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From Pandemic to Cost-of-Living Crisis: The Distributional Impact of UK Tax and Benefit Policies, 2019–2023[1]

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Abstract

This paper analyses how UK tax-benefit policies shaped poverty, inequality, and living standards between 2019 and 2023, spanning the COVID-19 shock and the subsequent cost-of-living crisis. Using the UKMOD tax-benefit microsimulation model combined with imputed household consumption data, we assess distributional outcomes for both disposable and consumable income, the latter accounting for indirect taxes. We apply fiscal incidence and decomposition techniques to distinguish the effects of changes in market incomes and population characteristics from discretionary policy choices.

We find that market income inequality and poverty increased over the period, but the UK tax-benefit system became more redistributive. Disposable income inequality declined and the poverty-reducing impact of taxes and transfers strengthened during and after the pandemic. Regressive indirect taxes, however, weaken the gains achieved through direct redistribution, particularly for low-income households. Decomposition results show that real consumable incomes rose for the bottom three deciles, despite falling market incomes, due to uprated means-tested benefits and targeted cost-of-living payments. In contrast, middle- and higher-income households experienced sizeable real losses, driven mainly by policy effects rather than labour market developments. Frozen income tax thresholds generated substantial fiscal drag, reduced the progressivity of personal income tax, and accounted for most income losses outside the bottom of the distribution.

Overall, policy changes over 2019 to 2023 protected low-income households in relative terms while reducing real living standards across much of the rest of the distribution through implicit fiscal consolidation.

JEL codes: D31, D63, H22

Keywords: Tax-benefit system, Fiscal drag, Benefit Erosion, United Kingdom

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1. Introduction

The early 2020s confronted the UK economy with a challenging combination of pressures, in common with many countries at that time. The COVID-19 pandemic triggered a sharp contraction in GDP, compounding a longer-standing pattern of weak productivity and sluggish growth. Inflation subsequently rose to levels not seen in decades, placing substantial strain on household budgets. These developments unfolded against the backdrop of more than a decade of austerity following the 2008-09 financial crisis. During this period, welfare support for working-age households was reduced, and fiscal drag due to frozen or delayed uprating of Personal Income Tax and National Insurance thresholds, gradually increased tax burdens.

Policy responses to the pandemic followed a mixed pattern. At its height, the government introduced unusually generous support measures, including the furlough scheme and a temporary uplift to means-tested benefits, leading to a sharp deterioration in the public finances. Once lockdowns ended, most temporary support was withdrawn and the budget deficit declined and stabilised, but at a level still well above its pre-pandemic position. Policy priorities then shifted back towards fiscal consolidation, most clearly through the continued freezing of income tax thresholds and social insurance contribution ceilings. At the same time, rising energy and food prices increased the burden of consumption taxes.

Partially offsetting these pressures, social benefits for working age people were uprated with inflation, marking a return to a longstanding practice dating back to the 1970s that had been suspended during the austerity period of the 2010s. In addition, temporary ad hoc cash transfers were provided to recipients of means-tested benefits, and energy subsidies were made available to households more broadly. The resulting policy response was therefore highly complex. This study focuses on the coincident distributional implications of these combined interventions, which remain poorly understood.

Specifically, we examine how policy developments, together with broader economic conditions, have shaped the distribution of income and the redistributive role of the UK tax-benefit system between 2019 and 2023. Analysis is structured around three questions. First, did the tax-benefit system overall, and its individual instruments, become more or less progressive, in the sense of reducing or reinforcing standard summary measures of overall income inequalities? Second, how did the net tax burden - defined as the balance between all taxes paid and all cash transfers received by households - change across the income distribution? Third, what was the overall distributional impact of changes in tax-benefit policy, once population change and labour market trends are set aside?

By answering these questions, our study contributes to broader social policy debates on the financial challenges facing welfare states in high-income countries. As the ratio of working-age taxpayers to older dependents declines, funding welfare spending at the level seen before the 2008-09 financial crisis becomes increasingly difficult to sustain. Our analysis sheds light on how the UK has responded to these financial pressures, highlighting a general political pattern in which governments, reluctant to pursue explicit but potentially unpopular measures, such as raising existing tax rates or introducing new ones, increasingly rely on “stealth” mechanisms such as fiscal drag, to achieve budget sustainability.

The study employs a state-of-the-art approach that combines microsimulation techniques with survey data. Specifically, we use the free and publicly available tax-benefit microsimulation model UKMOD (Richiardi et al., 2021), which calculates benefit entitlements and tax liabilities for individuals using nationally representative population survey data. The primary data source is the Family Resources Survey (FRS), which is the principal survey for conducting distributional and poverty analyses for the UK. A key methodological contribution is the use of an extended income measure: consumable income, defined as disposable income after deducting indirect (consumption) taxes. This is achieved by imputing household consumption from the Living Costs and Food Survey (LCF) into the FRS data.

The next section situates our analysis within the broader developments of the UK welfare system, considering both trends preceding the period under study and policy changes in the period of 2019-2023. It also reviews the available evidence on the distributional performance of the UK welfare system.

2. Changes in the UK tax-benefit system, 2019-2023

The UK welfare state is typically classified as a liberal or residual regime, reflecting its heavy reliance on means-tested provision (Pearce and Kelly, 2025), in contrast to the insurance-based welfare systems prevalent in many continental European countries and the universalist systems of Scandinavia. This emphasis on targeted social support interacts with relatively lightly regulated labour markets, characterised by a high incidence of low-paid and part-time employment, necessitating a benefit system that plays a major role in compensating for earnings shortfalls (Hoynes et al., 2024). As a result, disposable income inequality in the UK remains among the highest in Europe (OECD, 2025), with a high level of redistribution towards low income households (Hammer et al., 2023), yet. Importantly, residualism does not apply across all areas of welfare provision: for example, the UK National Health Service (NHS), funded from general taxation and free at the point of use, remains a notable exception. However, the focus of this paper is on cash policies, including taxes levied on individuals and households and the cash benefits they receive.

The design of the UK tax-benefit system has evolved across historical periods, even while remaining within a residual welfare state model. Coady (2025) argues that the drivers of fiscal redistribution in the UK have shifted over time from being primarily economic to increasingly political. Up to around 2000, changes in redistribution largely reflected economic cycles: redistribution expanded during downturns as spending on means-tested assistance rose, and contracted during recoveries as budget effort declined. From 2000 onwards, however, redistribution became more strongly shaped by political choices rather than macroeconomic conditions.

