Inequality

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Twenty-five years of income inequality in Britain: the role of wages, household earnings and redistribution

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ESRC **CENTRE** FOR THE MICROECONOMIC ANALYSIS OF **PUBLIC POLICY**

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Abstract: We study earnings and income inequality in Britain over the 25 years prior to the COVID-19 pandemic. We focus on the middle 90% of the income distribution, within which the gap between top and bottom in 2019–20 was essentially the same as a quarter-century earlier. We show that this apparent stasis is in fact the net effect of various mutually offsetting changes which are important in their own right. The proportion of working-age households with no one in paid work has been falling for most of the period, reducing inequalities in household labour income across the working-age population. Between the mid 1990s and the Great Recession, however, the gap in earnings between low-earning working households and higher-earning working households was rising, due in part to an increasing tendency for low-wage men to work part-time. But increasing fiscal redistribution kept the gap in disposable income between those same households roughly constant, while also closing the gap between the incomes of workless households and the rest. Together with the falls in worklessness, this was sufficient to achieve some decline in income inequality across the middle 90% of the distribution. In the past decade, key trends turned around. Household earnings inequalities reversed direction, as hours of work for low-wage men stopped falling and hourly wage growth was strongly progressive for both men and women – in part due to a rising minimum wage. Yet household disposable income inequalities also reversed, in the opposite direction, due to large cuts to working-age income-related transfers.

Keywords: inequality, labour market, redistribution. *JEL codes:* D31, E24, J3.

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1.   Introduction

After increasing sharply through the 1980s, inequality in net (post-tax-and-transfer) household incomes in Britain has changed little across most of the distribution over the past quarter-century, except at the very top where incomes did continue to pull away until at least the financial crisis of 2008. The overall stasis in net household income inequality across most of the distribution largely reflects two episodes offset by a third: a period of 'inclusive growth' in the late 1990s and early 2000s when inequality fell while incomes were growing strongly; the Great Recession and its aftermath, in which incomes fell more towards the top of the distribution; and then the period starting in the mid 2010s and running up to the start of the COVID-19 pandemic, in which incomes at the bottom of the distribution fell back, at the back-end of the period of fiscal austerity triggered by the previous recession.

This paper provides a thorough account of why income inequality in Britain has behaved in this way, examining the transmission mechanisms between hourly wages and net household incomes – in particular, changes in hours of work, the combination of individual earnings patterns within households, taxes and state benefit incomes.

This paper builds upon previous work by some of the same authors (Belfield et al., 2017). Compared with that work, we incorporate an additional five years of data from UK household surveys which takes us right up to the eve of the COVID-19 pandemic and means that, when examining how trends have changed, we can consider the whole period of post-Great-Recession austerity from 2011 to 2019, as well as the immediate economic aftermath of the Brexit vote in 2016. As we shall see, the additional data highlight some striking points of contrast with the long-term trends previously drawn out.

There were two episodes over the past quarter-century in which the 90:10 measure of income inequality fell in the UK. These episodes were associated with radically different macroeconomic performance. The first episode, from 1997–98 to 2004–05, coincided with

robust growth in GDP, employment and earnings. The second period, between 2007–08 and 2011–12, coincided with the Great Recession and its aftermath, with falls in employment, output and (particularly) workers' pay. These episodes of falling income inequality (across most of the distribution) were very different from trends seen in the equivalent periods in the United States (US), when income inequality rose (Meyer and Sullivan, 2013).

In this paper, we show that the trends in disposable household income inequality are the combined effect of various factors. One way to appreciate this is to contrast household incomes with male wages, which remain the single largest source of income for many households. The falls in income inequality across most of the distribution between 1994 and 2011 in Britain represented a striking divergence between trends in male wage inequality and household income inequality, depicted in Figure 1. The 90:10 ratio for both male wages and household incomes was 4.1 in 1994, but while the 90:10 ratio in male wages had risen to 4.6 by 2015, the 90:10 ratio in household incomes had fallen to 3.9.

Figure 1. 90:10 ratio for male hourly wages and net household income, 1994 to 2019
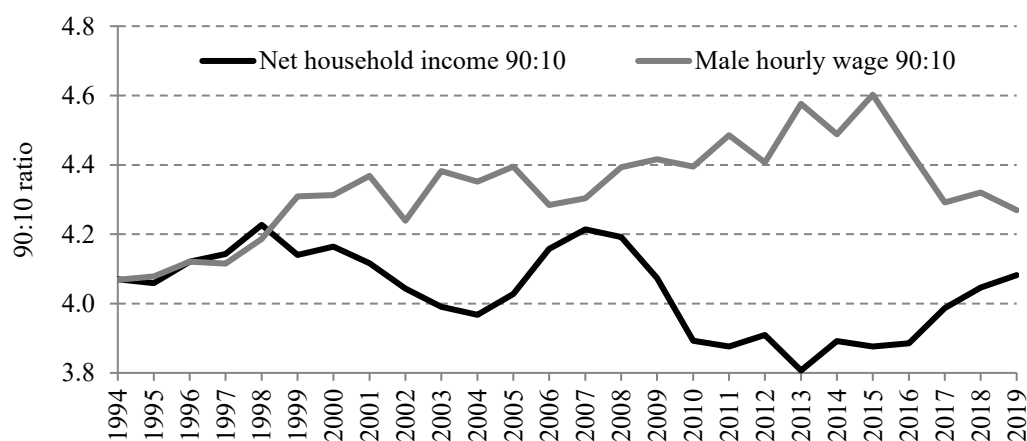
Note: Household incomes have been measured net of direct taxes and state benefits, and are equivalised using the modified OECD equivalence scale. Years refer to financial years.
Source: Authors' calculations using the Households Below Average Income data set (which adjusts top incomes for under-coverage using replacement values from the Survey of Personal Incomes).

However, we also identify a more recent episode which is a mirror image of those trends. Between 2015 and 2019, male hourly wage inequality fell back considerably, to virtually its lowest level since the late 1990s, driven by considerable increases in the minimum wage. And yet net household income inequality began to rise again over the same period, returning the 90:10 ratio to around its early-2000s level. Taken as a whole, then, we have a pattern that is, at first sight, very curious: trends in male wage inequality and household income inequality over the past 25 years look fairly strongly negatively correlated.

In explaining these patterns, we document a number of facts. First, from the mid 1990s to the end of the 2000s, male earnings inequality of employees in Britain increased. This was partly because of an increase in male hourly wage inequality, but also because of falls in the number of hours worked by low-wage working men. At the same time, the rise in female labour market attachment continued, leading to women's earnings catching up to a significant degree with men's, and to reductions in female earnings inequality as the number of women working very few hours per week fell. But the catch-up of women with men was largely reducing earnings inequalities *within*, rather than across, households. As a result, the higher inequality in male earnings – which remain the largest source of household income, on average – drove higher *household* earnings inequality for *working* households. However, there were also substantial rises in employment, and falls in household worklessness, over this period. This means that when we consider household earnings inequality measured across the whole working-age population (i.e. including workless households), the patterns look very different – with very large growth in household earnings within the lowest fifth of the distribution.

Second, the role played by increased working-age benefits and tax credits was substantial during the late 1990s and the 2000s. There were deliberate increases in fiscal redistribution towards poorer families with children through to 2009, and the benefits system insured poorer

families against the large earnings shock associated with the Great Recession to a significant degree. There was also a catch-up of pensioners with working-age households – partly a result of state pension reforms, but partly due to rises in private pension income across successive cohorts of pensioners. All of these factors acted to push down household income inequality during the period from 1994 to 2011.

Third, during the 2010s, and especially the second half of the decade, many of those patterns were reversed. Over this period, household earnings inequality fell, as both male and female earnings inequality fell considerably. This was driven in particular by higher growth in hourly wages towards the bottom as the minimum wage for those aged 25+ was raised sharply. It was also helped by the fact that the rise in part-time work among low-wage men levelled off. As with the period from 1994 to 2011, large falls in household worklessness again acted to push down household earnings inequality when considered across the whole working-age population. However, despite all this, inequality in household net incomes moved in the opposite direction to inequality in household earnings: as wage and earnings inequalities were falling, reductions in the generosity of state transfers for working-age families – which had begun in 2011 as part of the attempts at fiscal consolidation after the Great Recession – were accelerating. Overall, net income inequality across most of the income distribution therefore rose.

The rest of the paper is set out as follows. Section 2 discusses the previous literature in this area and our contribution to it. Section 3 discusses the data and methodology. Section 4 explores the patterns underlying changes in inequality in households' labour incomes, examining changes in employment, hourly wages and hours of work and how these have combined within households. Section 5 analyses how taxes, transfers and other unearned incomes have contributed, and brings in pensioners. Section 6 concludes.

2. Relationship to other literature

This paper contributes to a large literature on trends in income inequality in recent decades (other work on the UK includes, but is not limited to, Cowell and Jenkins (1994), Jenkins (1995 and 2017), Atkinson (1997 and 1999), Brewer and Wren-Lewis (2016), Advani and Summers (2020), Advani et al. (2020) and Bourquin, Brewer and Wernham (2021)). The closest cousins of this paper are the papers by Blundell and Etheridge (2010), who examine wage, earnings, income and consumption inequalities up to 2005, Belfield et al. (2017), who analyse trends up to 2014, and Blundell et al. (2018), who compare the UK and US experiences. This paper also relates to a literature that analyses the extent of insurance against labour market shocks provided by the tax and transfer system (e.g. Blundell, Pistaferri and Preston, 2008; Dolls, Fuest and Peichl, 2012) and family labour supply (e.g. Blundell, Pistaferri and Saporta-Ecksten, 2016).

With data only running up to 2019–20, we do not examine the varied effects on income inequalities of the COVID-19 pandemic, and we could not do so on a consistent basis as official household income data are not yet available covering that period. But there have been many efforts to understand the immediate impacts of the pandemic on income inequalities, as reviewed by Stantcheva (2021). A conclusion from this is that, in many countries (including the UK), the distinction between pre- and post-tax-and-transfer income is absolutely crucial – which, it turns out, fits closely with the analysis we present here looking over a much longer period and not confined to times of crisis. The general tendency appears to have been for disposable income inequality to fall slightly during the pandemic, cushioned by large-scale state intervention in the face of rising inequality in market incomes (Almeida et al., 2020). Of course, the longer-term impacts may well be very different.

It is well established that, along with many other countries – the US in particular (see Cutler and Katz (1992), Gottschalk and Smeeding (1997) and Bourquin, Brewer and Wernham

(2021)) – the most dramatic changes in income inequality in recent British history occurred in the 1980s. This is shown in Figure 2, which tracks inequality in net equivalised household income in Great Britain since comparable data began in 1961. The Gini coefficient for net household income rose from 0.26 in 1980 to 0.34 by 1990, and the 90:10 household income ratio rose from 3.2 to 4.4 over the same period. Income inequality also increased markedly in the US over that period (Cutler and Katz, 1992) and, to a lesser extent, in other advanced economies (Bourquin, Brewer and Wernham, 2021). The large literature investigating the causes of this rise in inequality concluded that rising wage inequality was a key driver in the US, with skill-biased technological change typically the favoured major explanation (Levy and Murnane, 1992; Katz and Murphy, 1992; Bound and Johnson, 1992; Autor, Katz and Kearney, 2008). In Britain, skill-biased technological change did result in rising wage inequality (Machin, 2001), but the compounding factors of weaker trade unions (Machin, 1996; Goodman and Shephard, 2002) and regressive changes to the tax and benefit system (Johnson and Webb, 1993) also contributed to the increase in income inequality during the 1980s.

