Background Paper

Wealth Tax Commission

Sources of wealth and their implications for taxation

Author
Ian Mulheirn

UKRI Economic and Social Research Council

LSE International Inequalities Institute

CAGE

LSE THE LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

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SOURCES OF WEALTH AND THEIR IMPLICATIONS FOR TAXATION

Ian Mulheirn, Tony Blair Institute for Global Change

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Abstract

Household wealth in the UK has doubled as a proportion of national income over the past 25 years. The source of this increase has implications for how and when to tax wealth. Wealth can accumulate through active saving but also as the result of falling interest rates that magnify the present value of assets that yield an income. We show that the increase in wealth of the past 25 years has been overwhelmingly driven by falling interest rates – especially for pensions and housing, which account for the large majority of household wealth.

Several implications for wealth taxation are discussed. First the recent growth in wealth in aggregate is overwhelmingly the result of good fortune for the holders of assets. Second, the income for the holders of this greater wealth is largely unchanged, hence the beneficiaries can achieve a higher standard of living from their greater wealth only by selling the assets. Third, the effect of falling interest rates on the lifetime consumption opportunities of the holders of interest-rate sensitive assets is ambiguous because of accompanying effects on the present value of future consumption liabilities. This creates horizontal equity problems for a tax based on 'tangible' net wealth. These implications highlight the important role of capital gains tax (CGT) as a tool for fairly addressing the inequalities created by the decline in risk free interest rates, as well as the problems created by exemptions like Private Residence Relief and forgiveness of CGT at death.

1. Introduction

The idea of imposing a wealth tax, defined here as an annual levy on the stock of an individual's wealth, has been rising up the political agenda in the UK. In part, this is due to the intense pressure on public spending from the fiscal consolidation of the 2010s and the probable need for tax rises once the economy has recovered from the COVID-19 pandemic. But the main driver of the focus on wealth has been the burgeoning stock of wealth held by (some) UK households over the past 20 years or so.

Something that receives a lot less attention is the source of that wealth. The aim of this paper is to shed light on what lies behind the growth in household wealth and explore the implications for how and when it might be taxed.

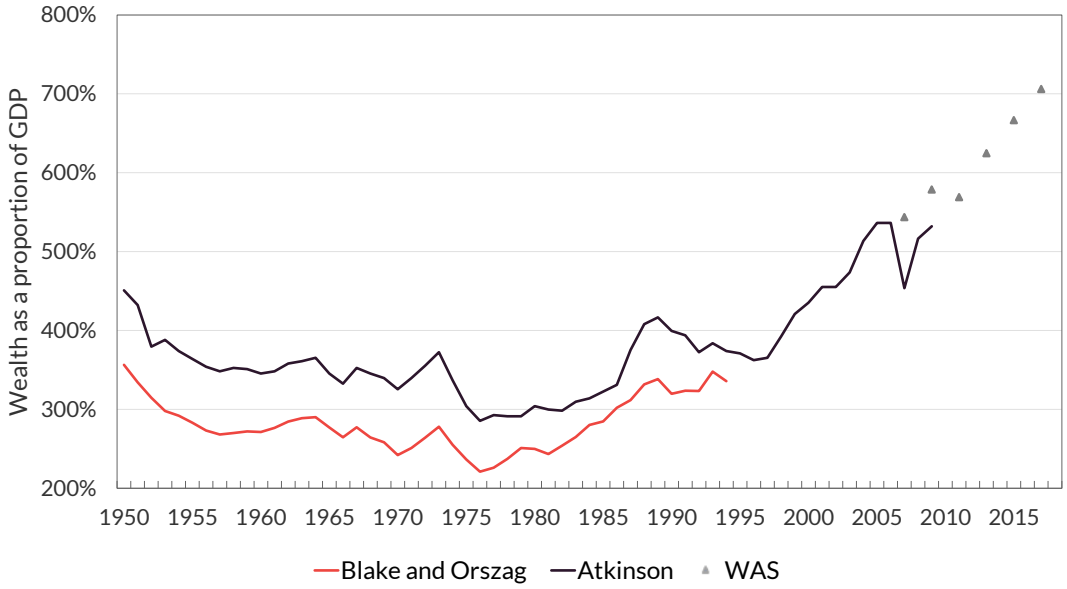
2. Post-war trends in household wealth

For most of the second half of the twentieth century, the stock of household wealth has remained reasonably stable as a proportion of national income. Atkinson (2018) estimates that from 1950 to the mid-1990s household wealth fluctuated between about 300% and 400% of Gross Domestic Product (GDP), as Figure 1 shows. Work by Blake and Orszag (1999) tells a similar story from 1948 to 1994. It shows the stock of wealth as broadly flat as a proportion of national income initially declining from 375% to 221% of GDP by the mid-1970s, before rising gently to 336% by the mid-1990s.

But thereafter something changed to cause a rapid acceleration in the stock of household wealth. Atkinson's analysis suggests the jump was from around 370% in 1995 to almost 540% by the eve of the financial crisis. According to the Wealth and Assets Survey (WAS), household wealth then continued to rise from 544% of GDP in 2006–8 to 706% in 2016–18: an increase of some £4.2 trillion in 2017 prices in just a decade.

Total net worth in the national accounts, while not directly comparable to household wealth, also grew from 331% of GDP in 1995 to 483% by 2018.[1] The increase in total net worth has been more muted than the increase in household wealth, which is likely to be partly due to the deterioration in public sector net worth, which fell from -36% of GDP in 2006 to -125% by 2016 in the wake of the financial crisis.[2] Consequently, the strong upward trajectory in wealth holdings of the private sector over the period is evident here too.