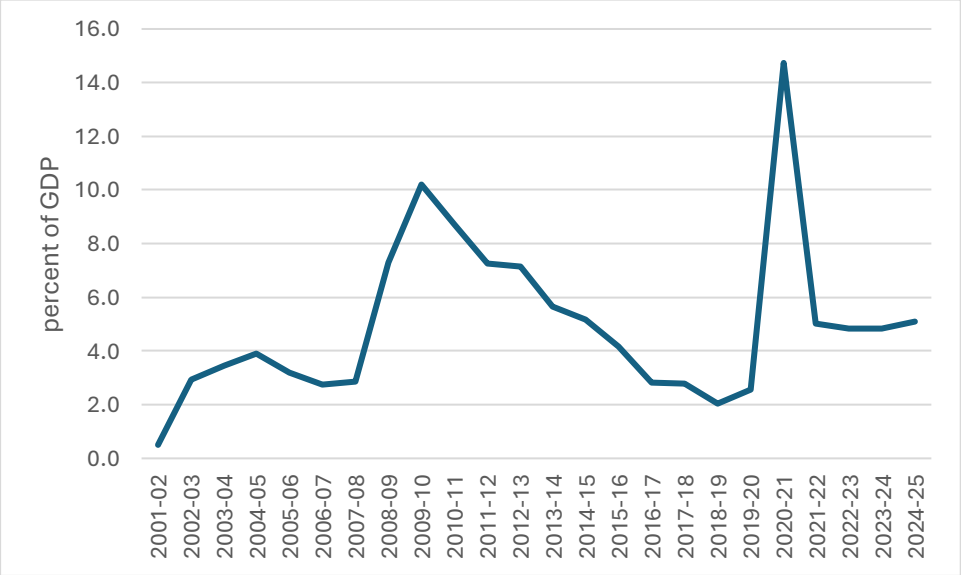
Under Labour governments in the 2000s, redistribution increased persistently despite economic recovery, reflecting a political commitment to expanding in-work support. Consistent with the Third Way agenda, policy shifted away from unconditional out-of-work assistance toward making work pay, primarily through the expansion of tax credits. At the same time, increases in out-of-work benefits were implemented more quietly and often targeted at specific groups, a pattern described as “redistribution by stealth” (Hills, 2002). Evidence shows that the reforms

introduced between 2001 and 2011 significantly reduced poverty and inequality, but also lowered mean equivalised household incomes (Paulus et al., 2020).

The global financial crisis of 2008-09 halted this redistributive trend. The budget deficit rose sharply, peaking at around 10 percent of GDP in 2009-10 (

Figure ***1***). From 2010 onwards, successive coalition and Conservative governments implemented austerity measures that steadily reduced the deficit over the course of the decade, bringing it down to around 2 percent of GDP by 2018-19. Post-2008 crisis austerity reflected not only fiscal consolidation objectives but also, to a considerable degree, underlying ideological commitments (Blyth, 2013).

Figure 1: Budget deficit



Source: Office for Budget Responsibility (OBR, 2025)

This consolidation was achieved through a combination of spending cuts, benefit retrenchment, and selective tax increases. Welfare reforms during this period tightened support for working-age households. In 2013, previously universal Child Benefit was withdrawn from higher-income families, and the Benefit Cap – a maximum limit on the total amount of certain benefits that most working-age households can receive – was introduced. Universal Credit (UC), consolidating six means-tested "legacy" benefits into a single payment, began rolling out in 2016. The period 2016-2019 also saw a full freeze on uprating of working-age benefits, marking a clear break from the long-standing practice, in place since the 1970s, of uprating benefits broadly in line with inflation. In 2017, the "two-child limit" further restricted support under UC and Child Tax Credit (CTC) for children born after April 2017. Other measures, including stricter work-hour requirements for Working Tax Credit (WTC) and nominal freezes in benefit rates, reduced both access to and the generosity of the benefit system (Stewart et al., 2025).

On the taxation side, in 2010-2012 top marginal income tax rates were temporarily increased to 50 percent for high earners, while VAT rose from 17.5 per cent to 20 per cent in 2011 and National Insurance Contributions (NICs) increased by one percentage point. Between 2010 and 2015, despite growth in personal tax allowance (the zero rate tax on incomes below a certain threshold), the overall changes in tax-benefit policies were estimated to have a regressive effect (De Agostini and Hills, 2018). From 2015 to 2019, the personal allowance continued to rise and the higher-rate threshold gradually increased to £50,000, yet fiscal drag persisted for those above the threshold. Cribb et al. (2023) argue that over the 2010s, the minimum wage grew increasingly important as a tool for lifting low earnings, but large cuts to means-tested transfers meant that even as earnings inequality fell, net household income inequality rose because the tax-benefit system's redistributive impact weakened.

The COVID-19 pandemic marked a clear break from this trajectory. In 2020-21, the deficit increased dramatically, reaching an unprecedented level of around 15 percent of GDP as a result of emergency public spending and revenue losses (Figure 1). Some benefit cuts were temporarily reversed in 2020-21 to mitigate the impact of lockdowns. Large-scale support was also provided through the Coronavirus Job Retention Scheme and the Self-Employment Income Support Scheme. The pandemic measures were shown to temporarily reduce income poverty and inequality in 2020 (Bronka et al., 2020; Brewer and Tasseva, 2021).

As temporary pandemic measures were withdrawn, the deficit fell rapidly, stabilising from 2021-22 onwards at around 4-5 percent of GDP. This is however well above pre-pandemic levels, implying continued fiscal pressure (Figure 1). The post-pandemic period was therefore characterised by consolidation under constrained political and economic conditions. High inflation, falling real wages, and the cost-of-living crisis limited the scope for overt tax rises or visible benefit cuts. As a result, fiscal consolidation relied less on explicit reforms and more on low-salience instruments, most notably prolonged freezes to income tax thresholds. NICs saw temporary rate increases and threshold shifts in 2022, but these were largely reversed within the same year, leaving the overall structure broadly unchanged by 2023-24.

In contrast to the earlier austerity approach, additional ad-hoc support measures were introduced to mitigate the cost-of-living crisis for the low-income households. In 2022, Cost of Living Payments provided £650 to households receiving means-tested benefits and £150-£300 to people with disabilities and pensioners, while benefits were uprated in line with the Consumer Price Index (CPI), though below Retail Price Inflation (RPI) in that year. These ad-hoc payments were repeated in 2023, with benefits uprated slightly above inflation, providing some real-term catch-up relative to wages. In 2024, a final Cost of Living Payment (£299) was issued, and Local Housing Allowance (LHA) rates were uprated for the first time since 2020.

Subsequent measures introduced by the Labour government after April 2024, such as the extension of tax threshold freezes, introduction of additional taxes, and the removal of the two-child limit in Universal Credit, fall outside the scope of this analysis. However, they reinforce the broader policy direction of relying on fiscal drag as a central consolidation tool alongside increased redistribution towards welfare recipients.

