

The case for a progressive annual wealth tax in the UK

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Abstract

This paper analyses the revenue potential of a progressive annual net wealth tax in the UK. A progressive net wealth tax is a tax on the stock of net wealth that is designed to raise revenues primarily from the wealthiest households. We present a baseline progressive net wealth tax that only taxes the top 1% wealthiest households. Households with net wealth above £3.4 million (the top 1%) are taxed at a marginal rate of 1%; above £5.7 million (the top 0.5%) at a marginal rate of 5% and above £18.2 million (the top 0.1%) at a marginal rate of 10%. We estimate that this tax would raise roughly £70-130 billion a year after administration costs and tax avoidance/evasion: £70 billion if 50% of the tax is evaded and £130 billion if 15% of the tax is evaded. This is equivalent to roughly 9-16% of total tax revenues taken by the UK government each year.

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1. Introduction

Progressive net wealth taxes are an idea that have, over the last decade, moved from the margins of economic debate to becoming serious policy proposals. In 2018, the OECD put forward a case for a net wealth tax “only levied on the very wealthy” (OECD, 2018: 3). The following year, progressive wealth taxes became central to the campaigns of two of the Democratic primary candidates in the USA. Moreover, the unprecedented fiscal stimulus following COVID-19 has intensified interest in the question of paying for the pandemic, of which wealth taxes are just one answer.

Following these proposals, this paper defines a progressive net wealth tax as a tax on the stock of net wealth (assets minus liabilities, henceforth referred to as wealth) that is designed to raise revenues primarily from the wealthiest households. This is achieved by either having high thresholds that make the tax liable only for wealthiest percentiles of the distribution, and/or progressive rates that are much higher for the wealthiest households.

Despite a range of theoretical and empirical work discussing progressive wealth taxes in the USA (Saez and Zucman, 2019) and Europe (Krennek and Schratzenstaller, 2018; Wildauer, Kapeller and Leitch, 2021), there has not been a similar analysis of the feasibility or revenue potential of a progressive wealth tax in the UK. The closest analysis was put forward by The Wealth Tax Commission (WTC) in 2020, who produced a final report, 13 core papers and 23 background papers discussing the feasibility and revenue potential of a wealth tax in the UK. Their analysis however does not outline progressive wealth taxes as defined above - with high thresholds and high rates (5% or higher) on the very wealthy. The WTC recommend a one-off wealth tax to be paid over five years. While they don't recommend specific rates or thresholds, the baseline results they present has tended to be one of two designs. The first is a 1% marginal tax rate on net wealth for individuals who own £500,000 or more. This tax would include 8.2 million (top 16% of UK adults) and raise £250 billion over the five years. The second is a 1% marginal tax rate on the wealth of individuals who own more than £2 million. This tax would only include 626,000 people (top 1% of UK adults) and raise £80 billion over the five years.

A progressive wealth tax would differ from these proposals by increasing both the thresholds and rates for wealthiest households. The baseline progressive tax model estimated in this paper is a one potential proposal. It only taxes the top 1% wealthiest households who make up 259,177 households in total. Households with wealth above £3.4 million (the top 1% threshold) are taxed at a marginal rate of 1%; above £5.7 million (the top 0.5% threshold) at a marginal rate of 5% and above £18.2 million (the top 0.1% threshold) at a rate of 10%. The bottom 99% do not pay any tax. This baseline model aims to capture the revenue potential of a progressive wealth tax in the UK.

Outlining the design and revenue potential of a UK progressive wealth taxes is important for three reasons. Firstly, a progressive wealth tax is likely to be an effective policy tool to reduce wealth inequality. The UK public currently shows strong support for a new wealth tax with the explicit aim to reduce wealth inequality (Rowlingson, Sood and Tu, 2020). Polling shows that a new wealth tax is more popular than raising income tax, VAT, council tax or capital gains tax, if the government had to raise revenue (Rowlingson, Sood and Tu, 2020: 11). Furthermore, the number one reason for supporting a wealth tax was to reduce inequality. In a choice between several reasons for supporting a wealth tax, “the gap between the rich and the poor is too large”, came first, followed by “the Rich have got richer in recent years”. (Rowlingson, Sood and Tu, 2020: 15).

Since the 1980s, there has been a clear increase in wealth inequality with the share of top 1% in total wealth reaching 19.8% in the UK. The top 1% currently own as much wealth as the bottom 69% of the population. During this period, inheritance, top marginal income and capital gains taxes have also declined. A progressive wealth tax would have a big impact on the wealth distribution as it directly affects the stock of wealth rather than the income that flows from it. According to Saez and Zucman (2020), very high wealth households rearrange their financial affairs in order to avoid taxable capital

income, thereby limiting the impact capital income taxes have on the wealth of the very richest. A progressive wealth tax is designed to directly deal with this problem, by taxing the stock of wealth explicitly rather than the income flows from wealth. Moreover, Tippet, Onaran and Wildauer, (2020) argue how the rise in the top 1% share of total wealth is largely determined by the fall in the bargaining power of workers. Given that union density and collective bargaining coverage remains at historically low levels in the UK, wealth taxes remain alternative option to decrease wealth inequality.

