

C A G E

Missing incomes in the UK: Evidence and policy implications

CAGE working paper no. 543

July 2021

Arun Advani
Tahnee Ooms
Andy Summers



**Economic
and Social
Research Council**

Missing Incomes in the UK: Evidence and Policy Implications

Abstract

Policymakers tend to ‘treasure what is measured’ and overlook phenomena that are not. In an era of increased reliance on administrative data, existing policies also often determine what is measured in the first place. We analyse this two-way interaction between measurement and policy in the context of the investment incomes and capital gains that are missing from the UK’s official income statistics. We show that these ‘missing incomes’ change the picture of economic inequality over the past decade, revealing rising top income shares during the period of austerity. The underestimation of these forms of income in official statistics has diverted attention from tax policies that disproportionately benefit the wealthiest. We urge a renewed focus on how policy affects and is affected by measurement.

Inequality statistics – welfare measurement – savings and investment income – capital gains – top incomes – tax policy

1. Introduction

In the UK, the claim that income inequality remained broadly stable during the period of austerity that followed the Global Financial Crisis has had a major impact on political debates. Successive Chancellors cited official income statistics showing that the Gini coefficient and top income shares barely shifted during the 2010s (Osborne, 2015, Hammond, 2017). Reports by the Institute for Fiscal Studies, as well as articles in mainstream media, relied on these statistics to ‘correct’ the public perception that inequality had been rising (Hood & Waters, 2017; BBC, 2017). In 2016, Channel 4’s fact-checker website summarised that ‘Despite the rhetoric from the opposition benches, the official statistics do not support the view that income inequality has worsened since David Cameron became Prime Minister’ (Worrall, 2016).

But as Richard Titmuss questioned in 1962:

To what extent and in what respects do these statistics represent reality? How faithfully do they depict the changing constituents of income and wealth, and changes in rewards and ways of spending, giving and saving? ... How valid are the concepts and the data in relation to the uses to which they are put?

Titmuss’ target was official statistics showing how income inequality had fallen in post-war Britain (Titmuss, 1962). He pointed out that because the statistics were based on tax returns, they failed by definition to capture sources that were not assessable for Income Tax. Since the largest of these ‘missing’ sources – particularly capital gains, various forms of investment income, and inheritances – were concentrated amongst those at the top of the income distribution, Titmuss argued that official statistics gave a misleading picture of the changing nature and extent of inequality in the UK.

In this paper, we provide new evidence on UK income inequality over the past two decades. We show how many of the concerns raised by Titmuss more than half a century ago remain unresolved. In particular, today’s official income statistics still fail adequately to capture incomes from savings and investments (‘capital income’) and capital gains, and accounting for these sources significantly alters

the picture of economic inequality in the UK, particularly at the top. We find that top income shares rose during the 2010s, contrary to the prevailing narrative. Further, we argue that this failure adequately to measure capital income and gains in official statistics has stunted important policy debates by diverting attention from tax policies that disproportionately benefit the wealthiest.

We make two main empirical contributions. First, we quantify the extent to which capital incomes are underestimated in household survey-based estimates of inequality, based on a component-by-component comparison of UK survey and tax data on incomes. We show that the process of ‘top income adjustment’ – which seeks to correct the underestimation of top incomes in survey data – is substantially a *capital* incomes adjustment, and that official income statistics still miss capital incomes below the top of the distribution. Second, we highlight that the tax data currently used for the ONS’ top income adjustment fail to capture additional sources of income that are not assessable for Income Tax, most notably capital gains. Using novel access to tax microdata from HMRC Self-Assessment records, we quantify the impact of accounting for capital gains on observed trends in top income inequality.

Our study of the relationship between tax policy and welfare measurement engages several broader themes within social policy. First, there has been a recent resurgence of interest in tax as a central topic of social policy (Ruane, Collins & Sinfield, 2020), following related calls to test the boundaries of the discipline (Farnsworth, 2013). Second, social policy scholars have recognised the need to study ‘the problem of riches’¹ by turning a critical lens on the top of the income and wealth distributions (Rowlingson & Orton, 2007; Rowlingson & McKay, 2011). Finally, our paper also contributes to a re-emerging literature within social policy that looks specifically at the impact of (lack of) measurement on tax policymaking, for example in the context of ‘fiscal welfare’² (Sinfield, 2020) and the taxation of intergenerational transfers of wealth (Nolan et al., 2020).

The paper is structured as follows. Section 2 reviews the existing progress on income measurement by academics and official statisticians since Titmuss’s intervention in 1962, highlighting some of the gaps that remain in the coverage of the UK’s income statistics. Sections 3 and 4 discuss our key empirical findings on missing investment income and capital gains, respectively. In Section 5 we conclude with some broader lessons for the two-way interaction between measurement and tax policy. We show how gaps in measurement matter for tax policymaking and how existing policies can end up constraining what is measured. We also offer some practical recommendations on the approach to measurement that aim to break this negative cycle.

2. UK income measurement, 1962-present

(a) The legacy of Titmuss and Atkinson

Titmuss’s 1962 critique of official income statistics relied on the concept of ‘comprehensive income’, which includes all additions to wealth regardless of their source (Haig, 1921; Simons, 1938). Titmuss proceeded on the basis that, if income statistics are being used to assess relative living standards, this comprehensive definition is more appropriate than the narrower concept of ‘fiscal income’, which instead tracks how income is defined for tax purposes. The essence of Titmuss’ critique was that although the fiscal income definition used by official statisticians in the post-war period was

¹ As Tawney put it: ‘what thoughtful rich people call the problem of poverty, thoughtful poor people call with equal justice a problem of riches’ (Tawney 1913).

² The term ‘fiscal welfare’ was coined by Titmuss (1958) to describe tax exemptions and reliefs that are intended (or claimed) to promote social objectives.

convenient – given their reliance on data from the Inland Revenue – it risked obscuring changes in the ways that wealth was accumulated from sources outside the scope of Income Tax.

To highlight this concern, Titmuss painstakingly catalogued the sources of income that were ‘missing’ from official income statistics. Most missing sources arose because of structural features of the tax system: some sources were outside the scope of Income Tax altogether (such as capital gains and inheritances), and others were classified as income but were nevertheless exempt. In both cases, these incomes were not reported to the Inland Revenue and so were missing from the data used to compile official statistics. Although Titmuss made some effort to estimate the impact of these missing incomes on the true distribution of (comprehensive) income, a common refrain in his book was that such attempts were speculative or even futile, owing to a lack of reliable data.

Writing in the *Journal of Social Policy* over a decade later, Tony Atkinson (1975) reflected on why Titmuss’ criticisms had yielded such little impact on the approach to income measurement:

A 240-page catalogue of the deficiencies of the available statistics might have been expected to lead to major efforts by official statisticians or independent investigators to improve their quality, but in fact it has not... The failure of ‘Income Distribution and Social Change’ to provoke a more determined effort may stem from a certain ambivalence on Titmuss's part about the role of quantification.

Atkinson focused on improving the measurement of income and wealth using quantitative methods. His legacy is a vast economic literature and a dynamic network of economists currently working on income statistics around the world, embodied by the World Inequality Database (WID), which Atkinson co-founded in 2011 (initially as the World Top Incomes Database). This strand of work has resulted in huge progress in income measurement (Piketty, Saez & Zucman, 2018): we discuss some of the achievements below. However, its focus on quantification has – in the UK at least – drawn attention away from some of the issues that Titmuss originally identified. This is because, until recently, it remained difficult or impossible to obtain any data on the income sources excluded from fiscal income.