Figure 2. The Gini coefficient and 90:10 ratio in Great Britain, 1961 to 2019
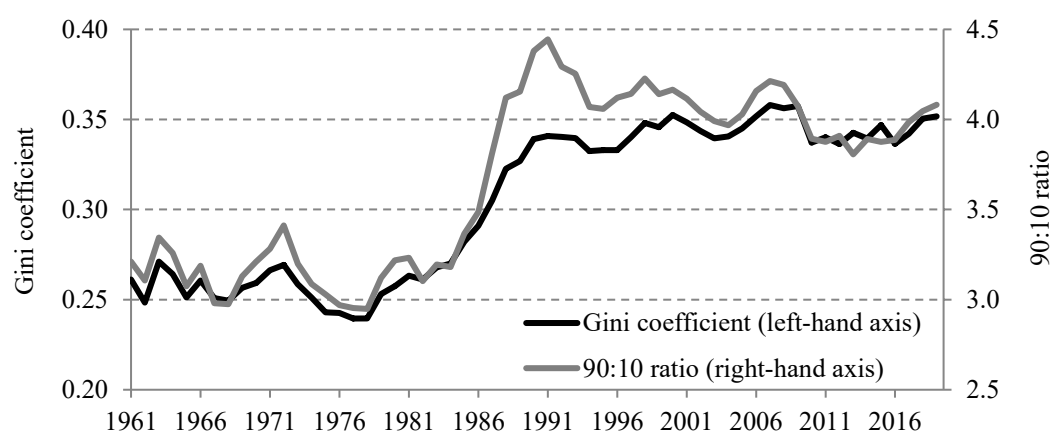
Note: The two series in this graph measure inequality in household incomes. Household income is measured net of direct taxes and state benefits, and is equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards.
Source: Authors' calculations using the Family Expenditure Survey (up to 1993–94) and the Households Below Average Income data set from 1994–95. Top incomes adjusted for under-coverage using replacement values from the Survey of Personal Incomes.

Figure 2 shows that there has been relatively little sustained change in the Gini coefficient since the early 1990s. However, as a single summary statistic, this masks the fact that the share of income going to the highest-income people (people with the top 1% of incomes) clearly continued to increase right up until the onset of the Great Recession in 2008, since when it has fluctuated around this relatively high level (see Figure 3). Meanwhile, income inequality across the large majority of the income distribution was actually falling over that period, as indicated by the decline in the 90:10 ratio. Importantly, that trend was partially unwound in the late 2010s, when the 90:10 ratio rose once more to about its late-1990s level, and we unpick the reasons for this later in the paper.

Figure 3. Top 1% share of household income in Great Britain, 1961 to 2019
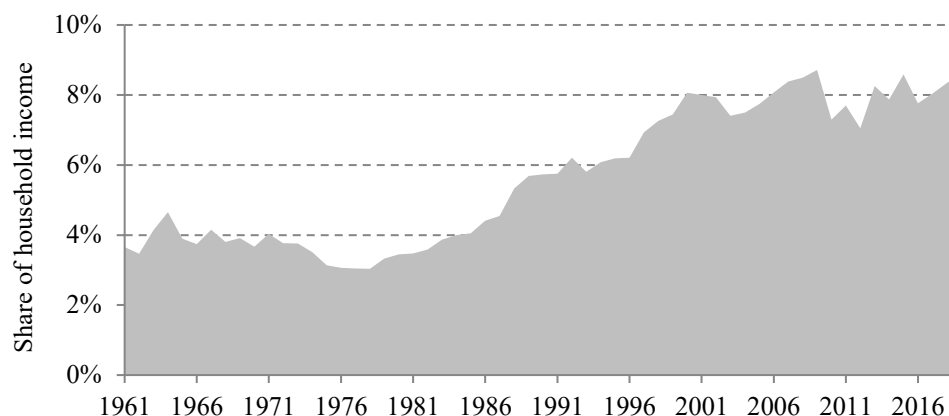
Note: Household income is measured net of direct taxes and state benefits, and is equivalised using the modified OECD equivalence scale. Years refer to calendar years up to and including 1992 and to financial years from 1993–94 onwards. Source: Authors' calculations using the Family Expenditure Survey (up to 1993–94) and the Households Below Average Income data set from 1994–95. Top incomes adjusted for under-coverage using replacement values from the Survey of Personal Incomes.

This contrast between trends in income inequality at the very top and over the rest of the distribution went hand-in-hand with a bifurcation between two strands of literature. Analyses of broad inequality in earnings, income and consumption trends across the population tend to use household survey data due to the richness of information that they contain on each household (e.g. Heathcote, Perri and Violante, 2010; Fisher, Johnson and Smeeding, 2013; Aguiar and Bils, 2015). Meanwhile, a 'top incomes' literature documents the increasing

shares of total income accruing to the very top in the UK and elsewhere (Atkinson, 2005; Dew-Becker and Gordon, 2005; Piketty and Saez, 2006; Kaplan and Rauh, 2010; Atkinson, Piketty and Saez, 2011; Jenkins, 2017; Advani and Summers, 2020), and a related set of work seeks to explain this phenomenon (e.g. Bell and Van Reenen, 2013 and 2014; Gabaix and Landier, 2008; Rosen, 1981; Advani et al., 2020). The empirical top incomes literature tends to use administrative data sources because of under-coverage of top incomes in household surveys. Recent work has sought to integrate these literatures by combining data sources (Burkhauser et al., 2018a and 2018b). Jenkins (2017) examines how trends in incomes at the very top have affected overall income inequality. These last three papers show that top incomes have pulled away to an even greater extent than survey-based estimates have captured.

Here, though, we focus on the other important, and perhaps more surprising, inequality phenomenon – a story of relatively flat inequality across the vast majority of the distribution for a quarter of a century, notwithstanding an uptick prior to the pandemic in the late 2010s. This comes, then, with the important caveat that we are largely disregarding the tails of the distribution, which seem to drive a significant amount of the public and policy focus on inequality. But it means that we can use comprehensive survey data on the levels and structure of household incomes to analyse the mechanics of inequality change in detail right down to the level of hourly wages. Trends in incomes at the very top of the distribution will be covered in detail elsewhere in the IFS Deaton Review of Inequalities.

3.   Data and methodology

Our analysis is based primarily on the UK's Family Resources Survey (FRS). This is a repeated cross-section containing between 20,000 and 25,000 households in each financial year from 1994–95 to 2019–20. The data are collected by the UK government's Department

for Work and Pensions (DWP) over the period of a financial year (April–March). Net income variables derived from the FRS data (and, to correct for under-coverage of top incomes, replacement values derived from administrative tax return data) are published by DWP as a data set known as 'Households Below Average Income' (HBAI).[1]

The survey aims to capture all the income received by the household, including labour income, the large range of state benefits and tax credits, and other unearned income such as that from private pensions or dividends. It also records direct taxes paid. Like virtually all survey data on incomes, the income concept is essentially 'cash income' – capital gains are not captured, for example.[2] It is, however, ideally suited to the study of labour income at both the individual and household levels, and its interaction with taxes and transfers, across the bulk of the population, which is the focus of this paper. Descriptions of all the samples and the measures of income and earnings used in this paper can be found in Appendix Tables A1 and A2.

Given that Northern Ireland was only included in the data from 2002–03 onwards, for consistency we drop all households from Northern Ireland in the data and focus on trends in Great Britain alone. We adjust for inflation using a variant of the Consumer Prices Index which includes mortgage interest payments, as in the official HBAI statistics.[3]

Our focus is on explaining movements in inequality across most of the distribution and so we disregard the extreme tails. Hence we generally restrict attention to wages, earnings and incomes between the 5th and 95th percentiles of their respective distributions. There is a large

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[1] For methodological details regarding the creation of these data, see
https://www.gov.uk/government/collections/households-below-average-income-hbai--2.

[2] Advani and Summers (2020) additionally consider the impact of income from capital gains on top income inequality.

[3] This measure of inflation is produced for DWP by the UK's Office for National Statistics. The deflator used in this analysis can be found at https://ifs.org.uk/uploads/Poverty%20and%20Inequality.xlsx.

amount of overlap (in terms of the sample that is used) between the middle 90% of the different distributions we use in the analysis.[4]

This trimming has the advantage of removing those parts of the distribution over which we have most reason to be concerned about measurement error. For hourly wages, the fifth percentile in 2019–20 was around £5.75, which was about 70% of the level of the minimum wage for those aged 25+.[5] Towards the very bottom of the household income distribution, there is little relationship between expenditure and income (except within the bottom 1%, where expenditure is actually decreasing in income); and, focusing specifically on the bottom 1%, modelling work has ruled out consumption smoothing as the sole cause of this and hence has favoured mismeasurement as the major explanation (Brewer, Etheridge and O'Dea, 2017).

At the top of the income distribution, survey data including the FRS are known to under-record incomes. Jenkins (2017) shows that during the 2000s this under-coverage in the FRS tended to apply from approximately the 95th percentile (during the 1990s it was primarily the top 1% that was mismeasured). The official HBAI series applies an adjustment to top incomes for this reason, and recent work by Burkhauser et al. (2018a) has suggested a refinement to the adjustment which reveals there was a marked increase in income inequality in the early 2000s that survey-based estimates do not reveal. However, these adjustments are based on replacing incomes at the top with cell-mean values from tax return data. This would not be adequate for the purposes of our analysis because we want to drill right down to the

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[4] For example, of the male employees in the middle 90% of the male hourly wage distribution, 98% are in the middle 90% of the net household income distribution. The equivalent fraction for female employees is 99%.

[5] Analysis using hourly wages often trims hourly wages at a fraction of the minimum wage. For example, Attanasio et al. (2015) drop individuals with wages measured to be less than three-quarters of the minimum wage in the US.

components of income, and indeed to hourly wages. We do, however, note where our findings would be different if we included the very top of the distribution.

To quantify the contributions of different factors to changes in inequality, we use decomposition techniques, as was done in Belfield et al. (2017). For this purpose, we use three distinct decomposition techniques and three different summary measures of inequality, in order to understand the contribution to inequality of multiplicative and additive components of income, and changes within and between subgroups of the population. These are outlined in turn below.

To decompose the change in inequality in weekly earnings as a multiplicative function of hours and wages, we take the variance of (natural) log weekly earnings and use the following identity:

$$var(ln(wh)) \equiv var(ln(w)) + var(ln(h)) + 2cov(ln(w), ln(h)), \qquad [1]$$

where w is the hourly wage and h is hours worked per week.

To decompose inequality in household earnings as the sum of the earnings of the main earner and those of additional earners, we can decompose the I_2 measure of inequality (half the squared coefficient of variation). Denoting household earnings by Y, with mean μ and variance σ^2, and separating it into two additive components so that $Y = y_a + y_b$, with μ_a and μ_b the respective means and σ_a^2 and σ_b^2 their variances, then $I_2(Y)$ can be decomposed in the following way:

$$I_2(Y) \equiv \frac{\sigma^2}{2\mu^2} \equiv \frac{\sigma_a^2}{2\mu_a^2}\left(\frac{\mu_a^2}{\mu^2}\right) + \frac{\sigma_b^2}{2\mu_b^2}\left(\frac{\mu_b^2}{\mu^2}\right) + \frac{cov(y_a, y_b)}{\mu_a\mu_b}\left(\frac{\mu_a\mu_b}{\mu^2}\right). \qquad [2]$$

The first of the three terms captures inequality in the first income source (which in our application is the earnings of the main earner), scaled by a measure of the aggregate size of that income source relative to total income. The second term is analogous for the second

income source (which in our application is the earnings of any additional earners). The third

term captures the relationship between the two income sources, scaled by a measure of

inequality between the two sources. In combination, these terms help us to understand the

role of changes in inequality of each income source and the covariance between them.

Finally, we decompose changes in inequality into those changes in inequality within and

between different groups (such as pensioners and non-pensioners). We use the decomposition

of the I_0 measure of inequality ($I_0 = \frac{1}{n}\Sigma_i ln\left(\frac{\mu}{y_i}\right)$), also known as the mean log deviation

(MLD). Mookherjee and Shorrocks (1982) show that the change in the MLD can be

approximately decomposed into the contributions of changes in inequality 'within' groups,

changes in inequality 'between' groups, and changes in the population share of each group:

$$\Delta I_0 = \Sigma_k \bar{s}_k \Delta I_{0,k} + \Sigma_k \Delta s_k \bar{I}_{0,k} + \Sigma_k \Delta s_k \left(\bar{\lambda}_k - \overline{ln(\lambda_k)}\right) + \Sigma_k (\bar{\theta}_k - \bar{s}_k)ln(\mu_k), \qquad [3]$$

where s_k is the population share of group k, $I_{0,k}$ is the MLD within group k, μ_k is mean

income (or earnings) in group k, $\lambda_k = \frac{\mu_k}{\mu}$ and $\theta_k = \lambda_k s_k$. In all cases, a bar over a variable

indicates an average of start- and end-period values.