Secondly, the international context is increasingly in favour of higher and better enforced taxation. The political salience of international tax enforcement was demonstrated by the agreement on 1st July 2021 of 130 countries to commit to a minimum corporate tax rate of at least 15% at the OECD (OECD, 2021).

Thirdly, a progressive wealth tax deals with the criticisms and pitfalls of why wealth taxes have failed in the past. For example, the number of OECD countries with a wealth tax has declined from 12 in 1990 to only 3 in 2020 - Norway, Spain and Switzerland (Perret, 2012). There are several reasons for the decline but as Advani, Chamberlain and Summers (2020: 82) note the story is quite similar:

“Administrative challenges made it difficult to maintain a comprehensive tax base valued at open market valuation. This left the tax exposed to lobbying for exemptions and reliefs. In turn, narrowing the tax base mostly benefited the wealthiest, leading to the impression that only the middle classes paid. At that point, ‘any attempt to broaden the tax base would go against entrenched special interests and, in some cases, made it easier for policymakers to repeal them altogether than to reform them’ (Henrekson and Du Rietz, 2014).”

Most of the existing wealth taxes have low thresholds, include a high number of households to be valued, exempt certain assets, and fail to shut down avoidance and evasion loopholes. The progressive wealth tax proposal discussed below differs to these by having high thresholds, a small number of households to be valued and includes all assets to limit avoidance, exemptions, and reliefs. In this sense a progressive wealth tax is qualitatively different to the experience of wealth taxes in the past and aims to build on their experiences.

This paper presents simulated revenue projections for a simple progressive wealth tax, a flat rate tax (similar to the Wealth Tax Commission) and a hybrid design in line with Piketty (2020) with progressive tax rates but starting at a low threshold.

Our main finding is that the revenue potential of a progressive wealth tax is substantial. We estimate that our baseline model would raise roughly £70-130 billion a year after administration costs and tax avoidance and evasion: £70 billion if 50% of the tax is evaded and £130 if 15% of the tax is evaded. This is equivalent to roughly 9-16% of total tax revenues taken by the UK government each year.

The structure of the paper is as follows. The first section outlines the design features of the wealth tax, including rates and thresholds, who will be taxed, what will be taxed and valuation. The second section analyses the costs and problems generally associated with the tax, including liquidity concerns, administration costs and behavioural avoidance responses. The third section outlines the data. Section four presents the simulated revenue projections for the progressive wealth tax, the flat rate tax and the Piketty model, and section six concludes.

2. Tax Design

The Wealth Tax Commission sets out useful criteria for the design of a new wealth tax. This section goes through each of these issues in turn.

2.1 Thresholds and Rates

A progressive wealth tax has two features: increasing marginal tax rates and high thresholds. The exact thresholds and rates that could be applied however are varied. Senator Elizabeth Warren in the US put forward a proposal to implement a 2% marginal wealth tax above \$50 million and a 3 % marginal wealth tax above \$1 billion. Senator Bernie Sanders proposed a 1% marginal tax rate above \$32 million, 2 percent above \$50 million, 3 percent above \$250 million, 4 percent above \$500 million, 5 percent above \$1 billion, 6 percent above \$2.5 billion, 7 percent above \$5 billion, 8 percent above \$10 billion. Piketty (2020) proposes a tax schedule which has an initial low threshold but increases dramatically as discussed below.

These taxes are different to the lower threshold and lower rate taxes discussed by the Wealth Tax Commission. The authors of the report are clear that they do not advise on any specific rate, although the options they present tend to be at low rates and low thresholds. The most progressive schedule they present is a tax that has a 3% tax rate on households with wealth above £10m.

Table 1 outlines the thresholds and tax rates for the three different wealth tax schedules which will be analysed in this paper. The first schedule, which we call a progressive tax, is a simple version with only three marginal tax rates and bands. We define the thresholds in terms of multiples percentile shares of wealth based on the latest wave of WAS (2016-2018). Households with wealth above £3.4 million (the top 1% threshold) are taxed at a marginal rate of 1%; above £5.7 million (the top 0.5% threshold) at a marginal rate of 5% and above £18.2 million (the top 0.1% threshold) at a rate of 10%. The bottom 99% do not pay any tax.

The second wealth tax schedule, which we call the flat rate tax, is similar to the baseline proposal outlined by the Wealth Tax Commission. It imposes a 1% tax on all wealth above a threshold of 2 times the average wealth. The average household wealth of the WAS in 2016-2018 is roughly £612,000.

The third wealth tax schedule, which we call the Piketty schedule, is a hybrid progressive wealth tax as it starts at a low threshold, but the rates increase dramatically with the level of wealth. As the name suggests, the design of this tax comes from Piketty (2020:982). One point to note are the extremely high marginal tax rates on very wealthy individuals. Households with a wealth of more than 100 times the average face 10% marginal tax rates. This increases to 60% for wealth above 1000 times, and 90% for wealth above 10000, effectively creating an upper limit to the wealth a household can own.

Table 1 presents the threshold and rates for each of these three taxes. The first column presents the description of the lower threshold for each tax band as either multiples of average wealth or percentile thresholds. The second column presents the lower threshold for each tax band in wealth (£ millions), using data from the 2016-2018 wave of the UK Wealth and Assets Survey. The third column presents the marginal wealth tax rate in each band. The fourth column presents the number of households in each tax band.