In this paper, we seek to combine the two strands of work initiated by Titmuss and Atkinson. We develop a critique of the UK’s official income statistics that is attentive *both* to the ways in which legal and institutional contexts affect the measurement of inequality *and* that applies the best available data and modern statistical tools to estimate the magnitude of these effects. Before setting out this empirical contribution in the following sections, in the remainder of this section we provide a brief review of the relative strengths and weaknesses of the two main types of data source on incomes – household survey data and administrative tax data – and their current application in the UK’s official income statistics.

(b) The UK’s official income statistics: a hybrid approach

A key advantage of survey data is that it is not limited to the fiscal definition of income. Instead, household surveys typically apply the ‘Canberra’ income definition resulting from recommendations developed by the UN to improve international comparability of statistics. This definition comprises ‘all receipts whether monetary or in kind ... received at annual or more frequent intervals’ (UN, 2011). Survey data therefore include – or at least aim to include – sources of income such as non-taxable social security benefits, which are missing by definition from tax data. Survey data also allows incomes to be observed at the household level, and (at least in principle) covers a representative sample of the entire adult population, rather than only taxpayers. These features explain why household surveys are the primary data source on incomes for many statistical and research purposes.

A known disadvantage of survey data, however, concerns undercoverage of top incomes. Top incomes are underestimated in survey data due to a combination of unit non-response and underreporting (Bourguignon, 2018; Lustig, 2020; Ooms, 2021). Tax data offer key advantages in both of these respects, because for tax purposes all individuals with income above the personal allowance (£12,570 in 2021-22) are legally required to report their (taxable) income to the tax authority. Methods for supplementing or replacing survey data using tax data are discussed in detail in Jenkins (2017). Their application tends to result in significant upward revisions of top income shares, although these corrections have a more muted impact on the Gini coefficient (Anand & Segal, 2015; Bourguignon, 2018; Burkhauser et al., 2018b; Jenkins, 2017; Lustig, 2020). There is an established consensus that tax data provide a better picture of top end inequality (Atkinson & Piketty, 2007, 2010).

Although the official statistics that Titmuss critiqued in the 1960s were based on tax data, in the 1980s the UK began compiling its official series exclusively using survey data. Recognising the problem of survey undercoverage at the top, starting in 1994 with the DWP's Households Below Average Income (HBAI) series, official statistics began to incorporate a 'top income adjustment' using tax data. The DWP's adjustment was refined by Jenkins and co-authors (Jenkins, 2017, Burkhauser et al., 2018a; Atkinson & Jenkins, 2019) and a similar adjustment has now been adopted by the ONS as part of its Effects of Tax and Benefits (ETB) series (Webber & Beha, 2020). Consequently, both of the UK's official income series (HBAI and ETB) are now based on survey data for most of the population, with an adjustment using tax data that is applied to the highest income individuals.

(c) Remaining deficiencies in income measurement

The UK's adoption of a hybrid methodology for income measurement is world-leading, but there remain two important deficiencies, which form the focus of this paper. The first concerns survey undercoverage. Although recent work has identified missing benefit income compared with administrative (social security) totals, affecting the measurement of low incomes (Corlett, 2021), it is typically assumed that incomes are well-captured in survey data for most of the distribution. Recent analysis shows that in aggregate, survey undercoverage is only significant for the top few percentiles (Webber and Beha, 2020; Burkhauser et al., 2018a, Jenkins, 2017). However, this overlooks that if survey undercoverage afflicts certain *types* of income in particular, then for those individuals who are most reliant on these sources, the errors lower down the distribution could still be substantial, and important for policy purposes.

The second deficiency is a direct reprise of Titmuss's concerns. The tax data used to adjust top incomes in official statistics only capture fiscal income. It misses entirely (by definition) any sources of income that are not assessable for Income Tax. It is a reasonable hypothesis that these sources – such as tax-exempt savings and investments, capital gains and inheritances – may be highly concentrated at the top of the UK's income distribution. Recent evidence for the US shows that two thirds of all capital income is missed by administrative tax data (Piketty et al., 2018). Other international studies show that including capital gains and the retained earnings of the corporate sector can result in significant upward revisions to estimates of top end inequality (Alstadsæter & Jacob, 2016; Roine & Waldenström, 2012). Such comparisons are suggestive but the definition of fiscal income is highly sensitive to legal and institutional settings. There are no existing studies that attempt to quantify non-fiscal incomes in the UK.

These two issues highlight a clear need for more evidence on the UK's missing incomes. In this paper, we focus on capital incomes and gains in particular – acknowledging that other areas, such as social security income and inheritances, also require further work. We argue that accurate measurement of these sources is important not only for our understanding of inequality and living standards, but also

for policy. If some income sources are missing from official income statistics, this will tend to reduce their salience to academics, policymakers and the public. In the following sections, we make the case that capital incomes and gains are indeed underestimated in the UK's official income statistics, that this has obscured important trends in the distribution of income, and that in turn this has diverted attention from the active contribution of tax policy to top end inequality in the UK.

3. Missing capital incomes

(a) What is capital income?

'Capital income' encompasses all forms of income received from owning assets, including interest from savings, dividends from shares, rent from property, and any other investment income. Capital incomes are conventionally defined dichotomously with 'labour income', which comprises all forms of income received in exchange for work. The distinction between capital and labour income can be difficult to draw in practice because, for example, a dividend paid to a small business owner may reflect partly their financial investment and partly their own effort. Nevertheless, just like labour incomes, capital incomes are clearly within the comprehensive income definition that we set as the benchmark for inclusion in income statistics.

(b) Data and methods

To investigate the extent to which capital incomes are missing from the survey data relied upon for much social policy research, we compare coverage in the Family Resources Survey (FRS)³ with publicly available tax data published by HMRC, known as the Survey of Personal Incomes Public Use Tape (SPI) for the period 1997-2017.⁴ The SPI comprises a stratified sample of tax records from HMRC's self-assessment (SA) and payroll (PAYE) administrative systems. According to HMRC, for individuals with income above personal allowance, 'the SPI provides the most comprehensive and accurate official source of data on personal incomes assessable for Income Tax.' (HMRC, 2020) Consequently, we treat the SPI as a benchmark against which to assess the (taxable) capital incomes that are missing from the FRS.

It is not currently possible for researchers to link UK survey responses and tax records at the individual level.⁵ Consequently, in line with existing studies (Burkhauser et al., 2018a; Webber & Beha, 2020; Ooms, 2021), our approach is to compare totals for income and each of its components across equivalent quantiles of the total income distribution. This requires that we first harmonise the population and income definitions across the two datasets.

To harmonise the population, we use individuals as the unit of observation, since it is not possible to create household units in the SPI. We also exclude individuals with (total) income below the personal allowance from both datasets, because of incomplete coverage below this threshold in the SPI.

