Missing Out

Why ordinary workers are experiencing growth without gain

Technical Appendix

A1   Earnings and income among low-to-middle income households

The Commission's work, and the wider work of the Resolution Foundation, focuses on people living in low-to-middle income households. Because this paper is concentrated primarily with trends in *individual earnings*, we have centred our attention on workers in the bottom half of the earnings distribution (where four-fifths of working low-to-middle income adults are situated).[1]

In this section, we use our more specific low-to-middle income definition to consider the distribution of a range of *household income* measures across the three income groups we define.[2] Our findings highlight the importance of labour income in determining how the proceeds of economic growth are shared across households.

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[1] See Box 1 of the main report for more detail.

[2] The data source underpinning the analysis in this section does not allow for the application of the means-tested benefits filter detailed in Box 1 of the main report. Therefore, throughout this section, the label 'low-to-middle income households' covers the 7.6 million working-age households (around 40 per cent of the total) situated in income deciles 2-5 (households ranked on the basis of equivalised disposable income). 'Benefit-reliant' households are drawn from decile 1, while 'higher income' households include all those in the top half of the working-age income distribution.

Household income measures and shares

Household income can be measured in a number of ways, as set out below.

	Labour income	*wages and salaries plus imputed income from benefits-in-kind and self-employment income*
+	**Non-labour income**	*returns from investments, occupational pensions and other non-state sources*
+ cash benefits	**Gross income**	*income from all sources, before any deductions*
- direct tax	**Disposable income**	*income available for spending and saving*
- indirect tax	**Post-tax income**	*income after all taxes/deductions are paid*
+ benefits- in-kind	**Final income**	*income after all state intervention including value of public services consumed*

Figure A1 details the contribution of each of these elements to average gross incomes in 1977 and in 2009/10 across the three household income groups. It shows that the biggest single source of income among low-to-middle income households is *labour income* – that is, income from wages and salaries plus imputed income from benefits-in-kind provided by employers and self-employment income. In 2009/10, such income accounted for three-quarters (73 per cent) of average gross income among low-to-middle income households.
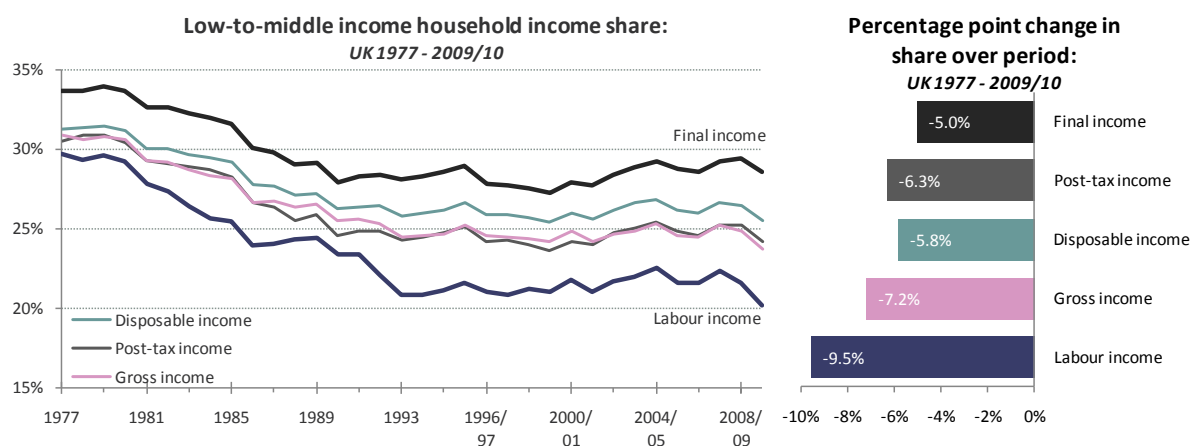

Figure A1:   Breakdown of average household incomes across income groups: UK 1977 & 2009/10 (2009/10 prices)

Notes: Low-to-middle income households defined as those situated in equivalised working-age household income deciles 2-5 (ranked on the basis of disposable income). Benefit-reliant households are those in decile 1, while higher income households are situated in deciles 6-10. Figures are adjusted using the GDP deflator.

Source: RF analysis of ONS, *The effects of taxes and benefits on household income 2009/10 (and earlier)*

However, this is significantly lower than in 1977, when this source represented 85 per cent of average low-to-middle income household gross income. Instead, a growing proportion of the total has arrived in the form of cash benefits – increasingly in the form of tax credits. Yet, despite this

additional support from the state, the low-to-middle income group has fallen further behind the higher income one on each of the income measures outlined above, as set out in Figure A2.

Low-to-middle income household income share:
UK 1977 - 2009/10

Percentage point change in share over period:
UK 1977 - 2009/10

Figure A2: **Share of total working-age household income accounted for by low-to-middle income households: UK 1977–2009/10**

Notes: Low-to-middle income households defined as those situated in equivalised working-age household income deciles 2-5 (ranked on the basis of disposable income). Shares relate to total income reported among working-age households.

Source: RF analysis of ONS, *The effects of taxes and benefits on household income 2009/10 (and earlier)*

It shows that low-to-middle income households have experienced a declining share of each form of income in recent decades,[3] with most of the fall occurring in the period to the mid-1990s. Between 1993 and 2007-08, the shares were relatively steady, with some evidence of slight increases in both labour and final income shares. Following the onset of recession in 2008/09, however, low-to-middle income household shares once again fell. For example, the portion of labour income flowing to members of the group dropped to just 20.2 per cent in 2009/10 – its lowest level over the entire period and down from a high of 29.7 per cent in 1977.