4.   The labour market and household earnings

We start by describing trends in inequality in individual employees' earnings, for men and

women separately. We initially restrict attention to the earnings of employees of working

age.[6]

We initially exclude the self-employed while we separate the contributions of changes in

hours worked and hourly wages, because the measurement and interpretation of hours

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[6] This means men below 65 and women below 60, in accordance with the state pension ages prior to 2010. Since 2010, the state pension age for women has risen above 60 (see Cribb, Emmerson and Tetlow (2016)), but we keep the upper age bound fixed so as to limit compositional changes in the sample over time. The lower age bound is 16, or 20 if in full-time education and living at home.

worked for the self-employed are problematic. We add in self-employment income later in the section and discuss its effects.[7]

Panel A of Figure 4 shows average annualised real growth in weekly earnings and hourly wages for men and women between 1994–95 and 2019–20, by percentile. Three points are evident. First, for both hourly wages and weekly earnings, the gap between men and women has narrowed: growth for women has been significantly higher than for men (e.g. at the median, real hourly wage growth averaged 0.6% per year for men and 1.3% for women). Second, there have been increases in hourly wage and weekly earnings inequality for employed men. Interestingly, in the top quarter of the distribution increases in male earnings inequality have been driven by hourly wages, whereas in the bottom three-quarters of the distribution they have been driven by changes in hours of work. As is shown in Appendix Figure A1, this is particularly stark in the period 1994–95 to 2011–12. Third, there has been a decline in inequality in female weekly earnings, driven by particularly large rises in female earnings towards the bottom of the distribution.

However, the patterns seen when looking over the broad span of a quarter-century hold despite a quite different set of trends over the past few years. Panel B of Figure 4 presents the same analysis but for the period from 2011–12 to 2019–20, and two key differences stand out. First, over the past decade, we have seen a much more minor role for changes in hours of work in driving earnings inequalities – particularly for men. Figure 5 illustrates the key reason for this.[8] There had been a long-running increase in the prevalence of part-time work among men with the lowest hourly wages, dragging down male earnings at the bottom. The

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[7] It is worth noting that self-employment income is likely to be measured less reliably: a large proportion of the self-employed report their income for a financial year prior to the survey year, and 30% are unable to provide information from accounts prepared for HM Revenue and Customs.

[8] We use the Labour Force Survey (LFS) for this, rather than the FRS, in order to increase the sample sizes when looking at quintiles of male employees. The broad pattern, of a consistent rise in part-time work among low-wage men followed by a plateau during the 2010s, is the same in the FRS as in the LFS.

prevalence rose from 11% of low-wage men working part time in 1994–95 to 20% in 2007–08. This prevalence rose further during the Great Recession and peaked at 26% in 2013–14. But it has since fallen back, to 21% in 2019–20. It is difficult to tell whether the longer-term trend has durably turned around, or whether we have just seen the unwinding of the cyclical acceleration in that trend that resulted from the Great Recession. It will be important to monitor this going forwards, given the importance of hours of work for low-wage men in shaping earnings inequalities in recent history. What is clear is that part-time work is now far from a fringe phenomenon among low-wage men, as it was in the past (though, as also shown, it remains very rare among middle- and higher-wage men). An additional, dashed line on Figure 5 excludes workers aged under 25 or over 54. This demonstrates that the rise of part-time work among low-wage men is not simply about students or the semi-retired. In fact, the rise is proportionally far bigger on this basis, since among the prime-aged population the rise began from a smaller (essentially negligible) base level.

Figure 4. Weekly earnings and hourly wage growth, men and women

Panel A: 1994–95 to 2019–20
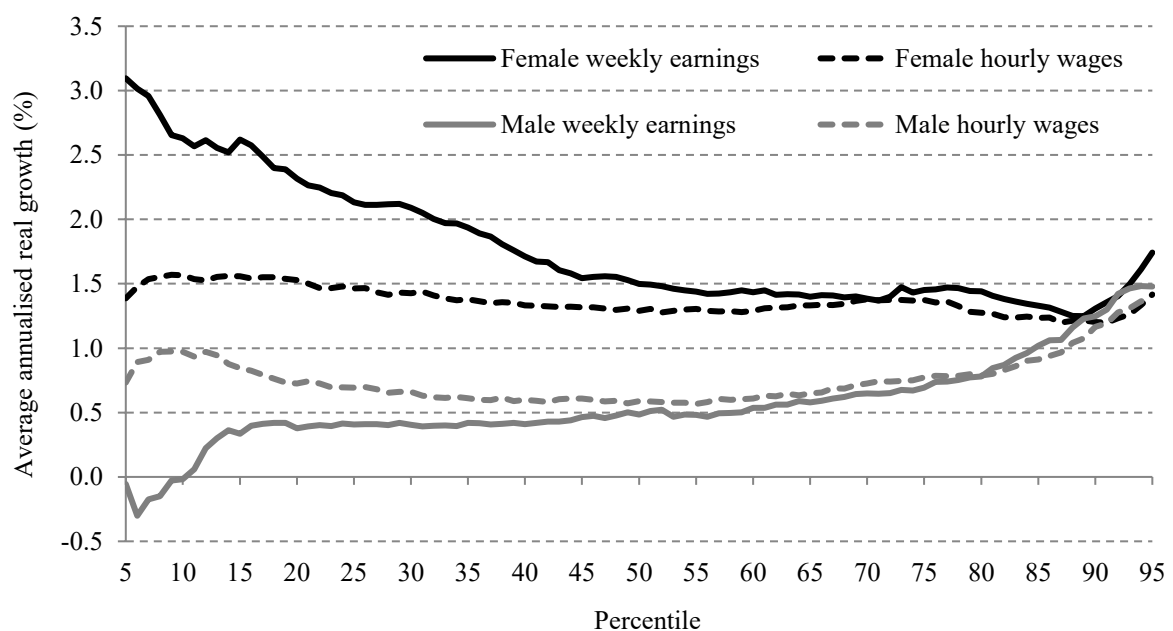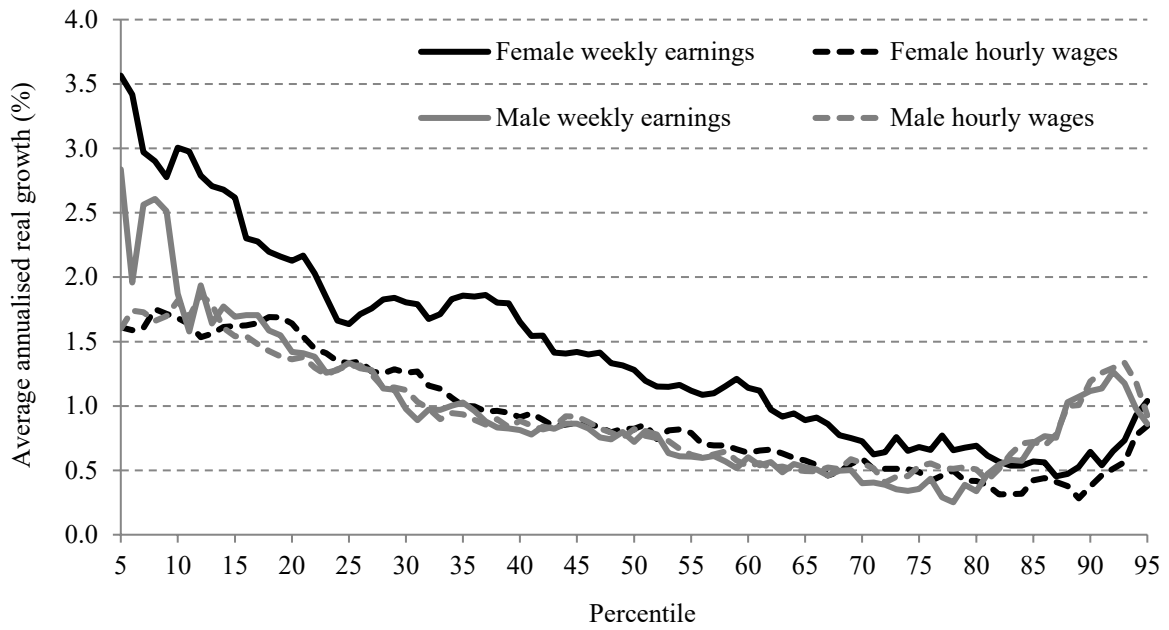
Note: Sample contains male/female working-age employees.

Source: Authors' calculations using the Family Resources Survey. Percentiles 5 to 95 are shown.

Figure 5. Prevalence of part-time work among male employees, by wage quintile, 1994–95 to 2019–20
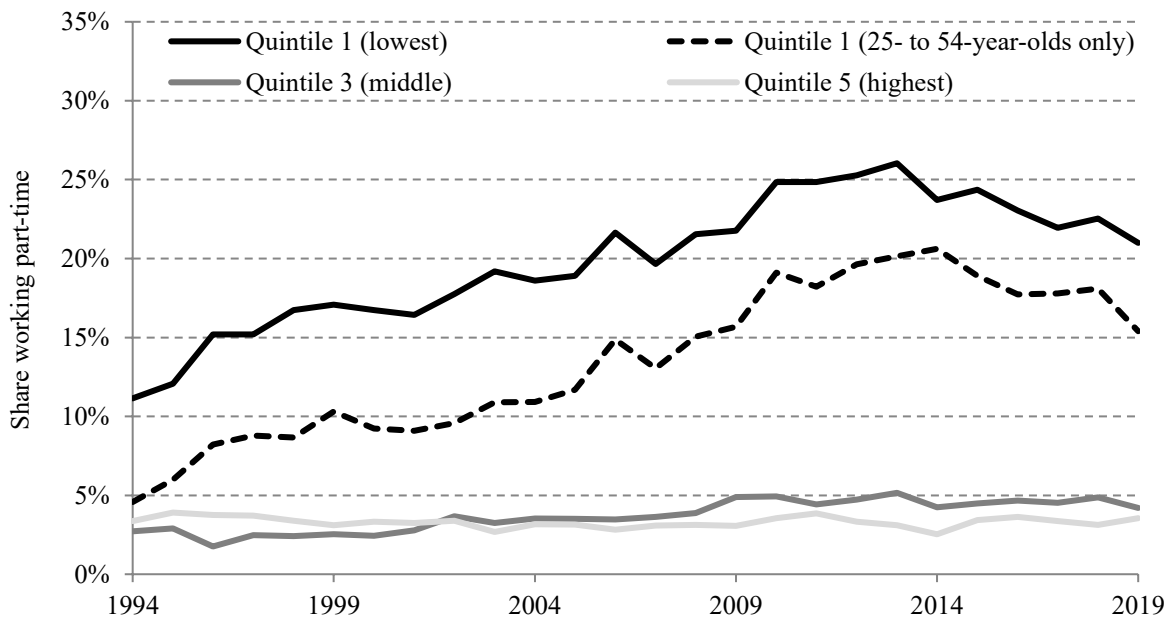
Note: Sample is male employees aged 16–64 who are employees in main job. Top and bottom 5% of the hourly wage distribution is excluded. Part-time work is defined as working fewer than 30 hours per week. Years are financial years.

Source: Authors' calculations using the Labour Force Survey.

Second, between 2011–12 and 2019–20, hourly wage inequality – and, with it, weekly earnings inequality – was falling for both sexes. In fact, this is driven in particular by the period since 2015, and one major factor behind this was sharp increases in the minimum wage over that period.

To summarise the changes more rigorously, we decompose the change in the variance of (log) weekly earnings into that caused by changes in inequality in hours, that caused by changes in inequality in hourly wages and that caused by a change in the covariance between hours and wages (see equation 1). Table 1 does this for men and women separately, for the period as a whole and five subperiods (1994 to 1997, 1997 to 2004, 2004 to 2007, 2007 to 2011 and 2011 to 2019). In particular, this allows us to look at the periods of 'inclusive growth' (1997 to 2004), the Great Recession and its immediate aftermath (2007 to 2011) and the period of post-recession macroeconomic recovery and austerity (2011 to 2019) separately. All figures are scaled by a factor of 100 for the purposes of presentation.

