

Brewer, Mike; Sámano-Robles, Claudia

**Working Paper**

## Top incomes in the UK: Analysis of the 2015-16 survey of personal incomes

ISER Working Paper Series, No. 2019-06

**Provided in Cooperation with:**

Institute for Social and Economic Research (ISER), University of Essex

*Suggested Citation:* Brewer, Mike; Sámano-Robles, Claudia (2019) : Top incomes in the UK: Analysis of the 2015-16 survey of personal incomes, ISER Working Paper Series, No. 2019-06, University of Essex, Institute for Social and Economic Research (ISER), Colchester

This Version is available at:

<https://hdl.handle.net/10419/200385>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

# Top Incomes in the UK: Analysis of the 2015-16 Survey of Personal Incomes

Mike Brewer

ISER, University of Essex

Claudia Sámano-Robles

ISER, University of Essex

No. 2019-06

June 2019



INSTITUTE FOR SOCIAL  
& ECONOMIC RESEARCH

## **Non-Technical Summary**

Public debate and academic research on income inequality in the UK mostly uses the “Households Below Average Income” (HBAI) series, which is derived from answers to a large, nationally-representative, government-run, household survey: the Family Resources Survey (FRS). It has long been suspected that the FRS does not give an accurate impression of the circumstances of those with very high incomes in the UK. As a result, the HBAI data-set features a correction to the highest incomes (affecting less than the richest 2 percent). But the nature of the adjustment means that it is not possible to use the corrected HBAI data to analyse the characteristics of individuals with the highest incomes, and Burkhauser et al (2018a&b) argue that, even after the SPI adjustment, the HBAI series may be under-estimating the income of those with very high incomes.

An alternative way to study the circumstances of those with the very highest incomes is to use data from administrative sources on incomes declared for tax purposes, as pioneered by Thomas Piketty, Emmanuel Saez and the late Anthony Atkinson, and as now promoted by the World Inequality Database (WID) at <https://wid.world>. This note uses the SPI to estimate top income shares through to 2015-16 (at the time of writing, the UK data held by the WID stopped in 2014-15).

Top income shares did fall back considerably in 2009, after the financial crisis. The estimates since 2010 are missing for a couple of years, but there is now a clear upward trend: by 2015/16, the share of income going to the top 0.1 percent was the second highest it had ever been (after 2009/10), and the top 1 percent’s share was the fourth highest ever (after 2006/7, 2007/8 and 2009/10, although data is missing for 2008/9). This suggests we should modify the story about recent inequality trends to one which recognises that, while gaps across most of the distribution might be shrinking, the very rich in the UK are continuing to pull away.

We also present new analysis of the characteristics of those on top incomes (specifically, in the top 10%, top 1%, top 0.1% and top 0.01%) that accounts fully for the composite records, confirming that those with the highest incomes tend to be male, aged 45 to 64, living in London or the south-east of England, and working in “finance, insurance and real estate” or providing “professional, scientific and technical services”. We estimate standard errors as best we can, using the bootstrap to account for the significant over-sampling of those on top incomes.

# **Top incomes in the UK: analysis of the 2015-16 Survey of Personal Incomes<sup>1</sup>**

Mike Brewer and Claudia Sámano-Robles<sup>2</sup>

**Abstract:** Using administrative tax data, we estimate top income shares for the UK through to 2015-16 (at the time of writing, the UK data held by the World Income Database stopped in 2014-15). Top income shares fell back considerably in 2009, but there is now a clear upward trend: by 2015/16, the share of income going to the top 0.1 percent was the second highest it had ever been (after 2009/10). Given Burkhauser et al. (2018a)’s findings that the main dataset used to measure income inequality in the UK does not capture the incomes of the very rich (even after a statistical correction), this suggests we should modify the story about recent inequality trends to one which recognises that, while gaps across most of the distribution might be shrinking, the very rich in the UK are continuing to pull away. We present new analysis of the characteristics of those in the top 10%, top 1%, top 0.1% and top 0.01% that accounts fully for the composite records, confirming that those with the highest incomes tend to be male, aged 45 to 64, living in London or the south-east of England, and working in “finance, insurance and real estate” or providing “professional, scientific and technical services”. We estimate standard errors using the bootstrap as best we can to account for the significant over-sampling of those on top incomes.

**JEL codes:** D63, H24

---

<sup>1</sup> This work was supported by the Economic and Social Research Council (ESRC) through the Research Centre on Micro-Social Change (MiSoC) at the University of Essex, grant number ES/L009153/1.

<sup>2</sup> Both from the Institute for Social and Economic Research, University of Essex. Contact: mbrewer@essex.ac.uk.

## 1. Introduction

Public debate and academic research on income inequality in the UK mostly uses the “Households Below Average Income” (HBAI) series (a misleading name, as it covers the whole of the income distribution) (see DWP, 2019)). HBAI is the name of both a micro-data-set and a report released each year by statisticians in the Department for Work and Pensions, part of the UK government; thanks to efforts by researchers at the Institute for Fiscal Studies, micro-data-sets consistent with HBAI are available back to 1961. The HBAI data-set in turn is derived from answers to a large, nationally-representative, government-run, household survey: the Family Resources Survey (FRS).<sup>1</sup>

It has long been suspected that the FRS does not give an accurate impression of the circumstances of those with very high incomes in the UK. As a result, the HBAI data-set has, for a number of years, featured a correction to the highest incomes (affecting less than the richest 2 percent).<sup>2</sup> However, the nature of the adjustment means that it is not possible to use the corrected HBAI data to analyse the characteristics of individuals with the highest incomes (because the adjustment imputes the same level of disposable income to all households that report an income above a certain threshold). And Burkhauser et al (2018a&b) argue that, even after the SPI adjustment, the HBAI series may be under-estimating the income of those with very high incomes.

An alternative to using data from household surveys to study inequality and the circumstances of those with the very highest incomes is to use data from administrative sources on incomes declared for tax purposes. The idea of using information from tax

---

<sup>1</sup> Before 1994, HBAI was derived from a different household survey, the Family Expenditure Survey, whose descendent is the Living Costs and Food Survey (LCFS). The LCFS is used by the Office for National Statistics to produce a different estimate of income inequality, the latest one being ONS (2019a).