As we might expect given the broadly progressive nature of the tax and benefit system, the low-to-middle income share of the total is consistently higher in relation to final income than labour income. Taking each step in turn:

✦ the group's share of gross income is higher than its labour income share because low-to-middle income households receive more in tax credits and other benefits than higher income households;

✦ their disposable income share is higher still because they pay less in direct taxes than higher income households;

✦ the regressive nature of indirect taxes such as VAT means that the group has a slightly lower share of post-tax income; but

✦ higher consumption of public services among low-to-middle income households means that their final income share is significantly higher.

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[3] Non-labour income is omitted from the chart because it forms a relatively small part of overall original (i.e. pre-tax and benefits) income. The share of such income accounted for by low-to-middle income households over the period followed a similar pattern to the other forms of income shown in Figure A2, though at a lower level.

The gap between labour and final income shares increased over the period (reflected in the fact that low-to-middle income households' share of labour income fell by 9.5 percentage points, while their share of final income declined by 5.0 percentage points). This helps to explain why an increasing proportion of all low-to-middle income household income has been sourced from the state, and points to the fact that redistributive tax and benefit policies have served to mitigate some – though not all – of the impact on low-to-middle income households of falling labour income share.

Future Commission papers will look at the interaction between low-to-middle household incomes and the tax and benefit system in much more detail; in this paper we are instead primarily concerned with the main driver of the overall fall in income share – *labour income.*

Trends in labour income

Figure A3 compares real-terms changes in average labour income in households across the three income groups. It shows that within the low-to-middle income group, average labour income fluctuated with economic conditions – dropping during and after periods of recession in the early-1980s and early-1990s and recovering during periods of GDP growth – such that it was broadly in line with its 1977 level by 1998/99. The household average subsequently climbed during the sustained period of economic growth in the 2000s, although it flattened prior to the 2008/09 recession and dropped off following the onset of this downturn.

Average labour income among higher income households similarly tracked GDP, with the key difference being that it increased much more quickly during the years of economic growth that took place over the period. As a result, average labour income in low-to-middle income households fell from just over half (55 per cent) of the higher income level in 1977, to under one-third (32 per cent) in 2009/10.
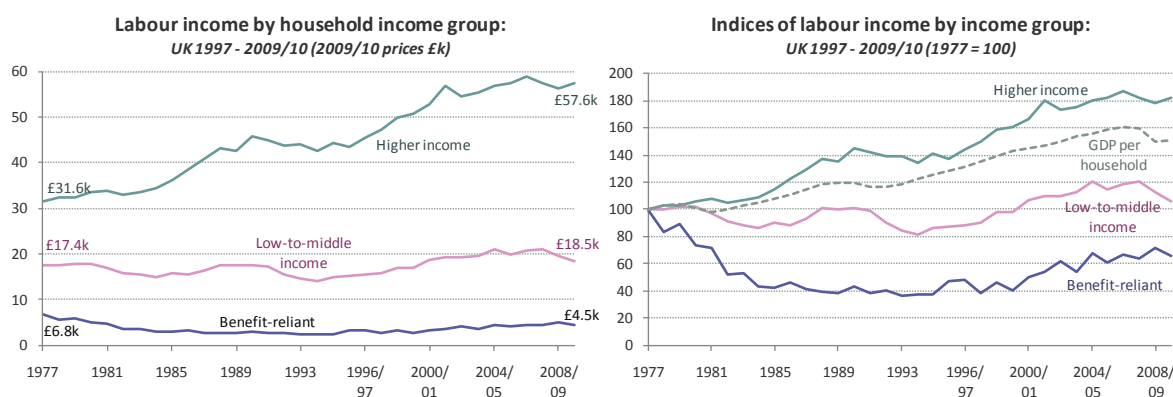
Figure A3:   Average annual labour income by household income group: UK 1977-2009/10
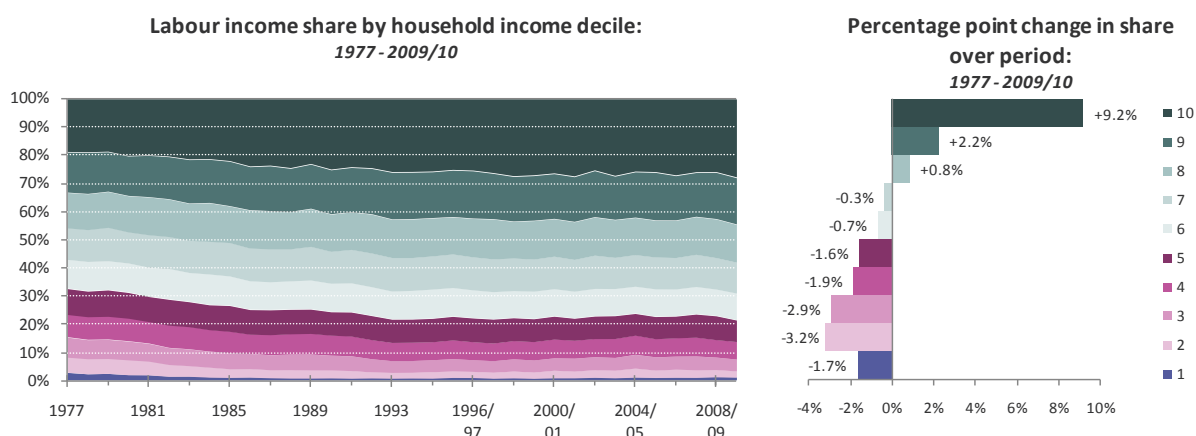
Notes: Low-to-middle income households defined as those situated in equivalised working-age household income deciles 2-5. Benefit-reliant households are those in decile 1, while higher income households are situated in deciles 6-10. Figures are adjusted using GDP deflator.