To harmonise the income definition, we use the SPI 'fiscal income' definition in both datasets,⁶ excluding non-taxable income from the FRS data. Whilst in this respect the approach entails a move away from comprehensive income, it allows us to pinpoint the taxable income sources that are missing

³ The FRS is used to construct the Household Below Average Income (HBAI) dataset, which in turn is used by DWP to construct one of the two official series on UK incomes.

⁴ We refer to the tax year 2015-16 as 2016, consistent with HMRC's labelling.

⁵ We understand that ONS has plans to undertake this work in future.

⁶ In line with Advani, Summers & Tarrant (2021), we also adjust the dividend income recorded in the SPI to correct for the 'notional' dividend tax credit that forms part of taxable income but which is not actually received by individuals.

from the survey data by providing a common denominator for comparison. We discuss the impact of non-taxable income on inequality statistics separately below.

To compare the incomes captured in the survey and tax data on a component-by-component basis, we follow the definition of ‘total investment income’ (which we equate with capital income) and its sub-components (for example, interest, dividends, rent) as used in the SPI, and then harmonise the income components observed in the FRS to match these definitions.

Finally, in order to construct quantiles of the full UK income distribution, we use the ONS mid-year population estimates (for individuals aged 15+) and adopt the income control totals computed by Advani, Summers & Tarrant (2021), which are defined on a fiscal income basis, consistently with our numerators.

(c) The role of missing capital income in the UK’s top income adjustment

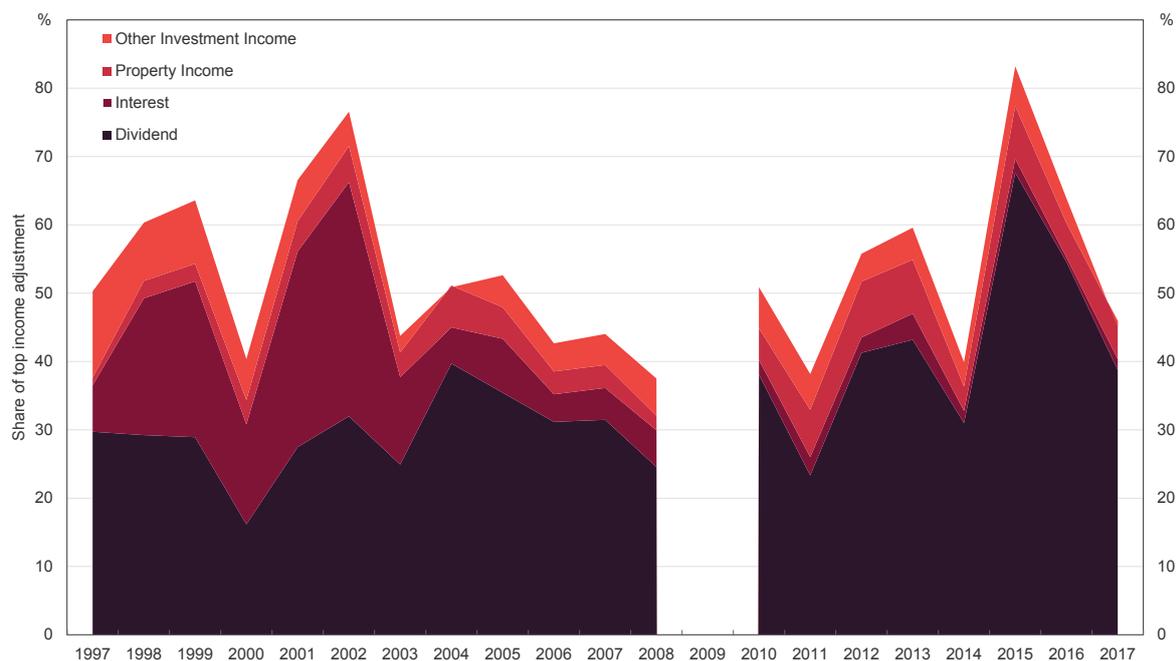
As outlined in Section 2, both of the UK’s official income series now incorporate a ‘top income adjustment’, which uses tax data to correct the incomes of those at the top of the income distribution. Our component-by-component comparison of survey and tax data allows us to estimate to what extent such corrections to the survey data are attributable to missing *capital income* in particular.⁷

We find that on average, over the period 1997-2017, around half of the total income imputed through the process of top income adjustment consists of missing capital income. As the shaded area in Figure 1 shows, this share has fluctuated significantly from year to year, likely as a result of changes in taxation and the economic climate, to which capital incomes are highly sensitive.

In the late 1990s and early 2000s, missing interest income made up a significant proportion of all missing capital income; however, its importance has diminished since 2009, likely due to the precipitous fall in interest rates that followed the Global Financial Crisis. Meanwhile, missing dividend income has grown in importance and is now by far the largest sub-component of all missing capital income at the top. This trend coincides with the well-documented rise in ‘self-incorporation’ (i.e. providing one’s personal services via a company) that has occurred since the early 2000s (Cribb, Miller & Pope, 2019).

⁷ The precise method of top income adjustment differs between the two official series. We follow the ‘quantiles’ method used by Burkhauser et al. (2018a), in line with the DWP’s current approach. Our adjustment covers the top 3% by total income, the same threshold used by the ONS (Webber & Beha, 2020). Unlike the ONS and DWP adjustments, we use narrower quantiles (of 0.1% width) and we do not apply the adjustment separately for pensioners and non-pensioners.

Figure 1: The role of capital income in the top income adjustment



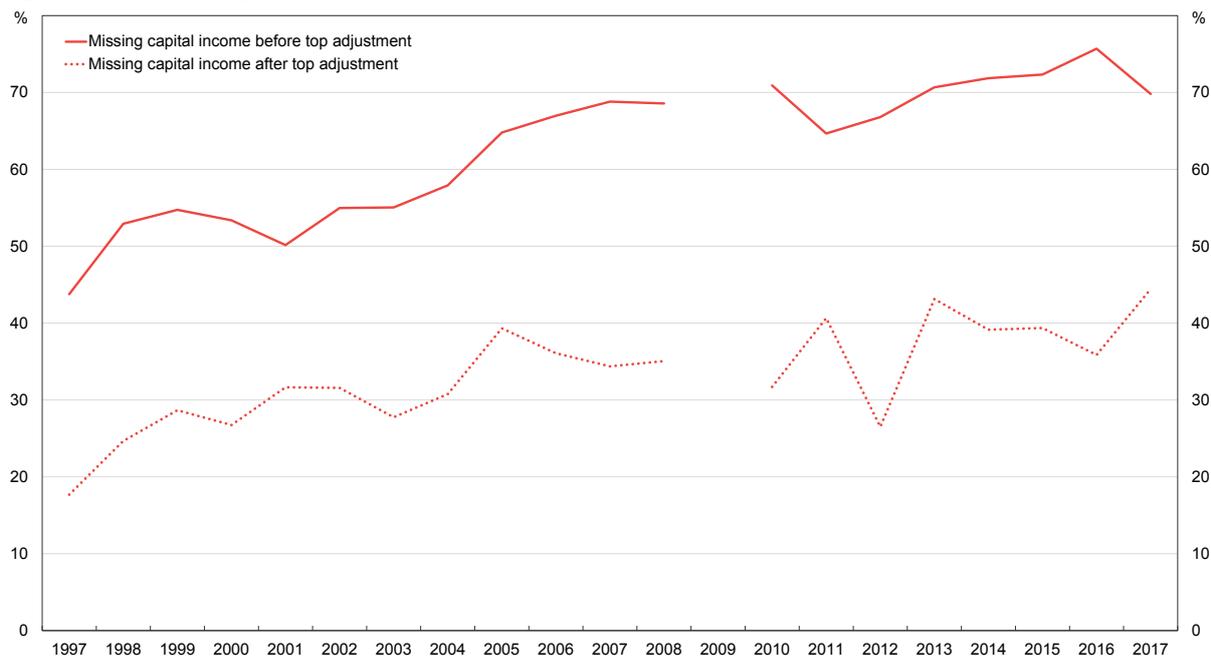
Notes: The SPI dataset was not released for 2009. The figure shows the percentage of total income imputed by the top income adjustment that is attributable to each capital income component. For 1997-2004, the decomposition of capital income is partially imputed using tabulated data from HMRC's Personal Income Statistics, as some capital income components were aggregated in the microdata in these years.