Table 1

Threshold and Tax Rates for Progressive, Piketty and Flat Rate Wealth Taxes

Tax Band Threshold Description	Low Tax Band Threshold (Wealth £ millions)	Marginal Tax Rate (%)	Number of households in band
Piketty Schedule			
0.5 times average wealth	0.3	0.1%	9,369,247
2 times average wealth	1.2	1%	2,922,250
5 times average wealth	3.1	2%	233,995
10 times average wealth	6.1	5%	111,864
100 times average wealth	61.2	10%	4,697
1000 times average wealth	612.3	60%	198
10000 times average wealth	6,123.3	90%	8
Progressive Schedule			
99 th percentile	3.4	1%	133,343
99.5 th percentile	5.7	5%	102,203
99.9 th percentile	18.2	10%	25,977
Flat Rate Schedule			
2 times average wealth	0.612	1%	7,540,735

Source: Wealth And Assets Survey 2016-2018 adjusted using methodology set out below

2.2 Who will be taxed? Individuals vs Households

The second issue is to clarify who will be taxed – the individual or the household? For progressive wealth taxes we propose taxing households rather than individuals. This goes against the recommendations outlined by the Wealth Tax Commission who argue in favour of individual taxes based on five reasons outlined in detail by Chamberlain (2020). Firstly, as an issue of fairness, persons within the same household may not have access or control over the other household's wealth, and therefore should not be taxed on it. Secondly, households consist of cohabittees in addition to spouses, civil partners, and couples. It is unclear whether these should also be taxed and on what basis. Thirdly, responsibility for non-compliance becomes complicated if one member of the household has not filed accurately. Should all household members be punished and under what basis? Fourthly, an annual wealth tax may distort people's decisions about living together. Fifthly the UK personal tax system is currently more orientated to an individual rather than a household basis.

While these are all important points to consider, there are three reasons why opting for a household tax is more desirable when considering progressive wealth taxes. The first and main reason is that by taxing wealth at the household level, the potential for wealth fragmentation is limited (Chamberlain, 2020). Fragmentation refers to when individuals shift assets between family members to reduce their total tax below a given threshold, thereby reducing the tax base. For progressive taxes with high thresholds, the risk of fragmentation is even higher, leading to a significant reduction in the tax base and ultimately undermining the revenue potential of the tax.

Furthermore, several of the criticisms of household tax units are not as relevant for progressive wealth taxes with high thresholds. Fitting in with the existing tax system is less important given the fact that a smaller number of households will be administered, compared to a wealth tax with a lower threshold

that encapsulates more of the population. Moreover, as Chamberlain (2020: 8) notes, many features of the tax system, while currently geared towards individuals, does still treat households as a single unit. For example, capital income and capital gains tax does consider the wealth of household members in jointly owned assets. For capital gains each individual is taxed at their own rates (suggesting taxation at the individual level), but a married couple can transfer primary residences between them for capital gains tax purposes (suggesting taxing at the household level). Inheritance tax also exempts transfers between spouses, suggesting a partial household approach. A household approach is also used for student loan entitlement and the welfare system.

2.3 What is taxed? Defining the tax base

A progressive wealth tax for the UK should be as broad as possible and include all assets: property (first and second homes), pension wealth, financial wealth, physical wealth, and business wealth.¹ As the Wealth Tax Commission argue there are two fundamental reasons for including all assets in the tax (Chamberlain, 2020: 42). The first is the issue of horizontal equity: a household with the same wealth should face the same tax rate regardless of how they hold that wealth. The normative point here is that wealth is about control over economic resources, and this is the feature that determines how much tax one should pay, rather than whether someone is a private business owner, a lawyer with a pension or an art collector.

Secondly, exempting asset classes has been the key historical reason behind the failure of wealth taxes in the past, as exempting an asset creates an opportunity for avoiding the tax. Households shift their wealth into the exempt assets, thereby reducing the tax base and revenue potential of the tax in addition to creating resentment from households who are unable to perform such portfolio reallocation Chamberlain (2020: 42). That said, including all assets can create liquidity and valuation problems, particularly for pension and business wealth that are discussed in further detail below.

2.4 Frequency of the tax: one-off versus annual

As one of the stated aims of a wealth tax is to redistribute wealth, we propose an annual rather than a progressive wealth tax. A one-off wealth tax would only temporarily impact the distribution of wealth and likely do little to shape the distribution in the long run.

The Wealth Tax Commission opt in favour of a one-off wealth tax for four reasons. Firstly, reducing inequality is not a primary goal of their approach. Secondly, they argue that a recurring wealth tax produce economic inefficiencies such as reducing savings, and potential reduction in business investment. Thirdly, annual wealth taxes increase the likely of avoidance and evasion, as households can respond to the tax by relocating assets abroad, fragmenting wealth across families etc. Lastly, the administrative costs of continuing to re-evaluate assets are too high.