FIGURE 1: TOTAL UK HOUSEHOLD WEALTH MEASURES, 1950–2018



Sources: Blake and Orszag (1999), Atkinson (2018), ONS, author's calculations

[1] Total net worth is conceptually different to household wealth in a number of ways, most notably in that it includes the public sector net worth, which is not captured in either Blake and Orszag (1999) nor in the Wealth and Assets Survey. The national balance sheet captures corporate assets within the UK that may be owned by foreigners, and excludes overseas assets owned by UK households. Treatment of pension wealth is also conceptually very different. Despite these differences, if household wealth is growing one would expect total net worth also to increase. Given the deterioration in public sector net worth since 2008, it's reasonable to imagine that household net worth has grown faster than total net worth since then.

[2] International Monetary Fund (IMF) Public Sector Balance Sheet database.

Overall, it appears that for most of the second half of the twentieth century, household wealth fluctuated within a band of between about 300% and 400% of GDP. But in the last 25 years it surged above 700%. That increase in wealth is associated, most visibly, with rocketing house prices and attendant intergenerational inequality. At the same time, wealth tax revenues as a proportion of GDP – defined as including transaction, inheritance, council and capital gains taxes – have remained broadly unchanged, hovering between 2% and 3% of GDP for decades (Advani et al., 2020).

This trend of growing household wealth has been the subject of much analysis and comment in recent years. The causes of it, however, are less commonly discussed. Why has household wealth exploded and what light does the source of it shed on how and when is best to tax it? A clearer picture of the true source of wealth doesn't necessarily strengthen or weaken the case for taxing it. But it may change how we think about it or what the best approach to taxing it might be.

3. Motivations for taxing wealth

For the purposes of this paper, a wealth tax is defined as an annual levy on the value of a person or household's net wealth (however broadly defined). Before considering the possible sources of new household wealth, it is worth having in mind, in broad terms, the common arguments for and against such a tax (for a full discussion see Adam and Miller, 2020).

The standard optimal tax theory objection to an annual levy on the stock of wealth is that it is effectively equivalent to a tax on the normal rate of return. A 1% annual tax on £100 is equal to a 40% tax on 2.5% interest on £100. This violates the principle of tax neutrality by penalising people who merely want to defer until tomorrow consumption out of income earned today. It also fails to tax excess returns. For these reasons the *Mirrlees Review* concluded that a tax on the stock of wealth 'seems like exactly the wrong policy' (Mirrlees et al., 2011).

However, there are alternative types of argument that one might make in favour of a wealth tax. One category of arguments draws on a different set of assumptions about what determines individual utility than the standard social welfare maximisation approach. For example, one could argue that the holding of wealth (beyond the consumption of it) may confer benefits on the holder, such as status or insurance against unexpected events (Boadway et al., 2010). Alternatively, a case could be made for a wealth tax as a second best way of achieving a more socially optimal outcome that for some reason isn't possible with a 'better' tax. Other 'non-welfarist' criteria, such as equality of opportunity, hold that there are broader concepts of justice that should be taken into account in optimal tax theory, such as the desire for people to have a more equal start in life.

These arguments tend to be considered in the abstract. But a rapidly growing stock of wealth nationally raises the question of whether their validity might also depend on changes in wealth and its distribution. For example, if there is validity in the equality of opportunity arguments, then they presumably take on greater weight if the stock of wealth grows in the way it has done over the past 25 years. The growth of total UK household wealth by £4.2 trillion in a decade might strengthen perceptions that past income has been insufficiently taxed, either on welfarist or equality of opportunity grounds, and therefore provide justification for a wealth tax.

But at the same time, whether annual wealth tax is the right prescription for accelerating household wealth may depend on the cause of that trend. So what is behind the doubling of household wealth as a proportion of GDP over the past quarter of a century?

At root, there are two possible sources of growing wealth at household level that can be distinguished by their impact on a household's sustainable level of consumption (Weale, 2009). First, wealth can accumulate through income (defined as factor incomes) that is not consumed, or through growth in expected income associated with an asset. These can be thought of as 'saving' because they allow the holder to sustain higher consumption in the future indefinitely. But wealth can also accumulate simply due to a fall in the discount rate, which magnifies the present value of any future income – regardless of whether that income level changes. We explore each in turn.

Wealth from saving

Defining saving is less straight forward than it might at first seem. The most obvious component of it is income earned by the factors of production – in the form of wages, profits, rents and interest – that is not consumed. But capital gains that result from changing future income streams associated with an asset can also be thought of as saving since this raises the sustainable

consumption of the owner. For example, if scarce housing raises the market rent on a property, this increases the value of the house. The rise in the owner's wealth therefore reflects their higher sustainable consumption.

Is an acceleration in saving behind the recent growth in household wealth? Perhaps the most well-known recent account of the process by which wealth is accumulated is Thomas Piketty's *Capital in the 21st Century*. Piketty argues that wealthy people save the income from their (increasingly inherited) wealth, defined as the return on capital in the form of 'profits, dividends, rents, and other interest from capital'. He argues that this effect is compounded by the possibility that the saving rate may increase with wealth and that richer people are generally able to secure a higher return on investment than others. On his account, the return on capital has tended to outstrip the rate of economic growth since the 1970s and, as a result, the stock of wealth has grown as a proportion of GDP. In other words, this explanation for the growth in aggregate wealth is one of active saving of income by the owners of capital (and by implication the growth is disproportionately concentrated among the wealthy).

The logic of this story suggests there is no necessary equilibrium about the historically more equal distribution of wealth of recent decades, and that a much higher level of wealth inequality is inevitable without corrective policy action. If Piketty's is an accurate account of recent wealth accumulation, then that would lend force to the argument that capital income, in particular, is undertaxed at least from an equality of opportunity perspective. It might also suggest that tax rates on capital income have been too low from a welfarist perspective.