Taking the period as a whole, the decomposition suggests that, for men, higher inequality in hourly wages and an increased covariance between hours and wages have been the key factors pushing up earnings inequality. They have been approximately equally important in this respect although, as we have seen, inequality in hourly wages has primarily changed in the top quarter of the distribution, while the higher covariance between hours and wages largely reflects falls in hours worked among men with low wages. The table also confirms that, when we look specifically at trends since 2011, the picture is very different – with falls in hourly wage inequality the major factor in driving male earnings inequality back down again.

Table 1. Decomposition of the change in variance of log earnings (×100)

| | Variance of log earnings at start of period | Change in variance of log earnings | Contribution to change | | |
			Variance of log hours	*Variance of log wage*	*Covariance of log hours and log wage*
Men					
1994 to 1997	18.18	2.22	0.74	1.02	0.45
1997 to 2004	20.39	2.82	0.29	1.52	1.01
2004 to 2007	23.21	0.82	0.06	0.12	0.64
2007 to 2011	24.03	4.56	0.67	2.45	1.45
2011 to 2019	28.60	–3.11	–0.65	–2.07	–0.39
1994 to 2019	18.18	7.31	1.11	3.04	3.16
Women					
1994 to 1997	41.34	–1.57	–0.66	1.83	–2.74
1997 to 2004	39.77	–3.99	–3.64	–1.94	1.59
2004 to 2007	35.78	–0.77	–0.60	0.28	–0.45
2007 to 2011	35.01	0.30	–0.58	0.20	0.68
2011 to 2019	35.31	–6.37	–1.79	–3.04	–1.54
1994 to 2019	41.34	–12.39	–7.27	–2.67	–2.46

Note: Sample contains male/female working age employees earning between the 5th and 95th percentiles of the male/female earnings distribution in the year they are observed. Years refer to financial years.
Source: Authors' calculations using the Family Resources Survey.

Among women, earnings inequalities have been falling quite consistently for 25 years. Much of this is due to changes in hours of work, with very low hours less common than in the past, especially among low-wage women. This is an intuitive consequence of increasing labour market attachment. The proportion of female employees working full-time (at least 30 hours per week) rose from 61% in 1994–95 to 69% in 2019–20. The fraction of female employees working very low hours (less than 16 per week) fell from 14% to 6% over the same period. Again though, the most recent decade stands out because reductions in hourly wage inequality have also now begun to contribute significantly to lowering female earnings inequality. As explained above, this is primarily a bottom-tail phenomenon and is driven by trends post-2015 as the minimum wage has been sharply increased.

Figure 6. Growth in individual employee earnings, household employee earnings and household labour income

Panel A: 1994–95 to 2019–20
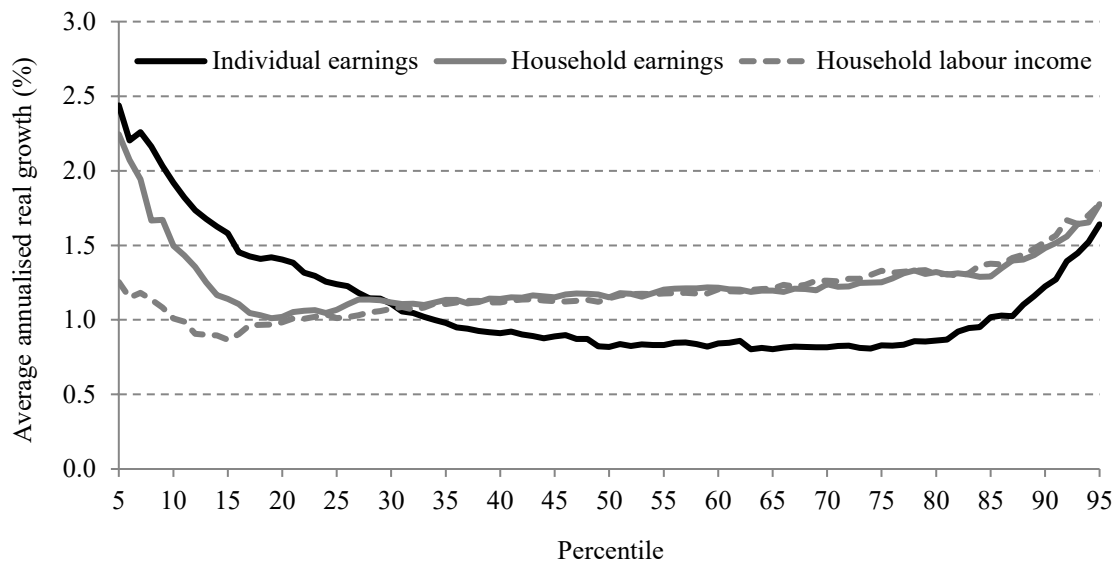
Panel B: 2011–12 to 2019–20

Note: For individual earnings, sample contains working-age employees earning between the 5th and 95th percentiles of the individual earnings distribution. For household earnings, sample contains working-age adults in households with at least one employee and with household earnings between the 5th and 95th percentiles of the household earnings distribution. For household labour income (which includes income from earnings of employees plus any self-employment income), the sample includes working-age adults in households with any labour income (5th to 95th percentiles).

Source: Authors' calculations using the Family Resources Survey.

Changes in inequality in all employees' earnings are rather different from those when looking at men and women separately – as one would expect, given that the catch-up of female earnings with male earnings has an impact on earnings inequality figures once we pool the sexes together. Panel A of Figure 6 shows the growth incidence curve for individual employee earnings since 1994–95. Changes in earnings inequality since 1994–95 have been modest and ambiguous overall, exhibiting a U-shaped pattern: growth has been higher in the upper and lower parts of the distribution than in the middle. When looking across the middle 90% of the distribution, on which we focus in this paper, the net result is a fall in inequality according to the MLD – though if we were to include the top tail (up to the 99th percentile), the MLD would suggest essentially no change.

The fact that individual earnings growth has been lowest – indeed very low by historical standards – around the middle of the distribution, combined with the fact that earnings growth has been lowest in recent years for those in their 30s (see Cribb and Johnson (2019)), means that the previous generation-on-generation growth in earnings has stalled in recent years. As Appendix Figure A3 shows, median earnings for a worker in their mid 30s, born in the 1980s, are no higher than those that someone born in the 1960s had at the same age.

Table 2 displays a decomposition of the MLD measure of individual earnings inequality into changes within and between men and women (see equation 3), with all figures again scaled by a factor of 100 for ease of presentation. Breaking the trends into subperiods, it quantifies more precisely the role of key trends documented in previous figures. Between 1994–95 and 2011–12, a rise in male earnings inequality was just about offset by a reduction in female earnings inequality and the catch-up of women with men. But during the 2010s both male and female earnings inequality fell markedly, meaning that on the eve of the pandemic individual earnings inequality overall was lower than in both 2011 and 1994.

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Table 2. Decomposition of the change in the mean log deviation (×100) of earnings within and between sexes

	MLD at start of period	Overall change in MLD	*Inequality within sexes*	*Within sexes: changes in population share*	*Between sexes: changes in population share*	*Inequality between sexes*
				Contribution to change in MLD		
1994 to 1997	16.17	–0.08	0.30	–0.05	–0.01	–0.32
1997 to 2004	16.09	–0.66	–0.07	0.04	0.01	–0.64
2004 to 2007	15.43	–0.16	0.00	–0.01	0.00	–0.15
2007 to 2011	15.26	0.96	1.19	0.03	0.00	–0.27
2011 to 2019	16.22	–1.93	–1.90	–0.02	0.00	–0.01
1994 to 2019	16.17	–1.88	–0.47	–0.01	0.00	–1.39

Note: Sample contains working-age employees earning between the 5th and 95th percentiles of the earnings distribution in the year they are observed. Years refer to financial years.

Source: Authors' calculations using the Family Resources Survey.

We now make the critical move from individual-level to household-level measures. Panel A of Figure 6 includes the growth incidence curve for *household* earnings since 1994–95, including all working-age adults in a household where at least one individual is an employee. In contrast with the U-shaped (and mildly inequality-reducing) pattern of changes in individual earnings across most of the distribution, the figure shows that inequality in household earnings has increased across most of the distribution since the mid 1990s, with the exception of the bottom sixth of the distribution. As is shown in Appendix Figure A2, this pattern is driven by the trends seen between 1994–95 and 2011–12.

In contrast, if we focus exclusively on the past decade, it is clear that there has been a break in the longer-term trend. Panel B of Figure 6 shows that household earnings inequality, along with individual earnings inequality, has clearly declined over this period. This is not surprising, given that both male and female earnings inequality have declined. Real individual earnings grew by 2.5% per year at the 10th percentile, which is more than twice as fast as at the median (equating to total growth of 21% and 8% respectively over those eight

years). For household earnings, the differences in growth across the distribution are less stark, but qualitatively similar.

Figure 6 also displays the growth incidence curves for total household labour income, among those households with some labour income. This shows that once self-employment incomes (and households with self-employment income but no employee earnings) are included, the main effect is to make growth in labour income towards the bottom of the distribution look slower than growth in earnings since 1994–95. In other words, adding in self-employment incomes reinforces our conclusion that household labour income inequality among working households has risen over the past quarter-century. This is the result of two trends. Self-employment incomes at the bottom of the distribution grew more slowly than employee earnings for households that have both and they did particularly poorly in the aftermath of the recession (see Cribb, Miller and Pope (2019)); and there is a growing group of low-income households whose labour income comes entirely from self-employment (see Boeri et al. (2020)).

Taking the 25 years as a whole, why has household earnings inequality risen while individual earnings inequality has not? There are two important differences between these measures. First, a catch-up of female earnings with male earnings will exert downwards pressure on individual earnings inequality, but will tend to do much less to household earnings inequality – it will largely reduce earnings inequalities within, and not between, different households. Second, changing patterns of 'assortativeness' – a tendency for similar people to live together – will be relevant for household earnings inequalities but will have no direct relevance for individual earnings inequalities. As we shall see, it turns out that the first of these differences has been the key one in practice, with little role for changing assortativeness with respect to earnings.

Table 3 decomposes the I_2 measure of household earnings inequality (as described in equation 2) in 1994–95 and 2019–20 into the contributions of inequality in the earnings of the highest-earning individual in the household ('main' earnings), inequality in the earnings of other individuals in the household ('other' earnings), and the covariance between 'main' and 'other' earnings. The increase in household earnings inequality has been driven simply by an increase in inequality in 'main' earnings. This reflects the fact that most 'main' earners are male (68% within couples, and 62% if single adults are included) and, as discussed above, male earnings inequality increased over the period being examined.

Table 3. Decomposing inequality in household earnings into parts affected by the distribution of main earners and other earners

|	I_2	=	I_2 (main)	×	$\frac{\mu^2_{main}}{\mu^2_{all}}$	+	I_2 (other)	×	$\frac{\mu^2_{other}}{\mu^2_{all}}$	+	$\frac{cov(y_{main},y_{other})}{\mu_{main}\mu_{other}}$	×	$\frac{\mu_{main}\mu_{other}}{\mu^2_{all}}$
1994–95	0.134		0.120		0.537		0.698		0.071		0.101		0.196
2019–20	0.151		0.153		0.478		0.604		0.095		0.094		0.213
% change	13%		28%		−11%		−13%		33%		−7%		9%

Note: Sample restricted to working-age individuals in households with at least one employee and with household earnings between the 5th and 95th percentiles of the household earnings distribution. Years refer to financial years. 'Other earners' refers to the earnings of all employees in the household who are not the individual with the highest earnings.
Source: Authors' calculations using the Family Resources Survey.