However, the framing and reasons behind a one-off wealth tax are qualitatively different to an annual wealth tax. One-off or windfall taxes are often justified as a response to unforeseen and exogenous events. Previous examples of windfall taxes include the excess profit taxes implemented in past crises – such as during the First and Second World Wars and the Korean War – where any company whose profits soared were taxed at very high rates of 80 to 95% in the USA . The Covid-19 pandemic is clearly a similar event that motivates the Wealth Tax Commission Report, but such a tax is unlikely to tackle wealth inequality for the simple reason that wealth will continue to accumulate at a faster rate at the top once the tax stops.

¹ Due to problems with the measurement of business assets we have excluded business wealth from our measure of total wealth. This means that our revenue projections are likely to be conservative and should be considered as lower bounds of what is possible.

Furthermore Perret (2012), while summarising the historical and cross country experience of annual wealth taxes, outlines how two of the three problems that inflict annual wealth taxes outlined above are limited in the case of taxes with high thresholds. Regarding distorting economic behaviour, Perret argues that there is limited empirical evidence supporting negative economic costs. Furthermore, the administrative costs of taxes with high thresholds are greatly reduced due to the fact the number of households whose wealth needs to be audited and evaluated are reduced. This therefore leaves the issue of behavioural response avoidance and evasion, which is discussed in detail below.

Regarding the disincentives for investment, Onaran, Oyvatt and Fotopoulou (2019) show that in the UK wealth taxation stimulates rather than decreasing private investment in physical assets, potentially because it decreases wealth concentration and accumulation of financial assets, concentrated at the top of the wealth distribution as well as monopoly power.

2.5 Valuation

Following the Wealth Tax Commission, we propose that assets should be valued based on their open market value (OMV), which is the price the asset would expect to be fetched if sold on the open market (Advani, Chamberlain and Summers, 2020). The reasons in favour of an open market valuation is that this represents “ the consumption that someone could finance if they chose to sell the asset (Daly and Loutzenhiser, 2020: 1). Moving away from OMV increases the opportunity to avoid the tax by reallocating assets to harder to value assets (Poterba and Weisbenner, 2003). Furthermore, OMV is already used for Inheritance Tax and Capital Gains tax.

OMV can however create problems for wealth taxes. Daly and Loutzenhiser (2020) outline two issues that are likely to cause problems for an annual progressive wealth tax with high thresholds. Firstly, wealthier households tend to hold an increasing amount of their wealth in business assets which tend to be hard to value. Secondly, annual wealth taxes require constant revaluation and the tax becomes infeasible if hard-to-value assets take longer than a year to value.

The issues however have to be balanced also against the advantages of having higher thresholds. The higher the threshold the lower the number of households that require valuation. Therefore, while the average cost of valuation per household increases, the number of households that require valuation decreases. The two effects, according to the Wealth Tax Commission’s estimates, are likely to balance out, or even in favour of higher thresholds.

Saez and Zucman (2020) also put forward a potential solution to valuing private business assets. Consider a wealthy household who own most of their wealth in a private business in the UK. As there is not a current market value of the private business, Her Majesty’s Revenues and Customs (HMRC) must first put a value on the business. One of the big potential delays that threaten a wealth tax is legal and bargaining issues between HMRC and the wealthy household over whether the value of the business is correct and reasonable. To solve such disputes, HMRC could ask for the business owner to either pay the tax in cash or in the equivalent number of shares at the valued rate. If the business owner believes the business is overvalued, they will be happy to pay in shares rather than in cash. The tax authority could then sell the shares to the higher bidder on the open market. As Saez and Zucman (2020) argue, this effectively creates a market for the business assets, maintaining the principle of open market valuation. Also as the number of households in a progressive wealth tax schedule with a high threshold is relatively small, the costs of administering such a system is also reduced.

3. Addressing Costs and Issues of a Progressive Wealth Tax

3.1 Administrative costs

As discussed above, annual wealth taxes generally have higher administrative costs, as valuation needs to be done each year. However, as progressive wealth tax have high thresholds the number of people to be valued declines and so administration costs decline. Advani, Hughson and Tarrant (2020: 11) provide estimates for administrative costs for a set of different taxes. Based on their research we assume that the costs for each of our tax schedules is likely to be the following:

- Administrative cost to the tax payer: £4 billion
- One-off costs to government: £0.6 billion
- Per Year to government: £0.1 billion

3.2 Liquidity Concerns

Another problem of wealth taxes discussed in the literature is the problem of illiquid households, otherwise known as asset-rich cash-poor households. Chamberlain (2020: 42) notes pension wealth has been excluded from all existing wealth taxes due to concerns about liquidity, valuation and for political reasons. Regarding liquidity concerns, pension wealth is often not within the present control of individuals, as it can only be accessed at retirement. Furthermore, the current tax system is set up to encourage pension saving (such as income tax, capital gains tax relief and more recently auto enrolment in pensions) – incentives that could be undermined and contracted by including pension wealth in the tax (Loutzenhiser and Mann, 2020: 22). Lastly, particularly for defined benefit pensions, it is unclear how to value the individual wealth, given that there is no clearly identified pot of wealth.