Sources: RF analysis of ONS, *The effects of taxes and benefits on household income 2009/10 (and earlier)*; OECD, Stat; CLG, *Live Table 401*

The relationship between GDP and household labour incomes in the benefit-reliant group is less obvious. Instead average labour incomes followed a U-shape, falling in real-terms in the period 1977-1985, remaining flat to 1999/00 and subsequently increasing steadily to 2009-10. It remained below its 1977 level at the end of the period however. Average labour income in benefit-reliant

households therefore fell from around two-fifths (39 per cent) of the low-to-middle income household total in 1977, to one-quarter (24 per cent) in 2009/10.

Figure A4 provides a more detailed breakdown, showing how the distribution of total labour income altered over the period 1977-2009/10 across each household income decile. It highlights the dominance of households at the top of the distribution – the richest ten per cent of households alone accounted for more than one-quarter (28 per cent) of all labour income in 2009/10, while the bottom ten per cent took just 0.5 per cent of the total.

Figure A4: Share of total UK working-age household labour income by household income decile: UK 1977-2009/10

Notes: The pink bands cover low-to-middle income households (deciles 2-5); the green bands relate to higher income households (deciles 6-10); and the blue band covers benefit-reliant households (decile 1). Shares relate to total labour income reported among working-age households.

Source: RF analysis of ONS, *The effects of taxes and benefits on household income 2009/10 (and earlier)*

Similarly, while the two-fifths of households situated in the low-to-middle income group (deciles 2-5) together accounted for just one-fifth (20 per cent) of all labour income, the share of the top two-fifths of the distribution amounted to more than two-thirds (69 per cent).

Figure A4 also shows that it is households at the top of the distribution that have gained share over the period (+9.2 percentage points among members of the richest 10 per cent of households), while those in the bottom 70 per cent experienced a decline. The reduction is most marked among households at the lower end of the low-to-middle income group, with falls of 3.2 percentage points and 2.9 percentage points in income deciles 2 and 3.

The changing shape of earnings inequality

Much of the analysis above points to a division of the 30 year timeframe considered into two distinct periods:

✦ *1977-1993* when low-to-middle income households experienced steady declines in their shares of all types of income; and
✦ *1993-2009/10* when income shares were broadly flat.

Figure A5 splits the overall change in labour income shown in Figure A4 into these two periods and confirms that there *is* a distinction to be made.

Two distinct periods of distribution of household labour income:

1977 - 1993   1993 - 2009/10
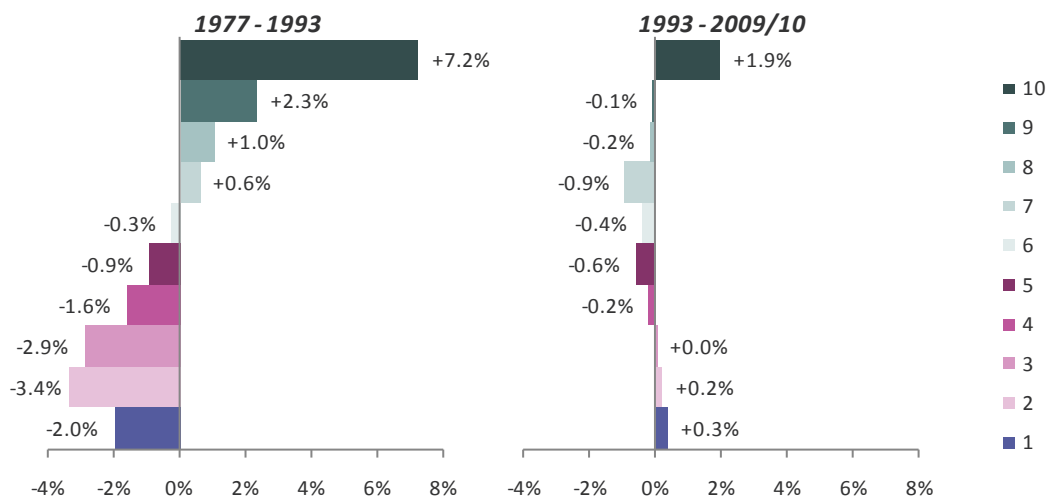
Figure A5: **Percentage point change in labour income share by household income decile: UK 1977-2009/10**

Notes: The pink bands cover low-to-middle income households (deciles 2-5); the green bands relate to higher income households (deciles 6-10); and the blue band covers benefit-reliant households (decile 1). Shares relate to total labour income reported among working-age households.

Source: RF analysis of ONS, *The effects of taxes and benefits on household income 2009/10 (and earlier)*

The pattern in the earlier years largely reflects that observed for the overall period, namely that those households towards the top of the distribution made the largest gains in share, while those in deciles 2 and 3 experienced the biggest drops.