So far, we have been measuring the degree of earnings inequality between those households which have someone in work at a given point in time, and comparing that across years. This is typical of labour market statistics on earnings trends. However, in interpreting this, it is important to bear in mind what it will not capture: there have been large falls in the fraction of people living in a workless household over the past 25 years. This may lead to a particular understatement of positive developments at the bottom of the distribution, since those working households which would not have been in work at all in the past are likely to be disproportionately found towards the bottom of the household earnings distribution now. As such, they exert downwards pressure on earnings levels at the bottom of the distribution now, but in fact they would have had no earnings at all in the past, and this is ignored. One can say

little about the strength of this effect without strong assumptions about which households currently working would not have been working in the past, but Bourquin et al. (2019) examine the issue in more detail and conclude that it is likely to have been a non-trivial effect. Figure 7 shows that the share of working-age adults living in households with no one in work fell from 16.8% in 1994–95 to 10.6% by 2019–20 (a 37% fall). As Bourquin et al. show, much of this was driven by rises in single-parent employment rates. These were caused (at least in part) by responses to tax credit reforms (see Blundell and Hoynes (2004)) and to the application of job search conditionality to all lone parents other than those with very young children (see Avram, Brewer and Salvatori (2018)).

Figure 7. Share of working-age adults whose household contains no one in paid work
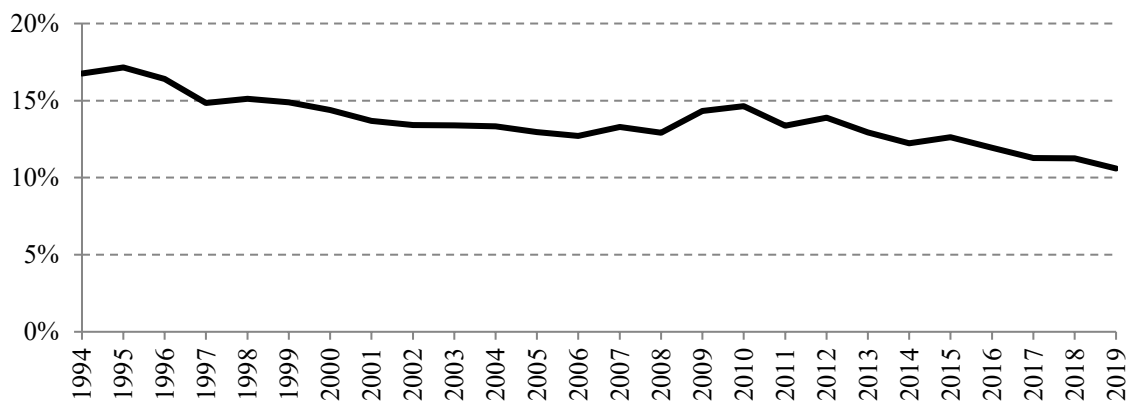
Note: Sample includes all individuals of working age.
Source: Authors' calculations using the Family Resources Survey.

A more comprehensive view of what has happened to labour market inequalities would account for employment and earnings changes simultaneously, as we do in Figure 8. The falls in worklessness mean that, if we consider household earnings growth across all working-age adults, including in each year those households with no paid work in that year, we see a considerably inequality-reducing pattern. Growth in household earnings within the bottom fifth of all working-age households averaged 8.8% per year between 1994 and 2019. This sounds huge, but makes sense in a context in which, within that bottom fifth, the fraction of

adults living in a workless household was 84% in 1994–95 but 53% in 2019–20. The very robust growth in household earnings at the bottom, when measured in this way, has occurred both since 2011 and over the preceding 17 years, largely reflecting the fact that the number of workless households has been falling for almost the entire period (as shown by Figure 7). However, as we have seen, the period since 2011 has been distinctive in that earnings towards the bottom were further boosted by the fact that the gap between lower- and higher-earning working households was narrowing, even while the total number of working households was growing.

Figure 8. Real growth in household earnings, measured across all working-age adults
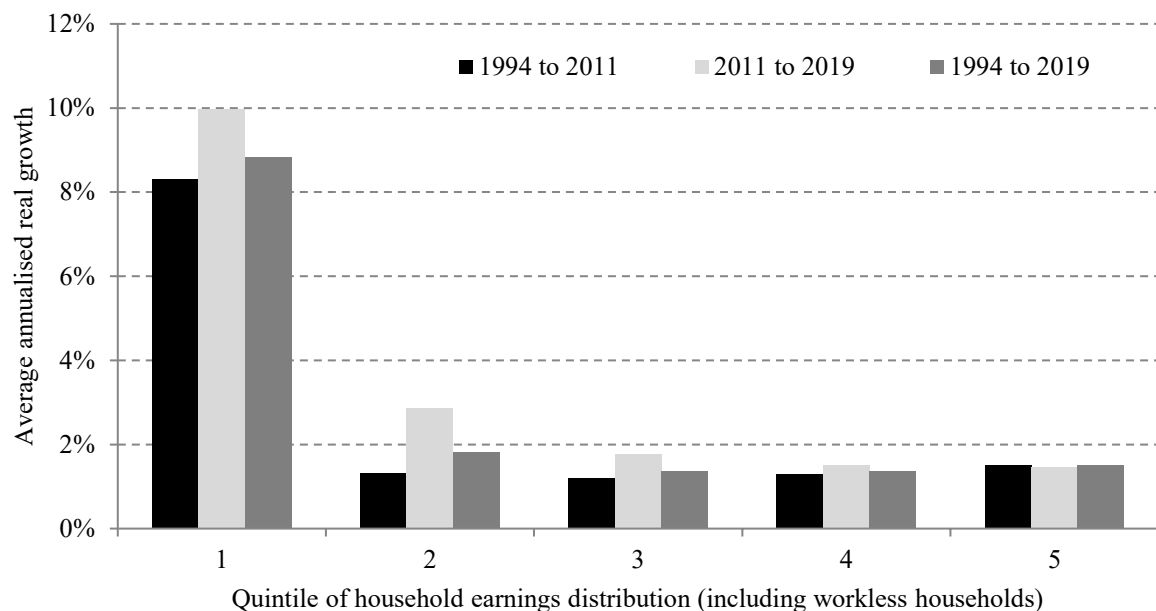
Note: Sample includes all individuals of working age. To avoid trends being affected by top-income inequalities, we exclude the top 5% of the household earnings distribution (measured across all working-age adults).
Source: Authors' calculations using the Family Resources Survey.

5.   Taxes and unearned incomes

Trends in household income inequalities in the UK cannot be understood by focusing purely on labour market incomes, however. Here we show that other income sources, and particularly the benefit and tax credit system, have played a key role.

We make two relatively minor changes at this point in the analysis. We now include children along with the adults that they live with (effectively increasing the weight given to households with children, in line with household size), and we now equivalise using the modified OECD scale to take account of different household sizes and compositions. This reflects the fact that the previous sections were analysing labour market outcomes only – where it is natural to focus exclusively on adults and typical not to equivalise – whereas we are now incrementally building up a picture of household living standards, and hence we adopt the more typical norms applied in that context. These changes have very little effect on the qualitative patterns shown.

We begin by considering working households only, as in the first parts of Section 4, before considering the whole population of working-age households so that we can incorporate the effects of changes to the number of workless households as well as the effects of trends in income sources among households that have someone in work.

We look at changes in the distribution of *gross labour income*, then *gross labour income plus transfers*, which includes any cash transfers from the state (i.e. benefits and tax credits), and finally *net income*, which deducts direct taxes and is the 'headline' measure of household incomes used in UK government statistics. This last measure also includes any other unearned income, such as dividends or property income, but these are negligible across the middle 90% of the income distribution upon which we focus. These measures are defined precisely in Appendix Table A2.

Figure 9 shows the growth incidence curves for each of these distributions between 1994–95 and 2019–20, considering only those households with someone in paid work in the respective year. Looking at the change in the distribution of gross household labour income, we can see essentially the same pattern that was observed in Figure 6: with the exception of the bottom 15%, gaps in labour income between higher- and lower-earning working households in 2019–

20 were larger than they had been in 1994–95, but changes to taxes and (especially) transfers conceal this almost completely when looking at net incomes.[9] Cumulating the annual changes shown in Figure 9, the median-earning household (among those with someone in paid work) in 2019–20 had real earnings and real net incomes both 34% higher than in 1994–95. At the 10th percentile of working households, real earnings had grown by only 17% over that period; and yet their net incomes had grown by 32% – essentially the same as for median-earning households.

As discussed in Belfield et al. (2017), the role of cash transfers paid to working households in helping to contain net income inequality was largely the result of two different episodes. First, there was a large deliberate increase in fiscal redistribution in the late 1990s and early 2000s by the then Labour government. This redistribution was particularly focused towards low-income families with children, occurring through the rapid expansion of the tax credit system with the introduction of working families' tax credit (WFTC) in 1999, and then WFTC's replacement with the more generous system of child tax credit and working tax credit in 2003. As a result of these changes, spending on tax credits trebled as a share of GDP between 1997 and 2004, from 0.5% to 1.5%.[10] The second episode was the period around the Great Recession (2007–11). Cribb, Hood and Joyce (2017) showed that key reasons for falling income inequality in this period were both discretionary increases in benefits and tax credits between 2007 and 2009 and the fact that between 2009 and 2011 state transfers increased mainly in line with prices while employees' earnings fell substantially in real terms.

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[9] Appendix Figure A4 shows that this was very much driven by trends from 1994–95 to 2011–12.

[10] For more details on these policy changes, see Hills (2013). These policies, and their relationship to the ambitious child poverty targets that the Labour government of the time was pursuing, have been discussed and analysed in detail elsewhere (e.g. Joyce and Sibieta, 2013).

Figure 9. Household income growth for working households

Panel A: 1994–95 to 2019–20
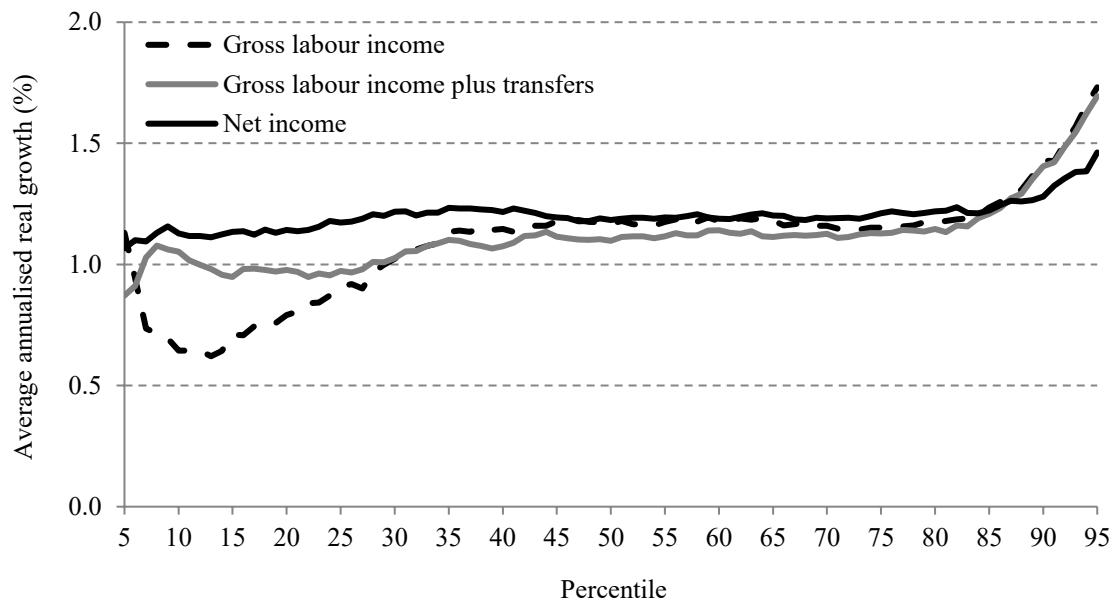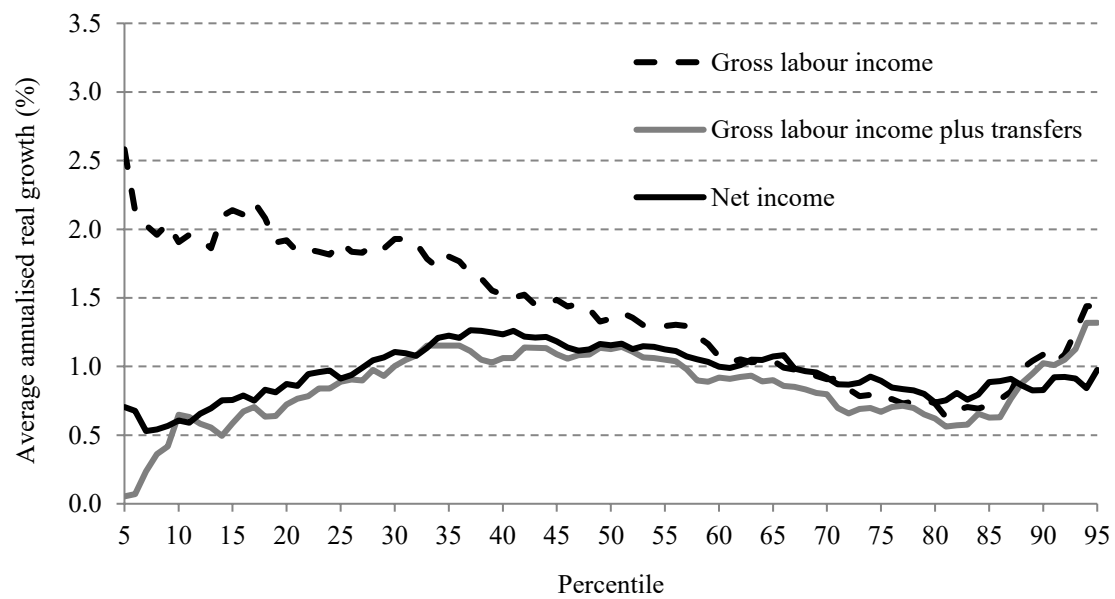
Panel B: 2011–12 to 2019–20

Note: Sample contains all individuals who are not pensioners (including children) living in a household with at least one person in work. Pensioners are defined as women aged 60 and over and men aged 65 and over. All measures of income are equivalised using the modified OECD scale.