Private business wealth, which is owned by the wealthiest households, also raises concerns relating to liquidity. Some businesses may have high capital values but poor profitability, such as farms or start-ups (Loutzenhiser and Mann, 2020; Clark and Fu, 2020).²

The option of paying in shares discussed by Saez and Zucman above partly solves such liquidity problems, as it enables those who are cash strapped to pay in business shares rather than cash. Furthermore, progressive wealth taxes with high thresholds however solve many of the liquidity problems that generally afflict wealth taxes. High threshold reduces likelihood of liquidity constraints, as individuals with high wealth start paying tax only after a certain point, and those with very high wealth are better able to borrow against assets to pay. Furthermore, pension wealth is also likely to be less significant for households with wealth above 5 times the average wealth. Loutzenhiser and Mann (2020: 13) provide an overview of liquidity issues and highlight that liquidity concerns are greatly reduced for business owners when the tax threshold is increased. For example, they argue that when the tax threshold is £250,000, over 87000 private owners are estimated to be at risk of experiencing liquidity difficulties in paying taxes. When the threshold is increased to £5 million, this is reduced to only 12,744.

Lastly, Loutzenhiser and Mann (2020: 22) discusses a potential solution to those households that might still have illiquid pension assets and are still liable for the tax. Firstly, they propose a tax withholding mechanism on DC pensions funds in combination with a proxy tax on DB pension funds. The withholding mechanism could work by effectively withholding the amount of tax from the pension fund and allowing the pension fund/trustees to pay the withheld funds on the taxpayer's behalf. This would be easier to administer for the DC pension funds, as there is a clear identifiable pot of pension wealth that each individual owns. Regarding DB pensions, Loutzenhiser and Mann (2020: 23) argue that

² This is the suggested reason why trading businesses and farms have been exempted from inheritance tax since 1992.

instead of withholding funds, a proxy tax on the pension fund itself could be levied, which would then be passed on to individuals in a reduction in benefits made payable under the scheme. They cite evidence from the Pension Levy imposed by Ireland from 2011-15 as evidence of how such a system could work (Chamberlain, 2020: 42). That said progressive wealth taxes are likely to face less issues to do with pension wealth due to the lower share of wealth held in this asset by the wealthiest households.

3.3 Behavioural responses: avoidance and evasion

Tax avoidance and evasion by the wealthy poses the most serious issues for a progressive annual wealth tax. Advani and Tarrant (2020) summarise the ways that the wealthy can avoid and evade tax through gifts and fragmentation, offshoring, migration, and lobbying for exemptions.

Fragmentation, as discussed above, occurs when individuals split their wealth between spouses and children to bring individual wealth below the tax threshold. As Advani and Tarrant (2020: 18) note, “the more progressive the tax schedule, the greater the tax advantages that can be obtained by transferring wealth to those facing a lower marginal rate”. Empirical evidence suggests that individuals do fragment their wealth in response to taxation (Advani and Tarrant, 2020: 18). By defining the tax unit as the household rather than the individual, this proposal has attempted to limit fragmentation, although it is still likely to occur.

Offshoring of wealth is a tool predominantly used by the wealthiest households to evade and avoid tax. In Scandinavia, the top 0.01% of taxpayers offshore a quarter of their wealth, (Alstadsæter, Johannesen and Zucman, 2019a), while in Spain wealthy households hide 30% of their wealth on average (Mas Montserrat and Mas Montserrat, 2019). Furthermore, in Colombia, individuals offshored 7.7% of their wealth simply to avoid paying a newly introduced wealth tax (Londoño-Velez and Ávila-Mahecha, 2020).

In addition to relocating assets abroad, households can change citizenship or residency to avoid a tax. Advani and Tarrant (2020: 23) find however that “there is little support for the view that the emigration of wealthy taxpayers poses a significant threat to progressive taxation”. The evidence points towards quite high internal migration effects from increased taxes, but international effects are weaker. Furthermore, it could also be possible to continue to tax households for a minimum period after departure to disincentivise people to leave. However, evidence shows that migrants are much more likely to move internationally to avoid taxes than people who still live in their country of birth. This is particularly significant for the UK which has a higher proportion of high-income foreigners compared to other countries (Advani, Chamberlain and Summers, 2020: 86).

Lastly, political lobbying can put pressure on policy makers to provide exemptions for certain asset classes, ultimately undermining the tax base and public trust in the tax. Wealthy households in particular are more likely to use their economic resources and political connections to fight and diminish the effectiveness of the tax, particularly if they view themselves as being the only group liable. As Gus O'Donnell, former head of the British civil service noted, “In any tax change there are losers and the losers scream”. Such a political fight is behind the story of how the last attempt to implement an annual wealth tax was stopped in its tracks. In 1975, after a newly elected Labour Party voted through legislation to implement a new annual wealth tax, the British aristocracy lobbied hard to make their estates exempt. After building a successful campaign against the tax, the proposals were dropped (Shrubsole, 2019).

Saez and Zucman (2019: 458) assume that the rich will hide a fraction, h , of their wealth. They claim that as a rough rule of thumb hiding a fraction h of wealth reduces revenue by a fraction h as well.³ In

³ They consider two scenarios: (1) homogenous evasion: where everybody hides a fraction h of their wealth, and (2) concentrated evasion: where h % of people hide all of their wealth and $(1-h)$ report all of their wealth truthfully. In cases, such as our setup here, where the wealth tax thresholds are based on a fixed thresholds (that are set in

their assessment of the revenue potential of a progressive wealth tax for the USA, they assume two evasion scenarios (15% evasion rate ($h=0.15$) and 50% evasion rate ($h=0.50$)). We adopt the same methodology and run the tax simulation for both the strong and weak evasion case.

