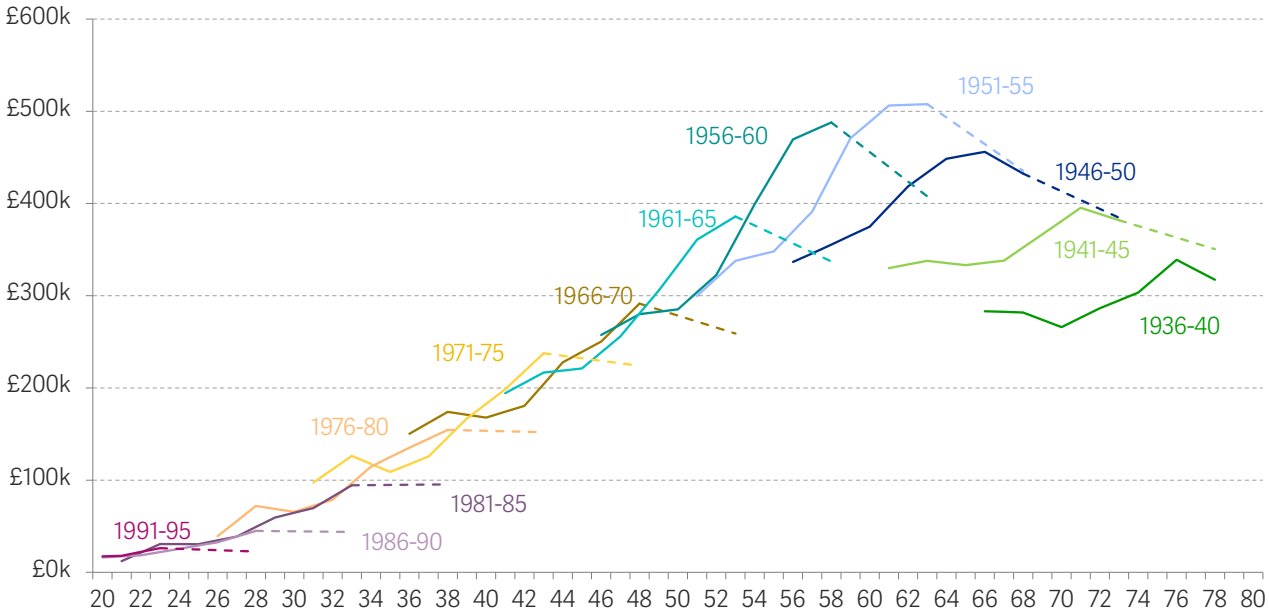
Higher interest rates are more likely to boost the incomes of richer, typically older families.[62] On average, in 2018-20, households headed by someone aged 65-74 had £57,000 in interest-bearing saving products, more than five times the amount held by households headed by someone aged 25-34 (£11,000). If higher interest rates persist, older households will benefit more from higher savings income over the coming years (as discussed in Section 3), potentially offsetting a small part of the fall in wealth.

The substantial decline in the value of household wealth since the start of 2022 has partially reversed the progress made by those born in the 1960s and 1970s (see Figure 27). By Q2 2023, we estimate that the typical baby boomer born in 1961-65 had £150,000 less wealth at 58 than the cohort born just five years earlier held at the same age. Similarly, the typical member of generation X born in 1971-75 had £67,000 less wealth at 48 than the cohort born just five-years earlier held at the same age.

61 This includes judgements about how average interest rates will move relative to Bank Rate. For example, we assume that the average rate on rapid-access savings accounts will be 2 percentage point below Bank Rate. We also assume that 40 per cent of current account savings remain non-interest-bearing, as suggested by combining Bank statistics and WAS data.
62 A Corlett, The Living Standards Outlook: Summer 2023 Update, Resolution Foundation, September 2023.

FIGURE 30: **Higher interest rates have altered the path of generational wealth progress**

Median real total family net wealth per adult, by age and cohort: GB, 2006-08 to Q2 2023



NOTES: Data CPIH-adjusted to June 2023 prices. Dashed line represents RF calculated nowcast. The value of household wealth is estimated by modelling changes in the value of individual wealth sources at the household level since the most recent wave (Q2 2018-Q1 2020) of the ONS Wealth and Assets Survey (WAS). For details on the modelling methodology, see: M Broome, I Mulheirn & S Pittaway, Peaked interest?: What higher interest rates mean for the size and distribution of Britain's household wealth, Resolution Foundation, July 2023.
SOURCE: RF analysis of ONS, UK Economic Accounts; ONS, Wealth and Assets Survey; Bank of England, Effective interest rates; FTSE Russell, FTSE All-Share Index TR; MSCI, MSCI World Index TR; S&P Global, S&P UK Gilt Index; The Annuity Project from William Burrows; and ONS, UK House Price Index.

Another important aspect that will shape the trajectory of generational wealth, although not explored in this report, is the role of inheritances. The vast majority of the wealth accumulated by older generations will be passed onto younger generations in the coming decades, with the total value of annual inheritances expected to double over the next two decades.[63] Furthermore, inheritances are projected to be larger for future cohorts; for individuals born in the 1980s, average inheritances in relation to lifetime income are estimated to be nearly twice as large as those for individuals born in the 1960s.[64] This suggests that we should expect the progress of younger generations in catching up to older cohorts to happen eventually. That said, the distribution and timing of inheritances will have a profound impact on the living standards of younger cohorts.[65]

63 J Leslie & K Shah, Intergenerational rapport fair?: Intergenerational wealth transfers and the effect on UK families, Resolution Foundation, February 2022.
64 For more information on the future trajectory and beneficiaries of inheritances, see: P Bourqin, R Joyce & D Sturrock, Inheritances and inequality over the life cycle: what will they mean for younger generations?, Institute for Fiscal Studies, April 2021.
65 J Leslie & K Shah, Intergenerational rapport fair?: Intergenerational wealth transfers and the effect on UK families, Resolution Foundation, February 2022.