Source: Authors' calculations using the Family Resources Survey.

In fact, the more up-to-date analysis here shows that there have really been three key episodes for transfer policy over the past quarter-century, and the third of these has very much worked in the opposite direction to the first two. Panel B of Figure 9 focuses once again on the period from 2011–12 to 2019–20. Broadly mirroring the two panels of Figure 6, the gross labour income growth incidence curve suggests inequality *reduction* across the bottom 85% of the distribution, in stark contrast to the longer-term trend exhibited by Panel A. However, this does not correspond at all closely to what has happened to the net incomes of the same households. When state transfers are included, growth in household income is lower for the bottom 60% of the distribution, and much lower for the bottom 20%. This reflects the impact of post-Great-Recession fiscal austerity on the benefits system. A series of large cuts to the generosity of benefits and tax credits – through cash freezes, indexation below inflation and specific reductions in the generosity of certain benefits under the Coalition (2010–15) and Conservative (2015–19) governments – reduced benefit incomes, which were particularly important for the incomes of low-income working households (see Bourquin, Norris Keiller and Waters (2019) for more details).

As in Section 4, assessing earnings trends over time by only considering those households with someone in paid work in each year will miss the very important impacts of rising employment and falling household worklessness. It may also be that a growing gap between higher- and lower-earning working households is misleading because households now in work and on low earnings are disproportionately those who would not previously have been in work at all, as discussed further in Bourquin et al. (2019).

Hence Figure 10 examines the roles of net earnings (after income tax and National Insurance contributions), benefits and other income sources across all working-age households, irrespective of work status. It demarcates the very different periods of 1994–95 to 2011–12 and 2011–12 to 2019–20, using two panels. Panel A simply shows the real-terms levels of the

different income components, in each year, for each net household income quintile. Panel B shows their contribution (in percentage points) to net income growth: that is, the absolute change in their level, divided by baseline net income. This allows for a decomposition of the total change in net income. Note also that the normalisation by baseline income prevents large growth in small income sources from looking more significant than they should: for example, while earnings at the bottom have grown very rapidly due to employment increases (as shown in Figure 8), they began the period as only a minority income source for this group, limiting their impact on total income growth, and this is accounted for in Figure 10.

Nevertheless, the role of employment increases in boosting incomes at the bottom is evident in Panel B. The largest contribution to income growth for low-income working-age households from 1994–95 to 2011–12 was from additional labour income (driven in large part by falling household worklessness). Growth in incomes from benefits and tax credits also played a major role within the bottom half of the income distribution over this period. The fact that benefit incomes grew so much despite the large reductions in household worklessness – which, all else equal, reduce benefit entitlements substantially – is a reflection of just how much more generous the transfer system became over this period. (That said, the impact of household worklessness in reducing entitlements is responsible for the fact that benefit incomes contributed less to income growth in the bottom quintile than in the second quintile.)

Figure 10 again shows the impact of the reversal of the direction of benefits policy in recent years. Since 2011, growth in labour income has contributed a similar amount, or more, to income growth among low- and middle-income households as it did between 1994–95 and 2011–12. But growth in total net income has been significantly weaker in these recent years, especially in the bottom two quintiles, and this is accounted for by stark falls in transfer incomes.

Figure 10. Mean household income and income source, by quintile of the household income distribution (non-pensioners)

Panel A: Levels, 1994, 2011 and 2019
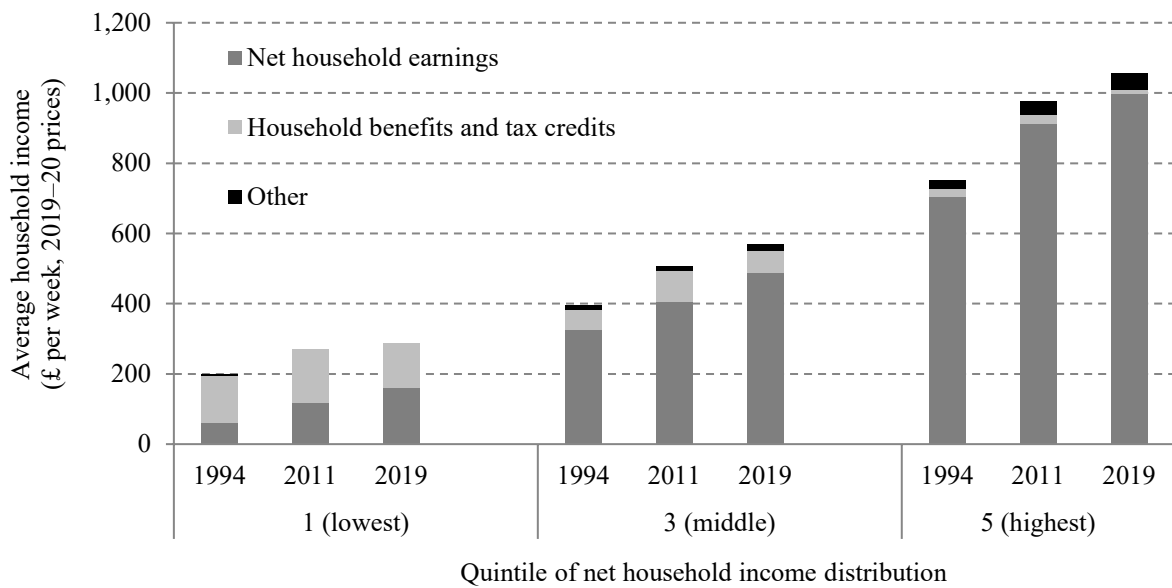
Panel B: Contribution to average annualised income growth, 1994 to 2011 and 2011 to 2019
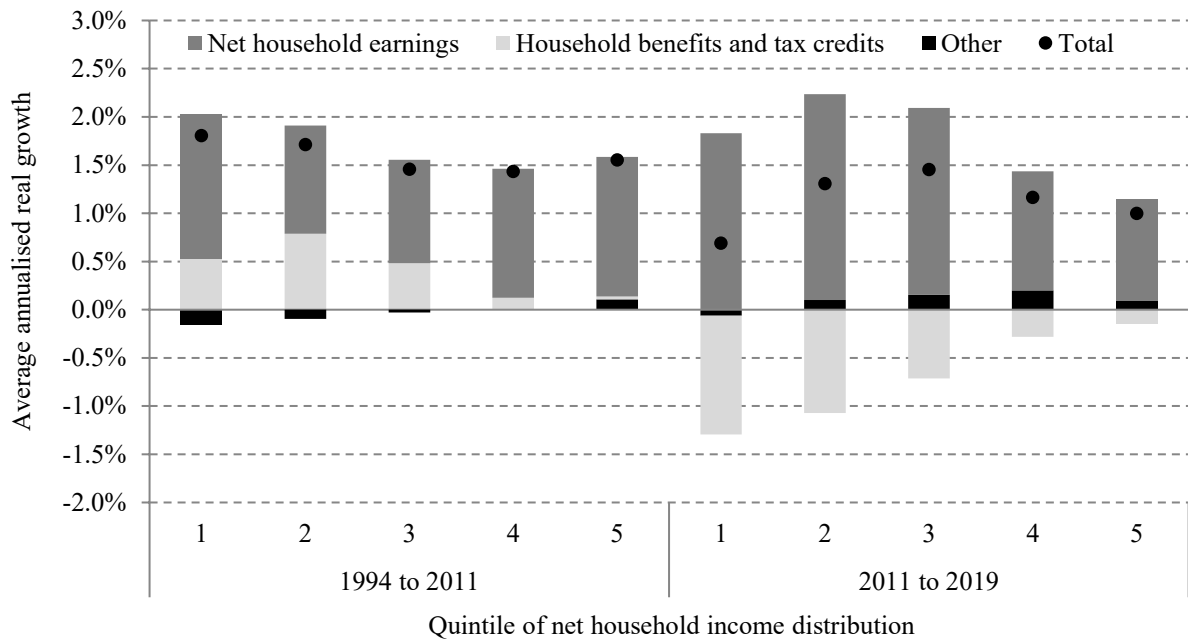
Note: Sample contains all non-pensioners between the 5th and 95th percentiles of the non-pensioner household income distribution. Pensioners are defined as women aged 60 and over and men aged 65 and over. All measures of income are equivalised using the modified OECD scale. Years refer to financial years.

Source: Authors' calculations using the Family Resources Survey.

This reversal of trend is dramatic but not surprising. Income-related transfers in the UK are specifically designed to target those households with the lowest household incomes, which means that the distributional gradient of changes in their generosity tends to be steep. It would be difficult for any pattern of labour market changes to be so closely related to household incomes. This is a point that was made ex ante by Elming et al. (2015) when steep rises to the minimum wage were presented alongside steep cuts to income-related transfers in 2015 as though they were substitutes for one another: in fact, there was a mismatch in terms of both their overall scale and the degree to which they would target households with the lowest incomes. What we have seen has borne that out. Even though employment has continued to increase and household earnings inequalities among those in work have, finally, begun to fall, net income inequality has actually reversed course in the opposite direction as transfers have been cut at the same time.

Table 4 examines more formally the role of changing numbers of workless households, as well as changes in the (relative) incomes of working and workless households, by decomposing their effects on a summary measure of income inequality. It shows subgroup decompositions of changes in the MLD over the past 25 years, focusing only on 'non-pensioners' and splitting them into two subgroups depending on whether or not they live in a working household. The bottom row takes the whole period between 1994–95 and 2019–20. It shows that a narrowing of the gap between working and non-working households (as indicated by the 'between-group inequality' column) has actually been a further driver of income inequality reduction across the working-age population. This happened most acutely during and immediately after the Great Recession (2007 to 2011), when there were sharp falls in real earnings alongside increases in many benefits and tax credits between 2007 and 2009 (see Cribb, Hood and Joyce (2017)) and price indexation of those benefits from 2009 to 2011. However, the gap between working and non-working households narrowed for much of the

past 25 years, including in in the late 1990s and early 2000s when earnings were growing quickly, as generous increases in benefits and tax credits during the Labour government's first two terms in office had more effect on the mean income of non-working households than on the mean income of working households.