Source: Authors' calculations based on FRS and SPI data

(d) Capital income undercoverage below the top

The top income adjustment used in ONS's official income statistics does not adequately correct for all missing capital income, because a substantial proportion of missing capital income goes to individuals who are below the threshold of the adjustment (i.e. below the top 3%). As Figure 2 shows, the top income adjustment reduces the total amount of capital income that is missing (when relying on the adjusted survey data only) by approximately half. However, a substantial proportion of all capital income remains missing even after the adjustment, and this share has been rising over time, from 17% in 1997 to 44% in 2017.

Figure 2: Total missing capital income, before and after top income adjustment



Notes: The SPI dataset was not released for 2009. The figure shows the percentage of all capital income observed in the SPI that is missing from the unadjusted FRS data ('before top adjustment'), and that remains missing from the series after the top income adjustment has been applied to the top 3% ('after top adjustment').

Source: Authors' calculations based on FRS and SPI data

In absolute terms, missing capital income is most significant at the top of the income distribution, both because incomes are higher and also because capital income makes up a larger share of total income. However, as Figure 3 shows, the *proportion* of capital income that is missing from the survey data is broadly similar – and substantial – across the entire income distribution. This highlights the importance of taking seriously the issue of missing capital incomes, as a distinct phenomenon from the more well-known problem of missing top incomes.

Figure 3: Percentage of missing capital income, across the distribution of total income



Notes: The SPI dataset was not released for 2009. The figure shows the percentage of all capital income observed in the SPI that is missing from the unadjusted FRS data, across different percentile groups of the total income distribution. The lowest group ('personal allowance – P90') excludes those with total income below the personal allowance because the SPI does not have full coverage of these individuals.

Source: Authors' calculations based on FRS and SPI data.

(e) Non-taxable capital incomes

The SPI, which we use as our benchmark for identifying 'missing' income, only includes capital incomes that are assessable for Income Tax. Our analysis above therefore provides a lower bound on the true extent of capital income that is missing from survey data. A more comprehensive estimate would require additional information about non-taxable capital incomes such as those from tax-exempt investment schemes e.g. Individual Savings Accounts (ISAs) and Venture Capital Trusts (VCTs), and the income from foreign assets owned by individuals who are resident but not domiciled in the UK ('non-doms').

At present, such information is not available to researchers. In some cases, such as ISAs and VCTs, relevant data is collected by HMRC; however, only aggregate statistics have been published, meaning that the impact on the distribution of income remains unknown. In other cases, such as non-dom foreign income, there is no requirement to report the income to HMRC, and so no direct data sources exist, either for administrative or research purposes.

In these respects, hardly any progress has been made in addressing the concern first highlighted by Titmuss regarding the impact of tax-exempt income on inequality statistics. However, one major additional source of income (falling within the comprehensive income definition) can now be incorporated into income statistics, even though it is not assessable for Income Tax: this is taxable capital gains, which we address in the following section.

4. Missing capital gains

(a) What are capital gains?

A 'capital gain' refers to the increase in value of an asset. In economic terms, capital gains contribute to an individual's comprehensive income because they increase the funds available for the owner to consume. In this respect, capital gains are no different from other types of return on investments such as interest, dividends or rent. However, in the UK, capital gains are taxed differently from other forms of income. Capital gains are taxed only when they are 'realised' through a sale (or other disposal) of the asset, and the tax rate is substantially lower than under Income Tax. Moreover, some assets and types of transaction are exempt from Capital Gains Tax: we discuss these sources separately below.

Even though capital gains clearly provide an economic benefit to the owners of assets, their impact has been entirely overlooked in the UK's inequality statistics. Capital gains are excluded from the Canberra definition of income used in surveys such as the FRS. Because capital gains are not liable to Income Tax they are also excluded from the SPI. However, unlike the entirely tax-exempt forms of capital income outlined in Section 3, because individuals are liable to Capital Gains Tax when they sell or otherwise dispose of assets, HMRC does collect administrative data on capital gains. These data can be aggregated with information about taxable incomes to provide a more complete picture of the economic resources that individuals receive.

(b) Data and methods

To investigate the impact of taxable capital gains on inequality, we use administrative tax microdata accessed via the HMRC Datalab secure research facility. These data are not publicly available and have not previously been used for inequality measurement. The dataset covers the universe of individuals who filed a tax return – around 10 million people per year – including all those with taxable incomes above a set filing threshold (currently £100,000), plus all those with taxable capital gains above the 'annual exempt amount' (currently set at £12,300).

We first reconstruct the SPI definition of 'total income' within the administrative microdata. Combining this with the population and income control totals computed by Advani, Summers & Tarrant (2021), we are able to reproduce existing estimates of the share of all fiscal income that goes to the top 1% of adults (Alvaredo, 2017). We then construct 'total remuneration', by adding to an individual's taxable income any taxable capital gains they received. To produce an income control total (denominator) that includes gains, we add the aggregate taxable gains reported to HMRC to the established income control.

