Consumption, Income and Earnings Inequality in the UK

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ABSTRACT

This paper presents a consistent analysis of the trends in inequality across income, earnings and consumption in the UK since 1978. It shows the episodic nature of inequality growth over this period largely dominated by the inequality ‘boom’ of the 1980s. It presents a consistent picture across these key measures of inequality that can be used to provide a coherent link between the microeconomic and macroeconomic analysis of the evolution of inequality.

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1 INTRODUCTION

Income inequality in the UK over the past three decades has been episodic. This is clearly illustrated in Figure 1.1 which depicts the evolution of the Gini for family income in the UK. There is a well documented inequality ‘boom’ in the 1980s followed by a period of stability albeit at a higher level of inequality. Then, since the mid-1990s, some rise in inequality but this largely concentrated at the top of the income distribution.

During the 1980s inequality boom the Gini for income rose by a full ten points from around .23 to .33, a large increase by any comparison. We show that this increase in inequality was reflected across the distribution and in the components of income. It is particularly evident in the earnings distribution reflecting a change in underlying returns to skill over this period. Over the inequality boom period, especially in the early 1980s, there was a corresponding sharp rise in consumption inequality, although this tailed off in the second part of the 1980s.

Figure 1.1: The Pattern of Overall Inequality in the UK since 1978

Notes: Normalized to unity in 1979.

1 See Atkinson (1997).
Inequality has many linked dimensions – wages, earnings, income and consumption. This paper seeks to document the trends in inequality across these various dimensions in a consistent fashion. It examines income, earnings and consumption in the UK since 1978. To do this we make use of a number of data sources. However, because we want a consistent series for these underlying variables dating back as far as possible we confine our main analysis to the Family Expenditure Survey which has been collected on a consistent basis for more than three decades and the Labour Force Survey, which again has consistent measures of basic labour market variables again for more than three decades.

We set the scene in the next section by documenting the broad macroeconomic and labour market background for the UK economy over the period since the late 1980s. We then present some details of the data sources used and their ability to match basic aggregate trends. Our attention then turns to the analysis of underlying earnings inequality. Blundell, Pistaferri and Preston (2007) argue that the pattern of inequality over the inequality boom period in the US is largely driven by changes in the labour market, in particular to changes in the level and durability of shocks to earnings and changes in female labour supply. Blundell, Low and Preston (2007) document a similar story for the UK. We also consider the covariance structure between hours and wages for both men and women and note a recent strengthening in the relationship between male wages and male hours. We then move to analysis of disposable income and consumption inequality. Finally we examine the dynamics of the various definitions of income and earnings using the British Household Panel Survey.
2 MACROECONOMIC CONDITIONS AND DATA OVERVIEW

2.1. EMPLOYMENT, GROWTH AND MACROECONOMIC CONDITIONS

The sharp recession in the very early 1980s in the UK is clearly seen in Figure 2.1 by the strong negative growth rate in 1980 and 1981. This was followed by a severe drop in employment rates for both women and men. Male employment rates have yet to return to their pre-1980 level, although female employment rates show a strong secular trend upward over the whole period.

The second recession in this period followed soon after the peak growth rates at the end of the 1980s. From 1993 onwards the economy moved into a period of stable and moderate growth, accompanied by a consistent rise in employment. The overall growth in employment over this period was offset to some extent by the continued fall in labour market attachment among low skilled workers that extended throughout the first half of the 1990s. This reflected a fall in demand for low skilled workers over this period and engendered a change in welfare and tax policy that heralded a strong expansion in earned income tax credits and welfare to work policies in the late 1990s under the Blair administration.\(^5\)

**Figure 2.1: Overall Employment and Growth Rates**

![Figure 2.1: Overall Employment and Growth Rates](image)

The detailed picture of labour market attachment over this period can be seen in Figure 2.2. This highlights the impact of the early 1980s recession on the employment of low skilled men and women. Low skilled women only very recently returning to the employment rates of the

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late 1970s, while for low educated men employment rates still lie well below the employment rates of three decades ago. For single mothers, employment rates continue to be lower. Figure 2.3 shows that this drop in employment among the low educated shows up in a lower level of households with at least one adult working, although the growth in female labour supply

Figure 2.2: Employment by education and gender, by year

![Graph showing employment by education and gender by year](image)

Source: FES.