<sup>2</sup> The correction is known as the SPI adjustment, and it is discussed in full in Burkhauser et al (2018b). A similar correction has just started to be applied to inequality estimates from the LCFS: see ONS (2019b).

authorities to learn about top incomes was pioneered by Thomas Piketty, Emmanuel Saez and the late Anthony Atkinson; their work was first collected together in Atkinson and Piketty (2007), and is now available at the World Inequality Database (WID) at <https://wid.world>).<sup>3</sup> The advantages of using data from tax authorities to learn about the income of the very rich are that there is lot of data (because everyone has to pay taxes); data is available for a lot of countries over very long time periods (including countries and time periods where no estimates are available from household surveys); the information is usually confirmed against what employers and financial institutions think to be the case, and there are penalties for getting it wrong. On the other hand, tax authorities care only about the sort of income that is taxable (and so this will certainly exclude unrealised capital gains, but also sources of cash income that do not need to be declared because they are not liable to income tax), and they know about income only if it is declared to them (see Alstadsæter et al, 2018 for estimates of how much income of the very rich is hidden in tax havens). Tax registers typically contain little information on demographic characteristics, and in countries with individual-level tax systems (like the UK), it is not possible to link taxpayers who are married to each other.

It is possible to study the circumstances of those with very high incomes in the UK using administrative data from the tax authority (HM Revenue and Customs): a random sample (that over-samples those on high incomes) is released each year for anyone to use, known as the Survey of Personal Incomes (SPI); the latest is HMRC (2018a). The information in the SPI, though, does not feature prominently in public or academic discussion about inequality or top incomes in the UK. There are several reasons for this. One reason is that the SPI dataset itself contains data only on the taxable income of taxpayers (and a few non-taxpayers), and by itself says nothing about overall inequality or even top income shares.<sup>4</sup> However,

---

<sup>3</sup> See Alvaredo et al. (2018) for a use of this data.

<sup>4</sup> As an exception, Atkinson and Jenkins (2019) use this data to construct a consistent measure of income inequality in the UK back to 1937.

Atkinson (2007) showed how to combine data from the SPI with other information (essentially, estimates of the total UK population and of total economy-wide income) to estimate top income shares, and the SPI is now the source of the UK data on top income shares held by the WID (see Alvaredo, 2017). Second, the SPI data for a particular year is available with a longer lag than HBAI: at the time of writing (March 2019), the latest HBAI referred to 2017-18, and the latest SPI to 2015-16. Third, the anonymization process applied to the SPI leads to there being a number of so-called “composite” cases which effectively means that full micro-data is not available for the very top incomes.

This note uses the SPI to estimate top income shares through to 2015-16 (at the time of writing, the UK data held by the WID stopped in 2014-15). We also present new analysis of the characteristics of those on top incomes (specifically, in the top 10%, top 1%, top 0.1% and top 0.01%) that accounts fully for the composite cases, pooling data from 2013-4 to 2015-16 to increase sample size; in doing so, we build upon and update Brewer et al. (2007) and Bell and van Reenan (2013). It should be stressed our approach, following that taken for the UK in the WID, is to take at face value the incomes reported in the SPI, and to make adjustments to correct only the denominators (total income, and the total population). This is different from (e.g.) Piketty et al. (2018), for example, where data from household surveys, tax authorities, and national accounts are combined in a way that provides estimates of the distribution of national income as recorded in national accounts. Section 2 describes how we processed the SPI to create estimates of top income levels and shares for 2015/16, and how we dealt with the composite cases. Section 3 presents results on top income shares and levels, and the fraction of income that is earned. Section 4 analyses the sex, age, region of residence and main industry of those in the top 10%. Section 5 concludes.

## 2. Data and methods

Our analysis is based on the Survey of Personal Incomes (SPI; the latest year is HMRC (2018a)). The SPI is a stratified random sample of taxpayers (plus some non-taxpayers) that over-samples those on higher incomes; see HMRC (2018b) or Burkhauser et al. (2018) for more details. SPI data is available for most years since 1995. We follow the process for turning the information in the SPI into estimates of top income level and shares set out in Alvaredo (2017), which itself builds on Atkinson (2007). At the time of writing, estimates of top income shares and levels were available from the WID up to 2014-15; we use the WID series as a validation of our own procedure for estimating top income shares from the SPI up to 2014-15, and additionally present our own estimates of top income shares and levels for 2015-16.

### *Control totals for 2015-16*

To estimate total income for 2015-16, we followed the process in Alvaredo (2017), taking data from ONS (2016). We were not able to replicate exactly Alvaredo's values for 2014/5, and so our estimate for 2015/16 is obtained by multiplying Alvaredo's estimate for 2014/15 by our estimated growth rate in total income from 2014/5 to 2015/16. This gave us an estimate of £1,144bn for total income, or a mean of taxable income per adult of £21,352, assuming a value for the total adult population (anyone aged 16 or over) of 53,579,245.

### *Process for estimating top income shares and levels*

We estimated all top income shares using the Stata command `pshare` (Jann, 2016), accounting for the grossing weights that are supplied with the SPI.<sup>5</sup>

---

<sup>5</sup> `Pshare` allows for the total income to be specified as a parameter, rather than being calculated from the data. It does not allow one to do the same for the total population, and so we increased the sampling weights of those in the bottom half of the distribution until the sum of the weights equalled the known population control total.



Following this procedure, and using the control totals provided by the WID, we also estimate the top incomes shares for the years available in the WID. Table 1 shows that we are not able to reproduce exactly the series at WID, but any differences are small; the mean difference between our estimated top 10% share and that for the WID for the years 1995 to 2015 is 0.096 percent (not percentage points, so we are out by less than 1 in a 1000); for the top 1% and top 0.1%, it is 0.229 percent and 0.417 percent respectively. Estimates for the top 0.01 percent (which are not available at WID) are likely to be subject to small sample bias (see Jann, 2016 for simulation results on this).