Improvements in cohort-on-cohort wealth progress could be boosted if higher interest rates persist

Although there is significant uncertainty around the future path of long-term interest rates, if we have seen a secular increase in the level of rates, then the trajectory of generational wealth accumulation could look very different for younger cohorts.

Higher rates should make it easier for younger cohorts to get onto the housing ladder. As discussed in our previous work, higher interest rates put downward pressure on house prices.[66] Since June 2021, we've seen a 13 per cent real terms fall in house prices across the UK.[67] Should house prices continue to fall, we could see younger generations narrow the generational home ownership gap further through two key mechanisms. First, lower house prices will alleviate the deposit hurdle which first-time buyers have to get over. Not only will prospective first-time buyers saving for a deposit benefit from more favourable returns on their savings, but the reduction in property prices will also require them to save less money to acquire the same property. Second, although new buyers will face much higher mortgage interest rates than have been typical over the past decade, lower prices will mean devoting a smaller share of lifetime income to acquiring a house and paying off the mortgage.[68]

Another consequence of higher interest rates is that it increases the returns to saving through a DC pension. This will come as welcome news, as there has been growing concern about the adequacy of pension saving among younger cohorts: 87 per cent of middle-earning private-sector employees are contributing less than the 15 per cent which was the amount thought appropriate in Lord Turner's Pensions Commission.[69]

To assess the impact of higher rates on DC pension saving, we use an approach similar to that adopted in the framework for estimating a 'Living Pension'.[70] We build on this model to estimate how much pension savings different cohorts might accumulate by the age of 60 in different interest-rate environments. In doing so, we are required to make a number of assumptions relating to earnings trajectories, contribution rates and investment returns. The key points are as follows (there is more detail in Annex 3).

- We estimate six earnings trajectories that vary by education level and sex. Crucially, we assume that people work full time throughout their remainder of their working lives.

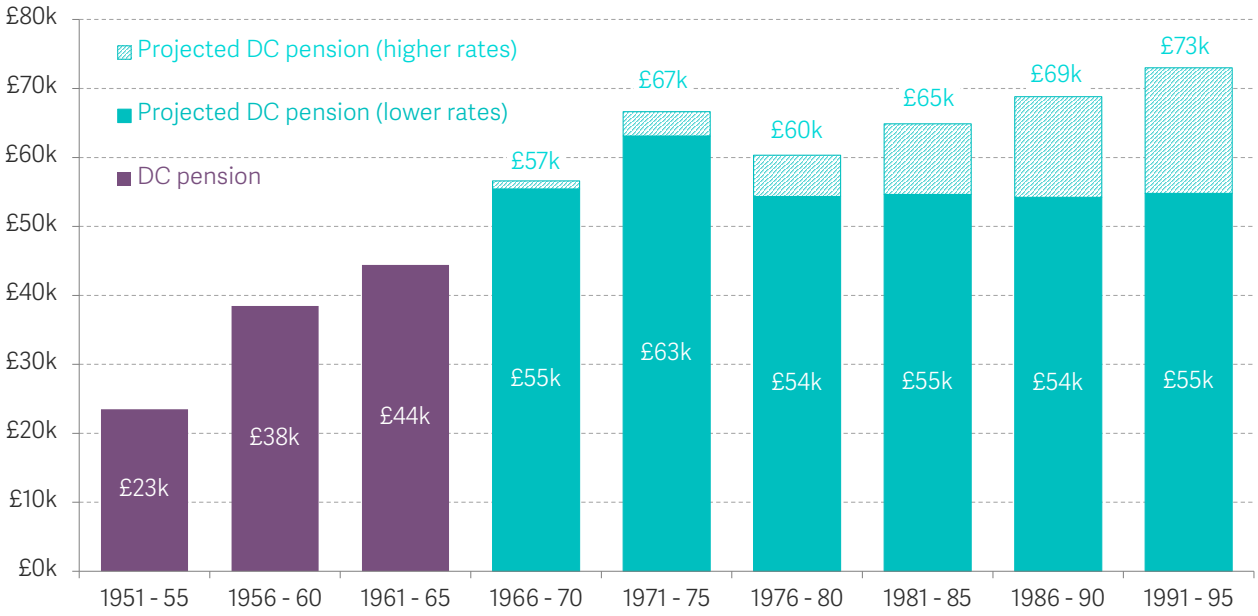
66 M Broome, I Mulheirn & S Pittaway, Peaked interest?: What higher interest rates mean for the size and distribution of Britain's household wealth, Resolution Foundation, July 2023.
67 HM Land Registry, House Price Index; ONS, Retail Price Index.
68 For further information on this topic see: M Broome et al, An intergenerational audit for the UK: 2022, Resolution Foundation, November 2022; and M Broome, I Mulheirn & S Pittaway, Peaked interest?: What higher interest rates mean for the size and distribution of Britain's household wealth, Resolution Foundation, July 2023.
69 J Cribb et al., Challenges for the UK pension system: the case for a pensions review, Institute for Fiscal Studies, April 2023. Note that this is likely understating the required amount of pension saving as there has been a sharp decline in rates of return on investments since the Pension Commission made its 2004 assessment.
70 D Finch & C Pacitti, Building a Living Pension: Closing the pension savings gap for low-to-middle income families, Resolution Foundation, January 2021.

- We assume that employees save at the minimum automatic enrolment contribution rate of eight per cent. Given that the Government has expressed an interest in reducing, or even removing, the £10,000 auto enrolment earnings trigger and the Lower Earnings Limit, we remove these thresholds from our model, meaning that contributions are made from the first pound of earnings.[71]
- We model a 'lower rates' and a 'higher rates' scenario. In our 'lower rates' scenario, we assume interest rates, defined as yields on ten-year UK Government bonds, fall back to around 1.2 per cent, which mirrors the average observed from 2015 to 2020. In our 'higher rates' scenario, we assume that interest rates settle at 3 per cent.