In the latter period however, across the bottom 90 per cent of households, there was relatively little change in labour income shares, with some evidence of a slight *decline* in inequality as the bottom three deciles made small gains while deciles 4-9 experienced small losses in shares.

Given that earnings inequality is often measured in terms of the 90-10 ratio – which compares earnings at the 90th percentile with those at the 10th – we might expect this finding to provoke the conclusion that earnings inequality narrowed over the period. However, this masks the fact that the top ten per cent of households experienced a significantly larger (positive) movement in share than any other decile group.

Looking again at the two halves of our 30 year timeframe we can reach a new conclusion:

- ✦ *1977 – 1993* was characterised by growing earnings inequality that benefited most households in the top half of the income distribution, while hitting low-to-middle income households the hardest; but
- ✦ *1993 – 2009/10* was characterised by growing earnings inequality at the very top of the income distribution, combined with a slight narrowing of divisions among the majority of households.

A2   Adjusting the labour share for the self-employed

As discussed in Section 2.1 of the main report, a simple labour share of income figure calculated by dividing total compensation of employees by GVA at factor cost fails to capture the true value of all labour income, because of its omission of self-employed income. In this section we compare trends in adjusted and unadjusted labour shares in the UK and consider the implications for our main report findings.

Adjusting the labour share figures requires the application of a self-employment ratio (total employment in each sector divided by employees in each sector) to the initial labour share. Figure A6 re-presents the data set out in Figure 5. As we would expect, it shows that the inclusion of self-employment income increases the labour share. More surprisingly we find that, while the unadjusted measure fell over the course of the 30 years, the adjusted measure *increased* slightly, from 69 per cent in 1977 to 71 per cent in 2010.

Employee compensation as share of gross value added:
UK 1977 - 2010
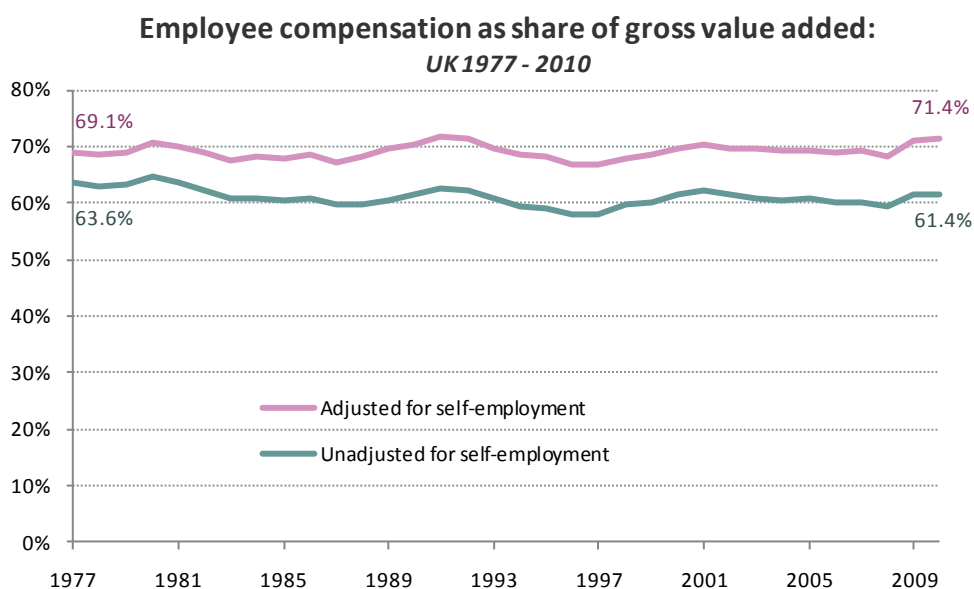
Figure A6:   Unadjusted and adjusted labour share of gross value added: UK 1977-2010

Notes: Unadjusted data divides total compensation of employees by gross value added at
                  factor cost. It is produced by weighting the sector shares set out in Figure A7. Adjusted
                  data is produced by multiplying the unadjusted share in each sector by the ratio of total
                  employment in each sector to numbers of employees. The aggregate level figure
                  represents a weighted composite of these separate sector shares.

Sources: OECD, Stat; ONS, *National Accounts*

This growing divergence between the unadjusted and adjusted figures in the UK reflects the rising share of total employment accounted for by the self-employed. This means that the accuracy of the adjustment process has become increasingly sensitive to the appropriateness of the assumption that the compensation of employees and the self-employed are aligned.[4]

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[4] In the extreme it can produce a labour share that is above unity, because of measurement errors and/or differences in definitions of self-employment across national accounts and employment surveys.

The effect of omitting the self-employed on GVA shares

The difference in the two measures also means that our findings in relation to trends in low-to-middle income workers' share of GVA may overstate the decline over the period.

We are unable to produce directly comparable GVA share figures using the adjusted labour share data, both because the self-employment adjustments is (as we have noted) imperfect and because we have no reliable means of tracking the distribution of self-employment income across the earnings distribution.

Various surveys (e.g. the *Family Resources Survey*) *do* include self-employment income, but variables derived from such sources are notoriously unreliable. Notwithstanding this, we have used the FRS data to repeat the GVA share calculations set out in Chapter 1 in relation to 2009, in order to test the magnitude of potential effect associated with omitting the self-employed from our analysis.