4. Data and methodology to address missing observations

The tax simulations for the Progressive, Flat Rate and Piketty Tax schedules are run on data from the Wealth and Assets Survey (WAS) provided publicly by the ONS. Wealth is defined as the sum of financial, physical, property and pension assets net of liabilities, as outlined in Table A1 in the appendix. We use data from 2016-2018 (the latest wave) as we are primarily interested in the revenue potential of wealth taxes today rather than a counterfactual exercise about how much a wealth tax could have raised in the past. The top 1% of the dataset has been adjusted using the newly developed Missingness Maximum Likelihood (MML) estimator outlined in detail in a forthcoming working paper.

As acknowledged by the ONS, wealthier households are less likely to respond to wealth surveys, leading to downward biased estimates of both aggregate wealth and wealth inequality. MML follows much of the literature in this area by assuming that the true tail of the wealth distribution follows a Pareto distribution (Davies and Shorrocks, 2000; Klass *et al.*, 2006; Eckerstorfer *et al.*, 2016; Vermeulen, 2018; Wildauer and Kapeller, 2019; Advani, Hughson and Tarrant, 2020). Under this assumption, the key clue to unveiling the missing wealth is to estimate the underlying Pareto shape parameter that determines the degree of concentration and inequality in the tail.

The novelty of the methodology in this paper is to explicitly model the non-response or missingness process, using a logistic function. Using a selection factorisation, the joint distribution of the Pareto distribution and the logistic function can be used to derive a likelihood function. Maximising this likelihood function estimates the Pareto shape parameter and hence the degree of wealth inequality. Using a Monte Carlo simulation, we show that performing maximum likelihood on this function produces unbiased and precise estimates of the Pareto Shape parameter.

For the latest round of the WAS survey, i.e. the 2016-2018 results, MML estimates that £1.3 trillion in wealth is missing from the top 1% of the wealth distribution. Making this adjustment increases the aggregate total of wealth in 2016-2018 to £15.872 trillion and the top 1% share of total wealth to 19.5%. This level of wealth inequality is consistent with other estimates of the top 1% wealth share based on estate tax data (Alvaredo, Atkinson and Morelli, 2018). The last comparable year between the two data sources was in 2012. The top 1% wealth share according to Alvaredo, Atkinson and Morelli (2018) in that year was 19.9%, compared to just 13.9% for the raw WAS data. The top 1% share with the MML adjustment increases to 20.5%, much more consistent with the estate tax data results.⁴ Furthermore, the estimated number of billionaires with the adjusted data is 105 – a result consistent with the 134 billionaires found on The Sunday Times Rich List in 2017. Both these results demonstrate that the adjustment undertaken is plausible and likely to provide a better representation of the UK wealth distribution than the raw WAS survey data.

Another major issue with the public dataset of the Wealth and Assets Survey is the lack of reliable and consistent business wealth estimates in the survey. Business wealth is a primary asset that, as discussed above, will be part of the tax base for a new wealth tax. However, due to the inconsistencies of business

relation to some distribution but which is set fixed for the foreseeable future in order not to have to reconstruct the wealth distribution each year to administer the tax), concentrated evasion will lead to the tax base to be scaled down by $(1-h)$ exactly as a fraction of $1-h$ people with more than the threshold of wealth vanishes. On the other hand, homogeneous evasion will lead to the tax base being scaled down by slightly more than $(1-h)$. However, for simplicity, we simply assume that the tax base and therefore revenues reduce by h as well.

⁴As the estate tax data does not include pension wealth, we remove the pension wealth component from our adjusted wealth to compare the estimates for the top 1%.

wealth in WAS, the Missingness ML has been estimated on data without business wealth. That said, given the consistency of our estimates with the sources above, we believe that MML does a good job at replacing business wealth by tackling the non-response problem. This makes sense given that business assets tend to be held by the wealthiest households, which are the one's missing from the survey.

5. Estimation Results

This section presents the revenue estimations for the three wealth tax schedules outlined at the beginning of this paper: Piketty, progressive and flat rate. Table 2 shows the total wealth tax revenue in billions of pounds for each of the three taxes. Column (1) presents the tax revenues if we assume that there is no tax avoidance. Column (2) presents the tax revenues if we assume that there is a 15% evasion rate (the strong enforcement case). Column (3) presents tax revenues if we assume a 50% evasion rate. Column (4) presents the annual administration costs, with fixed one-off costs presented in brackets. The annual administrative costs for the progressive taxes are £4.1 billion and the one-off fixed costs is £0.6 billion. The revenues in columns 1 – 3 are presented before administration costs.

The results show the high revenue potential of a progressive wealth tax. Looking at the strong enforcement case, the progressive wealth tax schedule would raise £132 billion in the first year. To put this figure into perspective Table 3 presents the revenues as a percentage of GDP and Table 4 presents the revenues as a percentage of total tax revenues. £132 billion translates into 6% of GDP and 16% of total tax revenues in 2018. This demonstrates the substantial revenue potential of the tax, on the assumption that avoidance is limited to just 15% of total revenues. Under this assumption the progressive tax has a much greater revenue potential than the flat rate tax with a much lower threshold, which is estimated to generate £65 billion a year (3% of GDP and 8% of total tax revenues). The Piketty schedule on the other hand generates a huge £260 billion (12% of GDP and 31% of total tax revenues). All of these estimates are before administration costs.