Figure 31 shows the results of our modelling, with the purple bars representing the reported DC pension pot of cohorts at ages 58 to 62, based on data from the ONS's Wealth and Assets Survey. The blue bars illustrate the anticipated DC pension wealth for future cohorts at the age of 60.

FIGURE 31: **Higher rates would increase pension pots for those saving in a DC pension scheme**

Estimated mean real defined contribution pension wealth of full-time employees at age 60, by five-year age cohort: GB



NOTES: Data is adjusted into 2022 prices using earnings deflator. Historic pension wealth is based those aged 58 to 62. Projected pension wealth assumes people retire at age 60.
SOURCE: RF analysis of ONS, Wealth and Assets Survey; ONS, Labour Force Survey; Financial Conduct Authority, Rates of return for FCA prescribed projections, September 2017; Bank of England, Yield curves.

In a lower rates world, millennials who work full time for the remainder of their working lives might expect to retire with an average DC pot around £55,000. However, if interest

71 UK Parliament, Pensions (Extension of Automatic Enrolment) (No. 2) Bill, March, 2023.

rates stabilise at a higher level, younger generations will experience a significant boost in their retirement savings. For example, the eldest millennials, born between 1981-85, could expect an additional £10,000 in their pension pot on average by the age of 60. The gains are even more substantial for the younger millennials, with those born from 1991-95 expected to be approximately £18,000 better off if interest rates settled at 3 per cent.

We have also estimated the value of DB pension assets for different cohorts when they reach the age of 60. To do this, we have used the same earnings trajectories to project forward the DB pension wealth reported by working-age adults in the ONS's Wealth and Assets Survey, under the assumption that people who currently have a DB pension stay working in the same sector and work full-time until the age of 60. For our 'lower rates' and 'higher rates' scenarios, we use corresponding annuity rates to convert the implied income stream from the DB pension into a pension fund value. In the 'lower rates' scenario, we use the average annuity rate observed from 2015 to 2020, which stood at 4.9 per cent. In the 'higher rates' scenario, we assume an annuity rate of 5.6 per cent.[72]

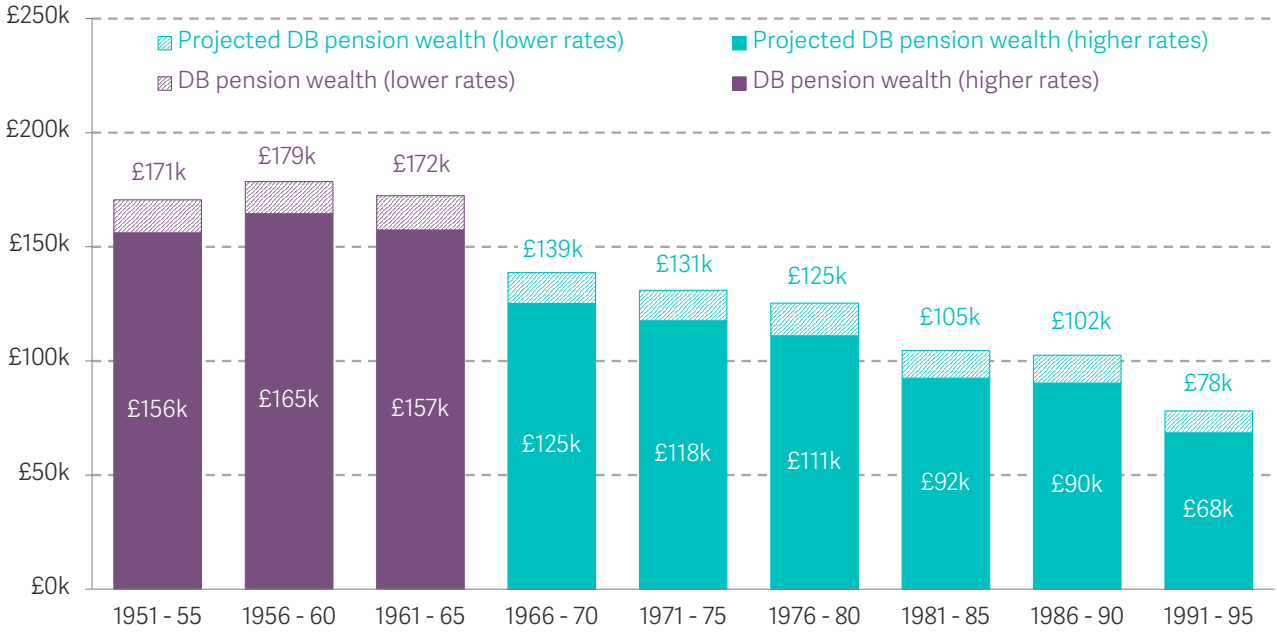
Our modelling shows the implied value of DB pension promises falls in the 'higher rates' scenario. This is because the income stream delivered by a DB pension is worth relatively less when interest rates are higher because it is easier for those without such a promise to achieve the same level of income in retirement.[73] Figure 32 shows that, on average, the DB pension promise for those born in 1966-70 was worth around £139,000 at age 60 if interest rates were at 1.2 per cent. However, that same pension promise would be worth £14,000 less if interest rates climbed to 3 per cent. Fluctuations in the valuation of DB pension rights make little difference to the living standards of the pension holders, but these shifts do indicate a shift in the composition of wealth and the relative positions of various demographic groups.

72 This corresponds to our 'new normal' scenario used in previous research. It is based on the implied forward rate for ten-year gilt yields five years ahead on 30 June 2023, with an adjustment for term premia based on the historical average for the wedge between the implied forward rate and realised ten-year yields, and an additional spread between ten-year gilt yields and annuity rates. See: M Broome, I Mulheirn & S Pittaway, Peaked interest?: What higher interest rates mean for the size and distribution of Britain's household wealth, Resolution Foundation, July 2023.