When analysing the characteristics of those in various income centiles, and to work out the levels of income needed to be in various centiles, we work directly from the discrete distribution of income implied by the micro-data (rather than, e.g., using the micro-data to estimate a continuous income distribution function). So we define “the top x%” as the richest  $N$  observations where the sum of the weights for the first  $N$  observations was strictly less than x% of the population (as given by the control totals), and the sum of the weights of the first  $N+1$  observations was greater than or equal to x% of the population.<sup>6</sup> For the cut-off, we take the lowest value of income in the top x%.

### ***Process for dealing with composite cases***

To preserve anonymity amongst those on very high incomes (and particularly when grossing factors fall below 2, meaning that a very rich individual has a greater than 50 percent chance of being included in the sample), HMRC combines the information on certain individuals into what they call “composite cases”. The procedure for doing this is described in HMRC (2018b). In practice, it means that these individuals are removed from the sample and

---

<sup>6</sup> The SPI comes with a set of grossing factors (FACT) which can be thought of as how many individuals in the UK are represented by the single entry in the micro data-set. No information is given on how these are calculated, but we assume they are akin to the inverse of the probability each individual had of being sampled. What is slightly unusual is that these grossing factors are not integers. Rounding or truncating these weights so that they become integers did not seem appropriate, and so we worked with non-integer weights throughout.

replaced with a single composite case that is assigned the average values of all financial variables, and the total grossing weight of the now-removed individuals. Information on the categorical variables is set to missing (-1), but information on the region of residence and the main industry of the individuals behind the composite case is published in an annex (HMRC always condition on sex and age-band when constructing composite cases). This procedure, then, does not alter total weighted income of the sample.

It is simple to undo this process so that we can recover the full breakdown of region of residence and industry of those on top incomes. To do so, we simply replace each composite observation with a number of synthetic individual observations (as many as were combined into the composite case), and then we assign these synthetic individuals values of region of residence and industry as specified in the annex. Figure 1 contains an example from the 2015-16 SPI, where the composite case has been formed from 4 individuals in the raw data-set, with a total grossing factor of 65.62. We replaced this observation with 4 observations, each with a grossing factor of  $65.62/4$ . We then set the values of region and industry of the first observation to “North West” and “Construction”, and so on. Of course, we have no way of knowing what is the joint distribution of region and industry, and we do not report that in this paper, but we can use these composite cases to look at how income is related to region and industry.

**[Figure 1 here]**

## **Inference**

Estimated standard errors for income shares were produced by the Stata command `pshare` (Jann, 2016).<sup>7</sup> The sample size of the SPI has increased over time, and this explains the general fall over time in the size of the estimated standard errors. Estimated standard errors for the fraction of income that is earned, and for the analysis of the characteristics of the very rich were computed using a bootstrap method. The SPI is a stratified sample with widely-varying sampling probabilities, but the Public Use Tape does not contain information that would allow researchers to identify the separate strata. As an approximation, we placed all observations with the same value of `FACT`, the grossing weight, into the same pseudo-strata. For each year, we then drew 999 stratified bootstrap samples using these pseudo-strata. The drawback to this method is that, for some years of the SPI, the grossing variable `FACT` can take some unusual values. In 2004/5, for example, there are 596 unique values of `FACT`, and so we have 596 pseudo-strata, 10.9% of which have 1 observation, and 23.1% of which have 10 or fewer observations (the 1-observation-strata account for 0.03% of the weighted population, and the strata with 10 or fewer observations contain 0.12% of the weighted population (unweighted, these are 0.01% and 0.08%)).

### **3. UK top income shares and levels through to 2015-16**

Table 1 reports our estimates of the level of taxable income of the very rich from 2015/16. In that year, anyone with an individual before-tax income of more than £42,900 was in the top 10 percent of adults in the UK (or the richest 5,360,000). To be in the top 1 percent (the richest 536,000), you would need three times as much, or at least £129,000 a year. To be in the top 10 percent of the top 1 percent –the richest 53,600 adults – you would need an income

---

<sup>7</sup> We used `svyset` to account for the unequal probability of being sampled, and the `est` option to `pshare`.

above £521,000, or another four times higher. And the richest 10 per cent of that group (that's the top 0.01 percent, or about the richest 5,360 people) all declared taxable incomes above £2,230,000. As Thomas Piketty said: "[t]he upper decile [group] is truly a world into itself. It includes some people whose income is just two or three times greater than the mean and others whose resources are ten or twenty times greater, if not more." (Piketty 2014, p252)

**[Table 1 here]**

Figure 2 shows our new estimates of top income shares in 2015-16, as well as shares for various groups not provided by the WID (the data points are shown in Table 2).

**[Figure 2 here]**

The share of pre-tax income that goes to the richest 1 percent of adults was at its lowest level in 1978, at slightly under 6 percent. Like the Gini coefficient, this measure of inequality rose through the 1980s, but it then continued to rise through the 1990s and the 2000s: in fact, the share of income going to the top 1 percent grew by more between 1990 and 2009 than it did in the 1980s. The share of income going to the top 0.1 percent went up by a half between 1996 and 2009, to reach 6.5 percent, or 65 times as much as in a world where income was shared equally. In 2015, the richest 0.01 percent of adults had just over 2.4 percent of income, or 241 times as much as they would have if all income was shared equally. Top income shares have risen so much that, in 2009 (the least-equal year on record, according to this data) the richest 0.1 percent had a larger share of national income than did the richest 1 percent in 1979 (the most-equal year); likewise, the top 1 percent in 2009 had a greater share of national income than did the top 10 percent in 1979.