But a focus on the staggering wealth of the very richest people doesn't go very far to explaining the acceleration of the total wealth for the UK. However disproportionate their wealth, it isn't enough to account for the huge shifts in recent years. The wealth of the top 0.1% represents around 8% of the total. Casting the net wider, the top 1% of households, those with at least £3.2 million in 2015 according to the WAS (ONS, 2018), together account for around 20% of total wealth in 2012 (Alvaredo et al., 2018).

While these shares appear to have increased slightly in recent decades, the shift has not been strong enough to account for more than a small part of the total increase in household wealth. Alvaredo et al. (2018) estimate that the top 1% share has drifted up from around 17.6% through the mid-1990s to around 20% in the early 2010s. The WAS suggests that over the past decade the wealth of the top wealth decile has grown by 76%, but the wealth of the other 90% of households grew by 71%. In other words, increases in wealth have been too large and broad based to be explained by the saving behaviour of the very wealthy.

Inevitably, since they account for almost £4 in every £5 of UK household wealth, pensions and housing have played a dominant role in the growth of the total in recent years (Advani et al., 2020b). And since these tend to be categories of wealth commonly held by households (Advani et al., 2020a), it's clear that we need to look beyond the saving activities or rents captured by the super-rich, and even the top 1%, to understand what lies behind the broader trend. The second possible source of wealth provides a more compelling alternative explanation of the trend.

Wealth from falling discount rates

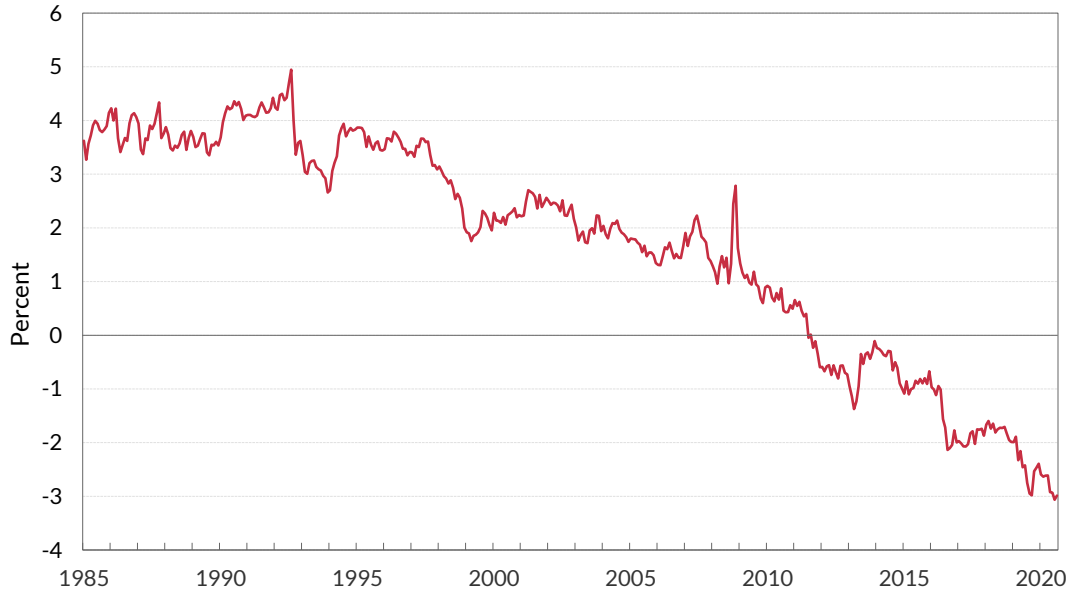
The second channel for accumulating wealth is via capital gains that derive from a fall in discount rates.[3] Since most assets provide the owner with a stream of income, the price of an asset is

[3] In the sense used here, a discount rate is the interest rate used to derive the present value of a future cash flow. Discount rates vary between assets. In the case of housing, for example, it includes property taxes, depreciation and a risk premium. But all discount rates are anchored by the risk-free interest rate,

usually equal to the discounted value of the associated income stream. That present value can subsequently change either because the expected future stream of income changes or because of movements in the discount rate (Weale, 2009). While the former mechanism represents an expected change in future factor incomes, and therefore effectively embodies extra saving by the holder (as described above), the latter operates completely independently of any change in the return, or expected return, on an investment.

Movements in the risk-free interest rate, represented by index-linked gilt yields, drive shifts in the discount rates that in turn affect asset prices. If returns available on other assets fall, then the price of a given asset will rise until investors are indifferent between holding it or something else. And the trend in the risk-free rate in recent years has been starkly downwards (see Figure 2). Consequently, we should expect to see capital gains from this channel play a significant role in driving the stock of wealth.

FIGURE 2: 10-YEAR INDEX-LINKED GILT YIELDS



Source: Bank of England

The present value of long-lived assets, such as future promises to pay pensions and property that yields a stream of rental income (or allows the owner to avoid a stream of rental costs), is particularly sensitive to long-term interest rates which influence the cost of capital used to discount those payment streams. If long-term interest rates decline, pushing up the value of such assets, the source of wealth is not income that has been saved – at least not on a national accounts definition of saving. Indeed, when capital gains occur purely due to shifts in the discount rate, the income derived from an asset is unchanged by definition.

Does it matter, from a public policy perspective, which of these channels the wealth has come from? Yes – because the source of wealth can mean that people of comparable wealth can have very different living standards. Someone whose pension pot has doubled due to falling bond yields will not be twice as well off in retirement because falling annuity rates reduce their income per pound of savings. Someone whose house has doubled in value still receives the same annual flow of housing services. In other words, the standard of living of a millionaire nearing retirement with risk-free interest rates at 2% is substantially lower than a millionaire nearing

represented by the yield on government bonds. Changes in the risk-free rate can therefore be expected to have a knock-on effect on discount rates across the economy. In the subsequent discussion the two terms are used interchangeably.

retirement with interest rates at 4%. Someone whose wealth has doubled due to discount rate effects is therefore able to enjoy higher consumption only if they (or their heirs) liquidate the assets and consume the capital. Indeed, in some cases, due to similar effects on their liabilities (explored below) they may not be better off even then.