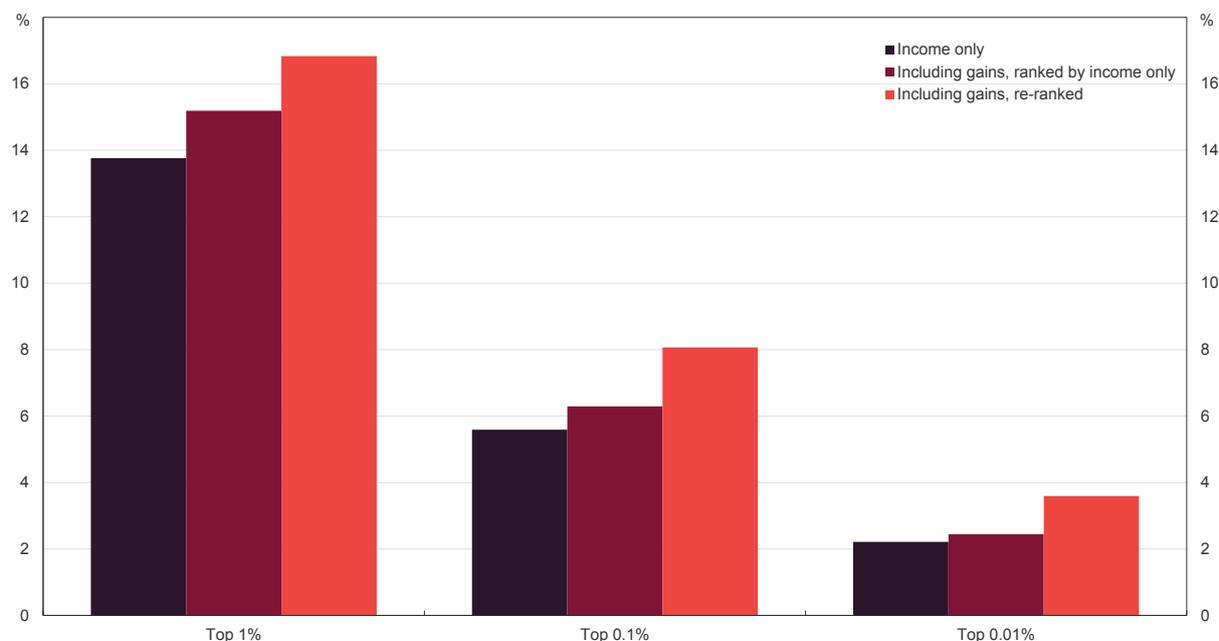
(c) Top income shares including gains

In 2018, the top 1% (around 500,000 people) received 13.8% of all income, when measuring taxable income only (Figure 4). To be in this group required an income of above £125,000. However, including the taxable capital gains of these same people, their share of all income plus gains was 15.2%. This implies that each individual on average received an extra £47,000 in gains, in addition to their income.

Individuals with very large gains but relatively low incomes are missing from the top 1% when ranked on taxable income only. Re-ranking the population based on individuals' total remuneration (i.e. including gains), one in ten people from the 'old' top 1% (on income only) are replaced by these high-gainers. The remaining nine in ten who were in the income-only top 1% remain at the top, indicating that gains are mostly concentrated amongst those who already have high incomes.

We find that when re-ranking the population on income plus gains, the share of total remuneration going to the top 1% increases even further: from 15.2% (ranking on income only) to 16.8% ranking on income plus gains. In 2018, the average remuneration of the top 1% was £85,000 higher than if we measure (and rank on) income only—just this increase is more than three times median income in the population.

Figure 4. Top 1%, 0.1% and 0.01% shares, based on income-only; income plus gains (ranked on income only); and income plus gains (re-ranked), 2018



Notes: The figure shows the share of all income going to the top 1%, 0.1%, 0.01% of the UK population aged 15+, under different definitions of income, for the tax year 2017-18. ‘Income only’ includes only fiscal income. ‘Including gains, ranked by income only’ adds taxable capital gains to the definition of income but still ranks individuals on their fiscal income only, whereas ‘including gains, re-ranked’ ranks individuals on the sum of their fiscal income plus taxable capital gains.

Source: Authors’ calculations based on HMRC administrative datasets and ONS 15+ population estimates.

The impact of gains is even larger when looking towards the very top. Focusing on the top 0.01%, the top share increases by 60%, from 2.2% when measured and ranked on income, to 3.6% when measured and ranked on total remuneration. This effect is mainly driven by re-ranking: before re-ranking the top share becomes 2.4%. This highlights the extent to which including gains not only changes top shares, but also affects *who* is at the top.⁸

(d) Impact on trends in inequality

As we noted in our introduction, official statistics on income inequality have played an important role in shaping political narratives surrounding the austerity agenda that characterised the 2010s. The refrain that ‘we’re all in this together’ traded heavily on the claim – supported by official statistics – that income inequality had not worsened despite the cuts faced by those at the bottom of the distribution.

⁸ See further Advani & Summers, 2020a.

When looking at (taxable) income only, our analysis reflects the prevailing view that the top 1% share hardly increased during the aftermath of the Global Financial Crisis. However, once (taxable) capital gains are included, a different picture emerges: top-end inequality had not abated, just taken a different form.

As Figure 5 shows, when gains are included in the statistics, the top 1% share was consistently higher and also rose through the 2010s. This pattern is exacerbated for the top 0.1% and 0.01%. Just as Titmuss identified over half a century earlier, the focus of official statisticians on taxable income served to mask an important shift in the way that the richest received their remuneration, distorting our understanding of underlying trends in economic inequality.

Figure 5a. Top 1% share based on income-only and income plus gains (re-ranked), 1997-2018

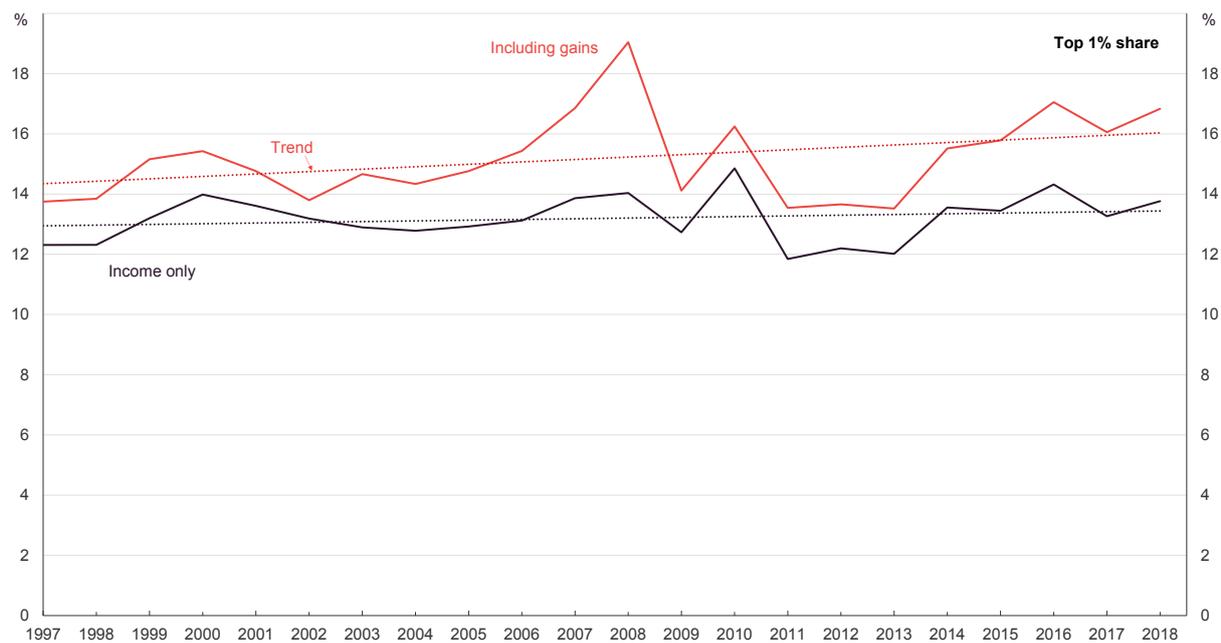
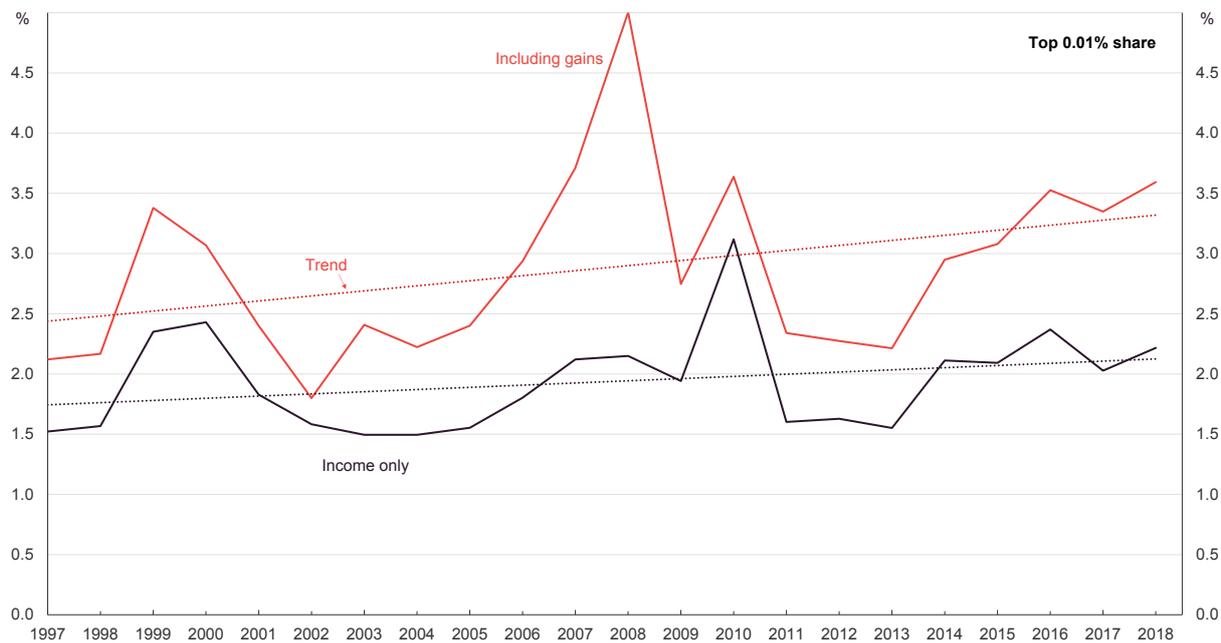