Top income shares did fall back considerably in 2009, after the financial crisis. The estimates since 2010 are missing for a couple of years, but there is now a clear upward trend: by 2015/16, the share of income going to the top 0.1 percent was the second highest it had ever

been (after 2009/10), and the top 1 percent's share was the fourth highest ever (after 2006/7, 2007/8 and 2009/10, although data is missing for 2008/9). Amongst other rich economies in 2014, the fraction of income going to the top 1 percent in the UK was the 2<sup>nd</sup> highest amongst comparable rich nations, after the United States, where the richest 1 percent had 20 percent of all pre-tax income.<sup>8</sup>

As a measure of inequality, these top income shares are telling a different story from the Gini coefficient and the 90:10, which have hardly changed since the early 1990s and are lower now than immediately before the financial crisis (see Cribb et al., 2018; DWP, 2019). The careful forensic work in Burkhauser et al. (2018a) shows that the household survey data that underpins the main estimates of the Gini in the UK underestimates the incomes of the very rich (and therefore underestimates inequality), even after a correction has been made by government statisticians that tries to solve the problem.<sup>9</sup> In particular, there is a sharp rise in top incomes between 2004 and 2007 that is missed entirely by the data underpinning the conventional estimates of the Gini. It looks like we should modify the story about the recent trends in income inequality in the UK to one which recognises that, while gaps across most of the distribution are getting no worse (and might be shrinking in the main part of the distribution), the very rich are continuing to pull slowly away, as Piketty (2014) highlighted.

Figure 3 shows what fraction of top incomes are from earned income (as opposed to income from financial investments). In 2015-16, the vast majority of income in the top 10 percent, and even in the top 1 percent, is from earned income: only within the top 0.1 percent (the

---

<sup>8</sup> Foerster et al. (2014) compares top income shares in OECD countries, but there is more up-to-date data at [wid.world](http://wid.world). The richest 1 percent take a greater share of national income in China and South Africa than they do in the UK.

<sup>9</sup> Figure 5 of Burkhauser et al (2018a) suggests that the survey data underestimates the true Gini by between 0.5 ppts to just under 3 ppts in the worst year. The "SPI correction" is discussed in Burkhauser et al (2018b).

richest 53,600 adults) does income from financial assets come to more than a fifth of total income.<sup>10</sup>

**[Figure 3 about here]**

#### **4. Who are the UK's 1 percent? (and the 0.1 percent, and the 0.01 percent?)**

Tables 2, 3, 4 and 5 show how old are people in the richest 10 percent, their sex, where they live, and in what industries they work, having pooled SPI data from 2013/14 to 2015/16 (we identified in the top centiles within each year, and then pooled the data).<sup>11</sup>

Over this period, 28 percent of the richest 10 percent of adults are women, but only 19 percent of the richest 1 percent (about 536,000 adults), and 9 percent of the richest 0.01 percent (about 5,360 adults). The very rich are very likely to be between the ages of 45 and 65. About 1 in 6 of the richest 10 percent (about 5,360,000 adults) are under 35, but this is the case for only 1 in 20 of the richest 0.1 percent (about the richest 53,600), and those who are young and very rich are more likely than older, rich people to be working in arts, entertainment and recreation (which includes professional sportspeople) or to have no earned income. Of the richest 0.1 percent, less than a quarter live outside London, south-east England and the east of England; over half of the richest 0.01 percent live in London.

Some jobs are common amongst the top 10 percent, but are unlikely to be found amongst those with higher incomes: these include “education” and “manufacturing”, who are in the top 10 percent but unlikely to be in the top 1 percent, and healthcare professionals, who are in the top 1 percent, but very unlikely to be in the top 0.1 percent. Other than those working in

---

<sup>10</sup> Smith et al. (2018) show that much of the non-wage income at the top of the distribution in the United States is actually income from businesses that the wealthy people both own and work in, and so they argue that it should also be thought of as earned income, rather than representing the idle rich. It is not clear whether this also applies to the UK.

<sup>11</sup> We used the Stata command `proportion`, having `svyset` the data to account for the grossing weights.

the “arts, entertainment or in professional sports”, who are over-represented in the richest 0.01 percent, the two industries which become more common as we focus on those with higher incomes are “finance, insurance and real estate”; and those providing “professional, scientific and technical services” (a category that includes lawyers and architects). Over half of the top 0.1 percent work in these areas; Bell and van Reenan (2013, 2014) show that 60 percent of the growth in top incomes between 1998 and 2007 went to people working in “financial intermediation”.

## **5. Conclusion**

Using administrative tax data, we estimate top income shares for the UK through to 2015-16 (at the time of writing, the UK data held by the World Income Database stopped in 2014-15). Top income shares fell back considerably in 2009, but there is now a clear upward trend: by 2015/16, the share of income going to the top 0.1 percent was the second highest it had ever been (after 2009/10). Given Burkhauser et al. (2018a)’s findings that the main dataset used to measure income inequality in the UK does not capture the incomes of the very rich (even after a statistical correction), this suggests we should modify the story about recent inequality trends to one which recognises that, while gaps across most of the distribution might be shrinking, the very rich in the UK are continuing to pull away. We present new analysis of the characteristics of those in the top 10%, top 1%, top 0.1% and top 0.01% that accounts fully for the composite records, confirming that those with the highest incomes tend to be male, aged 45 to 64, living in London or the south-east of England, and working in “finance, insurance and real estate” or providing “professional, scientific and technical services”. We estimate standard errors using the bootstrap as best we can to account for the significant over-sampling of those on top incomes.

## References

- Alstadsæter, Annette, Niels Johannesen and Gabriel Zucman (2018) ‘Who Owns the Wealth in Tax Havens? Macro Evidence and Implications for Global Inequality’, *Journal of Public Economics* 162: 89-100.
- Alvaredo, F. (2017), “UK estimates of top income shares 2013-2014 and 2014-2015: Note on Methods”, WID.world Technical Note, <https://wid.world/document/uk-estimates-top-income-shares-2013-2014-2014-2015-note-methods-wid-world-technical-note-20172/>
- Alvaredo, F., Chancel, L., Piketty, T., Saez, E. and Zucman, G. (2018). *The World Inequality Report*, wir2018.wid.world
- Atkinson, A. (2007), “The Distribution of Top Incomes in the United Kingdom, 1908-2000” in A. Atkinson and T. Piketty (eds) (2007), *Top Incomes Over the Twentieth Century*, Oxford: Oxford University Press.
- Atkinson, A. and Jenkins, S. (2019), “A different perspective on the evolution of UK income inequality”, IZA Discussion Paper 11884.
- Atkinson, A. and Piketty, T. (eds) (2007), *Top Incomes Over the Twentieth Century*, Oxford: Oxford University Press.
- Bell, B. and Van Reenen, J. (2014), “Bankers and Their Bonuses”. *The Economic Journal*, 124: F1-F21. doi:10.1111/eoj.12101
- Bell, B., & Van Reenen, J. (2013). “Extreme Wage Inequality: Pay at the Very Top”. *The American Economic Review*, 103(3), 153-157. Retrieved from <http://www.jstor.org/stable/23469720>
- Brewer, M., Sibieta, L. and Wren-Lewis, L. (2007), “Racing Away? Income Inequality and the Evolution of High Incomes”, Institute for Fiscal Studies Briefing Note 76.