On this measure, we found that the share of GVA accounted for by the wages of workers in the bottom half of the earnings distribution in 2009 was 12.8 per cent, compared with 12.3 per cent when following the methodology set out in Chapter 1.

This is not the same as saying that the proportion of gross value added flowing to workers in the bottom half of the earnings distribution declined from 16.2 per cent in 1977 to 12.8 per cent in 2009, rather than 12.3 per cent, because the share in 1977 is also likely to have been higher. However, even if this *was* the case – which it would be if *all* of the increase in self-employment over the period was due to a shift from employment to self-employment among low-to-middle income workers – the size of the effect is reassuringly small.

## A3   Adjusted labour share by economic sector

In Chapter 3 we consider the influences on the aggregate level decline in UK labour share of changes within and across economic sectors. In keeping with our focus on employees in this paper, that analysis is based on unadjusted labour share data. In Figure A7 however, we present both unadjusted and adjusted data.

It shows that, unlike on the unadjusted basis, labour share rose across the period in all sectors other than *industry*. The increase was particularly marked in the *construction* sector, reflecting a significant increase in self-employment rates in this industry.

Repeating the sectoral decomposition analysis undertaken in Chapter 3 (and set out in more detail in section A4 below) we find that:

✦ Increases in adjusted labour share in the *retail, transport & communication*, *financial & business services*, *construction* and *other services* sectors outweighed decline in the *industry* sector to produce a positive within-sector effect at the aggregate level.

✦ However, the declining importance of the relatively high labour share *industry* sector produced a negative between-sector effect of similar magnitude at the aggregate level.

✦ *Industry*, *finance* and *other services* made the largest contributions to the aggregate level change, accounting for 46 per cent, 31 per cent and 16 per cent respectively.

Figure A7:   Labour share in selected sectors: UK 1977-2010
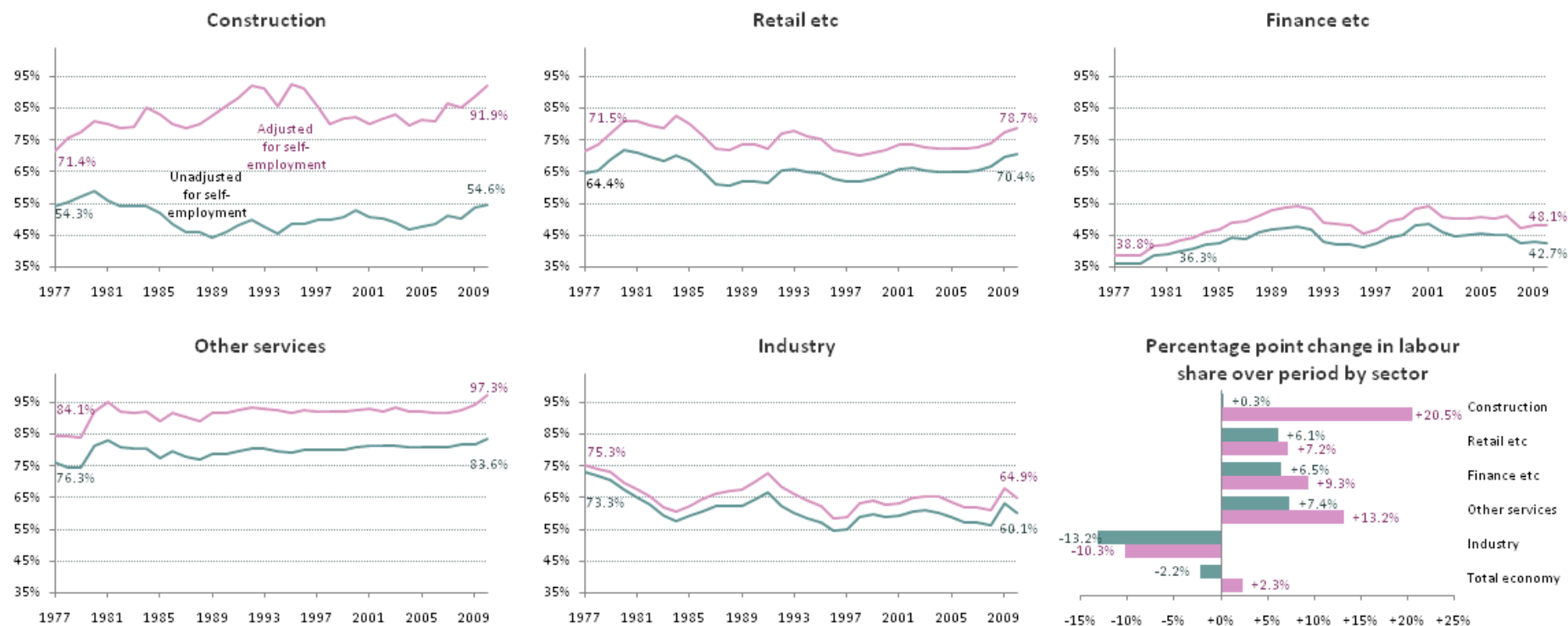
Notes: Unadjusted data divides total compensation of employees each sector (wages and salaries in cash and in-kind, plus social contributions made by employers) by gross value added in the sector at factor cost. Adjusted data are produced by multiplying the unadjusted shares by sector specfic self-employment ratios. These ratios are calculated as total employment in the sector divided by numbers of employees. Sectors are broken down as following. **Construction**: construction; **Retail etc**: wholesale and retail trade, repair of motor vehicles, hotels, restaurants, transport, storage and communications; **Finance etc**: finance, real estate, computers and other business activity; **Industry**: mining, manufacturing and energy; **Other services**: education, health and public administration. Not shown here, but included in the total economy figures, is **Agriculture etc**: agriculture, forestry, fishing & hunting.