So what evidence is there of the role played by active saving relative to discount rate movements in the huge increase in wealth over the past 25 years? Two complementary approaches shed some light. One is to calculate the growth in wealth we would have anticipated if the stock of wealth had increased only as a result of the cumulation of net saving across the economy. The other is to try to decompose the growth in the two main categories of household wealth – pensions and housing – into the part derived from falling interest rates and the part driven by other factors. Pensions account for the largest category of wealth for UK households, some 42% of the total in the period 2016–18 (ONS, 2019a). Housing makes up a further 35%. As well as representing 77% of total wealth, these categories account for the same percentage of the growth in household wealth since 2006–08, so whatever has driven their growth is largely responsible for the aggregate increase.

Cumulating saving

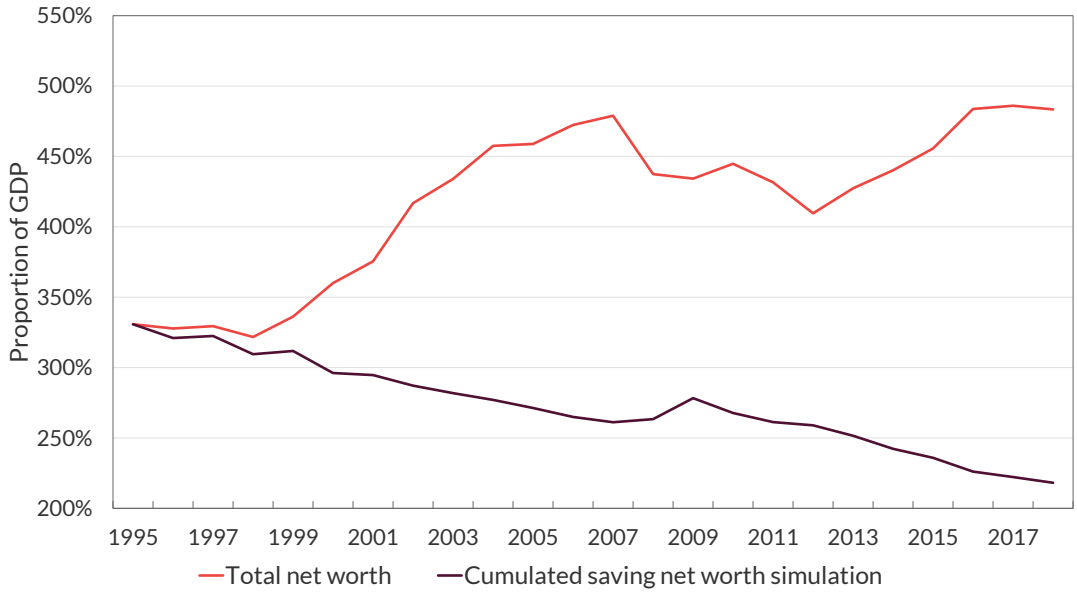
One approach to assessing whether increase aggregate wealth is the result of active saving is to look at net national saving and to see how well it accounts for the change in UK total net worth. First, it's important to note that total net worth is a different approach to measuring wealth than we get from a household wealth survey like WAS.[4] Nevertheless, one would expect the two measures usually to move in the same direction: it would be surprising if UK household wealth were to increase but UK net worth to fall. In practice, the latter appears recently to have been growing slower than the former for the reasons explained above.

Following the approach set out in Weale (2009), it's possible to simulate how the UK's total net worth would have evolved over the past 25 years had its growth been only the result of active saving. The orange line in Figure 3, below, shows total net worth as a proportion of GDP. The purple line takes the 1995 starting point for net worth and simulates how it would have changed if we cumulate net saving each year, assuming that pre-existing assets grow in line with the GDP deflator (i.e. they retain their value in real terms but see no capital gains or losses).

While net worth climbed to 483% of GDP in 2018, net national saving averaged just 0.9% of GDP over the period, hence, in the absence of any capital gains, total net worth would have declined as a proportion of GDP. This exercise suggests that capital gains over the period caused total net worth to be more than twice as high as they would otherwise have been by 2018.

[4] For example, household wealth includes people's holdings of overseas assets (while the national balance sheet measure does not) and will include UK assets owned by foreign residents. A further difference arises because the WAS estimates the majority of pension wealth based on the assets required to confer the benefits promised to a policyholder given the prevailing annuity and discount rates. Consequently, it is possible that pension fund shortfalls could cause the total net worth measure to diverge from the survey-based estimate. Total net worth also includes the public sector, which is obviously excluded from household estimates. Aside from these conceptual differences, methodological differences may also be a source of discrepancy.

FIGURE 3: TOTAL NET WORTH VERSUS CUMULATED SAVING



Source: ONS, author's calculations

Pensions wealth[5]

Turning to specific components of household wealth allows us to see what has happened to households' asset prices at a more granular level. Private pensions consist of a number of components, including defined benefit and defined contributions schemes, both active and preserved, as well as pensions in payment. The value of these components is measured in different ways according to the nature of the pension. Defined contribution scheme holdings, which represent around 12% of pension wealth, are directly reported by survey respondents.

But since defined benefit holdings and pensions in payment represent guaranteed streams of income, their value has to be estimated by the ONS using prevailing market discount and annuity rates. These components account for 87% of pension wealth. The fact that the totals are estimated allows us to recalculate the time series holding annuity and discount rates at their 2006-08 levels to isolate the impact of saving from that of interest rates in recent years.