Figure 5b. Top 0.1% share based on income-only and income plus gains (re-ranked), 1997-2018



Figure 5c. Top 0.01% share based on income-only and income plus gains (re-ranked), 1997-2018

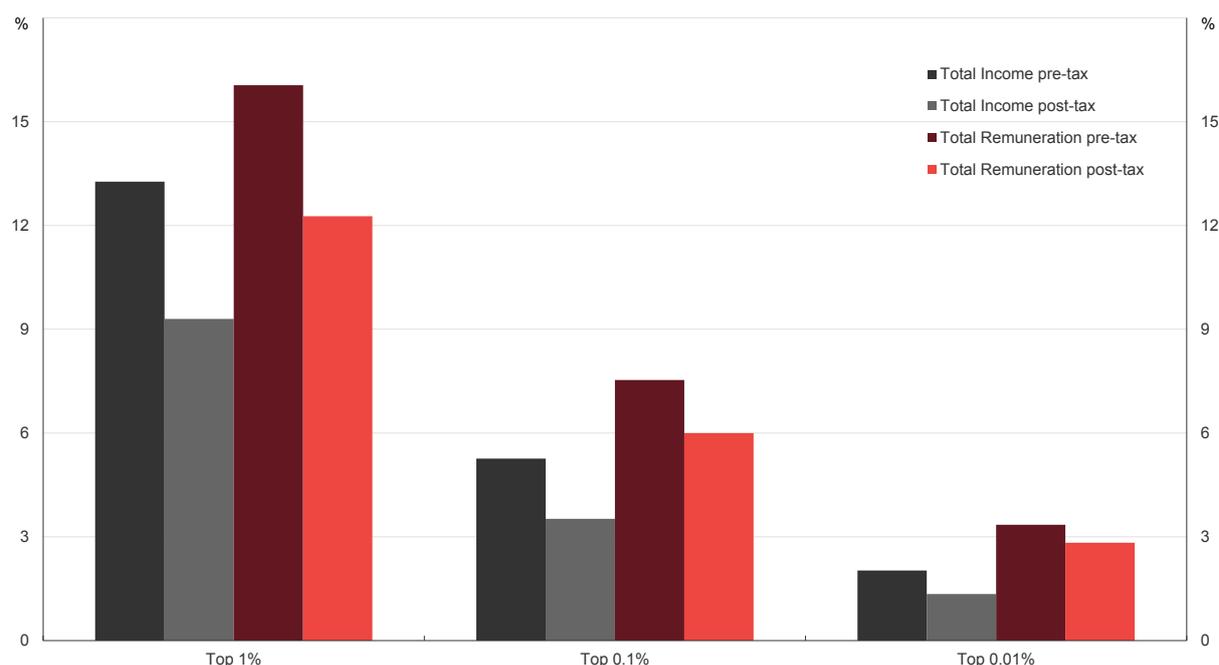


Notes: The figure shows the share of all income going to the top 1%, 0.1%, 0.01% of the UK population aged 15+, under different definitions of income, for tax years 1996-97 to 2017-18. 'Income only' includes only fiscal income. 'Including gains' adds taxable capital gains to the definition of income and re-ranks individuals based on the sum of their fiscal income plus taxable capital gains.

Source: Authors' calculations based on HMRC administrative datasets and ONS 15+ population estimates.

The impact of excluding capital gains from inequality statistics is proportionally even more substantial when considering post-tax incomes. As we discuss further below, capital gains are taxed much more lightly than other forms of income. Consequently, the tax system does relatively little redistribution of gains. Figure 6 shows that whereas the tax system reduces the top 1% share of (taxable) income by 30%, once gains are included it reduces the top share by only 23%. This pattern of reduced redistribution is even more pronounced among the extremely rich.

Figure 6. Top shares of income and remuneration before and after tax, 2017



Notes: The figure shows the share of all income going to the top 1%, 0.1%, 0.01% of the UK population aged 15+, under different definitions of income, pre- and post-tax, for the tax year 2016-17. ‘Total Income’ includes only fiscal income. ‘Total Remuneration’ is the sum of fiscal income plus taxable capital gains, and re-ranks individuals based on this total. ‘Total income post-tax’ deducts Income Tax and National Insurance Contributions (excluding employer contributions). ‘Total remuneration post-tax’ additionally deducts Capital Gains Tax.

Source: Authors’ calculations based on HMRC administrative datasets and ONS 15+ population estimates.

(e) Non-taxable capital gains

Our preceding analysis using administrative tax microdata necessarily excludes the impact of non-taxable capital gains, since these are typically not reported to HMRC. Largest among these are gains made on people’s main homes, followed by gains on assets held in ISAs, and those that are realised by making transfers to a spouse, a charity or on death (Corlett, Advani and Summers, 2020). Gains from any asset that are below the tax-free allowance – currently around £12,000 i.e. about half the median income – are also not taxable and typically are missing from tax data.

These non-taxable gains are substantial in aggregate, although it unclear in which direction they would affect inequality measures. Gains on main homes are likely to be weighted towards the upper-middle of the distribution, making our estimates of top shares too high. However, other exclusions, in particular for gains on assets held within tax-exempt investment schemes (such as ISAs and VCTs), are likely to be weighted more towards the very top, and so push in the other direction. Without individually linkable data on non-taxable gains, it is not possible to know which effect dominates.