Figure 2.3: Proportion of Households with a Working Adult

![Graph showing proportion of households with a working adult](image)

Source: FES.

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6 See Blundell and Hoynes (2004).
The overall changes in working behaviour for men and women over the life-cycle over this period are perhaps most dramatically documented in Figures 2.4a and b. These show that the impact of the 1980s recession on employment was felt most among the young and old, while the increase in female labour supply has happened most at child bearing years. These are key considerations for understanding changes in inequality across time, across age and across gender.

Figure 2.4a: Employment over the Life-Cycle: Men

![Figure 2.4a: Employment over the Life-Cycle: Men](image)

Source: LFS.

Figure 2.4b: Employment over the Life-Cycle: Women

![Figure 2.4b: Employment over the Life-Cycle: Women](image)

Source: LFS.

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7 See Blundell, Bozio and Laroque (2008) for more details.
2.2. DATA SOURCES AND DEFINITIONS

There are a number of data sources used in the analysis reported here, primarily from the consistent repeated cross-section household surveys, the Family Expenditure Survey and the Labour Force Survey. We also draw on panel data from the BHPS, although this is only available from 1991 onwards. In the remainder of this section we briefly describe these data sources and draw some comparison with the national income accounts.

THE FAMILY EXPENDITURE SURVEY - FES

The principal dataset used in this study is the UK Family Expenditure Survey (FES). The FES is an annual survey conducted chiefly for determining the basket of goods used to construct the retail price index. The FES has been running since 1957, although it has only collected data in its present form on a consistent basis since the 1970s. In 2001, this dataset merged with the UK National Food Survey to create the Expenditure and Food Survey (EFS), but we shall make reference to the FES for the remainder of the paper. In a typical year the FES contains information on around 6500 households. Over the first few decades of the survey, the response rate was consistently over 70%. However, this has declined since the 1980s and fell to 58% in 2000. In general the households form a representative sample, but excluded are those not living in private houses, such as residents of residential homes or students.

For households participating in the FES, each member over 16 is asked to complete a diary detailing all their spending, both home and abroad, over a two week period. In addition to this diary, household members perform an interview in which they are asked questions about their demographic background, and asked to recall expenditures on large infrequently-purchased items (such as cars).

Because data on income have been collected consistently only since 1978, our sample period is 1978-2005. This gives a baseline sample of 197,190 households (369,599 adults, 496,067 individuals). To each household we allocate a head, in accordance with the guidelines for this project (usually the male in a household consisting of a married couple with children). For the majority of statistics quoted in this study, we use as population all households with heads aged 25-60. The sample is formed as follows: we drop 71,041 households for which the head is not ‘prime-aged’; we then drop observations where food consumption or disposable income is negative (515 observations), leaving 125,614 households representing 370,343 individuals. For robustness of the results we trim the top and bottom 0.25% of observations of each distribution.
For consistency with the other variables, we follow this same procedure for wages, rather than selecting on the minimum wage or the wage of a typical low-skilled job. It is worth noting, however, that the minimum wage was introduced in the UK in 1999 at £3.60 for over-21s: our trimming point for this year is around 40% of this, at £1.41.

**THE LABOUR FORCE SURVEY - LFS**

The Labour Force Survey is a continuous household survey which provides the most detailed data on labour market characteristics such as participation, earnings, training and qualifications. The LFS has been running since 1973 and provides national accounts employment data. It was first collected every two years, then, since 1983, yearly, and since 1992 it has been collected quarterly, as a revolving panel lasting 5 quarters. The sample size in each wave is around 60,000 households covering 140,000 individuals. It does not form part of our core dataset, because it has only carried information on earnings since 1992, but we use it to examine background macroeconomic employment conditions.

**THE BRITISH HOUSEHOLD PANEL SURVEY**

In order to study wage and income dynamics we use data from the British Household Panel Survey (BHPS). The BHPS is a comprehensive longitudinal study for the UK for general use in the social sciences, running since 1991. Like the US PSID it tracks individuals across household changes and tries to match the population age distribution by taking a refresher sample of new adults in each wave. In the first wave, it achieved a sample size of around 5000 households (10,000 adult interviews), a 65% response rate. The sample size has fallen somewhat since 1991, both because of sample attrition and because of a net outflow of households. In 2000 it achieved around 4200 complete interviews, a 75% response rate.