73 M Broome, I Mulheirn & S Pittaway, Peaked interest?: What higher interest rates mean for the size and distribution of Britain's household wealth, Resolution Foundation, July 2023.

FIGURE 32: **Higher annuity rates have brought down the value of DB pension promises**

Estimated mean real defined benefit pension wealth of full-time employees at age 60, by five-year age cohort: GB



NOTES: Data is adjusted into 2022 prices using earnings deflator. Historic pension wealth is based those aged 58 to 62. Projected pension wealth assumes people retire at age 60.
SOURCE: RF analysis of ONS, Wealth and Assets Survey; ONS, Labour Force Survey; Financial Conduct Authority, Rates of return for FCA prescribed projections, September 2017; Bank of England, Yield curves; The Annuity Project by William Burrows.

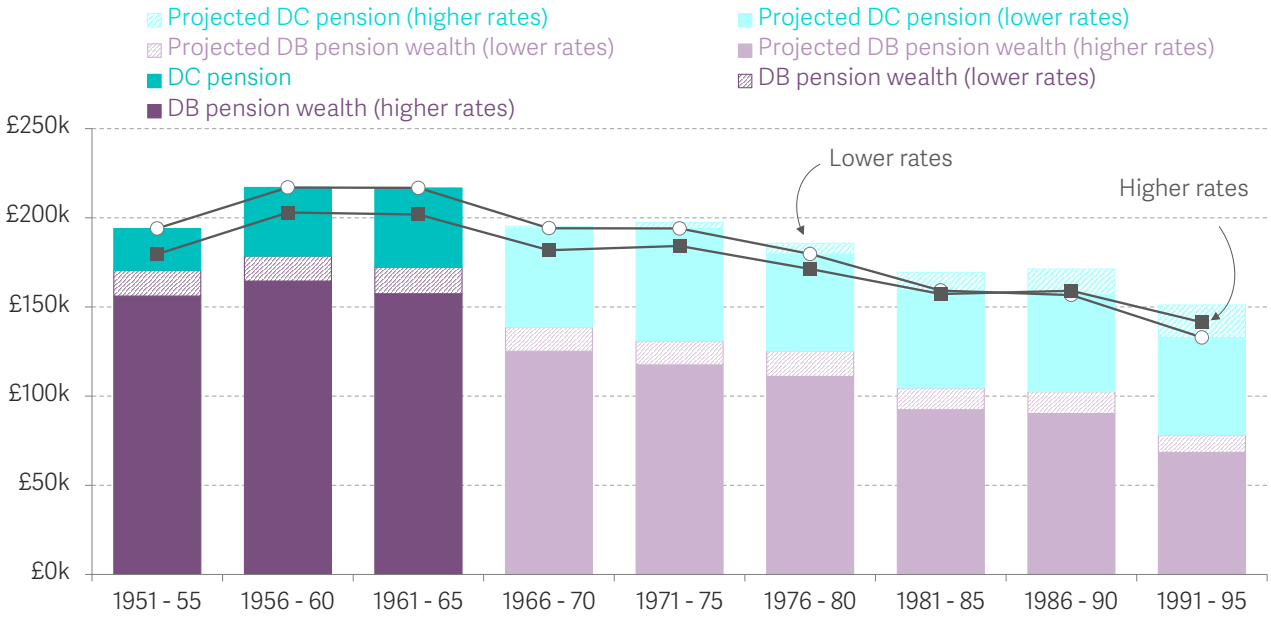
Thanks to automatic enrolment, there has been a sharp increase in pension participation since 2012. But most of that increase has come in DC schemes – by contrast, DB pension schemes are less available than they once were: in 1997, 46 per cent of employees with a workplace pension were enrolled in a DB scheme, by 2021 this had fallen to 28 per cent.[74] This decline in DB scheme availability implies that, on average, younger generations are expected to retire with less DB pension wealth than their predecessors. For example, assuming that interest rates remain elevated, younger millennials born in the early 1990s can expect to retire with around £68,000 in DB pension wealth, which is less than half the DB pension wealth held by those born 30 years prior.

Combining our analysis of DB and DC pension wealth provides a comprehensive perspective on the additional retirement savings individuals can anticipate at the age of 60 across generations. For those born before 1986, the boost in the implied value of DB pension promises due to lower interest rates outweighs the lower returns on DC saving (see Figure 33). This is because DB pensions tend to be larger, on average, than DC pensions for these cohorts.

74 Office for National Statistics, Annual Survey of Hours and Earnings (ASHE).

FIGURE 33: **Younger cohorts are set to retire with smaller pension pots**

Estimated mean real defined contribution and defined benefit pension wealth of full-time employees at age 60, by five-year age cohort: GB



NOTES: Data is adjusted into 2022 prices using the earnings deflator. Historic pension wealth is based those aged 58 to 62. Projected pension wealth assumes people retire at age 60.
SOURCE: RF analysis of ONS, Wealth and Assets Survey; ONS, Labour Force Survey; Financial Conduct Authority, Rates of return for FCA prescribed projections, September 2017; Bank of England, Yield curves; The Annuity Project by William Burrows.

However, a world with higher interest rates would create a more favourable savings environment for younger millennials for two reasons. First, they have less DB pension wealth, meaning they are less exposed to substantial valuation effects. Second, they would benefit significantly from the compounding of higher returns on their DC pension pots. For example, younger millennials born in 1991-95 could see the value of their pension pot boosted by £9,000, on average, as a result of higher rates.

The key message from this analysis, then, is that younger generations are on track to reach retirement with smaller pension pots compared to the generations that came before them. In fact, our modelling indicates that, even in a higher interest rate world, millennials born in the early 1980s could reach age 60 with around £45,000 less than the youngest baby boomers (born between 1961-65). This points to lower living standards in retirement than earlier generations, unless the saving behaviour of younger cohorts increases substantially (either voluntarily or induced by policy changes), or people work into their retirement, or a higher state pension makes up the shortfall.