Table 4. Decomposition of mean log deviation (×100) in household income for non-pensioners: working and non-working households

	MLD at start of period	Overall change in MLD	*Within-group inequality*	*Within-group changes in population share*	*Between-group changes in population share*	*Between-group inequality*
					Contribution to change in MLD	
1994 to 1997	9.82	0.06	0.35	0.04	–0.21	–0.12
1997 to 2004	9.88	–0.58	–0.20	0.04	–0.23	–0.20
2004 to 2007	9.29	0.76	0.60	0.00	0.01	0.16
2007 to 2011	10.06	–0.83	–0.30	0.01	–0.02	–0.52
2011 to 2019	9.23	0.16	0.46	0.05	–0.20	–0.15
1994 to 2019	9.82	–0.45	0.91	0.13	–0.63	–0.86

Note: Sample contains all non-pensioners between the 5th and 95th percentiles of the non-pensioner household income distribution. All measures of income are equivalised using the modified OECD scale. Years refer to financial years. Source: Authors' calculations using the Family Resources Survey.

Alongside this narrowing of the income gap between working and non-working households, we again see household worklessness playing a key role – particularly in the first decade of the period we study (1994–2004) and the last (2011 onwards). The table shows that this fall in household worklessness acted to reduce net income inequality among the non-pensioner population (penultimate column): as the share of the population living in a workless household fell, inequality between workless and working households made less of a contribution to overall inequality.

Finally, we incorporate trends in pensioner incomes into the analysis of household income inequality. Table 5 shows a final set of subgroup decompositions of changes in the MLD measure of inequality, now covering the whole population and splitting that population into pensioners and non-pensioners. (We define pensioners as women aged 60 and over and men

aged 65 and over.) Here we see that income inequality since 1994 has been pulled down a little further by a reduction in income differences between pensioner and working-age households (final column) – especially during and immediately after the Great Recession (2007–11), which hit the working-age population hard (through falls in employment and earnings).

Table 5. Decomposition of mean log deviation (×100) in household income: pensioners and non-pensioners

	MLD at start of period	Overall change in MLD	*Within-group inequality*	*Within-group changes in population share*	*Between-group changes in population share*	*Between-group inequality*
				Contribution to change in MLD		
1994 to 1997	9.76	0.06	0.10	0.00	0.00	–0.04
1997 to 2004	9.82	–0.74	–0.68	–0.01	0.01	–0.06
2004 to 2007	9.08	0.74	0.77	0.00	0.00	–0.04
2007 to 2011	9.82	–0.98	–0.81	–0.01	0.01	–0.17
2011 to 2019	8.83	0.28	0.27	–0.01	0.01	0.01
1994 to 2019	9.76	–0.64	–0.35	–0.03	0.03	–0.29

Note: Sample contains all individuals between the 5th and 95th percentiles of the household income distribution. All measures of income are equivalised using the modified OECD scale. Years refer to financial years.
Source: Authors' calculations using the Family Resources Survey.

Before the Great Recession, the 'catch-up' of pensioners largely reflected a long-running secular increase in private pension provision and in entitlements to state pensions across successive cohorts of pensioners – driven in part by policy change and in part by more complete employment histories during the working-age years for successive cohorts, especially among women (for further details and discussion, see Hood and Joyce (2013) and Cribb, Emmerson and Tetlow (2016)). Since 2011, changes in the relative fortunes of the working-age and pensioner populations have played very little role in driving overall income inequality, as the average incomes of both groups have grown at relatively similar rates.

6.   Conclusion

This paper has analysed changes in earnings and income inequality in Britain over the last 25 years. Focusing on the middle 90% of the distribution, we have shown that net household income inequality in 2019–20, on the eve of the COVID-19 pandemic, was essentially the same as it was in 1994–95.

However, the stasis of net household income inequality across the whole population over a 25-year period is the combined result of a complex set of offsetting phenomena: particularly trends in wages and hours for men and women, changes to taxes and transfers, changes in employment patterns and changes in the relative position of pensioners. These are important in their own right, regardless of the fact that their effects on household income inequalities have approximately netted out.

Broad trends over a quarter-century also mask stark breaks in trend within the period, and particularly in recent years. From the mid 1990s, increases in employment – and, in particular, falls in the number of workless households – have been very important in narrowing inequalities in labour income. The lowest-income households used to overwhelmingly have no income from the labour market at all, and that is no longer the case. Much of the rest of the story, however, differs between the last decade and the 15 years prior to it.

Until the 2010s, there were headwinds pushing up earnings inequalities between those households who *were* in work – in particular, falls in hours of work among low-wage men. But the tax and transfer system was largely plugging that gap – higher in-work transfers kept the gap in total income between low- and middle-income working households approximately the same. Add in the rise in the number of households with some earnings rather than none, additional increases in benefits for many out-of-work households, and a catch-up of pensioner incomes, and income inequality actually fell a little.

During the 2010s, employment increases continued to be very important, but many other trends turned on their head. Over this period, not only were more households in work, but the earnings gap between low- and high-earning working households was actually narrowing as well. A rising minimum wage after 2015 was a key part of that, as was the fact that hours of work among low-wage men flattened off after their long period of decline. That sounds like an environment even more conducive to inequality reduction than what preceded it – but in fact, despite the substantial reductions in inequality in employment income, net household income inequality overall was increasing in the years before the pandemic, as benefits were cut. This was always likely, given the scale of the benefit cuts announced as part of the austerity that followed the recession of the late 2000s, and the fact that benefits are, by design, very tightly related to household income, and more so than anything the government can influence in the labour market – most notably the minimum wage.

This highlights why it is generally unhelpful to think of the minimum wage and transfers as substitutes or alternatives: they simply do not do a similar enough job to each other, in terms of the distributional outcomes that one can expect from them. This was pointed out ex ante by Elming et al. (2015), when the government announced benefit cuts and minimum wage rises as though the latter could compensate for the former, and is very much borne out by the data on what has happened since. A truce has recently been called in the tug-of-war between these two policy instruments, for now at least, as increases to universal credit for households with someone in paid work were introduced in December 2020, while the plans for the minimum wage to rise further remain. Going forward, a focus on how best to combine these policies looks very important. In addition, crucial though these two instruments are, sustainably addressing income inequalities would be much easier if we did not need to lean so heavily on them. Finding a broader set of policies to tackle the root causes of disparities in economic

opportunity has to be a priority, and will be the focus of much other work in the IFS Deaton Review.

As discussed at the outset, this paper does not focus on what has happened during the pandemic. We do not have comparable high-quality data with which to do so, and it remains unclear how temporary any effects of the pandemic on the income distribution will be. However, the evidence we do have at this stage points to the continued importance of the interplay between labour market income and state transfers in shaping the income distribution – across many developed economies, including the UK, the best estimates are that inequality in post-tax-and-transfer income probably fell slightly during the pandemic, even though the labour market effects tended to be most severe for those at the bottom end of the labour market (see Almeida et al. (2020) and Stantcheva (2021)). And yet, to different extents in different countries, the support put in place to help people weather the pandemic will not be sustained in full. Finding the right mix of policies to underpin widespread labour market opportunities while providing more direct support for those who fall through the cracks looks set to continue to be a central challenge of economic and social policy.

Appendix

Table A1. Sample definitions

Term	Definition
Working age	Aged at least 16 (unless they are aged 16–19, living at home and in full-time education) and aged under 65 for men and under 60 for women
Working-age employees	Working-age individuals with strictly positive gross employee earnings
Employed households	All households that contain at least one employee
Working households	All households that contain an employee or self-employed adult (self-employed adults are those with strictly positive self-employment income)
Working-age households	Households containing at least one individual of working age
All households	All private households in Great Britain

Table A2. Definitions of measures of earnings and income

Variable	Definition	Figures/Tables used in
Hourly wages	Individual gross earnings per hour of employees	Figures 1, 4, 5, A1; Table 1
Individual (weekly) earnings	Individual gross earnings per week of employees	Figures 4, 6, A1, A2; Tables 1, 2
Pre-tax annual earnings for workers	Individual gross employment income per year, for employees and self-employed workers	Figure A3
Household earnings	Gross earnings from all employees in a household	Figures 6, 8, A2; Table 3
Household labour income	Gross household income from employment or self-employment	Figures 6, A2
Gross labour income	Equivalised gross household income from employment or self-employment	Figures 9, A4
Gross labour income plus transfers	Equivalised gross household labour income plus state benefits and tax credits	Figures 9, A4
Net (household) income	Total equivalised household income including state benefits and tax credits, after deducting direct taxes	Figures 1, 2, 3, 9, 10, A4; Tables 4, 5

Table A3. Sample sizes

	Male employees	Female employees	All employees	Employed households	Working households	Working-age households	All households
1994–95	10,995	10,562	21,557	13,707	14,748	19,275	26,205
1997–98	10,535	9,983	20,518	12,771	13,784	17,481	23,436
2004–05	12,249	12,203	24,452	15,326	16,422	20,625	27,969
2007–08	10,683	10,709	21,392	13,440	14,442	18,120	24,910
2011–12	8,627	8,959	17,586	11,095	11,929	15,013	20,697
2019–20	7,851	8,199	16,050	9,802	10,657	12,788	19,121

Source: Authors' calculations using the Family Resources Survey.

Table A4. Levels of hourly wages in each year, 2019–20 prices

|	Hourly wages for men (£)			Hourly wages for women (£)		
	10th perc.	50th perc.	90th perc.	10th perc.	50th perc.	90th perc.
1994–95	5.99	11.65	24.38	4.77	8.20	17.62
1995–96	5.91	11.38	24.10	4.72	8.38	17.74
1996–97	5.90	11.70	24.30	4.88	8.64	18.29
1997–98	5.84	11.41	24.03	4.70	8.41	17.64
1998–99	6.02	11.69	25.22	4.94	8.84	18.61
1999–00	6.06	12.08	26.11	5.09	9.04	19.17
2000–01	6.25	12.36	26.95	5.25	9.38	19.81
2001–02	6.58	12.80	28.76	5.57	9.72	21.02
2002–03	6.73	12.83	28.55	5.88	10.00	21.16
2003–04	6.71	13.09	29.39	5.94	10.21	21.89
2004–05	6.91	13.35	30.06	6.08	10.55	22.28
2005–06	6.91	13.41	30.35	6.19	10.70	23.24
2006–07	7.07	13.56	30.30	6.34	10.72	23.23
2007–08	7.11	13.56	30.58	6.40	10.87	23.02
2008–09	7.12	13.79	31.28	6.29	11.03	23.51
2009–10	7.12	13.88	31.43	6.55	11.17	24.17
2010–11	6.95	13.26	30.53	6.33	11.00	24.26
2011–12	6.61	12.64	29.63	6.16	10.57	23.05
2012–13	6.56	12.78	28.91	6.09	10.57	22.57
2013–14	6.52	12.56	29.84	6.06	10.39	22.32
2014–15	6.70	12.73	30.06	5.97	10.42	22.46
2015–16	6.77	12.96	31.16	6.30	10.66	22.32
2016–17	6.93	13.05	30.78	6.39	10.90	22.65
2017–18	7.12	13.03	30.54	6.48	10.87	22.85
2018–19	7.22	13.21	31.20	6.78	10.93	23.47
2019–20	7.63	13.50	32.57	7.04	11.29	23.76

Table A5. Levels of weekly earnings in each year, 2019–20 prices

	Weekly earnings for men (£)			Weekly earnings for women (£)		
	10th perc.	50th perc.	90th perc.	10th perc.	50th perc.	90th perc.
1994–95	240.34	493.77	962.43	75.92	264.83	618.92
1995–96	235.35	488.37	940.24	80.51	274.43	625.37
1996–97	229.93	496.91	963.56	82.35	279.70	639.10
1997–98	228.76	496.22	980.42	80.76	277.41	631.15
1998–99	231.57	509.77	1,037.01	85.53	291.10	666.85
1999–00	235.90	521.51	1,057.11	89.10	303.27	687.33
2000–01	248.38	533.82	1,125.48	91.13	318.28	714.61
2001–02	252.48	549.39	1,162.79	99.01	327.43	755.17
2002–03	252.28	549.92	1,165.72	103.24	333.04	766.37
2003–04	249.57	557.71	1,195.32	106.96	339.74	781.94
2004–05	252.97	566.37	1,219.61	111.61	349.15	801.48
2005–06	246.47	563.27	1,235.34	114.72	356.93	827.85
2006–07	250.68	565.70	1,220.71	122.64	360.23	837.92
2007–08	258.67	574.48	1,257.33	118.28	365.82	827.96
2008–09	257.36	580.88	1,261.48	124.25	371.74	847.64
2009–10	246.11	569.86	1,280.89	123.68	371.67	868.16
2010–11	234.92	548.64	1,229.25	119.45	371.11	870.08
2011–12	206.34	526.19	1,200.24	114.63	347.07	813.69
2012–13	196.90	531.30	1,199.34	117.44	354.86	816.30
2013–14	218.38	522.69	1,209.61	118.94	352.44	804.13
2014–15	216.20	525.42	1,209.62	121.50	352.02	798.31
2015–16	211.72	544.55	1,272.30	128.88	361.37	822.97
2016–17	231.18	535.63	1,231.58	127.54	367.01	822.45
2017–18	225.93	540.23	1,249.49	130.91	365.55	814.31
2018–19	233.05	543.55	1,232.60	134.86	368.82	840.21
2019–20	239.34	557.25	1,311.78	145.29	384.22	856.51