Table 2. Wealth Tax Revenue in £ billions Before and After Avoidance

	No tax evasion	Strong enforcement: 15% evasion rate	Weak enforcement: 50% evasion rate	Annual Admin Costs
Tax Schedule	(1)	(2)	(3)	(4)
Piketty	305	260	153	
Progressive	155	132	78	4.1 (+0.6)
Flat rate	77	65	38	

Table 3. Wealth Tax Revenue as a Percentage of GDP Before and After Avoidance

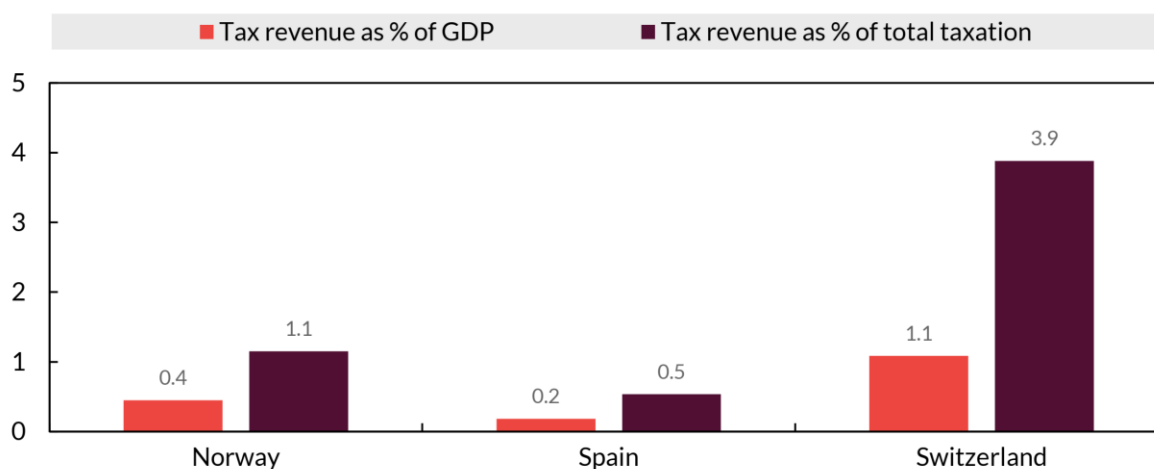
	No tax evasion	Strong enforcement: 15% evasion rate	Weak enforcement: 50% evasion rate
Tax Schedule	(1)	(2)	(3)
Piketty	14	12	7
Progressive	7	6	4
Flat rate	3	3	2

Table 4. Wealth Tax Revenue as a Percentage of Total Tax Revenue Before and After Avoidance

	No tax evasion	Strong enforcement: 15% evasion rate	Weak enforcement: 50% evasion rate
Tax Schedule	(1)	(2)	(3)
Piketty	37	31	18
Progressive	19	16	9
Flat rate	9	8	5

How does this compare to tax revenues generated by existing wealth taxes in other countries? The revenue projections of all three taxes in our estimations are much higher than the revenues generated by existing wealth taxes in Norway, Spain and Switzerland, which are presented in Figure 1. Switzerland's wealth tax has the highest revenue as a percentage of total taxation of 3.9% and 1.1% as a percentage of GDP.

Figure 1. Existing wealth tax revenues as a percentage of GDP



Source: OECD Revenue Statistics Database

Source: (Perret, 2012: 6)

Finally, we discuss how the wealth tax effects households at different levels across the wealth distribution. Table 5 looks at the amount of wealth tax due for households with different levels of wealth. Column (1) presents the wealth due for a household with a wealth of £750,000; (2) for a households with a £1 million; (3) £2m; (4) £5m; (5) £10m; (6) £50m; (7) £100m. Due to the high threshold of the progressive wealth tax, households with a wealth in the first three columns do not have to pay any tax. This is in comparison to the flat rate tax where households with £750,000 would have to pay £1376 a year, households with £1 million would have to pay £3876 and those with £2 million would have to pay £13,876.

What is interesting is what happens between the taxes, as wealth increases beyond £10 million. Households with a £10,000,000 would have to pay £238,000 under the progressive tax system presented

here, £93,876 under the flat rate tax, and £274,900 under the Piketty schedule. Households with £100,000,000 million would have to pay £8,828,000 under the progressive wealth tax, £993,876 under a flat rate system and £6,714,900 under Piketty schedule. For very wealthy households, the effective tax rate under the progressive tax schedule converges to 10% - the marginal tax rate of the upper band.

Table 6 presents the same analysis but for percentile shares. The last row of this table shows the percentile threshold, i.e. the minimum level of wealth required to be in the percentile. The progressive tax schedule presented here only taxes households who are in the top 1%. In other words, the vast majority of households – the bottom 99% - do not pay anything under this progressive wealth tax schedule. Households in the top 0.01% on the other hand pay just under £9 million in tax (these households have a wealth of £97 million).