The path of intergenerational wealth accumulation might be reaching a turning point, but the future remains highly uncertain, hinging significantly on the trajectory of long-term interest rates. If higher long-term interest rates are here to stay, then future cohorts will find it easier to save in a DC pension and may find home ownership more accessible.

However, as discussed in Section 4, older generations saw their wealth boosted by Right to Buy, a significant wealth transfer from government that younger generations are unlikely to experience in the future. Similarly, younger cohorts are projected to retire with less pension wealth as a result of the decline in the availability of DB pension schemes. As a result, while higher interest rates could make it easier for younger generations to amass more wealth, they face a less favourable wealth accumulation environment than the one older cohorts experienced during their lives.

Section 6

Conclusion

Recent evidence suggests that US millennials have experienced considerable generational progress in recent years, but, as we have shown in this report, the story for UK millennials has been far less convincing with progress stalling in a number of key areas. This lack of progress ultimately results from the combination of a stagnant UK economy, limiting economy-wide prospects for pay and income progression, and millennials not getting a large share of the rewards that have materialised.

Millennials have made progress on employment in the labour market, but pay progression remains close to zero. It is graduate pay, in particular, that has underperformed post-financial crisis and this will remain a drag on pay progression unless the economy gets better at exploiting its wealth of human capital. Increasing demand for graduates, and not curtailing their supply, should be the focus of policymakers in the UK.

This audit finds modest improvements in home ownership and income progress, but in both cases, the catch-up for millennials in the UK has fallen short of the catch-up seen by their counterparts in the US. And while slower growth has contributed to the lacklustre income progress experienced by UK millennials, this has been made worse by the fact that growth that has prevailed has favoured older generations. Improvements in youth home ownership are a positive development. But the changes are insufficient to close the substantial generational gaps that have materialised. Even the most favourable conditions are unlikely to now fully close the gaps with the baby boomers. Millennials look set to remain in the private rented sector for longer, stuck with the higher costs and lower security that it offers.

A higher interest environment may make closing the wealth gaps to previous generations more achievable for millennials, but only through the destruction of wealth among the older generations. A new higher-interest environment provides some opportunities for younger generations, making it easier to prepare for the future, by building up larger pension savings for retirement; and through their expected impact on house prices, potentially making it easier for first-time buyers, struggling to save for a deposit. Yet even

this remains a double-edged sword, as older generations, with higher savings, will see the largest income boost from higher rates.

So, despite these opportunities, our assessment that the promise of intergenerational fairness is under threat in the UK has not been substantially alleviated since we published our Intergenerational Commission in 2018. Millennials in the UK have not experienced the catch up that has started to materialise in the US. Even if the UK can grapple with its growth problem, delivering a fairer generational distribution is required – breaking the established trend of income and wealth growth being disproportionately skewed towards older generations.

Annex 1: Analysis of net lifetime benefits from the welfare state

In this Annex we set out how we go about estimating what people put in and take out from the welfare state over their lifetime, building on previous Resolution Foundation research based on John Hills' research on lifetime welfare transfers.[75] Below we provide a summary of the approach, the updated data sources and details of how the methodology has been updated for this report. A key input to this work is population data from the ONS which is used to estimate the relative size of each single-year-of-age cohort in each year.[76]

Historical and projected changes in health, education and social-security spending
Health spending by cohort for years up to 2001 is sourced from John Hills' original work. Total health spending for 2004-05 to 2022-23 is taken from the 'medical services' line in the Public Expenditure Statistical Tables (PESA), and divided across single-year-of-age cohorts according to their relative size.[77] For years between 2022-23 and 2028-29 we use the OBR projection for aggregate health spending from their Economic and Fiscal Outlook. Per-head spend in future years is based on per-head estimates presented in the OBR's 2023 Fiscal Risks and Sustainability report.[78]

Similar data is used for education spending estimates. Pre-2001 data is sourced from John Hills' original work and, beyond that, spending totals are drawn from PESA for nursery and higher education for 1997 to 2022, and for primary and secondary education for 1999 to 2022. The yearly spends on each of the nursery, primary and secondary education budgets are divided up by single-year-of-age, again according to the relative size of each single-year-of-age cohort. The number of people enrolled in higher education by single-year-of-age is calculated from the Labour Force Survey, and are used to calculate the age profile of higher-education spending across the 18-34 age distribution (across which we assume the whole higher education budget is spent). From 2022, education spending is aligned with the latest OBR, Economic and Fiscal Outlook and then increased with the trend from the July 2023 Fiscal Risks and Sustainability report.

As with health and education spending, outturn data for social security spending prior to 2001 is mostly sourced from John Hills' original work. We consider spending on the major areas of social security: state pensions, housing benefit, tax credits, unemployment benefits and disability benefits. Spending on children is apportioned to the parent based on the

75 Full details of the methodology can be found in: G Bangham, D Finch & T Phillips, A welfare generation: lifetime welfare transfers between generations, Resolution Foundation, February 2018. That work builds on: H Bowman & J Hills, Does Britain have a 'welfare generation'? An empirical analysis of intergenerational equity, Centre for the Analysis of Social Exclusion, London School of Economics and Political Science, 1995 and J Falkingham, & J Hills, eds., The dynamic of welfare: the welfare state and the life cycle, Prentice Hall, 1995; J Hills, Inequality and the State, Oxford University Press, October 2004.
76 Past population estimates are taken from ONS, Population estimates for the UK, England and Wales, Scotland and Northern Ireland: mid-2020, June 2021. Projections are based on: ONS, National population projections: 2020-based interim, January 2022.
77 HM Treasury, Public Expenditure Statistical Analyses 2023, July 2023.
78 Office for Budget Responsibility, Fiscal risks and sustainability – July 2023, July 2023.

distribution of children in working-age households by age. Outturn data related on the pattern of spend by age from 1998 to 2022 for each category of social security is taken from the Department for Work and Pensions' (DWP's) Spring Budget 2023 Benefit Expenditure and Caseload Forecasts, and historical administrative data sources.[79] Forecast spending is based on DWP's forecasts to 2027, then increased with the overall trend from the July 2023 Fiscal Risks and Sustainability report. It adjusts for current policy on increases in the State Pension Age and takes into account likely future rises.