Together, these policy changes reveal a policy mix that combined increases in welfare support with fiscal consolidation implemented largely through mechanisms such as fiscal drag, alongside relatively few explicit tax increases. This paper assesses the distributional impact of this policy mix over the financial years 2019-20 to 2023-24, the latest period for which data

are available. While a substantial literature examines the evolution of the UK tax-benefit system, the post-pandemic period has received little systematic analysis. Existing studies document long-run changes in earnings and income inequality (Cribb et al., 2023; Jenkins, 2022), analyse changes in the design of the tax-benefit system (Coady, 2025; Hoynes et al., 2024), or focus on the distributional effects of earlier policy periods (De Agostini and Hills, 2018; Paulus et al., 2020), but none examine the distributional effects of pandemic-related interventions together with policy measures implemented during the subsequent cost-of-living crisis. This study seeks to fill that gap.

3. Methodology and Data

This paper evaluates the distributional impacts of tax-benefit policy in the UK using a standard fiscal incidence framework. The approach compares household incomes before and after taxes and transfers in order to derive the redistributive impact of government interventions (Amjad et al., 2024).

We use UKMOD (version B2025.06), a free and publicly available tax-benefit microsimulation model for the UK maintained and developed by the Centre for Microsimulation and Policy Analysis at the Institute for Social and Economic Research (ISER), University of Essex (Richiardi et al., 2021). The model is underpinned by data from the Family Resources Survey (FRS), an annual household survey that provides detailed information on income and living conditions for a representative sample of private households. The FRS is also the official source for national poverty and inequality estimates in the UK. A well-recognised limitation of the FRS, however, is the under-representation of high-income households, due mainly to their lower response rates to voluntary participation surveys (Jenkins, 2022). This issue is addressed by drawing on HBAI-adjusted measures of market incomes and associated grossing weights.

Our analysis covers the policy years 2019-2023, with 2019 chosen as the last pre-COVID and pre-crisis year, and 2023 as the most recent year for which FRS input data are available. A novel contribution of our work is that we enhance the UKMOD input data with household consumption measures derived from the Living Costs and Food Survey (LCF). This extension enables us to incorporate the distributional effects of indirect taxation. The next section outlines our approach for imputing consumption data.

3.1 Imputation of consumption data into the FRS

The FRS does not collect information describing household consumption. Consumption data for the study are therefore imputed from the Living Costs and Food Survey (LCF), which is the UK's main source of detailed microdata describing household expenditure patterns. The imputation is performed by matching each FRS household to a similar LCF household, based on shared characteristics including income, age, household composition, employment status, and region. The matching procedure combines 'coarse-exact' matching – requiring households to be identical on selected variables – with nearest-neighbour matching based on Mahalanobis distance. The Mahalanobis distance facilitates analysis by combining information described by several continuous characteristics into a single index.

The coarse-exact matching is carried out in several rounds: beginning with relatively fine-grained criteria and gradually relaxing the criteria by moving some integer variables (such as the number of children) from exact to minimum distance matching. This multi-step approach ensures that each FRS household is matched to an LCF counterpart that is as similar as is practicable. A detailed description of the procedure is provided in Annex 1.

3.2 Income Concepts and Assumptions

Our fiscal incidence analysis is based on a set of income concepts. We begin with *market income*, defined as household income before any tax-benefit interventions. This includes earnings from employment and self-employment, capital income (such as rent and dividends), and private transfers. Subtracting direct taxes (PIT and Council Tax) and NICs, and adding direct cash transfers (such as state pensions and other social benefits), yields *disposable income*. Most distributional analyses end at this stage (see, for example, Prowse (2025)). In our case, however, we extend the framework to compute an additional income concept following Lustig (2022). Specifically, we further subtract indirect taxes (VAT and excise duties) to obtain *post-fiscal* or *consumable income*, which reflects the actual value of market goods and services available for household consumption. Figure 2 illustrates this approach.

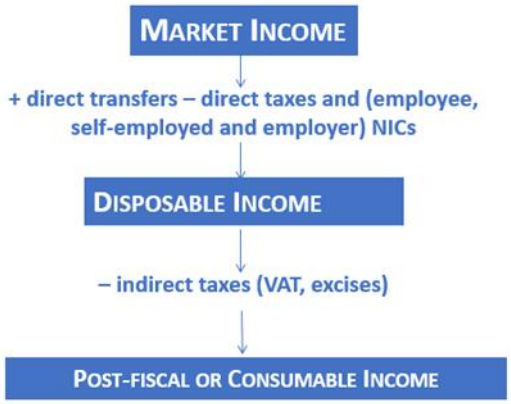
While UKMOD provides a comprehensive framework for simulating most direct taxes and cash (and near cash) benefits in the UK, some elements fall outside its scope. The model is designed to simulate taxes and benefits based on current incomes reported in cross sectional survey data, and therefore does not cover wealth related taxes such as inheritance tax or transaction taxes such as stamp duty. Corporate taxation is also excluded. In addition, non cash benefits, including publicly provided healthcare, education, and social housing, are not incorporated into the analysis. The monetary value of some in kind benefits, such as free school meals, is nevertheless simulated, as these constitute near cash transfers that can be reasonably approximated in monetary terms. Finally, policy instruments that depend on long term contribution histories, most notably state pensions, cannot be simulated within a purely cross sectional framework. In these cases, UKMOD relies on the benefit amounts reported directly in the survey.

Where policies can be simulated, UKMOD models economic rather than statutory incidence. This is particularly relevant for means-tested benefits, which are modelled under the assumption of partial take-up. State pensions are treated as government transfers, while private pensions – comprising occupational (employer-provided) and approved personal pensions – are classified as market income. Personal Income Tax (PIT) and National Insurance contributions (NIC) paid by employees, the self-employed, and employers are assumed to be borne by labour. Notably, employer NIC are not deducted from market income in baseline UKMOD simulations. In our analysis, however, we do subtract them, on the assumption that their incidence ultimately falls on labour. While in practice this burden may be shared between employers and employees, our approach provides an upper-bound estimate of the tax burden borne by households. Indirect consumption taxes are assumed to be fully shifted forward to consumers. Full compliance is assumed for all taxes, as official estimates indicate a high level of tax compliance in the UK. HMRC's tax gap statistics show that around 95 percent of total theoretical tax liabilities are collected (HMRC, 2024).

All results are produced under the assumption that household incomes are pooled and shared equally among all household members. Our primary welfare indicator is *equivalised consumable income*. We use the modified OECD (after housing costs) equivalence scale, normalised to 1.0 for a single-adult household. Under this scale, the first adult receives a weight of 1.0, each additional adult a weight of 0.5, and each child under 14 a weight of 0.3. The equivalent household size is calculated as the sum of these weights.