The BHPS has detailed information on earnings, hours worked and other income, and information on housing and durables, but little information on non-durable expenditure. An auxiliary dataset compiled by researchers at the University of Southampton contains derived data on net household disposable income, which we use in this study.

We follow similar sample selection procedures for the BHPS as followed for the FES. The baseline sample is 68,027 households, comprising 166,144 individuals. We remove 24,414 households for whom the head is outside our age range. We then trim the bottom 0.5% of the distribution of disposable income and remove observations for which the head’s education status is missing (346), leaving 43,017 households, comprising 122,269. Unlike the FES, where each questionnaire is completed in entirety, the BHPS contains many incomplete observations, so the
quoted statistics are computed using fewer observations. For example, the total sample size of observed changes in income is 24,363.

**COMPARISONS WITH NIPA**

Here we present a comparison of per-capita disposable income, expenditure and labour employment from the UK national accounts and the FES. Owing to definitional and methodological differences, it would be unsurprising to find a difference in levels between the national accounts and FES. Moreover, both datasets are subject to measurement error of different kinds: the FES may include (possibly systematic) mis-reporting by households, while, for example, many national account expenditure items are formed as a residual from income, value-added and trade items in national accounting identities. Of particular interest is how large and how constant any discrepancy is, whether these differences can be accounted for, and whether the two measures have the same dynamics. We give a brief overview of apparent differences between the two datasets: the issues are discussed in further detail in Tanner (2005) and Attanasio, Battistin and Leicester (2006).

Figure 2.5 shows per-capita disposable net income in FES and national accounts, deflated by the RPI. The coverage of the FES has been consistently high over the sample period, rarely dropping below 90% of the national accounts level. For most of the period, the FES also matches the dynamics in the national accounts, matching the recession in the 1980s and slowdown in the early 2000s. The FES data departs significantly from NIPA statistic only in 1992.

![Figure 2.5: Income Per Capita: FES vs NIPA](image)
Figure 2.6 shows estimates of per-capita income and total expenditure from the FES as a proportion of national accounts data. The measure of expenditure used here is broader than that used in the rest of this study as we include durable and semi-durable goods, excluding housing and some other small items which are incompatible between the two data sets. The largest departure from national accounts for both income and expenditure occurs in the early 1990s. However, although income coverage suffers a pronounced dip in 1992, then recovers later in the decade; the coverage of consumption first begins to decline in 1993, but then to continues to decline.

**Figure 2.6: Income and Consumption Coverage**

![Graph showing income and consumption coverage from 1978 to 2004](image)

In order to try to understand what may be behind the declining performance of the expenditure data, it is worth looking at some of the components behind the total. Figure 2.7 shows the percentage coverage of certain items included in our consumption basket. Expenditure on food, clothing and catering matched the national accounts extremely well, both in levels and in dynamics until the late 1980s (and before the beginning of our sample period). Coverage for these items rarely fell below 90%. On the other hand, alcohol and tobacco have always had low coverage, but this is common for items that carry a social stigma. 1988 saw a sudden collapse in the coverage of catering, which suggests that there was a sudden change in measurement for this category in one of the datasets. However, for all other categories there has been no sudden shift, but a gradual decline in coverage, approximately since 1993. Therefore the decline in coverage of the aggregate since 1993 is not confined to certain items but seems to be a broad trend across many expenditure categories. The case of food expenditure is puzzling since
the national accounts data for this item are formed mainly from the FES data. It may therefore be sensible to use the FES food coverage as a basis for comparison.

**Figure 2.7: Consumption Coverage – Selected Categories**

![Figure 2.7: Consumption Coverage – Selected Categories](image)