Historical and projected changes to individual sources of taxation

We consider four categories of taxation that are used to 'fund' the welfare state (education, health and social security): income tax, national insurance (employee NICs), indirect taxes (including VAT, stamp duties, vehicle taxes and alcohol duty) and inheritance tax. The total revenue required to fund the welfare state in each year is equal to the total spend on the welfare state. Total tax revenue data for each category of tax comes from past editions of the Blue Book.[80] Pre-2001 data is taken from John Hills' original work, and outturn data from 2002 to 2022 is taken from the OBR's database. Projections for tax revenues from 2022-27 use the OBR's five-year forecast, with tax revenues from 2028 onwards uprated by projected population change for each single year of age. Having calculated the total revenue from each tax, we then allocate the incidence of these taxes across the population by single year of age using updated data from the same sources as in the original analysis, again accounting for planned changes in the State Pension Age to uplift the boundary of employee NIC-paying population. Age splits for the revenue from individual taxes are taken from yearly HMRC and ONS data.

Changes to the approach

The analysis in this report closely follows our previous work, but makes two adjustments to the assumptions and data used:

1. Hypothecated taxes

Past analysis assumed that all employee NICs are used to finance welfare state spending, and that the balance of funding required is made up from the other three categories of taxation in proportion to their relative sizes. In this analysis we remove this assumption and assume all taxes are applied equally to spending on both the welfare state and other spending categories, for example policing, public infrastructure or even interest repayment. Although NICs is formally a hypothecated, this is not done in a precise way. Moreover, other taxes such as

79 Department for Work and Pensions, Benefit expenditure and caseload tables 2023, April 2023.
80 Office for National Statistics, UK National Accounts, The Blue Book time series dataset, October 2017.

vehicle excise duty, that are hypothecated for non-welfare state spending are included within indirect taxes.

2. The impact of planned tax and benefit policy changes on the age profile of taxes and spending

The estimated impact of tax and benefit policy changes, announced in, or before, the March 2023 Budget, are accounted for by adjusting the age profile of future tax and benefit spending. We use the IPPR Tax Benefit Model to estimate the impact across age groups, in order to adjust the age profiles. For example, an estimate of the implications of the tax threshold freeze on the age profile of income tax is included. The impact of these policies on the total tax and social security spending is already captured in the OBR forecasts used.

Annex 2: Modelling of home ownership rates

To produce scenarios for home ownership rates of different cohorts 10 years into the future we build on our previous work, which was itself based on an academic study.[81] The approach is to use household surveys (originally the Family Expenditure Survey/Expenditure and Food Survey – FES/EFS) to create a synthetic panel of cohorts and home-ownership rates over time. We do the same using FES and the Labour Force Survey. This provides us with a dataset that contains home ownership rates at ages 20 through to 80 of cohorts born between 1900 and 1991.[82] We do this for cohorts who own their home in London and those that own outside the capital to account for the starkly different house price and ownership rates in London. To this, we merge a range of macroeconomic data on house prices, Right to Buy (RTB) sales, credit conditions, home building rates, and household incomes. The variables and their sources are as follows:

- Credit conditions index (Bank of England)[83]
- House prices (ONS)
- Household income (FES and HBAI)
- Home building (DLUHC)
- RTB sales (DLUHC)

We model home-ownership rates for cohorts at four different ages; 30, 35, 40, and 45, using the macroeconomic data above and the home ownership rate of the same cohort five-years earlier. For example, to model home ownership at 30, we estimate the following model:
Home ownership rate at 30 is a function of:

- That cohort's home ownership rate at age 25
- The average house-price-to-income ratio between ages 26-30
- Average RTB sales between ages 26-30
- Average house building between ages 26-30
- Credit conditions index between ages 26-30

The home ownership rate and house-price-to-income ratio variable are interacted with a London dummy to estimate the different price, income and ownership dynamics in the capital.

Our preferred specification is a generalised linear model where the dependent variable has been transformed to take the natural logarithm of the odds ratio of the home ownership

81 A Corlett & L Judge, Home Affront: Housing across the generations, Resolution Foundation, September 2017 and R Bottazzi, T Crossley & M Wakefield, Late starters or excluded generations? A cohort analysis of catch up in home ownership in England, IFS Working Paper W12/10, 2012.
82 This dataset is inevitably incomplete. For those born in the latest year (1991) we only have their home ownership rates up to the age of 28 (i.e. in 2019, given pandemic-related issues with tenure trends in our source data, the Labour Force Survey).
83 Up to 2006, this input uses the credit conditions index produced in E Fernandez-Corugedo & J Muellbauer, Consumer credit conditions in the United Kingdom, Bank of England Working Paper 314, 2006. From 2006 onwards this series is spliced with the net balance of a question from the Bank of England's Credit Conditions Survey, on the availability of secured credit to households.

rate. This takes into account the fact that our data is bounded at 0 and 1 (i.e. home ownership cannot be lower than zero or greater than 100 per cent). We run this model on the ownership rate at 30, 35, 40 and 45. Results are provided in Table 1.

TABLE 1: **Marginal effects of explanatory variables for our four home ownership models**

	Dependent variable (home ownership at age)			
	30	35	40	45
London dummy	-0.098	-0.071	-0.062	**-0.059**
Home ownership rate (t-5 years)	0.023	**0.035**	**0.035**	**0.018**
House price to income ratio	**-0.053**	**-0.028**	**-0.022**	-0.033
RTB sales (log)	**0.049**	**0.063**	**0.063**	0.025
House building (log)	**0.077**	**0.047**	**0.041**	**0.017**
Credit conditions index (higher = more liberal)	0.012	0.002	0.001	0.031
Observations	98	98	98	98

Coefficients are expressed as the average marginal effect on the home-ownership rate of a 1 standard deviation increase in each variable, except for the London dummy which is the effect of going from 0 to 1 (i.e. being in London). Marginal effects in bold are significant.