Income deciles and poverty headcounts are defined on the basis of equivalised disposable income. Poverty is measured as the proportion of individuals living in households with equivalised disposable income below 60 per cent of the national median. Crucially, this poverty threshold is held constant across all income concepts. Thus, for example, market income poverty is assessed using the disposable income poverty line. Fixing the threshold in this way avoids artificial variation in poverty rates that would occur if the relative poverty line were allowed to shift with each income concept, and enables us to isolate the net redistributive impact of taxes and transfers. For similar reasons, we do not employ the after-housing-cost (AHC) measure of disposable income commonly used in the UK: incorporating housing costs would add an additional source of heterogeneity unrelated to tax-benefit policies, thereby complicating the interpretation of our results.

Figure 2: Income concepts used in the analysis



Source: Authors' representation

3.3 Measuring Redistribution and Progressivity

The distributive impact of a tax or transfer is commonly assessed using the Reynolds–Smolensky (RS) index (Reynolds and Smolensky, 1977), which can be applied to individual instruments or to the tax-benefit system as a whole. It is defined as:

$$RS = G_{pre} - G_{post}$$

where G_{pre} is the Gini coefficient of income before taxes or transfers, and G_{post} is the Gini coefficient after taxes or transfers. A positive RS indicates that the instrument reduces inequality, whereas a negative value implies that it increases inequality. This logic can be extended beyond inequality to other welfare indicators. By replacing the Gini coefficient with

a poverty measure, such as the headcount ratio or poverty gap, the same before-after structure captures the redistributive effect on poverty. In this sense, the RS index represents a specific case of a more general measure of fiscal redistribution (Lustig, 2022).

Progressivity captures the extent to which the burden of taxes or the value of transfers varies with household income. The standard summary measure is the Kakwani index, K (Kakwani, 1977). For taxes, the Kakwani index is given by:

$$K = C_t - G'_{pre}$$

where C_t is the concentration index of the tax obtained by ranking tax payments in increasing order of pre-tax income, and G'_{pre} is the Gini coefficient of pre-tax income. Pre-tax income is defined as market income plus public pensions.

For transfers, Kakwani index is defined as:

$$K = G''_{pre} - C_b$$

where C_b is the concentration index of the transfer obtained by ranking aggregate transfers in increasing order of pre-transfer income and G''_{pre} is the Gini coefficient of pre-transfer income. Pre-transfer income is defined as market income plus public pensions minus direct taxes.

A positive Kakwani index denotes a progressive instrument, with the tax burden rising with income or the transfer decreasing with income. A zero value indicates proportionality, where the relative burden or transfer is constant across income levels. A negative value reflects regressivity, meaning that the tax burden falls with income or transfers increase with income.

3.4 Measuring net distributional impact of policy changes

To analyse the impact of tax-benefit policy changes on income distribution in the UK between 2019 and 2023, we use the Advanced Policy Effects Tool available in UKMOD as part of the EUROMOD software. The tool creates counterfactual scenarios of income distribution, for example by applying the tax-benefit rules from one period to the population and earnings distribution from another period, to facilitate income decomposition. The decomposition approach we use is described in Paulus and Tasseva (2020).

Let *S(y,p)* be the chosen summary statistic of consumable income when applying policy parameters p to market incomes y. All calculations compare 2023 outcomes with a 2019 baseline, hence all effects below are expressed as percentage changes relative to the 2019 baseline.

Total Effect (TE) of moving from 2019 to 2023 policies and market incomes can be expressed as follows:

$$TE = \frac{S(\frac{y^{2023}}{\alpha}, \frac{p^{2023}}{\alpha}) - S(y^{2019}, p^{2019})}{S(y^{2019}, p^{2019})}$$

The first term here represents a counterfactual 2023 system in 2019 prices, obtained by dividing all monetary parameters and market incomes of the 2023 system by an indexation factor α. Two benchmarks for indexation can be applied:

- Consumer Price Index (CPI) which measures how much prices rose between 2019 and 2023. Dividing 2023 parameters by CPI tells us what those monetary parameters are "worth" in 2019 prices.
- Market Income Growth Index (MII) which measures how average market incomes rose between 2019 and 2023. Dividing 2023 parameters by MII puts them in relation to market income growth.

To separate changes in the economic environment from changes in policy design, the TE is decomposed into two components. *The Market Income Effect (ME)* captures the impact of changes in market incomes and population composition, holding policies as they were in 2019:

$$ME = \frac{S(\frac{y^{2023}}{\alpha}, p^{2019}) - S(y^{2019}, p^{2019})}{S(y^{2019}, p^{2019})}$$

This component includes the operation of automatic stabilisers, which adjust tax liabilities and benefit entitlements mechanically when market incomes change. For instance, higher earnings increase tax paid, while falls in earnings can trigger eligibility for means tested benefits.

The residual component is *the Policy Effect (PE)*, which isolates the impact of discretionary policy changes and uprating decisions, evaluated at constant market incomes:

$$PE = \frac{S(\frac{y^{2023}}{\alpha}, \frac{p^{2023}}{\alpha}) - S(\frac{y^{2023}}{\alpha}, p^{2019})}{S(y^{2019}, p^{2019})}$$

By construction, the decomposition satisfies:

$$TE = ME + PE\ .$$

The interpretation of the Policy Effect depends on how it compares under CPI based and MII based uprating. A positive effect under the CPI benchmark indicates that discretionary policy changes increased the real value of support relative to 2019, while a negative effect implies that policies failed to keep pace with price growth. Comparing the same effect under the MII benchmark shows whether policies kept up with the growth of average market incomes.

When the policy effect is positive under CPI but negative under MII, policies protected households in real terms but became less generous relative to rising earnings. The reverse pattern, when the Policy Effect is negative under CPI but positive under MII, indicates that policies did not maintain real value but nevertheless became more generous relative to average earnings, which grew even more slowly. If the effect is positive under both benchmarks, discretionary changes expanded support beyond both inflation and earnings growth. If it is negative under both, discretionary policy reduced generosity in both real and relative terms.

For the Market Income Effect, the choice of CPI or MII affects only the scale at which 2023 market incomes are expressed; it does not alter the interpretation of ME, which captures changes in market incomes and population characteristics transmitted through the fixed 2019 tax-benefit system.