Burkhauser, R., Hérault, N., Jenkins, S. and Wilkins, R. (2018a), ‘Top incomes and inequality in the UK: reconciling estimates from household survey and tax return data’, *Oxford Economic Papers*, 70: 301–26. doi:10.1093/oep/gpx041

Burkhauser, R., Hérault, N., Jenkins, S. and 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), pp213-240.

Cribb, J., Norris Keiller, A. and Waters, T. (2018). *Living standards, poverty and inequality in the UK: 2018*, London: Institute for Fiscal Studies.

Department for Work and Pensions (2019), “Households Below Average Income: An analysis of the UK income distribution: 1994/95-2017/18”, <https://www.gov.uk/government/statistics/households-below-average-income-199495-to-201718>

Förster, M., A. Llana-Nozal and V. Nafilyan (2014), "Trends in Top Incomes and their Taxation in OECD Countries", OECD Social, Employment and Migration Working Papers, No. 159, OECD Publishing, Paris, <https://doi.org/10.1787/5jz43jhlz87f-en>.

HM Revenue and Customs. (2018a). “Survey of Personal Incomes, 2015-2016: Public Use Tape. [data collection]”. UK Data Service. SN: 8355, <http://doi.org/10.5255/UKDA-SN-8355-1>

HM Revenue and Customs. (2018b). “Survey of Personal Incomes, 2015-2016: Public Use Tape Documentation”. [http://doc.ukdataservice.ac.uk/doc/8355/mrdoc/pdf/8355\\_put1516\\_full\\_documentation.pdf](http://doc.ukdataservice.ac.uk/doc/8355/mrdoc/pdf/8355_put1516_full_documentation.pdf)

Jann, B. (2016). “Assessing inequality using percentile shares”. *The Stata Journal* 16(2): 264-300.

Office for National Statistics (2016), “UK National Accounts, The Blue Book: 2016”, <https://www.ons.gov.uk/economy/grossdomesticproductgdp/compendium/unitedkingdomnationalaccounts/bluebook/2016edition>

Office for National Statistics (2019a), “The effects of taxes and benefits on household income, disposable income estimate: 2018”, <https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/datasets/householddisposableincomeandinequality>

Office for National Statistics (2019b), “Using tax data to better capture top earners in household income inequality statistics”, <https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/articles/usingtaxdatabettercapturetopearnersinhouseholdincomeinequalitystatistics/2019-02-26>

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

Piketty, T., Saez, E. and Zucman, G. (2018), “Distributional national accounts: methods and estimates for the United States”, *The Quarterly Journal of Economics*, 133(2), 553-609.

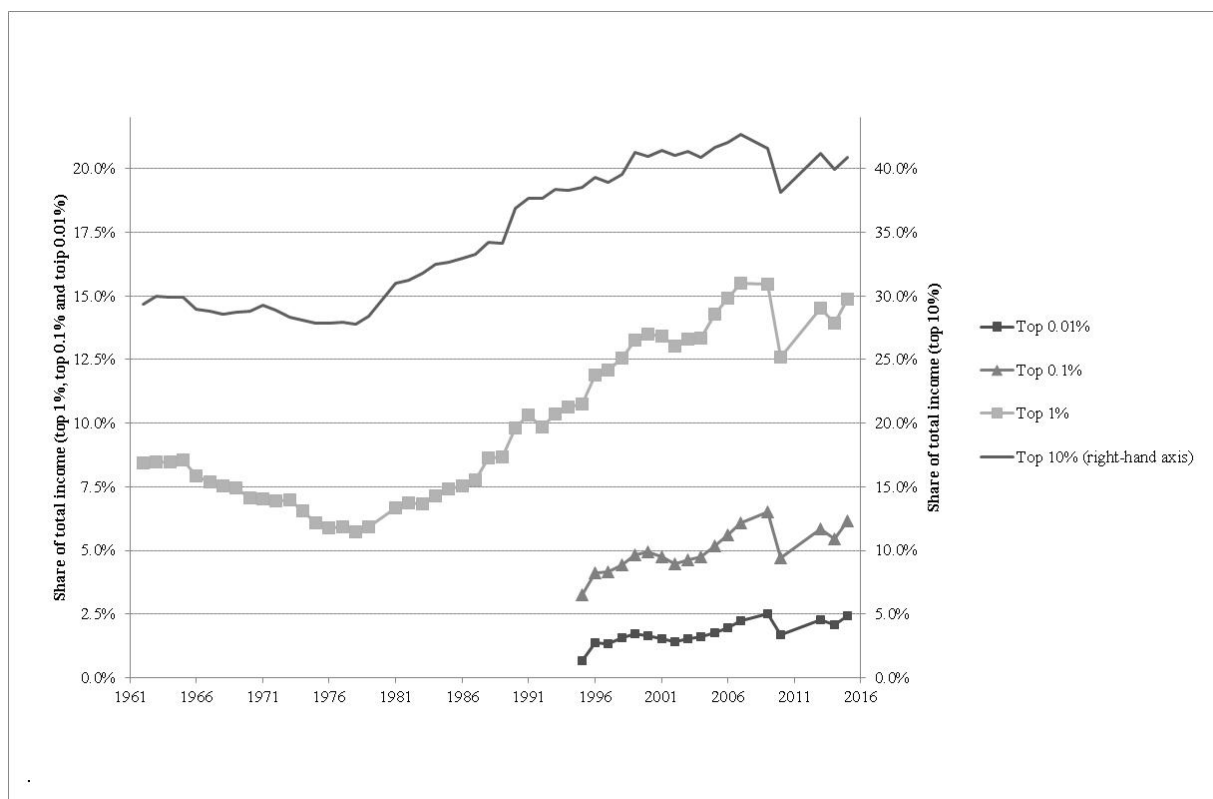
**Figure 1 Example of a composite record for the 2015-16 SPI.**