5. Conclusion

An established literature has addressed the production and communication of statistics as a ‘general sociological phenomenon’ (Espeland & Stevens, 2008; Berman & Hirschman, 2018). However, the interaction between measurement and policymaking, specifically, remains relatively underexplored (a recent exception is Sinfield, 2020). We urge renewed attention to this issue within social policy, reprising the agendas of Titmuss and Atkinson, amongst others. Our analysis of missing capital incomes exemplifies the ways in which what is measured can both affect and be affected by policy

choices. In this final section, we develop the implications of our case study for the relationship between measurement and tax policymaking more generally, before concluding with some recommendations on the approach to measurement by official statisticians.

(a) The impact of measurement on policy

Political debates about the tax system typically gravitate towards the headline rates of Income Tax levied on wages. The Labour government's decision to raise the top rate of Income Tax to 50p was an important talking-point at the 2010 General Election; the Conservative-led government's decision to cut this rate to 45p has been a prominent dividing-line between the major parties in each election since. However, throughout the 2010s there was relatively little public debate about the tax treatment of capital income and gains. These forms of income are taxed at much lower rates than wages. Additionally, capital income and gains can qualify for tax reliefs or exemptions that are not available on other forms of income.

The amount of tax that people pay therefore depends not only on the total income they receive, but also where it comes from. Capital income and gains – the lowest taxed forms of income – are highly concentrated at the top of the income distribution, reducing the effective tax rates paid by this group well below headline rates (Advani & Summers, 2020b). One might expect that post-tax incomes would be distributed much more equally than pre-tax incomes, given the progressive rate structure of Income Tax. In fact, as we have shown (Figure 6), the UK's personal tax system achieves hardly any redistribution at the very top. This is mostly due to the favourable tax treatment of capital income and gains compared with other forms of income.

The traditional electoral focus on headline rates of Income Tax can be explained partly by the fact that for large swathes of the population, wages make up their main or only source of income. The lower rates of tax that apply to capital income and gains are therefore outside most voters' own lived experience. But the underestimation of capital income and gains in the UK's official income statistics has also served to divert attention from these forms of income. Statistics have the power to draw attention to phenomena that are beyond the perception of individuals' own lived experiences, but in this instance our official statistics have had the opposite effect: reinforcing a misperception that capital income and gains do not matter for inequality. The failure of official statisticians to track and report on trends in the distribution of capital income and gains has had the (inadvertent) effect of distorting public debates about tax policy.

The impact of (lack of) measurement on policy is also clear in the context of 'tax expenditures', which are reliefs or exemptions that seek to 'help or encourage particular types of individuals, activities or products in order to achieve economic or social objectives.' (HMRC,, 2020). A good example is Entrepreneurs Relief (now renamed 'Business Asset Disposal Relief'), which provides a 10% tax rate on capital gains arising from certain types of business investment. This tax relief has cost over £22 billion in foregone revenue since its introduction in 2008, of which more than half went to individuals who realised more than £1million in gains each. And yet, the intended outcomes of the policy have never been measured and the gains to which the relief applies (totalling £42 billion in 2017-18) are entirely missing from official income statistics.

Titmuss referred to schemes like this one as 'fiscal welfare' (Titmuss 1958: p44-45). As Sinfield has recently argued 'The ways that social spending policies are run by fiscal welfare through the tax system remain relatively neglected, while the costs and impact of public expenditure are constantly under scrutiny' (Sinfield, 2020). We diagnose this problem as again stemming in large part from a lack of measurement. Following criticisms by the National Audit Office, Office for Budget Responsibility and

Public Accounts Committee, HMRC has recently committed to improving the available information about the groups and sectors benefitting from significant reliefs (Thompson, 2019). Within government, this is a necessary precursor to adoption of the ‘Green book’ standard of evaluation that applies to other forms of government spending (HM Treasury, 2020). Following Titmuss and Sinfield, we also urge a greater focus on tax expenditures as a field of social policy research and regard measurement as critical to this agenda.

(b) The impact of policy on measurement

The increased availability and use of administrative data for statistical purposes has huge potential to enhance social scientific research (Halford & Savage, 2017). However, unless used carefully with awareness of its context, reliance on these new data sources also carries a major risk. As we have shown in this paper in the context of income statistics, it is easy for academic researchers and official statisticians to forget the divergence between what one is conceptually trying to measure, and the – often very different – purposes for which the relevant data were collected, especially where pinpointing such divergences requires specific technical expertise (as in the context of the tax system). This was essentially Titmuss’ critique in the 1960s, and despite other advances in official income statistics, in this respect little progress has been made. The use of tax data to provide a top income adjustment to survey data is a welcome development but it is dangerous to think that the challenges of measuring top incomes are now resolved.

We see two main challenges arising from the impact of policy on measurement using administrative data. The first is that administrative data are by their nature anchored to the policies that we already have. To explore broader concepts or options for reform it will often be necessary to supplement administrative data using other sources. Second, and relatedly, administrative data are often seen as a ‘gold standard’, in particular given their universal coverage over individuals to whom the relevant policy applies. However, in the context of income measurement, it is clear that ignoring forms of income that are not easily measured using administrative data is not – in practice – a ‘conservative’ or ‘neutral’ approach. Instead, it introduces systematic biases arising from the shape of the existing policy landscape. In the context of missing capital income and gains, the reliance on administrative definitions tends to be to the benefit of those currently advantaged by the tax system; in other areas of social policy this effect is likely to be reversed, further marginalising groups that are outside the scope of existing support.

Within academic research, recent international developments in income measurement have pioneered the use of imputations to overcome a lack of data on particular sources (Piketty, Saez & Zucman, 2018). This agenda reflects a determination to allocate all sources of income recorded at aggregate level within national accounts, so that none are left ‘missing’. We welcome the flexibility embedded within the approach of ‘Distributional National Accounts’ (DINA), because so often the alternative is to ignore ‘missing’ forms of income altogether, which as we have shown, can have systematically distorting effects. On the other hand, the increasing reliance on imputations is not a panacea. First, institutional context still matters and is required to make sensible assumptions about how to allocate aggregates from national accounts. Second, DINA does not capture transfers that are excluded from the national accounts definition of income, such as capital gains and inheritances.⁹ In these respects, Titmuss’ concerns are not obviated by the DINA methodology; indeed, they may be more important than ever.

⁹ Where capital gains in shares are attributable to the retention of corporate profits, such gains are indirectly captured by DINA (on an accruals basis) since DINA allocates retained profits to individuals.

Finally, we urge a shift in the mindset of government officials in the collection of administrative data. In the tax context at least, collecting data appears to be viewed too often as a burden and expense rather than an integral aspect of the government's policymaking capacity. HMRC's approach is, in effect, to collect the bare minimum information required to apply current tax legislation, justified by a perceived imperative of minimising compliance costs on taxpayers. As a result, government persistently lacks the information needed to model changes to the tax system effectively, generating a powerful force of inertia. We see an important role for official statisticians, working in concert with government departments, to lead an agenda for collecting the additional data required to evaluate and reform policy, rather than seeing their function as primarily to report the status quo.