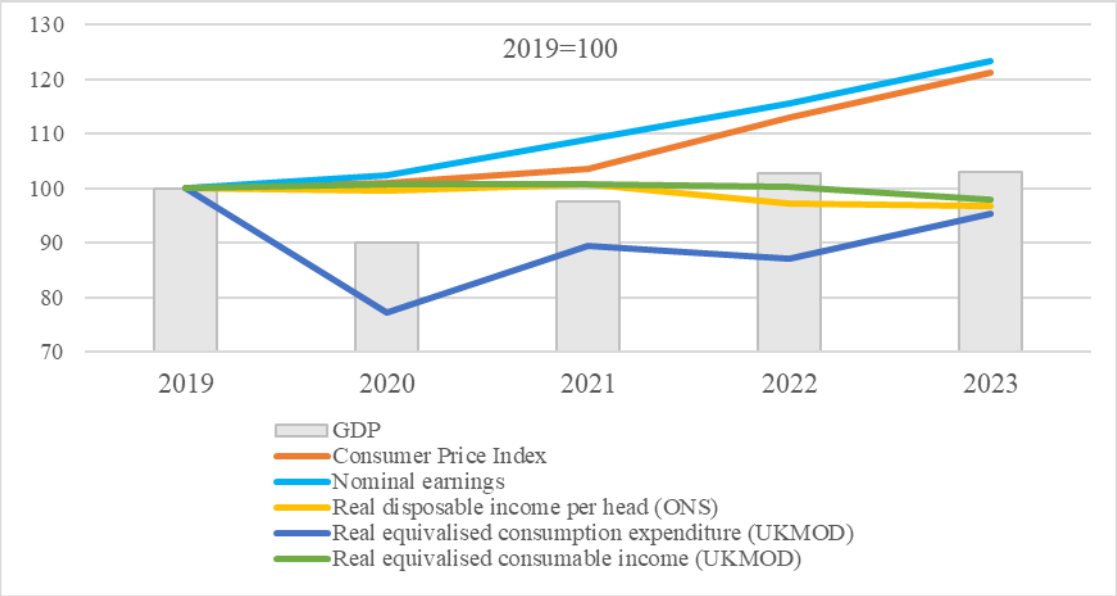
4. Findings

4.1 Economic Context for the Distributional Analysis

The period from 2019 to 2023 unfolded against an economic landscape marked first by the abrupt shock of the pandemic and then by a hesitant and incomplete recovery. As shown in Figure 3, GDP fell dramatically in 2020 as large parts of the economy shut down, and although output began to recover in 2021 and 2022, the pace of growth was slow. By 2023 real GDP had reached 103 percent of its pre-pandemic level. Over the same period nominal earnings increased by about 23 percent and slightly outpaced the 21 percent rise in the Consumer Price Index (CPI).

As a consequence, the earnings growth did not translate into higher real household living standards. The ONS measure of real disposable income per head fell during the pandemic and in 2023 remained at 96.8 percent of its 2019 level. UKMOD based measures tell a similar story. In 2023 real equivalised consumable income stood at 98 percent of its 2019 level, while real equivalised consumption expenditure was only 95.4 percent.

Figure 3: Real GDP, inflation and household incomes and expenditures, 2019-2023



Sources: (1) GDP chain-value measures seasonally adjusted and inflation adjusted: see GDP Data tables: Gross domestic product index: CVM: Seasonally adjusted; (2) Consumer Price index: see ONS CPI Annual Average (All Items, D7BT); (3) Nominal earnings: see ONS Average weekly earnings, Table 4 (K54U); (4) Real disposable income per head: ONS UK Economic Accounts time series (UKEA). (5) UKMOD real income and consumption: Authors' calculations using UKMOD with FRS-HBAI data and imputed consumption.

Notes: The figure reports changes in welfare indicators indexed to 2019 = 100. Values above 100 indicate higher levels relative to 2019, while values below 100 indicate lower levels.

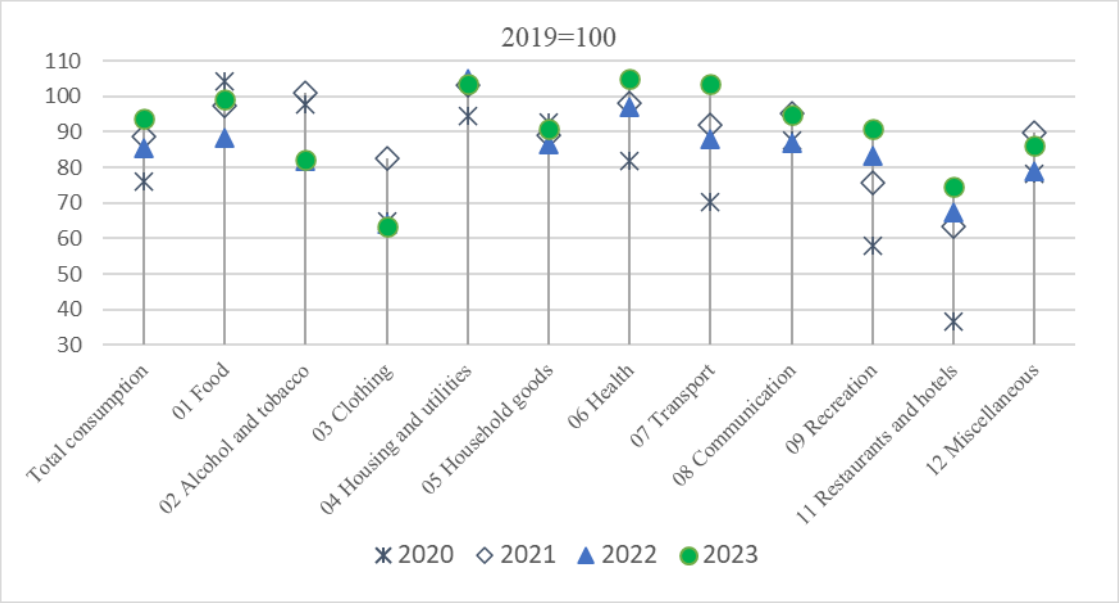
The characteristics of the cost-of-living crisis are evident in changes in household expenditure across categories (see

Figure *4*). The figure shows a marked shift in spending towards essential items relative to 2019. Real expenditure on food proved relatively resilient and, despite a temporary decline in 2022,

returned to approximately its 2019 level by 2023. Spending on housing and utilities increased by approximately 5 percent and remained consistently above baseline throughout the period, while spending on transport rose by around 5-8 percent by 2022 and 2023 following a sharp decline in 2020. Health expenditure increased by around 8-10 percent, peaking in 2022 and remaining elevated thereafter.

By contrast, discretionary spending experienced large and persistent declines. Expenditure on restaurants and hotels fell to around 40 percent of its 2019 level in 2020 and, despite some recovery, remained approximately 25 percent below baseline in 2023. Recreation expenditure declined to around 60 percent of its 2019 level at the trough and remained around 10 percent below baseline by the end of the period. Clothing also recorded a sharp contraction, falling to around 60 percent of its pre pandemic level in 2020 and remaining well below 2019 levels thereafter. Alcohol and tobacco and household goods experienced more moderate declines, of around 15-20 percent at their lowest point. Overall, the evidence points to a sustained reallocation of real consumption away from non-essential activities and towards essential goods and services that have become more expensive in real terms.

Figure 4: Changes in real expenditure by COICOP category, 2019=100



Source: Authors' calculations using UKMOD with FRS-HBAI data and imputed consumption.