The are several possible explanations for the declining performance of the expenditure data. First, there may be a worsening sampling problem. As mentioned above, the response rate to the FES has declined from over 70% to under 60% over the past 30 years. It is possible that the survey is systematically selecting out high spenders for some reason. However, the FES continues to cover income well, so the discrepancy would have to be caused by selecting out groups who spend more of their income relative to the rest of the population. We know that FES excludes students and people in residential housing, among others, but it seems unlikely that these two groups can explain all the difference. Second, the departure could be caused by changes in the way people spend money. The 1990s saw the introduction of internet purchasing and a rise in spending on credit cards. Additionally, children’s expenditure has become more important: although their expenditure is accounted for, children are not given a diary, so their spending may be under-recorded. Third, spending abroad and spending by NPISH (non-profit institutions serving households e.g. local sports clubs) is not included in the FES. These items are separable from domestic and household spending in the national accounts, though not at the level of individual categories, and there is likely to be high measurement error in recording, for example, foreign spending by UK households. Finally, the decline coincides with the shift from sampling the FES over the calendar year to sampling over the financial year (e.g. from April 1993 to March
However, it is hard to think why this would cause a departure in trend between the datasets, rather than maybe a shift in the coverage.

Figure 2.8 shows the employment rate for over-16s in the FES and NIPA data (which derive from the LFS). In contrast to income and expenditure, the match for participation between the FES and NIPA data has improved in the last decade. This is because the demographic weights are now calculated yearly for the FES, while prior to 2001, sampling weights are an imputation from 10-yearly censuses.

To summarize, the FES seems strong in matching national account income, employment data and to an extent consumption data. However, the departure for expenditure is of growing importance. This raises some puzzles since it occurs for items (food) for which national accounts data uses FES. This is the subject of on-going research as there seems no easy explanation. The discrepancy has increased gradually since the early 1990s, for nearly all items, and because it does not seem to have been caused by selecting out high-income households.

3 HOURS, WAGES AND EARNINGS INEQUALITY

3.1. WAGES

In our discussion of inequality we turn first to wages and labour earnings. Figure 3.1 provides the key measures of inequality in overall hourly wages in the UK over the period 1978 to 2005. The strong growth during the 1980s is clearly visible. As is the moderation in the early 1990s and the subsequent growth in the late 1990s. This figure is for the prime-age sample in which…. but
the pattern is replicated for the entire sample as can be seen from Figure B.1 in Appendix B. This general picture of growth in wage inequality especially in the 1980s is reflected in both the variance of the log measure and the Gini measure. It is also prevalent in the lower decile comparison (50-10) and the upper decile comparison (90-10).

Figure 3.1 Inequality in Wages (Prime-Age Sample)

3.2. WAGE PREMIA

Education differentials rose rapidly during the early 1980s and have been reasonably stable thereafter. This is clear from the first panel in Figure 3.2. The experience differential which here simply measures the time since leaving education, also rose and continued to do so through until the mid-1990s. On the other hand the raw gender differential has fallen secularly over the whole period. The residual term shows that other factors remain important in explaining the overall growth over this period.
3.3. WAGE INEQUALITY, EARNINGS AND LABOUR SUPPLY

The growth of wage inequality over this period has been strongest for men. This probably reflects the fall in labour market attachment of low skilled men relative to the strong growth in the labour supply of women documented in section 2.1 above. Figure 3.3 also shows the systematic differences in the variation of hours worked between men and women over this period. Again largely reflecting the relative increase in the labour supply of women. Generally male wages are weakly or even negatively correlated with hours of work, although this correlation has been becoming more positive over this period. This is further investigated in Figure 3.4 which shows that the correlation for men is most positive, and increasingly so, at either end of the life-cycle. This is where we expect labour supply elasticities for men to be most responsive.\(^8\) For women Figure 3.3 shows a strong correlation. A similar picture can be found for the prime-age sample, see Appendix, Figure B.3.

The general picture of inequality growth in wages follows through into household earnings, as can be seen from Figure 3.5 which presents the inequality measures for equivalised household earnings. Figure 3.6 shows the importance of the returns to education in explaining

\(^8\) See Blundell and MaCurdy (1999).
earnings inequality in the early part of this period, as well as a more recent role for demographics and region.

Figure 3.3 Inequality in Labour Supply

Figure 3.4 Correlation across the life-cycle

Correlation between Male Wages and Hours, by Age (Cubic Polynomial Fit)
4 FROM WAGES TO DISPOSABLE INCOME

Families have many ‘insurance’ mechanisms which place a wedge between the distribution of individual hourly wages and the final distribution of disposable income. These insurance mechanisms include regular savings and borrowing to smooth out shocks to income. They also include individual and family labour supply responses. To bring these together we have to understand the relationship between income sources and consumption.