Figure 4 shows the results of this exercise in the three years for which the disaggregation of pension types is available.[6] Had discount and annuity rates remained at their 2006-8 level, WAS would have recorded the estimated elements of pension wealth as £3.3 trillion compared to the actual estimate of £5.3 trillion for 2016-18.

Critically, the 2016–18 estimated elements calculated using 2006–8 rates are significantly lower than total pension wealth in 2006–8. This suggests that active saving played a minimal role in the 70% growth in pensions over the decade. If estimated elements of pension wealth accounted for the same proportion of the total a decade earlier as they did in 2016–18, then interest rate effects would have been responsible for around £2.2 trillion of the growth, and

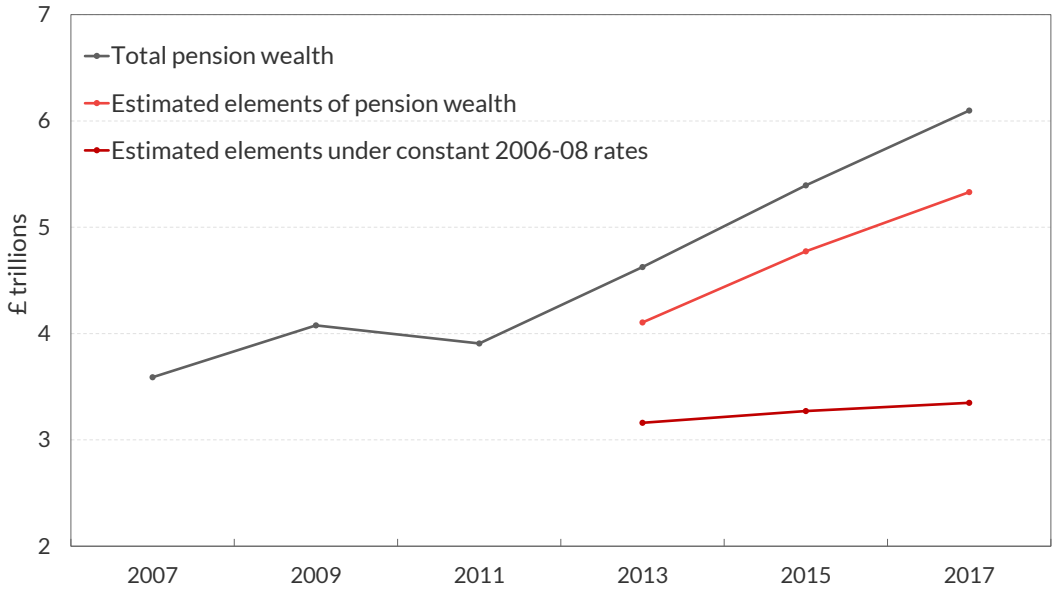
[5] The author would like to thank Hilary Mainwaring and Carla Kidd at the ONS for their excellent analytical work, which forms the basis of this section. Presentation and interpretation of the results are the author's.

[6] Unfortunately, prior to wave 4 of the WAS, disaggregation of pensions by direct benefit and direct contribution is not available.

above-inflation returns or new savings for just £300 billion (perhaps in part because of pensions auto-enrolment that began in 2012).

FIGURE 4: EVOLUTION OF PENSION WEALTH WITH AND WITHOUT CONSTANT INTEREST RATES

2017 prices



Source: ONS, author's calculations

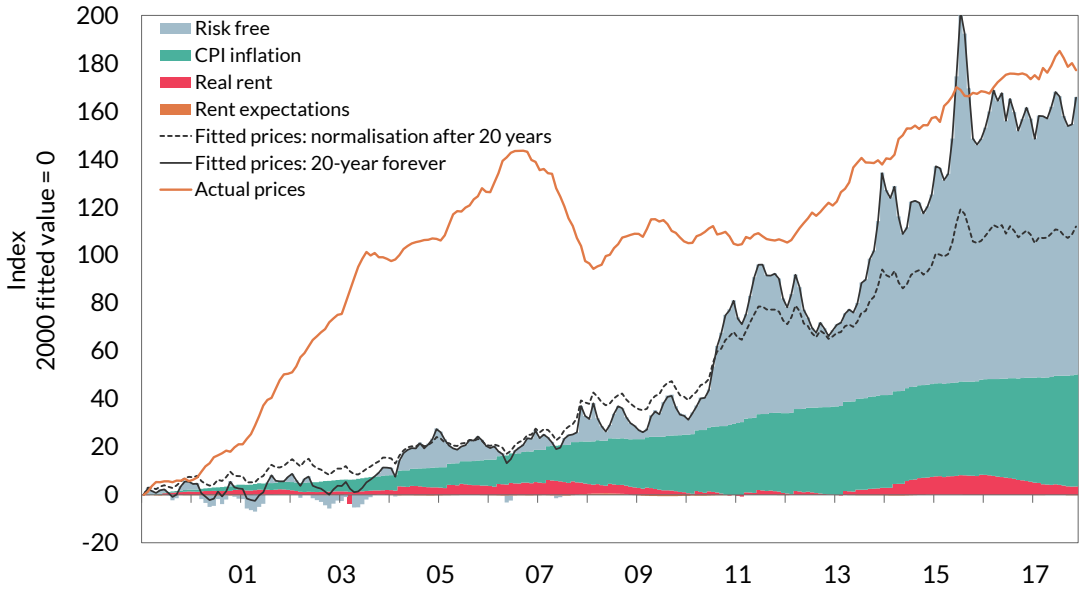
Housing wealth

Similar dynamics affect the housing market. Houses are best thought of as assets that provide a stream of services over time. Changes in house prices are therefore largely determined by changes in the present value of the future stream of rents that the owner can enjoy (by letting the property) or avoid paying (by living in it). The discount rate used by home buyers is usually described as the user cost of housing: a combination of the annual cost of borrowing, depreciation, taxes and a risk premium, less any expected capital gain. The market rent on a given property is, in turn, influenced by changes in the stock of housing, the population and household incomes.