Notes: The figure shows changes in real equivalised consumption expenditure by COICOP (Classification of Individual Consumption According to Purpose) category, indexed to 2019 = 100. The categories correspond to 1 digit COICOP divisions, representing the highest level of aggregation in the COICOP classification. Category 10 (education spending) are not shown due to small number of observations. Values above 100 indicate higher real expenditure relative to 2019, while values below 100 indicate lower expenditure. Estimates are shown separately for 2020, 2021, 2022 and 2023.

This context motivates the distributional analysis that follows, which examines how much of the observed change in consumable income reflects movements in market incomes and how much is attributable to changes in tax-benefit policy.

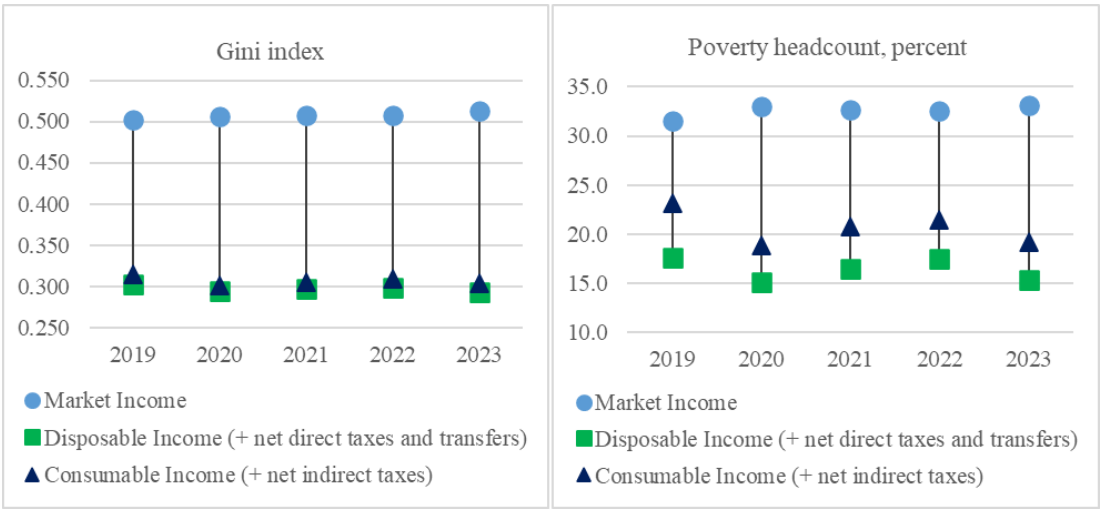
4.2 Redistributive impact and progressivity of tax-benefit policies

As shown in Figure 5, market income inequality increased between 2019 and 2023, with the Gini coefficient rising from 0.502 to 0.513. In contrast, disposable income inequality declined from 0.314 to 0.293, indicating a stronger redistributive role of direct taxes and benefits. The redistributive effect defined as the difference between the Gini indices for market and disposable incomes expressed as a percentage of market income Gini, grew from 40 percent in 2019 to 43 percent in 2023.

A similar pattern is observed for poverty. The market income poverty rate rose from 31.6 percent in 2019 to 33.1 percent in 2023, while disposable income poverty declined from 17.5 percent to 15.3 percent. The sharp drop in disposable income poverty in 2020 reflects the impact of temporary COVID-19 support measures, followed by an increase in 2021 and 2022 as these measures were withdrawn and inflation accelerated. By 2023, however, the system appeared to regain its redistributive capacity. Overall, the redistributive effect on poverty (i.e. the difference between the poverty headcounts for market and disposable incomes as a percentage of market income poverty) increased significantly – from 45 percent to 54 percent between 2019 and 2023.

Importantly, the higher levels of inequality and especially poverty at consumable income, compared to disposable income, point to the regressive impact of indirect taxes, which weaken the gains achieved through direct redistribution, particularly for low-income households. This effect referred to as fiscal impoverishment (Higgins and Lustig, 2016), reflects how consumption taxes can push vulnerable groups closer to poverty. Overall, Figure 5 illustrates a clear trend towards more redistribution in the post-pandemic period, despite rising market income inequality and poverty.

Figure 5: Changes in inequality and poverty by income concept, 2019-2023



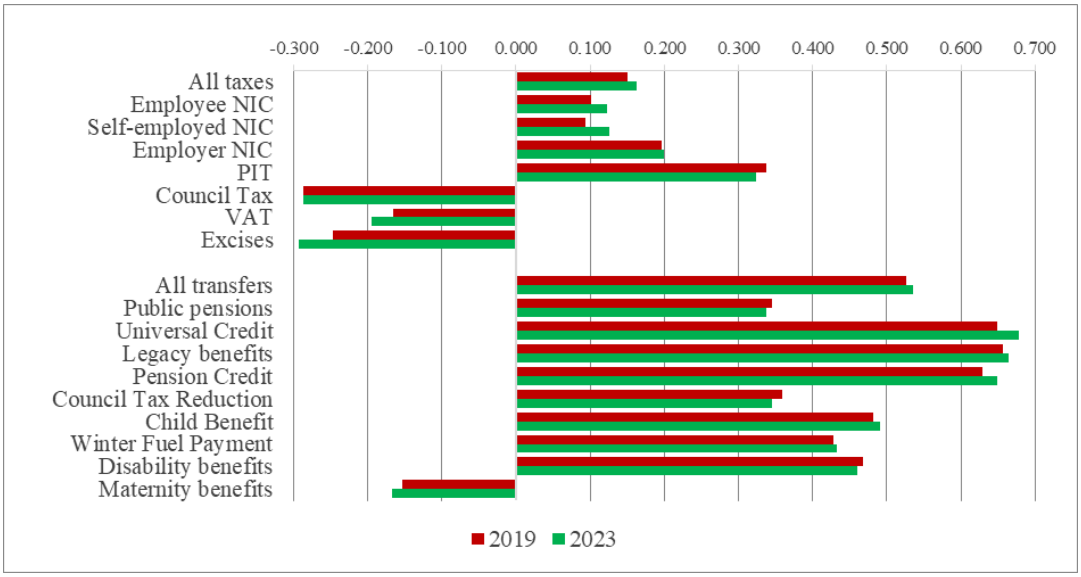
Source: Authors' calculations using UKMOD with FRS-HBAI data and imputed consumption.

Notes: The graph shows values of Gini index and poverty headcount at different income concepts. The redistributive effect is measured as the difference between Gini indices/poverty headcounts at market income and at disposable/consumable income, expressed as percent of market income Gini/poverty. Poverty line is defined as 60 percent of the national median equivalised disposable income. Poverty line is fixed across all the income concepts.