Sources: OECD Stat; ONS, *National Accounts*

A4   Sectoral decomposition analysis of change in labour share of income

As discussed in Chapter 3, the change in labour share of income at the aggregate level is a product of changes in labour share *within* sectors and changes in the composition of the UK economy *between* sectors. To disaggregate the contributions of these two effects to the overall change, we can employ a 'sectoral decomposition' analysis. Here we follow the methodology set out in the IFS publication, *Poverty and Inequality in Britain 2006*.

The change in aggregate labour share of income between period *t-s* (i.e. 1977) and period *t* (i.e. 2010) can be decomposed into the following two parts:

$$\Delta LS_t = \sum_{i=1}^{I} \left(\frac{w_{i,t} + w_{i,s}}{2} \; x \; \Delta ls_{i,t} \right) + \sum_{i=1}^{I} \left(\frac{ls_{i,t} + ls_{i,s}}{2} \; x \; \Delta w_{i,t} \right)$$

where $ls_{i,t}$ represents the aggregate wage share for industry *i* (with *I* industries in total) at time *t*, and w_i stands for the weight of each industry in the sum of value added across the sectors considered.

✦ The first term on the right-hand side of the equation therefore represents the change in aggregate labour share of income attributable to variations in labour share *within* each sector.

✦ The second term is the change in aggregate labour share of income due to changes in the weight of each sector. It is therefore indicative of the relative importance of movements *between* sectors.

Table A1 shows the results of this decomposition in the UK in the period 1977-2010 across six broad sectors: *agriculture*; *industry*; *construction*; *retail, transport & communication*; *financial & business services*; and *other services* (including education, health and public administration). The analysis is carried out for labour share on both an unadjusted and adjusted basis.

On an unadjusted basis:

✦ The *within-sector* effect was positive at the aggregate level, while the *between-sector* effect was negative – that is, it served to reduce labour share – and larger. Two-thirds (70 per cent) of the movement in the aggregate labour share appears to have occurred as a result of these *between-sector* effects, with the remaining one-third (30 per cent) being due to *within-sector* changes, producing an overall decline.

✦ Looking at the role (both within- and between-sector) played by each sector, we note that a very large negative contribution from the *industry* sector and small negative effects from *agriculture* and *construction* were partially offset by a large positive contribution from the *financial* sector and smaller positive effects from *retail* and *other services*.

✦ Over half of the change (52 per cent) in the aggregate measure was due to *industry* sector movements, with *finance* contributing a further 30 per cent to the total.

On an adjusted basis:

✦ The *within-sector* effect was positive and much larger than when using unadjusted labour share data. In contrast, the negative *between-sector* effect was similar in magnitude to the one recorded on an unadjusted basis. As a result, in this instance *between-sector* effects accounted for just two-fifths (39 per cent) of the aggregate level movement, while *within-sector* effects explained the remaining three-fifths (61 per cent), producing an overall *increase* in labour share.

✦ Taking both within- and across-sector effects together, a very large negative contribution from the *industry* sector was slightly more than compensated for by large positive contributions from *finance* and *other services* along with a significant positive effect from *other services*.

✦ Again *industry* (46 per cent) and *finance* (31 per cent) were the two most influential sectors at the aggregate level.

Table A1: Sectoral decomposition of the aggregate change in labour share of income: *UK 1977-2010*

	$w_{i,1977}$	$w_{i,2010}$	Δw	$(w_{i,1977}+w_{i,2010})/2$	$ls_{i,1977}$	$ls_{i,2010}$	Δls	$(ls_{i,1977}+ls_{i,2010})/2$	$\Delta ls*(w_{i,1977}+w_{i,2010})/2$ *within*	$\Delta w*(ls_{i,1977}+ls_{i,2010})/2$ *between*	sum	contribution
Unadjusted labour share												
Agriculture	2.5	0.7	-1.7	1.615	0.275	0.483	0.208	0.379	0.336	-0.662	-0.327	+1%
Industry	33.1	15.7	-17.4	24.372	0.733	0.601	-0.132	0.667	-3.225	-11.591	-14.816	+52%
Construction	6.7	6.1	-0.6	6.424	0.543	0.546	0.003	0.544	0.016	-0.304	-0.288	+1%
Retail, transport, communication	20.6	20.6	0.0	20.620	0.644	0.704	0.061	0.674	1.255	-0.010	1.245	+4%
Financial & business services	16.3	33.6	17.3	24.951	0.363	0.427	0.065	0.395	1.612	6.850	8.462	+30%
Other services	20.8	23.2	2.3	22.018	0.763	0.836	0.074	0.799	1.620	1.875	3.495	+12%
Sum of sectors									*1.614*	*-3.841*	*-2.227*	+100%
Adjusted labour share												
Agriculture	2.5	0.7	-1.7	1.615	0.382	0.973	0.591	0.678	0.954	-1.183	-0.230	+1%
Industry	33.1	15.7	-17.4	24.372	0.752	0.658	-0.094	0.705	-2.298	-12.253	-14.550	+46%
Construction	6.7	6.1	-0.6	6.424	0.734	0.936	0.202	0.835	1.296	-0.466	0.829	+3%
Retail, transport, communication	20.6	20.6	0.0	20.620	0.707	0.786	0.079	0.746	1.634	-0.011	1.623	+5%
Financial & business services	16.3	33.6	17.3	24.951	0.412	0.498	0.086	0.455	2.146	7.898	10.044	+31%
Other services	20.8	23.2	2.3	22.018	0.817	0.935	0.118	0.876	2.595	2.055	4.650	+15%
Sum of sectors									*6.327*	*-3.961*	*2.366*	+100%