Observing rents and interest rates, while assuming other elements of the user cost are constant, it is possible to simulate the path of house prices in response to the fall in interest rates over the past 25 years. Figure 5 shows results from this exercise carried out by Bank of England economists (Lewis and Cumming, 2019). The chart shows two distinct periods. The first period, in the 2000s, was one in which house prices accelerated rapidly in a way that was not justified by the changing fundamentals of either rents or interest rates. The second period came after the financial crisis, when risk free interest rates plunged, justifying low and falling rental housing yields and hence sustaining a recovery in house prices to today's record levels.

Over the period as a whole – the mid to late 2000s bubble aside – house price growth is well accounted for by this kind of asset-pricing model. This is particularly the case if one is prepared to assume that the recent 20-year discount rate is set to persist rather than reverting to more historically normal rates. The authors conclude that 'the rise in real house prices since 2000 can be explained almost entirely by lower interest rates'. Similar conclusions are drawn using different approaches in other recent work (Mulheirn, 2019; Miles and Monro, 2019).

FIGURE 5: ACTUAL VERSUS MODELLED HOUSE PRICES, ENGLAND AND WALES, 2000-2018



Source: Lewis and Cumming (2019)

These results imply that, as with most pension wealth, to a first approximation we can attribute growth in households' housing wealth in recent decades to capital gains driven by falling interest rates, rather than capital gains driven by growing scarcity of housing.

Financial wealth

While financial wealth accounts for only 15% of the total recorded in the WAS, the true proportion could be significantly higher (Advani et al., 2020a). Falling global interest rates are likely to have had a positive impact on the value of these holdings, with the scale of the impact depending upon the interest rate sensitivity of the assets held. Bangham and Leslie (2020) estimate that here too, capital gains from falling interest rates are the overwhelming driver of the recent trends.

4. Implications

The decompositions above suggest that capital gains derived from the decline in the risk-free interest rate have been the overwhelming driver of the growth in the household wealth-to-GDP ratio over the past 25 years. This has led to a broad-based rise in wealth holdings among all asset owners. It does not appear, for the UK at least, that the wealth accumulation of recent decades can be explained with Piketty's account of increased saving by the wealthy. Nor does it seem as though capital gains resulting from higher rents on land are responsible.

The discount rate explanation has five implications that are relevant for taxation of wealth in general and an annual tax on the stock of wealth in particular.

(1) The growth in aggregate household wealth has been down to luck

The most obvious implication from this analysis is that the growth in total household wealth has been overwhelmingly down to luck, rather than saving behaviour on the part of the (newly) wealthy. The benefits have accrued as a windfall to people who just happened to hold interest rate-sensitive assets over a period of sharply falling interest rates.

Looked at in this way, greater wealth holdings make their own case for being taxed in some way. Taxing such windfall gains has three related benefits: first, it doesn't distort people's decisions in the way that, say, taxing labour earning would; second, for any given government revenue target it allows us to lower taxes on things that do impose distortions; and finally, efficiency considerations aside, it is surely fairer to tax good luck than resources derived from productive activity.

(2) Income from wealth is unchanged if falling interest rates drive the capital gain

If changes in the wealth ratio are down to movements in interest rates, one important corollary is that the income derived from those assets is, by definition, unchanged. In the face of falling interest rates, people who are made wealthier as a result do not immediately experience the same standard of living as someone with equivalent wealth at higher interest rates would. This is easiest to see in the case of a homeowner who enjoys an unchanged value of housing services each year despite their property having doubled in value.

Does this mean such wealth should not be taxed? It could be argued that, from a macroeconomic perspective, if the capital share of GDP has not changed – despite the value of the capital stock having risen – then there is no justification for shifting the tax burden more towards or away from owners of capital just because of changing interest rates.

But from a tax policy perspective this seems unconvincing. First, a rise in the value of one's assets may allow the holder to enjoy a higher standard of living within their lifetime (subject to implications 3 and 4, below), even if not 'indefinitely'. Second, if wealth confers benefits over and above the value of consuming it, then income from capital may not be the right tax base. Third, the equality of opportunity problems of unequal wealth distribution are amplified by rate-driven capital gains.

These reasons suggest that interest rate derived wealth is a legitimate target of higher taxation in some form, despite the associated income being unchanged. Nevertheless, this perspective

suggests an obvious political problem for taxing the stock of wealth through an annual levy if its holders don't necessarily feel any richer because their income from capital has not changed.

(3) Beneficiaries can enjoy a higher standard of living only by consuming the capital

A third corollary of interest rate driven capital gains is that beneficiaries can only achieve a higher standard of living from their wealth by liquidating their assets and consuming the proceeds at some stage – either in whole or in part, as would be the case with equity withdrawal. This is particularly important because if the value of a person's house either jumped or crashed on account of interest rate movements just as they came to sell it, then any past levy on the property value would have been either 'too high' or 'too low' ex post. This raises a question about whether a fairer and more efficient way to tax such wealth may be to tax the gains at the point they are realised.

In the case of pensions, when the capital is annuitised, a progressive income tax effectively achieves this to some degree. But more obvious gaps exist with housing – where Private Residence Relief exempts the main home from CGT – and with ISA-sheltered financial assets.

Of course, it is also possible that someone benefiting from such capital gains might not plan to, or get around to, consuming their assets within their lifetime, resulting in a bequest. In this case the person themselves would not have benefited from a higher standard of living from their interest rate derived wealth, but their beneficiary would do. The most obvious approach in this case would be to tax the capital gain at the point the wealth is bequeathed or transferred. In this context then, one practical solution would be to rethink forgiveness of capital gains tax at death rather than levying an annual wealth tax.