Table 5. The amount of wealth tax due from households across the wealth distribution (£s)

Tax Schedule	£75,000	£1,000,000	£2,000,000	£5,000,000	£10,000,000	£50,000,000	£100,000,000
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Piketty	450	700	8,900	57,900	274,900	2,274,900	6,714,900
Progressive	0	0	0	16,000	238,000	3,828,000	8,828,000
Flat rate	1,377	3,877	13,877	43,877	93,877	493,877	993,877

Table 6. The amount of wealth tax due from households at the different percentiles (£s)

Tax Schedule	70th	80th	90th	95th	99th	99.9th	99.99th
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Piketty	295	566	2,567	7,914	26,214	686,371	6,444,553
Progressive	0	0	0	0	157	650,942	8,557,653
Flat rate	0	2,540	7,544	12,891	28,033	176,171	966,842
Min percentile wealth (£s)	3,415,676	3,415,676	3,415,676	3,415,676	3,415,676	18,229,425	97,296,529

6. Conclusion

This paper has discussed the potential of a progressive wealth tax in the UK. The case for progressive wealth taxes is built on the need to tackle and reduce wealth inequality. Our baseline model has the following marginal rates and thresholds. Households with wealth above £3.4 million (the top 1%) are taxed at a marginal rate of 1%; above £5.7 million (the top 0.5%) at 5% and above £18.2 million (the top 0.1%) at 10. The specific rates are examples to show the revenue potential of a progressive wealth tax and could be adjusted according to the policy needs. We argue that the tax unit for a new progressive wealth tax in the UK should be the household rather than the individual to prevent wealth fragmentation eroding the tax base. The tax base should include all assets: private pension wealth, business wealth, property wealth and physical wealth. The tax should be administered annually rather than one-off to tackle wealth inequality and assets should be valued at their open market value.

Our main finding is that a progressive wealth tax with these design features has the potential to raise huge revenues. We estimate that this tax would raise roughly £70-130 billion a year after administration costs and tax avoidance and evasion: £70 billion if 50% of the tax is evaded and £130 if 15% of the tax is evaded. This is equivalent to roughly 9-16% of total tax revenues taken by the UK government each year.

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TABLE A1 Wealth and Assets Survey Data: Wealth and Characteristic Variables

Variable Name	Description	Waves
Wealth and its Components		
Individual/household net wealth	Net wealth = net property wealth + net financial wealth + physical wealth + pension wealth	1-6
Individual/household net property wealth	<p>Net property wealth = property assets – property debts</p> <p>Property Assets = value of main residence + value of other property</p> <p>Value of other property = value of houses other than main residence + value of buy to let houses + value of buildings + value of UK land + value of overseas land + value of other property</p> <p>Property Debts = total mortgage on main residence + total value of equity release + total other property debt</p>	1-6
Individual/household net financial wealth	<p>Net financial wealth = gross financial wealth + individual endowments – financial liabilities</p> <p>Gross financial wealth = Total value of current accounts in credit + value of savings accounts + value of ISAs + value of National Savings Product + value of UK Shares + value of insurance products + value of fixed term investment bonds + value of employee shares and employee options + value of Unit and investment trusts + value of overseas shares + value of UK bonds/gilts + value of overseas bonds/gilts + value of other investments (formal financial assets) + value of informal financial assets + value of Child trust funds/junior ISA + value of other children’s assets</p> <p>Financial liabilities = total outstanding store card balance + total outstanding store card balance + total outstanding on mail order + total outstanding on Hire Purchase accounts + total amount of formal, informal and SLC loans + total value of overdrawn current accounts + total outstanding on mail order arrears + total of all hire purchase arrears + total of all loan arrears + total Bills Arrears</p> <p>All ages are included, apart for individual level endowment, where only adults (over 18 years old are included)</p>	1-6
Individual/household physical wealth	Physical wealth = value of main house physical wealth shared amongst adults + value of contents in second homes + value of contents in buy to let property + value of contents in Overseas property	1-6

	Only includes individuals who are over the age of 16	
Individual/household pension wealth	Pension wealth = value of occupational defined benefit pensions + value of defined contribution pensions + value of retained rights in defined benefit pensions + value of retained rights in defined contribution pensions + value of additional voluntary contributions (AVCs) + value of retained rights in drawdown + value of pensions in payment + value of personal pensions + value of pension from former spouse of partner	1-6
Individual/household net private business wealth	<p>Net private business wealth is collected at the individual level in the WAS, according to the following question:⁵</p> <p>‘If you sold your business/your share in this business today, including any debts or liabilities, about how much would you get? Please include the value of financial assets, accounts receivable, inventories, land, property, machinery, equipment, customer lists and intangible assets.’</p> <p>This question measures the market value of net, rather than gross, business wealth, as it includes any debts or liabilities of the business. If respondents do not know the exact market value of private business wealth, they can choose between 10 bands.</p> <p>These questions are asked of anyone who fall into one of the following categories:</p> <ol style="list-style-type: none"> 1. A sole director of their own company, 2. Director of a company they part own 3. Partner in a business or professional practice 4. Self-employed in another way 	1-6

⁵ This definition of private business wealth is also used by the Wealth Tax Commission (WTC EP13, 2020: 49).