Most coefficients are statistically significant across at least three of our models, with the exception of the credit conditions index. Table 1 also illustrates the largely insignificant marginal impact of the London dummy, after accounting for interactions with the house-price-to-income ratio or the home ownership rate five years previous.

In order to project forward home ownership rates for recent cohorts, we need to condition on paths for our explanatory variables. Here we use two scenarios based on growth rates from two specific periods: 1981-1991 and 2005-2015. These two decades were, respectively, the decade in which ownership increased at the fastest rate for those aged 30-45; and the decade in which it rose at its slowest rate (and for which we have data on all our explanatory variables). Table 2 shows the average growth rate of our explanatory variables over these two periods.

TABLE 2: **Average annual percentage change in key explanatory variables in the two time periods that underlie our 'optimistic' and 'pessimistic' scenarios**

	1981-1991	2005-2015
House price to income ratio	0.5%	-0.1%
RTB sales	0.4%	-0.1%
House building	-1.0%	-1.1%
Credit conditions index (higher = more liberal)	-17.8%	-133.1%

The house-price-to-income ratio actually fell over the 10 years of our pessimistic scenario, but this is not the case in London, and across all other inputs the 2005-2015 period is a much less benign environment for rising home ownership than the 1980s, which is reflected in our projections. RTB sales increased in the 1980s but fell in the 2000s. Housebuilding fell in both periods but at a greater rate in the later period. And credit conditions tightened significantly over the late 2000s and early 2010s.

Annex 3 Estimating future pension prospects

Estimating future pension savings

To assess how the pension prospects of future cohorts might compare to their predecessors, we adapt the model used to estimate a 'Living Pension'.[84] The model allows us to estimate how much different cohorts might accumulate in their pension by the age of 60, the average age of retirement in the Wealth and Assets Survey between 2006-20. This annex outlines the assumptions and methodology that underpin our analysis.

Before turning to details of the model there are two key points to make about the unit of analysis. First, pension entitlements tend to be built-up individually, rather than at the household level. As a result, our analysis is conducted at the level of individuals, rather than the family or household level. Second, to make all figures comparable across time periods and cohorts, we make adjust for the impact of inflation by deflating by projected long-term earnings growth, as projected by the OBR.[85]

Modelling future earnings trajectories

Determining the pattern of future savings requires a set of assumptions about the structure of people's earnings over the course of their working lives. Many factors influence an individual's earnings, most notably, age, skill level and sex. With this in mind, we estimate six earnings trajectories that vary across these factors using data from the ONS's Labour Force Survey. In calculating these earnings trajectories, we use average gross weekly pay by age across periods Q3 2010 to Q2 2023, excluding 2020 and 2021 to avoid the most disruptive period of the Covid-19 pandemic. Skill level is determined using the ONS's Standard Occupational Classification. For instance, for our analysis, 'low skill' corresponds to the ONS's first and second skill level, intermediate corresponds to the ONS's third skill level, and high as the ONS's fourth skill level.[86]

Crucially, we assume that people work full-time throughout their working lives. Therefore, we do not take into account periods in which employees are working part-time or aren't employees at all, such as becoming self-employed or out of work.

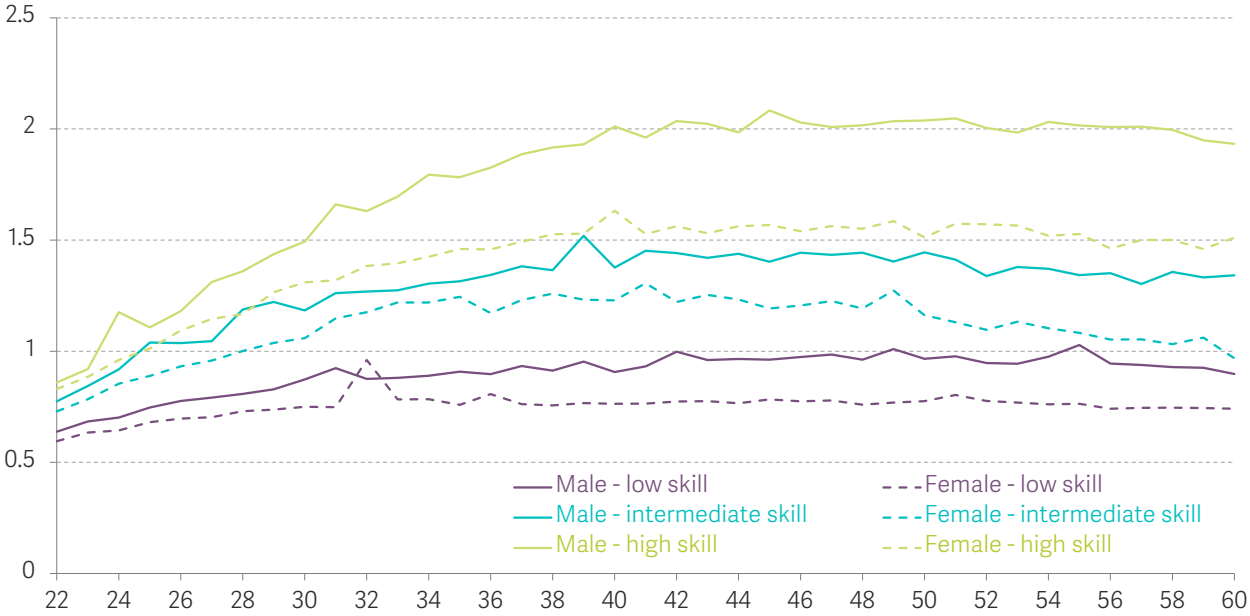
Figure 34 shows the results of these assumptions, reporting the average gross weekly pay for all full-time employees relative to the median wage, with a value of 1 meaning that

84 D Finch & C Pacitti, Building a Living Pension: Closing the pension savings gap for low-to-middle income families, Resolution Foundation, January 2021.
85 Office for Budget Responsibility, Fiscal risks and sustainability – July 2023, July 2023.
86 For more information of the skill classification used by the ONS, see: Office for National Statistics, SOC2010 volume 1: structure and descriptions of unit groups, January 2016.

someone earns the median wage. Unsurprisingly, it shows that women, and those with lower qualifications, have, on average, lower pay throughout their lifetime.