**ANNEX B: LIST OF COMPOSITE RECORDS ON PUBLIC USE TAPE**

Composite Record Number	1	Source:	SA
Gender	Male		
Stratum	101		
Income	Over £2.3m		
Grossing Factor	65.62		
Number of original cases	4		
Breakdown Of Composite Record	Code	Code Description	% Of Record With Code
	2	North West	25%
	7	London	25%
	10	Wales	25%
	11	Scotland	25%
	F	Construction	25%
	M	Professional, scientific and technical activities	25%
	1600	Those with any income from pensions	25%
	blank	Unknown	25%

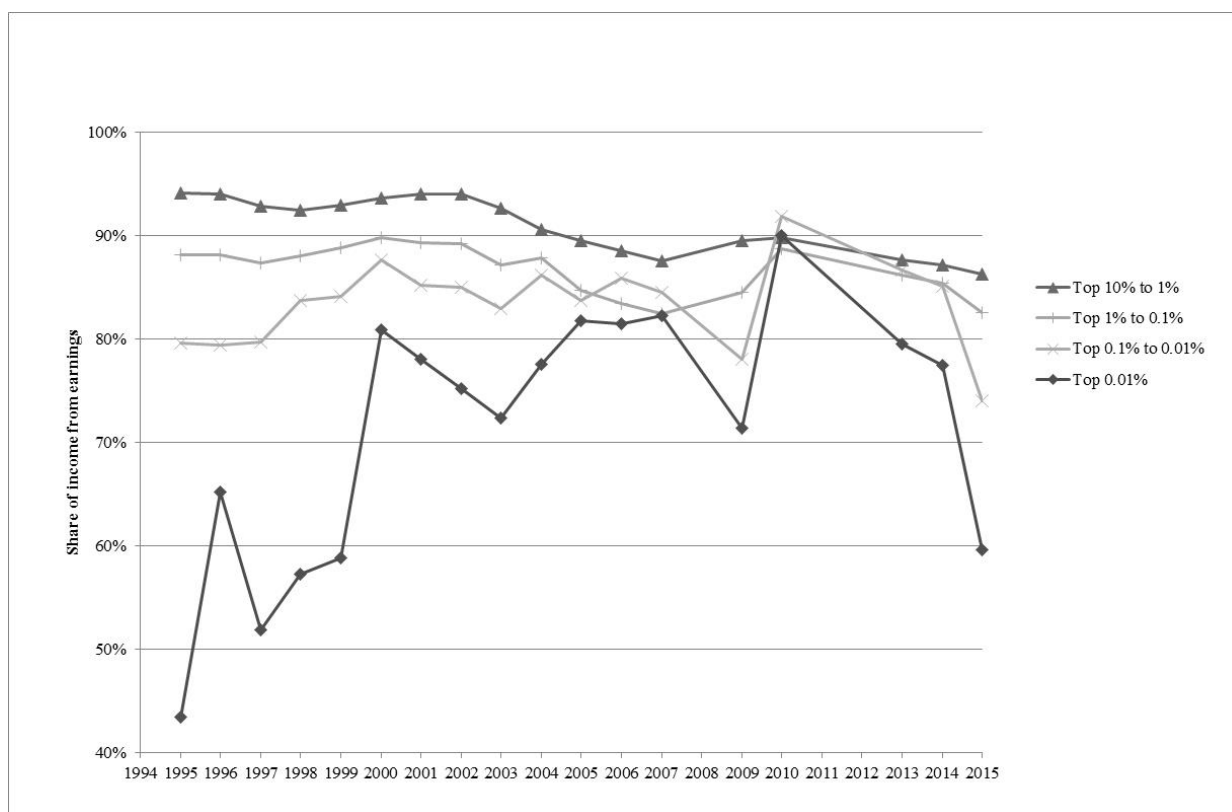
Source: HMRC (2018).

**Figure 2. Top income shares in the UK, 1961 to 2015-16**



Sources: Before 1995: downloaded from wid.world. After 1995: authors' calculations using the SPI and the methods described in Section 2.

**Figure 3. The fraction of top income in the UK that is earned, 1995/6 to 2015/16**



Sources: authors' calculations using the SPI and the methods described in Section 2.

**Table 1. Top incomes in the UK, 2015-16 (all in nominal £)**

To be in the top...	...you need to have an income of at least...	...and the average income in this group is...	Reminder: how many adults are in this group?
10 percent	£42,900 (£26)	£88,800 (£187)	5,360,000
10 percent but not the top 1 percent	£42,900 (£26)	£62,700 (£48)	4,820,000
1 percent	£129,000 (£208)	£323,000 (£1,810)	536,000
1 percent but not the top 0.1 percent	£129,000 (£208)	£210,000 (£392)	482,000
0.1 percent	£521,000 (£4,390)	£1,340,000 (£16,900)	53,600
0.1 percent but not the top 0.01 percent	£521,000 (£4,390)	£908,000 (£9,850)	48,200
0.01 percent	£2,230,000 (£50,000)	£5,250,000 (£118,000)	5,360

Note: authors' calculations using the SPI and the methods described in Section 2. All values rounded to 3 significant figures. Standard errors are shown in brackets, and are estimated by a clustered bootstrap, with 999 draws, assuming that economy-wide total income and population are known with certainty.