The drivers of the trend in wealth accumulation of the past 25 years or so therefore seem to highlight neglected parts of the existing tax toolkit. A doubling of wealth in less than a generation overwhelmingly due to interest rate driven capital gains certainly underlines the increasing importance of CGT exemptions that had no basis in economic theory in any case, and now allow windfall gains to go largely untaxed.

(4) Consumption liabilities also grow when interest rates fall, which can lower living standards even for people who benefit from asset price growth

The above implications suggest that taxing gains at the point when they are realised may be an appropriate way to tax wealth created by interest rate movement. But the analysis also raises two implications for the appropriateness of using an annual levy on the stock of wealth.

On a conventional balance sheet approach, holders of interest rate sensitive assets obviously become relatively better off compared to people who don't hold such assets when interest rates fall. But a comprehensive assessment of assets and liabilities reveals that living standards can vary markedly between people with the same amount of 'tangible' net wealth. Once we take a more comprehensive view of their personal balance sheet, paradoxically some of the 'beneficiaries' of interest rate driven capital gains even become *worse* off in absolute terms as rates fall. This is because, while falling interest rates raise the value of assets like housing and bonds, they also shift the present value of less tangible assets and liabilities.

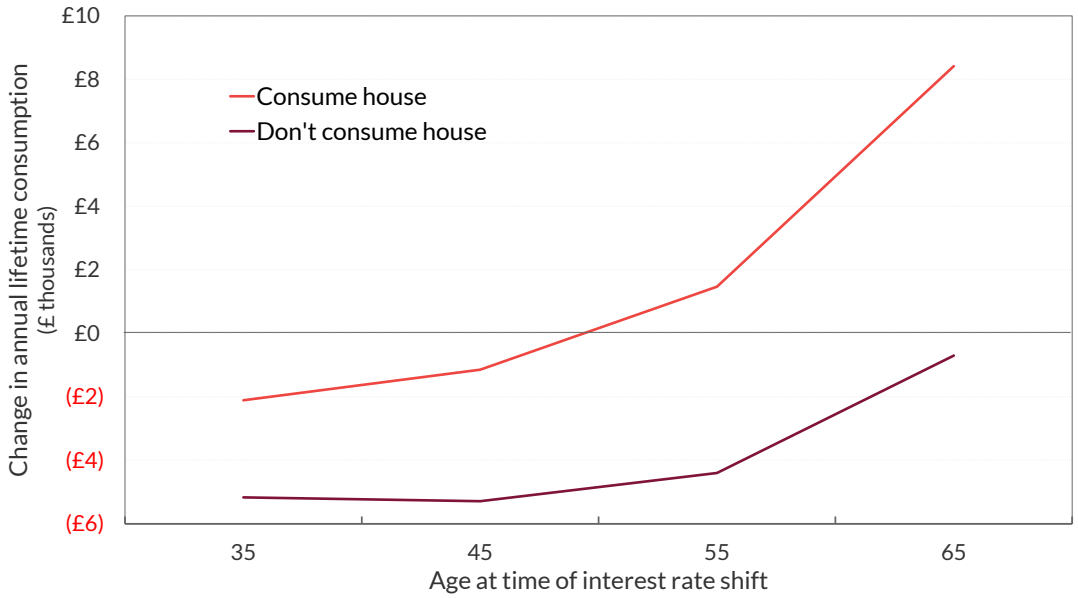
In the same way that a fall in interest rates raises the present value of the future stream of rents, and therefore house prices, it also raises the present value of other future streams of income and outgoings. Human capital – the present value of future labour income – rises. But so does the present value of any given level of consumption. Consequently, when interest rates drop, the sustainable level of consumption for a homeowning household that benefits from a big capital gain in the value of their house can in some cases fall (Weale, 2009). Intuitively this is because the gain on their house and present value of future wages is less than the increased present value of future consumption stretching throughout both working life and retirement.

Whether a homeowner's sustainable lifetime consumption is increased or reduced by a fall in the discount rate depends on their age. An older homeowner's liabilities may increase in value by less than their assets, but for a younger person the opposite may be true. The stylised example illustrated by the orange line in Figure 6 below assumes that households plan to run down their assets to zero at death, so no bequests are made. In this scenario, the interest rate is initially 5%, the household owns a property worth £200,000, has annual income of £50,000 and faces a retirement of 20 years from the age of 65. When the interest rate halves to 2.5%, the house doubles in value to £400,000.

For a household under the age of 50 the previous level of consumption becomes unsustainable and, despite the jump in the value of their house, they have to reduce annual spending by up to £2,000 per year. Intuitively this happens because lower interest rates mean that they need to increase their pension saving to achieve a given income in retirement, and this outweighs the benefit to them of the boost to their house price. Meanwhile for a similar household over 50, their net worth grows as a result of the interest rate drop, allowing them to increase annual consumption. If the home owner plans to live in their house until they die, while their heirs stand to benefit, the interest rate fall unambiguously lowers living standards across all age groups (the purple line).

The *relative* impact of falling interest rates between people who do and don't hold interest rate sensitive assets creates significant wealth inequality that could be seen as sufficient reason to impose an annual levy. But this analysis shows that among the beneficiaries, changing interest rates create often counter-intuitive effects on households' permanent income leaving some better off and others worse off in *absolute* terms. These effects are impossible to understand simply from observing the impact of changing rates on the value of conventional net assets, creating problems of horizontal equity for a uniform tax rate levied on such assets.