Table A6. Levels of net equivalised household income in each year, 2019–20 prices

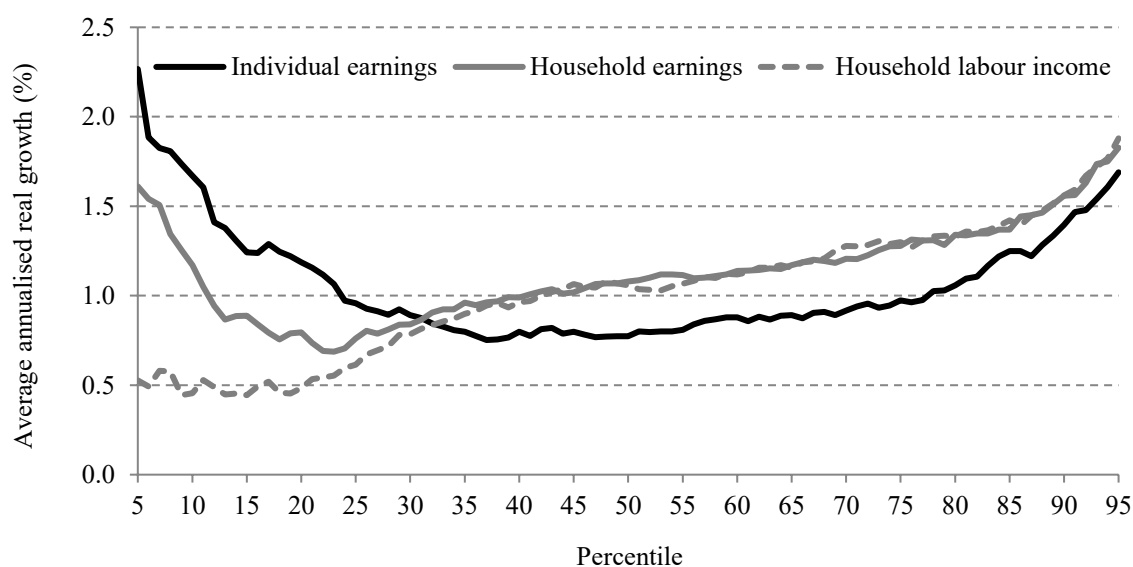|	Net household equivalised income (£ per week)		
	10th perc.	50th perc.	90th perc.
1994–95	186.44	369.86	758.74
1995–96	189.17	372.00	767.88
1996–97	192.70	389.94	794.13
1997–98	195.91	399.19	811.65
1998–99	200.29	407.26	846.62
1999–00	208.57	421.89	863.50
2000–01	216.76	438.29	902.70
2001–02	231.31	462.83	952.10
2002–03	236.73	473.40	957.22
2003–04	240.29	478.29	958.83
2004–05	246.61	485.27	978.52
2005–06	245.91	489.84	990.49
2006–07	243.49	497.79	1,012.38
2007–08	245.14	502.70	1,032.91
2008–09	250.30	506.35	1,049.16
2009–10	257.93	508.78	1,050.79
2010–11	259.55	502.15	1,010.29
2011–12	256.19	490.90	993.00
2012–13	253.89	492.81	992.50
2013–14	262.15	496.93	998.02
2014–15	264.52	514.03	1,029.45
2015–16	264.72	521.47	1,025.98
2016–17	266.41	530.56	1,035.15
2017–18	261.93	530.36	1,044.22
2018–19	261.01	524.74	1,056.05
2019–20	262.94	547.67	1,073.32

Figure A1. Weekly earnings and hourly wage growth, men and women, 1994–95 to 2011–12
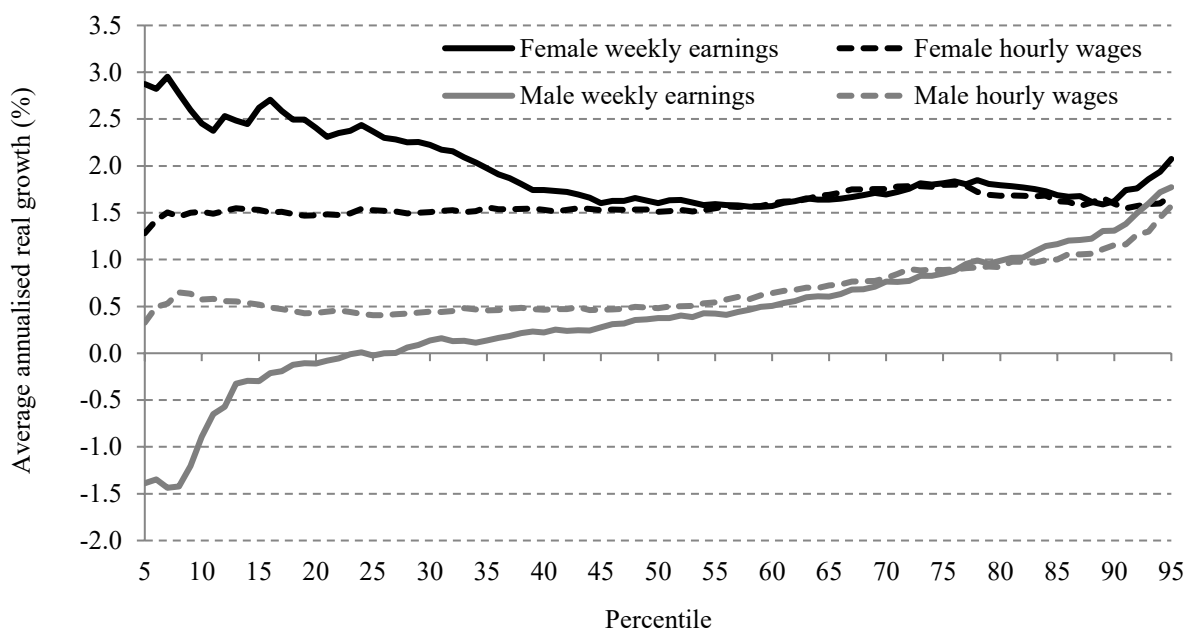
Note: Sample contains male/female working-age employees.

Source: Authors' calculations using the Family Resources Survey. Percentiles 5 to 95 are shown.

Figure A2. Growth in individual employee earnings, household employee earnings and household labour income, 1994–95 to 2011–12

Note: For individual earnings, sample contains working-age employees earning between the 5th and 95th percentiles of the individual earnings distribution. For household earnings, sample contains working-age adults in households with at least one employee and with household earnings between the 5th and 95th percentiles of the household earnings distribution. For household labour income (which includes income from earnings of employees plus any self-employment income), the sample includes working-age adults in households with any labour income (5th to 95th percentiles).
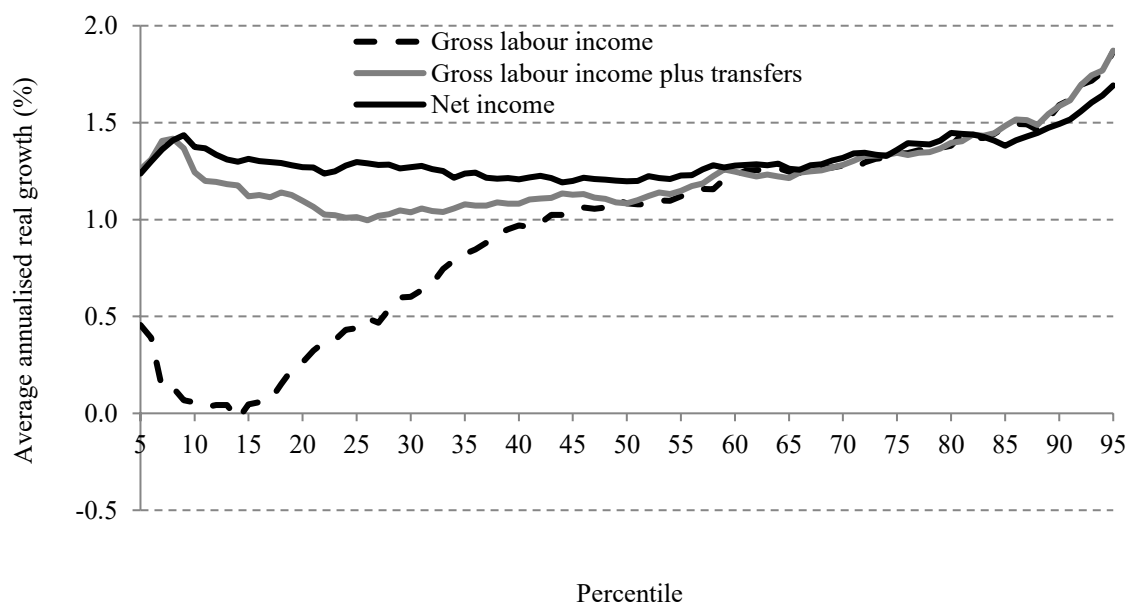
Source: Authors' calculations using the Family Resources Survey.

Figure A3. Median annual pre-tax earnings of those in paid work, by age, for people born in different decades
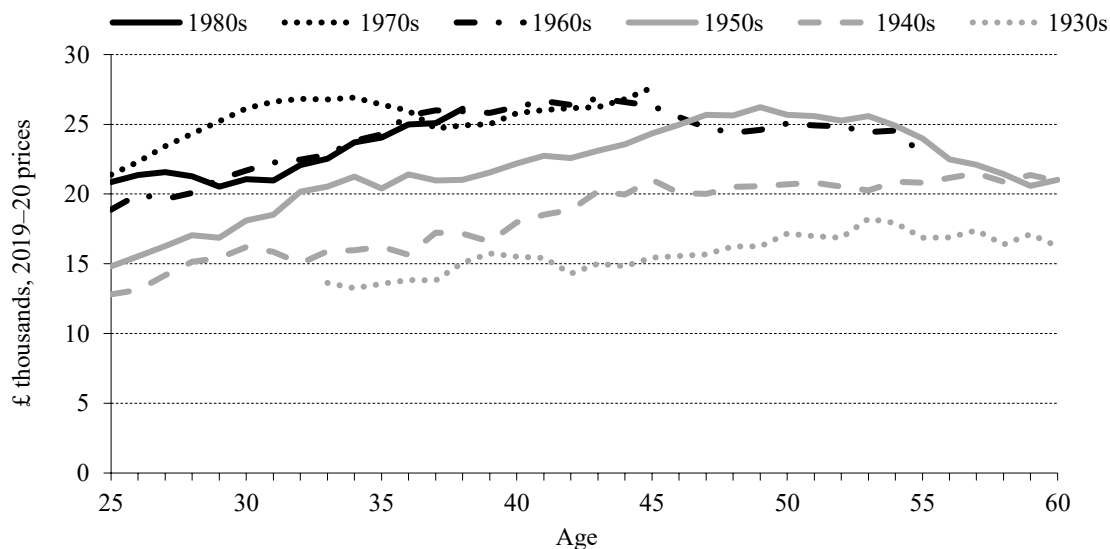
Source: Authors' calculations using the Family Expenditure Survey and Family Resources Survey, various years.

Figure A4. Household income growth for working households, 1994–95 to 2011–12

Note: Sample contains all individuals who are not pensioners (including children) living in a household with at least one person in work. Pensioners are defined as women aged 60 and over and men aged 65 and over. All measures of income are equivalised using the modified OECD scale.
Source: Authors' calculations using the Family Resources Survey.

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