**Table 2. Top income shares in the UK**

	Top 10%		Top 1%		Top 0.1%		Top 0.01%
	SPI	WID	SPI	WID	SPI	WID	SPI
1995	0.385177 (0.010)	0.385100	0.107511 (0.009)	0.107423	0.032371 (0.007)	0.032400	0.006501 (0.0002)
1996	0.392986 (0.010)	0.393000	0.119026 (0.010)	0.119008	0.041256 (0.008)	0.041300	0.013548 (0.0049)
1997	0.389417 (0.006)	0.389400	0.120743 (0.006)	0.120706	0.041496 (0.005)	0.041502	0.013433 (0.0028)
1998	0.395153 (0.006)	0.394700	0.125583 (0.006)	0.125300	0.044508 (0.005)	0.044400	0.015856 (0.0039)
1999	0.413093 (0.006)	0.413294	0.132653 (0.006)	0.132386	0.048089 (0.005)	0.047948	0.017070 (0.0037)
2000	0.409926 (0.005)	0.409839	0.135141 (0.005)	0.135084	0.049435 (0.004)	0.049363	0.016453 (0.0027)
2001	0.414649 (0.005)	0.414107	0.134026 (0.004)	0.133861	0.047533 (0.004)	0.047525	0.015403 (0.0025)
2002	0.410308 (0.004)	0.410113	0.130169 (0.004)	0.130265	0.044694 (0.003)	0.044870	0.014096 (0.0023)
2003	0.413779 (0.005)	0.414036	0.132861 (0.004)	0.132389	0.046366 (0.004)	0.045709	0.015438 (0.0027)
2004	0.408964 (0.005)	0.408278	0.133393 (0.005)	0.133004	0.047296 (0.005)	0.047107	0.015986 (0.0031)
2005	0.416407 (0.006)	0.416090	0.142621 (0.006)	0.142238	0.051956 (0.005)	0.051772	0.017558 (0.0031)
2006	0.420805 (0.006)	0.419896	0.149158 (0.006)	0.148200	0.056068 (0.005)	0.055478	0.019598 (0.0034)
2007	0.426723 (0.006)	0.426153	0.155115 (0.006)	0.154400	0.060761 (0.005)	0.060500	0.022547 (0.0035)
2009	0.415778 (0.007)	0.415284	0.154689 (0.006)	0.154200	0.065033 (0.006)	0.064600	0.025046 (0.0042)
2010	0.381190 (0.002)	0.380828	0.126054 (0.002)	0.125500	0.047160 (0.002)	0.046600	0.016931 (0.0017)
2013	0.411973 (0.003)	0.412898	0.145281 (0.003)	0.145300	0.058460 (0.003)	0.058412	0.022713 (0.0024)
2014	0.399330 (0.003)	0.399900	0.139222 (0.003)	0.138800	0.054721 (0.002)	0.054800	0.020640 (0.0022)
2015	0.408753 (0.003)		0.148830 (0.003)		0.061770 (0.003)		0.024163 (0.0028)

Sources: SPI: authors' calculations using the SPI and the methods described in Section 2.

WID: downloaded from wid.world. Standard errors, as produced by pshare, are in parentheses.

**Table 3. Fraction of income that is earned amongst top centiles in the UK, 2015/16**

year	Top 10%	Top 10% to top 1%	Top 1%	Top 1% to top 0.1%	Top 0.1%	Top 0.1% to 0.01%	Top 0.01%
1995	0.914	0.941	0.845	0.881	0.762	0.796	0.435
	(0.0023)	(0.0024)	(0.0052)	(0.0073)	(0.0060)	(0.0066)	(0.0000)
1996	0.908	0.940	0.836	0.882	0.750	0.794	0.652
	(0.0034)	(0.0014)	(0.0074)	(0.0031)	(0.0102)	(0.0154)	(0.0139)
1997	0.895	0.929	0.818	0.873	0.714	0.797	0.519
	(0.0014)	(0.0015)	(0.0027)	(0.0031)	(0.0042)	(0.0057)	(0.0004)
1998	0.895	0.924	0.832	0.880	0.744	0.837	0.573
	(0.0028)	(0.0012)	(0.0078)	(0.0020)	(0.0181)	(0.0048)	(0.0300)
1999	0.901	0.929	0.839	0.888	0.753	0.841	0.588
	(0.0027)	(0.0012)	(0.0072)	(0.0019)	(0.0152)	(0.0047)	(0.0213)
2000	0.918	0.936	0.882	0.898	0.855	0.877	0.809
	(0.0010)	(0.0011)	(0.0020)	(0.0017)	(0.0038)	(0.0044)	(0.0052)
2001	0.918	0.940	0.870	0.893	0.829	0.852	0.780
	(0.0008)	(0.0006)	(0.0020)	(0.0013)	(0.0044)	(0.0042)	(0.0118)
2002	0.917	0.940	0.868	0.893	0.820	0.850	0.752
	(0.0008)	(0.0006)	(0.0020)	(0.0015)	(0.0045)	(0.0040)	(0.0102)
2003	0.900	0.926	0.845	0.872	0.796	0.829	0.724
	(0.0007)	(0.0006)	(0.0017)	(0.0014)	(0.0040)	(0.0054)	(0.0098)
2004	0.892	0.905	0.863	0.878	0.834	0.862	0.776
	(0.0009)	(0.0008)	(0.0020)	(0.0017)	(0.0042)	(0.0049)	(0.0053)
2005	0.877	0.895	0.842	0.847	0.831	0.838	0.818
	(0.0007)	(0.0007)	(0.0016)	(0.0016)	(0.0033)	(0.0067)	(0.0111)
2006	0.869	0.886	0.838	0.835	0.844	0.859	0.815
	(0.0008)	(0.0007)	(0.0017)	(0.0017)	(0.0038)	(0.0041)	(0.0079)
2007	0.859	0.875	0.830	0.825	0.837	0.846	0.822
	(0.0008)	(0.0008)	(0.0017)	(0.0017)	(0.0036)	(0.0043)	(0.0085)
2009	0.863	0.895	0.807	0.845	0.755	0.780	0.713
	(0.0018)	(0.0006)	(0.0041)	(0.0017)	(0.0085)	(0.0057)	(0.0189)
2010	0.898	0.899	0.897	0.887	0.912	0.919	0.900
	(0.0006)	(0.0006)	(0.0017)	(0.0013)	(0.0040)	(0.0035)	(0.0093)
2013	0.868	0.876	0.852	0.862	0.839	0.867	0.795
	(0.0009)	(0.0006)	(0.0023)	(0.0015)	(0.0051)	(0.0047)	(0.0104)
2014	0.861	0.871	0.842	0.854	0.822	0.851	0.775
	(0.0012)	(0.0006)	(0.0033)	(0.0015)	(0.0076)	(0.0047)	(0.0156)
2015	0.828	0.863	0.767	0.825	0.684	0.741	0.597
	(0.0022)	(0.0007)	(0.0063)	(0.0017)	(0.0106)	(0.0064)	(0.0208)