FIGURE 6: SUSTAINABLE CONSUMPTION OF ASSET HOLDERS MAY RISE OR FALL IN RESPONSE TO A DROP IN INTEREST RATES



Note: Assumes household income of £50k/yr, house with imputed rent of £10k/yr, retirement from 65 to 85, interest rate drops from 5% to 2.5%
Source: Author's calculations

(5) An annual levy on the stock of wealth is not equivalent to a tax on the normal rate of return

A final implication of the role of interest rate changes in driving capital gains and losses relates to our understanding of a wealth tax. An annual tax on the stock of wealth is often thought of as equivalent to taxing the normal return on assets for the reasons set out above. However, for any given annual rate of tax on the *stock* of wealth, the equivalent tax on the *income* derived from that wealth varies inversely to the interest rate. If interest rates fall, causing asset prices to rise, the value of the wealth tax will rise while the income from the asset stays unchanged. In other words, the tax rate on the normal return varies with the interest rate in an arbitrary way. While taxing the normal return may be hard to justify from an optimal tax theory perspective, an arbitrarily varying tax on the normal return seems even harder to build a case for.

5. Conclusions

This paper set out to explore the extent to which recent rapid growth in total household wealth can be attributed to capital gains driven by falling interest rates, and whether the source of wealth has implications for how it should be taxed. The analysis suggests that, at least for the main types of wealth, the steady fall in the risk-free interest rate over the past 25 years has been the dominant cause of growth.

If we want to tackle wealth inequality with tax, is an annual tax on the stock of wealth the right approach? One conclusion suggested by this paper is that it is particularly hard to know the utility derived by a household from a given stock of wealth because it varies with the prevailing interest rates, it varies according to people's unseen assets and liabilities, and it varies because any paper gain may have evaporated by the time an owner comes to sell an asset.

Other policy levers may be able to achieve similar wealth taxation goals in ways that avoid these problems. Notable candidates for reform to this end include the CGT exemption on a household's main residence and forgiveness of CGT on death. The economic justification for these tax breaks was never strong. The source of recent increases in wealth underlines this fact.

References

Adam, S and Miller, H. (2020), 'The economics of a wealth tax', Institute for Fiscal Studies.

Advani, A., Bangham, G., and Leslie, J. (2020a), 'The UK's wealth distribution and characteristics of high-wealth households', *Wealth Tax Commission Evidence Paper*, 1.

Advani, A., Chamberlain, E., and Summers, A. (2020b), *Is it time for a Wealth Tax?,* Wealth Tax Commission Initial Report.

Alvaredo, F., Atkinson, T., and Morelli, S. (2018), 'Top wealth shares in the UK over more than a century', *Journal of Public Economics*, Vol. 162, pp. 26–47.

Atkinson, A. (2018), *Wealth and inheritance in Britain from 1896 to the present*, The Journal of Economic Inequality, 16 137–169, June 2018.

Bangham, G., and Leslie, J. (2020), 'Rainy Days: An audit of household wealth and the initial effects of the coronavirus crisis on saving and spending in Great Britain', Resolution Foundation, June 2020.

Blake, D. and Orszag, M., (1999), 'Annual estimates of personal wealth holdings in the UK since 1948', *Applied Financial Economics*, 9, pp. 397–421.

Boadway, R., Chamberlain, E. and Emmerson, C. (2010) 'Taxation of wealth and wealth transfers' in Mirrlees, J., Adam, S., Besley, T., Blundell, R., Bond, S., Chote, R., Gammie, M., Johnson, P., Myles, G. and Poterba, J. (2011) *Dimensions of Tax Design: The Mirrlees Review,* Oxford: Oxford University Press, pp.737-814.

Lewis, J. and Cumming, F. (2019a), 'Houses are assets not goods: what the difference between bulbs and flowers tells us about the housing market', September 2019, Available: https://bankunderground.co.uk/2019/09/05/houses-are-assets-not-goods:-what-the-difference-between-bulbs-and-flowers-tells-us-about-the-housing-market/

Lewis, J. and Cumming, F. (2019b), 'Houses are assets not goods: taking the theory to the data', September 2019, Available: https://bankunderground.co.uk/2019/09/06/houses-are-assets-not-goods-taking-the-theory-to-the-uk-data/

Miles, D., and Monro, V. (2019), 'UK house prices and three decades of decline in the risk-free real interest rate', Bank of England, *Staff Working Paper*, no. 837, December 2019.

Mirrlees, J., Adam, S., Besley, T., Blundell, R., Bond, S., Chote, R., Gammie, M., Johnson, P., Myles, G. and Poterba, J. (2011), *Tax by Design: The Mirrlees Review*. Oxford: Oxford University Press.

Mulheirn, I. (2019), 'Tackling the UK Housing Crisis: Is supply the answer?', UK Collaborative Centre for Housing Evidence.

ONS (2018), 'Wealth in Great Britain Wave 5: 2014 to 2016', February 2018, Available: https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/bulletins/wealthingreatbritainwave5/2014to2016

ONS (2019a), 'Total Wealth: Wealth in Great Britain', December 2019, Available: https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/datasets/totalwealthwealthingreatbritain

ONS (2019b), 'Pension Wealth in Great Britain: April 2016 to March 2018', December 2019, Available: https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/bulletins/pensionwealthingreatbritain/latest

ONS (2020), 'Private pension wealth (for pension wealth valued using annuity/discount rates), assuming annuity/discount rates from July 2006 to June 2008 and relevant survey period', Available: https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/pensionssavingsandinvestments/adhocs/12234privatepensionwealthforpensionwealthvaluedusingannuitydiscountratesassumingannuitydiscountratesfromjuly2006tojune2008andrelevantsurveyperiod

Piketty, T. (2014), *Capital in the Twenty-First Century*, Harvard University Press, translated by Arthur Goldhammer.

Weale, M., (2009), 'Saving and the National Economy', *NIESR Discussion Paper*, no. 340.

Weale, M. (2019), 'This Blessed Plot: When should capital gains on land be regarded as income?', *Oxford Review of Economic Policy*, 35(1), pp. 37–55.