Figure summarises the distributional orientation of major UK taxes and transfers using the Kakwani indices. Personal Income Tax (PIT) is the most progressive of the tax instruments, with a Kakwani index of around 0.32 in 2023, although this represents a decline relative to 2019. The decline is driven by fiscal drag arising from frozen thresholds and allowances during a period of rapid nominal earnings growth. Employer NICs are also clearly progressive, with a Kakwani value of about 0.20, reflecting their concentration among higher paid jobs and the fact that many low earners fall below the secondary threshold. Employee and self-employed NICs are progressive to a lesser extent, but both show a noticeable increase in progressivity between 2019 and 2023, with Kakwani indices of around 0.12 and 0.13 respectively.

Several taxes exhibit clearly regressive profiles. Council Tax stands out as the most regressive component of the system, with a Kakwani index of around -0.29 in both 2019 and 2023. Indirect taxes are also strongly regressive and became more so over the period. The Kakwani index for VAT declined from -0.17 in 2019 to around -0.19 in 2023. Excise duties became substantially more regressive, with the index falling to around -0.29 in 2023. Although the structure of VAT remained largely unchanged, the cost-of-living crisis shifted household spending towards essential goods and services such as food, housing and transport, which account for a larger share of expenditure among lower income households (see Figure 4). Increases in fuel duties in 2022, followed by partial and temporary relief, together with sharp rises in energy and transport costs during the high inflation period, further reinforced the regressive profile of indirect taxation. Taken together, all taxes combined yield only mild progressivity, with an aggregate Kakwani index of approximately 0.16 in 2023 which is similar to the 2019 value.

Figure 6: Progressivity of taxes and transfers in 2019 and 2023, Kakwani index.



Source: Authors' calculations using UKMOD with FRS-HBAI data and imputed consumption.

Notes: In case of Kakwani index for taxes, pre-tax income is defined as market income plus public pensions. In case of Kakwani index for transfers, pre-transfer income is defined as market income plus public pensions minus direct taxes.

The Kakwani index for all transfers combined rose slightly over the period, reaching around 0.54 in 2023, indicating a strong concentration of transfer income among lower income households. This is driven primarily by means-tested benefits. Universal Credit, Legacy Benefits and Pension Credit exhibit the highest levels of progressivity, with Kakwani indices in the range of about 0.65 to 0.70. Council Tax Reduction and public pensions are only mildly progressive, while Child Benefit, Winter Fuel Payments and disability benefits show moderate progressivity. Maternity benefits are regressive, with a Kakwani index of around -0.17 in 2023, reflecting their link to prior earnings rather than income targeting.

Overall, the figure highlights a tax-benefit system in which progressivity is generated primarily on the transfer side, while the tax system on its own remains only weakly progressive. Changes in distributional orientation between 2019 and 2023 appear to be driven mainly by targeted policy adjustments, uprating choices and inflation dynamics, rather than by large scale structural reform of the UK tax-benefit system.

4.3 Impact of taxes and benefits across the income distribution

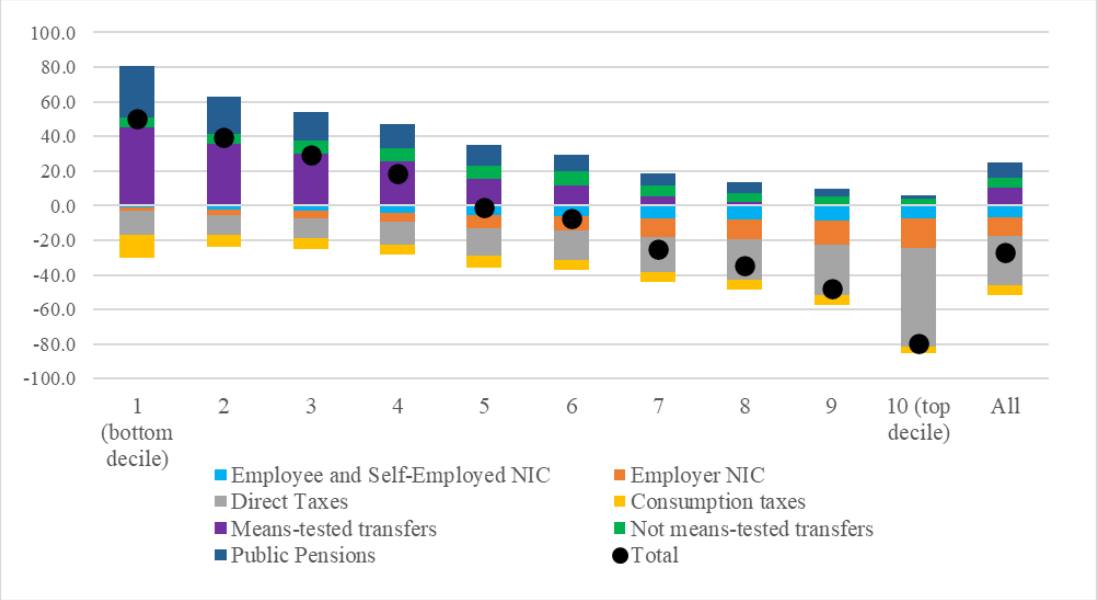
On average, UK households in 2023 paid the equivalent of about 27 percent of their consumable income in net taxes. For the top decile, their net tax liabilities are close to 80 percent of their consumable income. The overall pattern is one of strong downward redistribution, with lower income households receiving significant net cash support, while those in the middle of the distribution gain relatively little in net terms.

Figure *6* provides a distributional profile of taxes and cash transfers in 2023, expressed as percentage of mean equivalised consumable income. Positive values indicate that households receive more in cash transfers than they pay in taxes, meaning a net gain from the tax-benefit system, while negative values show that taxes exceed transfers and households are net contributors. Importantly, our measure of transfers includes all main cash transfers but excludes the value of social housing, the NHS, and other in-kind public services. Previous research shows that these services represent a substantial addition to household resources. For example, public healthcare alone has been estimated to be worth around 11.2 percent of household income on average, rising to 21.8 percent for households in the bottom decile and falling to 4.4 percent for those in the top decile (Figari and Paulus, 2015). Consistent with this, Hérault and Jenkins (2022) show that for the UK the redistributive impact of public in-kind education and health spending amounts to nearly three-quarters of that achieved through total public cash transfers.

As of 2023, the bottom four deciles are clear net beneficiaries: their total cash transfers exceed their tax liabilities by a substantial margin, mainly due to means-tested benefits and public pensions. Households in the fifth decile are close to break-even, with taxes roughly matching the value of cash transfers received. The top half of the distribution are net contributors, and net losses rise steadily toward the top decile, reflecting the growing weight of direct taxes and both employee and employer NICs. Indirect taxes, which take a larger share of spending among lower income groups, add a regressive element and explain why even low-income households pay a noticeable share of their consumable income in taxes.

On average, UK households in 2023 paid the equivalent of about 27 percent of their consumable income in net taxes. For the top decile, their net tax liabilities are close to 80 percent of their consumable income. The overall pattern is one of strong downward redistribution, with lower income households receiving significant net cash support, while those in the middle of the distribution gain relatively little in net terms.