Notes: Sum' column represents the percentage point change in the aggregate wage share for all industries over the period. 'W' stands for weight (measured in percentage terms), while 'ls' stands for labour's share of income. The 'contribution' for each industry is the ratio of its 'sum' to the 'sum' of all the sectors. A negative contribution implies that this sector has contributed to decreasing aggregate labour share.

Source: Shift-share analysis of OECD, Stat data.

A5   Theil's T Statistic and measures of inequality

In Chapter 3 we used the *Theil Index* to decompose the contribution to aggregate level wage inequality in the period 1999-2008 by economic sector. Here we explain the functioning of the measure in more detail and set out our raw findings.

The Theil Index

As discussed in Chapter 3, the *Theil Index* is an established measure of inequality, representing the maximum possible entropy of the data (that is, the total number of different arrangements that can be produced) minus the observed entropy. For this reason, it is sometimes considered to be a measure of non-randomness which, in the context of pay dispersion, means that it measures the tendency of the population to diverge from an entirely random – and therefore equal – distribution.

Despite being difficult to conceptualise, the *Theil Index* works; reflected in the fact that trends in the index correspond closely to other, more well-known measures of inequality. Figure A8 compares movement in the *Theil Index* of UK pay inequality between 1999 and 2008 with two other measures: the 90-10 ratio and the *Gini Index*.

Selected measures of inequality
UK 1999 - 2008
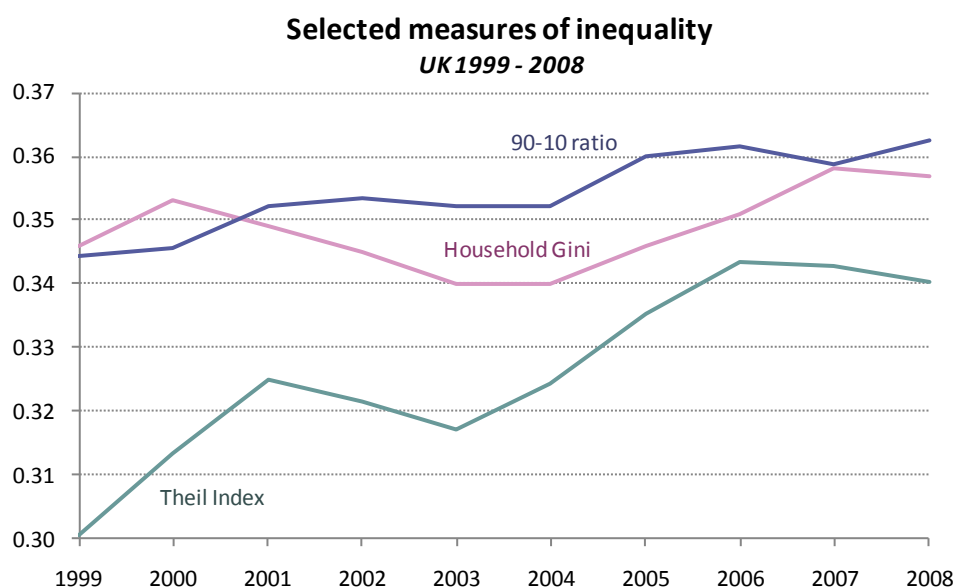
Figure A8:	**Measures of earnings and income inequality: UK 1999-2008**
Notes:	The *Theil index* and 90-10 ratio are calculated on the basis of gross earnings. The *Gini Index* is calculated from household income. Although income and earnings measures are not directly comparable, they are set alongside each other here for the purpose of indicative comparison only. Scores for the 90-10 ratio have been divided by 10 to fit on the same scale as the *Gini Index*.
Sources:	RF analysis of ONS, *ASHE*; OECD, Stat; IFS, *Inequality and Poverty Spreadsheet 2010*

In brief, the different measures can be described as follows:

✦ **90-10 ratio**: already discussed in this paper, this measure presents a simple ratio of the level of (in this instance) gross wages that exists at the 90th and 10th percentiles of the earnings distribution. It thereby records the gap between the top and bottom of the distribution.

✦ **Gini Index**: the most commonly used measure of income inequality, it captures the level of concentration of income in an economy. The coefficient varies between 0, which reflects

complete equality and 1, which indicates complete inequality (one household has all the income or consumption, all others have none)

✦ **Theil index**: lacks a straightforward representation but, like Gini, represents a number between 0 (complete equality) and 1 (complete inequality). In this context it is based on earnings inequality rather than income.