In Figure 4.1 we begin show the overall pattern of the variance of log measure of inequality for the sample of households in which the head is in employment. The sharp rise in inequality for wages through to disposable income in the early 1980s is clearly evident. From 1990 onwards the growth in inequality of household earnings and labour income tends to separate from heads wage and disposable income. The growth in earnings relative to wages for this sample points to the importance of positive labour supply effects. The slower growth in disposable income inequality highlights the role of taxes and transfers. Figure 4.2 shows the impact of including the self-employed. Here the divergence with disposable income is particularly strong.

Figure 4.1 From Wages to Disposable Income – Heads in Employment
Inequality is generally much higher and grows more rapidly once we consider the entire sample of households. The impact of including households with no labour income is clear from Figure 4.3. The last panel of Figure 4.4 reveals the continued strong role of education differentials in the growth on inequality over the 1980s and early 1990s.
5 CONSUMPTION INEQUALITY

5.1. THE INEQUALITY BOOM AND MORE RECENTLY

Consumption inequality rose strongly in the UK in the early 1980s. This has been documented elsewhere, see Blundell and Preston (1998), but Figure 5.1 also points to the episodic nature of consumption inequality growth since the late 1970s. Here we use the variance of log measure as it decomposes easily. The systematic growth in consumption inequality gives way to a period of almost no inequality growth in the early 1990s and then an uptake of inequality growth in the late 1990s.

\[ \text{It should also be noted that long consumption is close to normally distributed, see Appendix B, Figure B.2.} \]
The decomposition in remaining panels of Figure 5.1 show that although most of this inequality growth is residual growth, the two episodes of inequality growth – the mid-1980s and late 1990s – show distinct patterns with regard to education. The 1980s inequality boom following the education pattern fairly closely but the growth in the late 1990s having no counterpart in the education component.
This underlying difference in the nature of the two inequality growth periods in the UK is further revealed in Figure 5.2 which considers alternative samples. In the period up to 1990 there is stronger growth for the entire sample in comparison to the sample with heads working. For the more recent growth in consumption inequality there is very little difference across samples.

![Figure 5.2 Consumption Inequality: Decomposition by Sample](image)

5.2. FROM INCOME TO CONSUMPTION INEQUALITY

The transmission from wages and income through to consumption is of considerable interest in understanding the workings of the economy at both the macro and micro levels. There is a growing literature which seeks to understand these transmission mechanisms, see for example Attanasio and Davis (1996), Blundell, Pistaferri and Preston (2007), Heathcote, Jonathan, Kjetil Storesletten and Giovanni L. Violante (2004, 2007), Krueger and Perri (2006).

Apart from at the beginning of the 1980s consumption inequality rose less strongly than inequality in income. As Figure 5.3 shows, this is true by any measure. The two grow furthest apart in the late 1980s and 1990s. Income inequality, for all measures, rose strongly in the 1980s, with some further rise in the late 1990s. Consumption inequality, for all measures, rose quite strongly in the early 1980s and then again, although at a slower rate, in the 1990s.
The disjuncture between consumption and income inequality in the UK, documented by Blundell and Preston (1998), is very clear from Figure 5.3. Blundell, Low and Preston (2007) use this variance-covariance structure of income and consumption to recover permanent and
transitory variances over the 1978-2005 period in the UK for each of the 10 year birth cohorts. They find strong growth in permanent variances in early 1980s and some growth in early 1990s. Transitory variances increase strongly throughout the 1980s and into the 1990s. Birth cohorts show important life-cycle inequality growth, however these are dominated by the strong growth in permanent shocks in early 1980s with some growth in 1990s, and the strong growth in transitory shocks in late 1980s with milder growth in 1990s. This lines up closely with the results for the US documented in Blundell, Pistaferri and Preston (2005).

An interesting feature of Figure 5.3 is the path of the covariance between income and consumption. This moves in line with consumption until the mid-1990s. The covariance then begins to fall, suggesting the link between consumption and income is diminishing, but in a way that is consistent with a relative rise in consumption inequality. The strong growth in asset prices especially in the value of real estimate which continued to the end of this sample period is one possible explanation. This could drive up expected life-time wealth relative to income and consequently drive up consumption among home owners. Given that home-ownership rates are around 70% in the UK, the inequality this would generate would lie in the 50-10 region, something we see in Figure 5.3.