Note: authors' calculations using the SPI and the methods described in Section 2. Standard errors in parentheses used the bootstrap.

**Table 4. Age distribution within top income centiles in the UK, 2013/4 to 2015/16**

<b>Percent who are aged:</b>	<b>Top 0.01%</b>	<b>Top 0.1%-0.01%</b>	<b>Top 1%-0.1%</b>	<b>Top 10%-1%</b>
Under 25	0.7	0.5	0.2	0.5
	0.2	0.1	<0.1	<0.1
25 - 34	5.3	4.3	6.6	14.2
	0.6	0.2	0.1	0.1
35 - 44	17.1	25.1	27.6	26.8
	0.9	0.4	0.1	0.1
45 - 54	48.3	42.1	36.3	29.4
	1.2	0.4	0.1	0.1
55- 64	21.8	20.2	19.6	17.8
	1.0	0.3	0.1	0.1
65 -74	5.2	5.6	6.4	7.7
	0.6	0.2	0.1	<0.1
75 and over	1.6	2.1	3.2	3.6
	0.3	0.1	<0.1	<0.1
All	100	100	100	100

Note: authors' calculations using the SPI and the methods described in Section 2. Standard errors used the bootstrap.

**Table 5. Sex distribution within top income centiles in the UK, 2013/4 to 2015/16**

<b>Percent who are:</b>	<b>Top 0.01%</b>	<b>Top 0.1%-0.01%</b>	<b>Top 1%-0.1%</b>	<b>Top 10%-1%</b>
Female	8.8	12.1	19.3	28.9
s/e	0.7	0.3	0.1	0.1

Note: authors' calculations using the SPI and the methods described in Section 2. Standard errors used the bootstrap.



**Table 6. Distribution of region of residence within top income centiles in the UK, 2013/4 to 2015/16**

<b>Percent who live in:</b>	<b>Top 0.01%</b>	<b>Top 0.1%-0.01%</b>	<b>Top 1%-0.1%</b>	<b>Top 10%-1%</b>
North East	0.9	0.6	1.5	2.8
	0.3	0.1	<0.1	<0.1
North West	5.2	3.8	6	8.8
	0.5	0.2	0.1	0.1
Yorkshire and the Humber	2.3	2.6	4.3	6.1
	0.4	0.1	0.1	<0.1
East Midlands	2.0	2.7	4.5	6.1
	0.3	0.1	0.1	<0.1
West Midlands	2.1	3.1	4.9	6.9
	0.4	0.1	0.1	<0.1
East of England	8.4	10.6	11.3	11
	0.7	0.3	0.1	0.1
London	50.5	42.3	28.5	18.4
	1.2	0.4	0.1	0.1
South East	17.8	22.4	22.2	18.5
	0.9	0.4	0.1	0.1
South West	3.9	4	6	7.9
	0.5	0.2	0.1	0.1
Wales	0.7	0.7	1.7	3.2
	0.2	0.1	<0.1	<0.1
Scotland	3.9	3.9	6.3	7.9
	0.5	0.2	0.1	<0.1
Northern Ireland	0.1	0.7	1.1	1.6
	0.1	0.1	<0.1	<0.1
Address abroad	1.2	1.1	0.6	0.3
	0.3	0.1	<0.1	<0.1
Address unknown	1.0	1.6	0.8	0.5
	0.2	0.1	<0.1	<0.1
All	100	100	100	100

Note: authors' calculations using the SPI and the methods described in Section 2. Standard errors used the bootstrap.

**Table 7. Distribution of main industrial sector within top income centiles in the UK, 2013/4 to 2015/16**

<b>Percent who live in:</b>	<b>Top 0.01%</b>	<b>Top 0.1%-0.01%</b>	<b>Top 1%-0.1%</b>	<b>Top 10%-1%</b>
No earned income	13.8	12.5	15.7	14.8
	0.8	0.3	0.1	0.1
Manufacturing and construction	4.5	6.3	8	14.4
	0.5	0.2	0.1	0.1
Wholesale and retail trade; mechanics	6.6	6.5	7.7	7.9
	0.6	0.2	0.1	0.1
Information and communication	4.6	4.9	8	8
	0.5	0.2	0.1	0.1
Financial, insurance and real estate	36.2	30.4	19.2	7.8
	1.2	0.4	0.1	0.1
Professional, scientific and technical	12.6	23.9	16.6	11.7
	1.0	0.4	0.1	0.1
Public administration and defence	0	0.2	0.7	4.2
	<0.1	<0.1	<0.1	<0.1
Education	0.7	0.5	1.5	7.7
	0.2	0.1	<0.1	<0.1
Health and social work	0.2	0.9	9.3	7.5
	0.1	0.1	0.1	<0.1
Arts, entertainment and recreation	6.3	2.3	1.1	0.9
	0.6	0.1	<0.1	<0.1
Other	6.7	6.9	8.9	12.1
	0.6	0.2	0.1	0.1
Missing	7.9	4.8	3.3	2.8
	0.7	0.2	0.1	<0.1
All	100	100	100	100

Note: authors' calculations using the SPI and the methods described in Section 2. Some categories have been combined. Standard errors used the bootstrap.