Although not identical, the broad trends in each measure are similar with a trough in inequality around 2003 and 2004 and subsequent increase. The *Theil Index* maps particularly closely to the 90-10 ratio, possible because both are measuring individual earnings in this instance, while the *Gini Index* is capturing household income.

Theil's T Statistic and sectoral decomposition

The main reason for using the *Theil Index* in this paper is that, unlike the *Gini Index*, it can be decomposed to show the contributions made to overall wage inequality by different economic sectors.

Thiel's T Statistic combines the level of total employment and average earnings in each economic sector to arrive at a final indicator of inequality. For each sector, an element of the *Theil index* is calculated that summarises the industry's contribution to overall inequality. These elements can be positive or negative with those that are closer to zero (i.e. closer to random distribution) having the least impact on overall inequality.[5]

Because these elements (industrial sectors in our case) can be positive or negative, a score of -0.100 would contribute more to inequality than a score of -0.001: likewise a score of +0.100 contributes more than a score of +0.001. In essence, zero is considered to be perfect equality and deviations above or below zero contribute to inequality.

Formally, the *Theil Index* used in this paper is given as:

$$T'_g = \sum_{i=1}^{m} \left\{ \left(\frac{p_i}{P} \right) * \left(\frac{y_i}{\mu} \right) * \ln \left(\frac{y_i}{\mu} \right) \right\}$$

where p_i is the number of jobs in sector *i*, *P* is the total number of jobs in the country, y_i is the average earnings in sector *i* and μ is the average earnings for all jobs. Each term within the summation sign is a *Theil element*.

T'_g in this formula represents the between-sector portion of inequality, though the within-sector portion of inequality (T^w_g) can be similarly calculated and summed with the between-sector portion.

$$T = T'_g + T^w_g$$

In our analysis, sectors with low employment tend to have smaller *Theil elements* in absolute terms, which means they contribute less to the overall level of inequality.

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[5] Galbraith, J. K and Hale, T, (2007), Between-sector earnings inequality in the United States, UTIP Working Paper 43

Original results of the Theil Index sectoral decomposition

As stated in the notes to Figure 20, the results of the decomposition of between-sector inequality using the *Theil Index* were presented in absolute terms in the main body of this paper. Figure A9 displays the sectoral contributions to inequality in the original format, with some sectors recording *Theil elements* below zero, though still contributing a large amount to inequality due to much lower than average wages and possibly high employment shares.
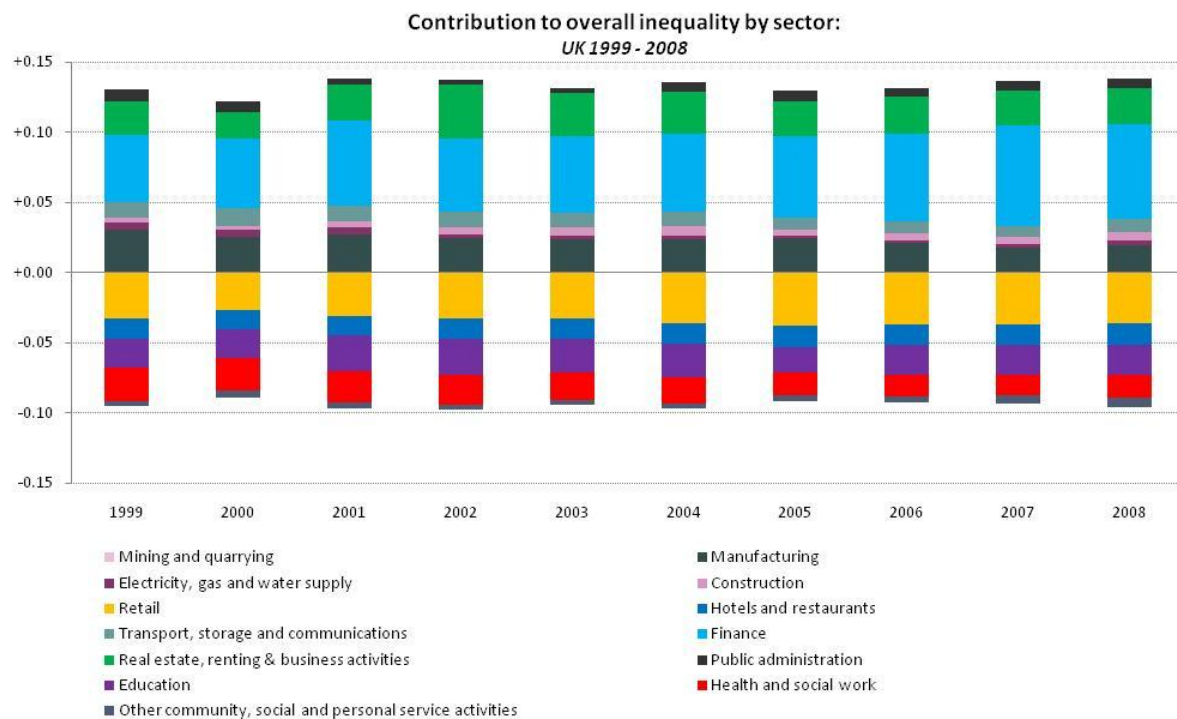
Figure A9:   **Theil Index measure of earnings inequality by economic sector: UK 1999-2008**
Sources: RF analysis of ONS, *ASHE*