5.3. THE LIFE-CYCLE DIMENSION

We might expect inequality in variables that are subject to permanent shocks to show increasing variance over time. As the analysis in Deaton and Paxson (1996) suggests this is particularly the case for inequality measures over the life-cycle. Figure 5.5 presents these measures over the lifetime, conditioning on cohort effects, for male wages, raw earnings, equivalised earnings and equivalised consumption.
In this section we look further into the dynamics of the evolution of the distribution of income and consumption inequality in two ways. First we use panel data on income dynamics from the British Household Panel Data to decompose income into two factors – a persistent and a transitory component. We show that this simple decomposition works well to describe income dynamics in the UK provided the variances of each component are allowed to be non-stationary and allowed to evolve nonparametrically over time. We document the path of the variances of the transitory and permanent components over time.

### 6.1. Panel Data Income Dynamics

Turning first to the panel data dynamics we consider a model of the form:

\[
\ln Y_{i,a,t} = Z_{i,a,t}' \lambda + f_{i} + y_{i,a,t}^p + y_{i,a,t}^T
\]

where \( y_{i,a,t}^p = y_{i,a-1,t-1}^p + \xi_{i,a,t} \)

The \( y^p \) term is the permanent component which follows a martingale process and \( y^T \) is a transitory or mean-reverting component \( y^T = \nu \), with
This model implies a simple structure for the autocovariance structure of \( \Delta y \equiv \ln Y - Z' \lambda \). In particular that higher order autocovariances in the growth of income should be zero, see Meghir and Pistaferri (2004) for example. This determines the order of the MA component for \( v \). We argue this model structure provides a good approximation to the UK income data. Alternative models with less persistence or with idiosyncratic trends as in Baker (2001) and Baker and Solon (2004), for example, imply higher-order non-zero autocovariances.

Unfortunately, the BHPS data has only been collected since 1991 and therefore misses the ‘inequality boom’ of the 1980s. In these results the sample definition is as close as possible to any similar FES statistics: all households (headed by couples or otherwise, but with heads

$$v_t = \sum_{j=0}^{q} \theta_j e_{i,a-t,j-t}$$ and \( \theta_0 \equiv 1 \).
between 25 and 60) are included. 'Head wage sample' again refers to cases when the head is in employment and household earnings and disposable incomes are derivable (sometimes another household member has positive earnings but is not observed). 'Labour earnings sample' refers to those households where we observe household gross labour income.

The results from estimating this model on BHPS data on the growth male hourly wages are provided in Tables 6.1. Similar Tables for earnings and household disposable income are presented in Appendix B, Table B.1 and B.2. In this autocovariance analysis we have removed demographic, age and education effects. The autocovariance structure shows significant own and first order terms which underlie the simple permanent-transitory model. The second order terms suggest the possibility of the first order MA for the transitory component but there is little evidence that further terms are required.

6.2. THE PATTERN OF PERMANENT AND TRANSITORY VARIANCES

In Figures 6.1 and 6.2 we plot the implied estimates of the permanent and transitory variances for each of these series. These show important permanent shocks which show some evidence of falling back in the early 1990s and then growing towards the end of the period.

Figure 6.1 Variance of Permanent and Transitory Shocks: Labour Earnings Sample
7 INTERPRETATIONS AND CONCLUSIONS

The UK has seen significant variation in inequality growth over the last three decades. Income inequality, for all measures, rose strongly in the 1980s, with some further rise in the late 1990s. Consumption inequality, for all measures, rose quite strongly in the early 1980s and then again, although at a slower rate, in the 1990s. The analysis of consumption and income inequality suggests strong growth in permanent shocks in early 1980s and some growth in 1990s. It also points to strong growth in transitory shocks in late 1980s and mild growth in 1990s. Birth cohorts have also shown important life-cycle inequality growth.

We have made use of extensive micro-data sources in the UK on consumption, income, earnings, labour market participation, hours of work to study the evolution of the inequality in these series and the relationship between them.

The inequality boom of the 1980s is characterised by strong growth in permanent shocks to labour income followed by an increase in volatility leading to the ‘great moderation’. In the late 1990s inequality was dominated by a growth in employment related earnings at the top as employment income replaces investment income in the top 1%.
REFERENCES


Blundell, R., A. Bozio and G. Laroque (2008), ‘Taxes and the Supply of Life-Cycle Hours and Employment’ mimeo, IFS.