FIGURE 34: **Employee earnings trajectories by age, qualification and sex**

Gross weekly pay relative to median pay for full-time workers, by age, sex and skill level: UK, Q3 2010-Q2 2023



NOTES: The data excludes 2020 and 2021 to avoid disruption caused by the Covid-19 pandemic.
SOURCE: RF analysis of ONS, Labour Force Survey.

Converting the earnings factor in Figure 34 to an absolute level of earnings is achieved by multiplying by the median gross earnings from the Annual Survey of Hours and Earnings, and uprating it with average earnings growth projections produced by the OBR's most recent projections.[87] Having projected annual earnings, we then apply the pension accrual rules we set out below.

Modelling DC pension savings

Auto-enrolment has led to a large increase in the share of private-sector employees contributing to a private pension. As shown in previous research, savings are growing broadly in line with the minimum requirements of the scheme.[88] Given this trend, we assume that employees save at the minimum automatic enrolment contribution rate of 8 per cent.

However, we do not apply the other auto-enrolment parameters in our model. For instance, given that the Government has expressed an interest in reducing, or even removing, the £10,000 auto enrolment earnings trigger and the Lower Earnings Limit (£6,240 in 2022-23), we

87 Office for Budget Responsibility, Economic and fiscal outlook – March 2023, July 2023.
88 D Finch & C Pacitti, Building a Living Pension: Closing the pension savings gap for low-to-middle income families, Resolution Foundation, January 2021.

remove these thresholds from our model, meaning that contributions are made from the first pound of earnings. We also do not apply the Upper Earnings Limit (£50,270 in 2022-23) within our model given that lots of employers do indeed make contributions on above this threshold.

Savings in a DC scheme will typically be invested by a pension provider in a mix of financial assets such as stocks and bonds. The return on such investments tend to vary by how well a fund performs, as well as by the level of risk an individual chooses to take in their investment. This can mean that employees making similar-sized contributions throughout their working life have very different sized pension pots in retirement, but we assume in our calculations an average rate of return on bonds and equities pension savings in accrual. For this purpose, we model a 'lower-rates' and a 'higher-rates' scenario. In our lower-rates scenario, we assume yields on 10-year UK Government bonds fall back to around 1.2 per cent, which mirrors the average observed from 2015 to 2020, and the return on equities is 5.7 per cent. In our higher-rates scenario we assume yields on 10-year UK Government bonds settle at 3 per cent and the return on equities is 7.5 per cent.[89]

Finally, private pension providers charge an administration fee on the funds that they manage. In our previous research, we assumed an annual fee of 0.5 per cent on the total pot, we continue to use this assumption in our model.[90]

Using the assumptions above, we model the in-year DC pension accrual for individuals aged 22 to 60. We then total up these in-year accruals to estimate the total pension accrual an individual will make over the remainder of their working lives (up to age 60). These estimates are then matched, using age, skill and sex, to the total DC pension savings reported in the latest round of the ONS's Wealth and Assets Survey (i.e. for years 2018-20). Total DC pension savings includes retained rights.

The results are analysed by five-year birth cohorts to understand how future generation's DC pension prospects compare to their predecessors. We compare the mean pension savings of cohorts born between 1955-65 when they were aged 58 to 62 as reported in the Wealth and Assets Survey, to the projected mean DC pension savings of cohorts born between 1966-95 at age 60.

89 We assume that spreads between corporate bond and gilt yields and the equity market risk premium remain as outlined by the FCA in 2017. For more information, see: Financial Conduct Authority, Rates of return for FCA prescribed projections, September 2017.

90 D Finch & C Pacitti, Building a Living Pension: Closing the pension savings gap for low-to-middle income families, Resolution Foundation, January 2021.

Modelling DB pension savings

To project forward DB pension savings we draw on the methodology used in the Wealth and Assets Survey.[91] First, we calculate the annual pension income an individual can expect from their DB scheme using the following formula:

$$Y_i = \alpha_i \eta_i s_i$$

- α_i is the accrual fraction in the individual's scheme as reported in the Wealth and Assets Survey.
- η_i is the individual's tenure in the scheme, where we assume those that have a DB pension stay in the scheme for the average number of years (18 years).
- s_i is the individuals gross pay at the age of 60, which we calculate using the earnings trajectories described above.

We then turn this annual income stream into a pension pot using an accrual fraction. Again, we model two scenarios, in our lower-rates scenario we use the average annuity rate observed from 2015 to 2020, of 4.9 per cent. In our higher rates scenario we assume an annuity rate of 5.6 per cent which aligns to the yields on 10-year UK Government bonds used in our DC modelling.

Again, the results are analysed using five-year birth cohorts. We compare the mean DB pension savings, as reported in the Wealth and Assets Survey, of cohorts born between 1955-65 when they were aged 58 to 62, to the projected DB pension savings of cohorts born between 1966-95 at age 60. DB pension savings includes retained rights.

For simplicity, we assume that those people without a DB pension do not get a DB pension over the remainder of their working lives. Similarly, we assume that those people that do not have a DC pension do not get a DC pension over the remainder of their working lives.

91 For more information of this methodology, see: Office for National Statistics, Wealth and Assets Survey User Guide Round 7, February 2022.

Intergenerational Centre

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