6. Bibliography

- Advani, A., Corlett, A. & Summers, A. (2020). Who gains? The importance of accounting for capital gains. Resolution Foundation Report.
- Advani, A. & Summers, A. (2020a). Capital Gains and UK Inequality. CAGE Working Paper No. 465.
- Advani, A. & Summers, A. (2020b). How much tax do the rich really pay? New evidence from tax microdata in the UK. CAGE Policy Briefing No. 27.
- Advani, A., Summers, A. & Tarrant, H. (2021). What has been happening to UK Top Incomes?. CAGE Working Paper No. 490.
- Atkinson, A. (1975). Income Distribution and Social Change Revisited. *Journal of Social Policy*, 4(1), 57-68.
- Alstadsæter, A., & Jacob, M. (2016). Dividend Taxes and Income Shifting. *Scandinavian Journal of Economics*, 118(4), 693–717.
- Alvaredo, F. (2017). UK estimates of top income shares 2013-2014 and 2014-2015: Note on methods. WID.world Technical Note Series.
- Anand, S., & Segal, P. (2015). The global distribution of income. In *Handbook of Income Distribution* (1st ed., Vol. 2). Elsevier.
- Atkinson, A. (2012). UK Estimates of Top Income Shares 2009-2010: Revised Note on Methods. WID.World Technical Note Series No 2012/5.
- Atkinson, A., & Piketty, T. (2010). *Top Incomes: A Global Perspective*. Oxford University Press. Volume II.
- Atkinson, A., & Piketty, T. (2007). *Top Incomes over the 20th Century: A Contrast Between Continental European and English-Speaking Countries*. Oxford University Press. Volume I.
- BBC. (2017). Reality Check: Has inequality been getting worse?
<https://www.bbc.co.uk/news/business-38570809>
- Berman, E., & Hirschman, D. (2018). The Sociology of Quantification: Where Are We Now?. *Contemporary Sociology* 47(3), 257–66.
- Bourguignon, F. (2018). Simple adjustments of observed distributions for missing income and missing people. *The Journal of Economic Inequality*, 16, 171–188.
- Burkhauser, R., Hérault, N., Jenkins, S., & Wilkins, R. (2018a). Top incomes and inequality in the UK : reconciling estimates from household survey and tax return data. *Oxford Economic Papers*, 1–26.
- Burkhauser, R., Hérault, N., Jenkins, S. P., & Wilkins, R. (2018b). Survey Under-Coverage of Top Incomes and Estimation of Inequality: What is the Role of the UK's SPI Adjustment? *Fiscal Studies*, 39(2), 213–240.
- Corlett, A. (2021). Improving our understanding of UK poverty will require better data. Resolution Foundation Spotlight Report.
- Cribb, J., Miller, H., & Pope, T. (2019). Who are business owners and what are they doing?. Institute for Fiscal Studies Report.

- Department for Work & Pensions. (2018). Households Below Average Income (HBAI) Quality and Methodology Information Report – 2016/17. HBAI Quality and Methodology Information Report. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/437251/households-below-average-income-quality-methodology-2013-14.pdf
- Espeland, W., & Stevens, M. (2008). 'A Sociology of Quantification'. *European Journal of Sociology* 49, no. 3 (December 2008): 401–36.
- Farnsworth, K. (2013). Bringing Corporate Welfare In. *Journal of Social Policy*, 42(1), 1-22.
- Haig, R. (1921). The Concept of Income – Economic and Legal Aspects. In Haig, Robert M. (ed.), *The Federal Income Tax*, 1–28. Columbia University Press, New York, NY.
- Halford, S. & Savage, M. (2017). Speaking Sociologically with Big Data: Symphonic Social Science and the Future for Big Data Research. *Sociology*, 51(6) 1132-1148.
- Hammond, P. (2017). Autumn Budget 2017: Phillip Hammond's Speech. <https://www.gov.uk/government/speeches/autumn-budget-2017-philip-hammonds-speech>.
- HM Treasury. (2020). The Green Book: Central Government Guidance on Appraisal and Evaluation.
- Thompson, J. (2019). Sir Jonathan Thompson to Meg Hillier MP. 30 April 2019. <https://www.parliament.uk/globalassets/documents/commons-committees/public-accounts/Correspondence/2017-19/Letter-from-Sir-Jonathan-to-Chair-in-response-to-report-on-HMRCs-Performance-in-17-18-recommendation-13-and-4-190430.pdf>
- HM Revenue & Customs. (2020). Income Tax Liabilities Statistics 2017-18 Survey of Personal Incomes, with projections to 2020-21: Supporting Documentation.
- Hood, A. and Waters, T. (2017). Incomes and inequality: the last decade and the next parliament. IFS Briefing Note BN202. <https://www.ifs.org.uk/uploads/publications/bns/BN202.pdf>.
- Jenkins, S. (2017). Pareto Models, Top Incomes and Recent Trends in UK Income Inequality. *Economica*, 84(334), 261–289.
- Lustig, N. (2020). The “missing rich” in household surveys: causes and correction approaches. ECINEQ Working Paper Series, 520.
- Nolan, B., Palomino, J., Van Kerm, P. & Morelli, S. (2020), “The wealth of families: The intergenerational transmission of wealth in Britain in comparative perspective”, Nuffield Foundation and INET at the Oxford Martin School.
- Ooms, T. (2021) Correcting the Underestimation of Capital Incomes in Inequality Indicators: with an Application to the UK, 1997-2016. *Social Indicators Research* 1-25.
- Orton, M., & Rowlingson, K. (2007). A Problem of Riches: Towards a new Social Policy Research Agenda on the Distribution of Economic Resources. *Journal of Social Policy*, 36(1), 59-77.
- Osborne, G. (2015) Chancellor George Osborne's Summer Budget 2015 Speech. <https://www.gov.uk/government/speeches/chancellor-george-osbornes-summer-budget-2015-speech>
- Piketty, T., Saez, E., & Zucman, G. (2018). Distributional National Accounts: Methods and Estimates for the United States. *The Quarterly Journal of Economics*, 133(2), 553–609.

- Roine, J., & Waldenström, D. (2012). On the role of capital gains in Swedish income inequality. *Review of Income and Wealth*, 58(3), 569–587.
- Rowlingson, K. & McKay, S. (2011). *Wealth and the Wealthy: Exploring and Tackling Inequalities between Rich and Poor*. 1st ed., Bristol University Press.
- Ruane, S., Collins, M., & Sinfield, A. (2020). The Centrality of Taxation to Social Policy. *Social Policy and Society*, 19(3), 437-453.
- Simons, H. (1938). *Personal Income Taxation: The definition of income as a problem of fiscal policy*. Chicago University, Chicago.
- Sinfield, A. (2020). Building Social Policies in Fiscal Welfare. *Social Policy and Society*, 19(3), 487-499.
- Titmuss, R. (1958). *Essays on 'the Welfare State'*. London: Allen and Unwin.
- Titmuss, R. (1962). *Income Distribution and Social Change*. London: George Allen and Unwin.
- Webber, D., & Beha, O. (2020). Top income adjustment in effects of taxes and benefits data: methodology. *ONS Compendium*, 1–17.
- Worrall, P. (2016). The surprising truth about inequality.
<https://www.channel4.com/news/factcheck/factcheck-surprising-truth-inequality>