APPENDIX A: Data Appendix

FES Income Data

Wages
The wage variable used is usual labour earnings plus any bonuses, divided by hours worked (see below). We keep only those in employment, omitting the self-employed.

Hours
Our hours variable is usual hours worked plus usual overtime. Again we omit the self-employed.

Earnings and Income
‘Labour earnings’ cover both the employed and self-employed. ‘Labour earnings plus private transfers’ includes regular allowances from outside the immediate family, allowances from a spouse, payment for odd jobs, child income and income from private annuity or trust. ‘Asset income’ is all income from investments minus income from real estate, which is then included in ‘asset income plus residential income’. ‘Gross income’ is the sum of these items. ‘Net disposable income’ consists of ‘gross income’ plus public transfers (social security benefits, state pension, luncheon vouchers, education grants and student top-ups) minus labour and payroll taxes.

BHPS Income Data
Definitions in the BHPS are almost identical to those for the FES.

Education
Qualifications are not given in the FES, so we define ‘compulsory education’ as those who left at compulsory leaving age (this has risen from 14 to 16 since WW2), ‘intermediate education’ as those who attended school up to 18, and ‘high education’ as those who left school after 18.

BHPS includes information on educational attainment. We therefore form the following categories: ‘high education’ includes those with an honours degree or equivalent; ‘intermediate education’ includes those with A-levels or equivalent (the equivalent of a US high school diploma), and ‘low education’ is the remainder.

Consumption
Consumption is expenditure on the following items: food, catering, alcohol, tobacco, fuel, household services, clothing, personal goods and services (toiletaries etc.) motoring expenses excluding vehicle purchases, travel expenses, leisure goods (books, music recordings) excluding audiovisual equipment, entertainment and holiday expenses. The main omissions are housing costs, furniture, furnishings and electrical appliances, motor vehicles and garden and audiovisual equipment. In short, our measure of consumption includes non-durable goods and services and excludes durable and semi-durable goods. ‘Consumption plus housing’ includes rent, mortgage interest payments and housing taxes. This is a user-cost measure of housing. The FES does not easily permit a calculation of imputed rents for homeowners as it does not include house prices.

Income and consumption in figures 1 and 2 – comparison with national accounts.
Both income and expenditure data used for these figures differ from those used in the rest of the study. Income is total disposable income minus imputed owner-occupier rental income. Private pension contributions are included but employer pension contributions are excluded.

Expenditure is total household expenditure excluding public transport and housing. These two categories are omitted in order to provide the best fit between FES and national accounts definitions.
Appendix B: Additional Figures and Tables

Figure B.1 Basic Inequality in Wages

Figures B2a, b, c: The Distribution of Log Consumption and Log Income: FES

LOG CONSUMPTION

Standard Deviation of Logs: 0.4941  Skewness: 0.0192  Kurtosis: 0.0474
P-value: Kolmogorov-Smirnov: 0.1684  Skewness: 0.4113  Kurtosis: 0.0645

Source: Battistin, Blundell and Lewbel

COHORT 1940-49, AGE 41-45
COHORT 1940-49, AGE 51-55

Standard Deviation of Logs: 0.5348  Skewness: 0.0132  Kurtosis: -0.0030
P-values: Kolmogorov-Smirnov: 0.6692  Skewness: 0.6280  Kurtosis: 0.9192

Source: Battistin, Blundell and Lewbel

COHORT 1940-49, AGE 41-45

Standard Deviation of Logs: 0.4774  Skewness: -0.0130  Kurtosis: 0.1610
P-values: Kolmogorov-Smirnov: 0.0000  Skewness: 0.5705  Kurtosis: 0.0000

Source: Battistin, Blundell and Lewbel
Table B.1: The Autocovariance Structure of Household Earnings Growth

<table>
<thead>
<tr>
<th>Year</th>
<th>var((\Delta y_t))</th>
<th>cov((\Delta y_t, \Delta y_{t+1}))</th>
<th>cov((\Delta y_t, \Delta y_{t+2}))</th>
<th>cov((\Delta y_t, \Delta y_{t+3}))</th>
</tr>
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Table B.2: The Autocovariance Structure of Household Income Growth

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