Figure 6: Distribution of taxes and transfers across income deciles, percent of equivalised consumable income, 2023



Source: Authors' calculations using UKMOD with FRS-HBAI data and imputed consumption.

Notes: Income deciles are defined using equivalised disposable income. Using market income to rank households would place a large share of the population with zero or near-zero market income, including benefit recipients, retirees, and individuals not in paid work, into the same lowest group. Defining deciles on the basis of disposable income therefore provides a more meaningful and stable ranking of households by living standards when assessing the distributional impact of taxes and transfers.

Figure 7 shows net gains/losses from the tax-benefit system in 2019 to 2023, expressed as a percentage of equivalised consumable income of each decile. This scaling is used purely as a benchmark to allow meaningful comparison across income deciles with very different absolute income levels; it does not imply that consumption itself is reduced by the corresponding amount.

Redistribution peaked in 2020 and 2021, when temporary pandemic measures raised transfers across the distribution and softened the tax burden, particularly for low- and middle-income groups. Net gains in the bottom decile rose from 49 to 55 percent of consumable income in 2020 and remained elevated through 2021, while net losses in the top decile narrowed slightly, from 76 percent in 2019 to 72 percent in 2020. As pandemic support was withdrawn, both taxes and transfers gradually returned toward their pre-COVID patterns. By 2023, the structure of net benefits closely resembled that of 2019: the bottom deciles remained substantial net recipients, with the first decile receiving net transfers equivalent to around 50 percent of its

consumable income. Middle-income households were close to balance, while the top decile again made net tax contributions equivalent to about 80 percent of its consumable income. The temporary increase in the tax burden on the upper deciles observed in 2022, driven by labour market recovery and frozen tax thresholds, had largely reversed by 2023. Overall, Figure 7 illustrates that by 2023 the UK tax-benefit system settled back into its pre-pandemic distributive structure.

Figure 7: Net benefits across income deciles, percent of equivalised consumable income, 2019 and 2023

Source: Authors' calculations using UKMOD with FRS-HBAI data and imputed consumption.

Notes: Deciles are defined using equivalised disposable income. Net gains and losses are expressed as a percentage of equivalised consumable income to provide a common benchmark across income deciles. This scaling is used for comparability only and does not imply a direct reduction in consumption by that amount. For example, a net tax burden of 80 percent of consumable income indicates that net taxes paid are equivalent in value to four-fifths of the household's consumable income, not that observed consumption is reduced by that amount.

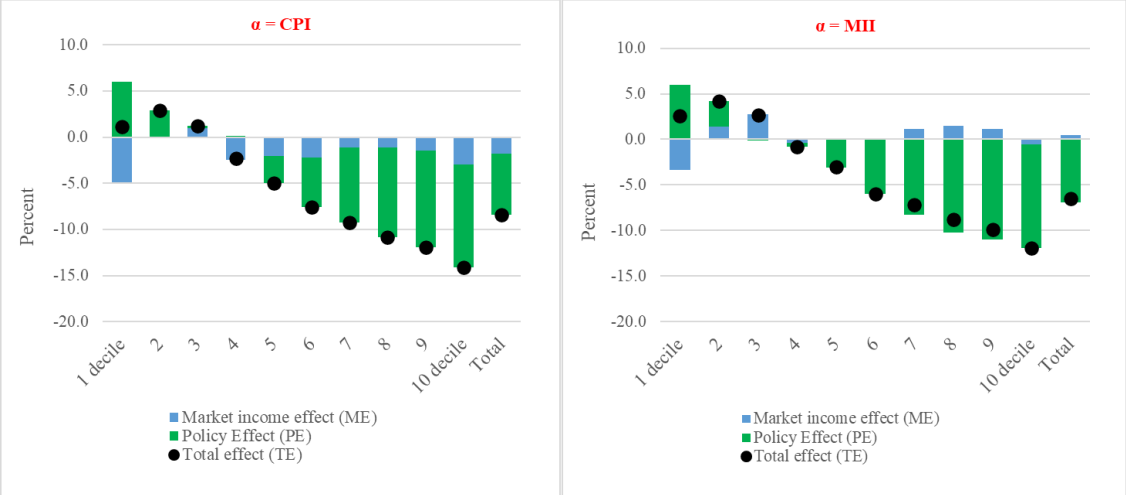
4.4 Decomposition of changes in consumable income between 2019 and 2023

Moving on to the final part of our results,

Figure ***8*** decomposes the total change in mean equivalised consumable income between 2019 and 2023 into two components: the Market Income Effect, which captures how shifts in market incomes and population composition affected consumable incomes holding transfer policies constant; and the Policy Effect, which reflects the impact of discretionary policy changes and uprating decisions. The left panel uses CPI to construct the counterfactual 2023 tax-benefit system. In other words, all 2023 policy parameters are deflated to 2019 prices using CPI. The resulting Policy Effect therefore shows whether the actual 2023 system expressed in 2019 prices was more or less generous than the 2019 system. The right panel applies wage growth (MII) as the benchmark, allowing us to evaluate policy developments relative to the evolution of the tax base.

Using either benchmark, consumable income changes for the bottom of the distribution were positive. The first three deciles experienced total income gains of about 1 to 3 percent under the CPI scenario and slightly larger gains under the MII scenario. Market incomes fell for the poorest households, with losses of around 5 percent in the first decile under both counterfactuals. However, the decline was more than offset by positive policy effects, which were strongest for the bottom decile and remained quite high for the second decile. This indicates that the 2023 policy system was more generous for low-income households than the 2019 system, as inflation indexed means-tested benefits and targeted cost-of-living payments more than compensated for the erosion of market incomes.

Figure 8: Decomposition of changes in equivalised consumable income, 2019 vs 2023



Source: Authors' calculations using UKMOD with FRS-HBAI data and imputed consumption.

Notes: Deciles are defined using equivalised disposable income. The Total Effect (TE) shows the change in mean equivalised consumable income between 2019 and 2023. To distinguish economic changes from policy changes, TE is decomposed into two parts. The Market Income Effect (ME) captures shifts in market incomes and population composition, holding policies fixed. The Policy Effect (PE) reflects discretionary policy changes and uprating decisions, evaluated against two counterfactuals in which all policy parameters are uprated either by CPI (left panel) or by wage growth (right panel). All effects are expressed as percentage changes relative to the 2019 equivalised consumable income.

For middle income households (deciles four to six), real consumable income fell by about 2 to 7 percent under CPI uprating (left panel). Market income effects were moderately negative, at roughly -2 percent across these deciles, but the policy effects were more negative still (around -3 to -6 percent). This suggests that policy decisions rather than labour market developments account for most of the decline in equivalised consumable income. These households received limited targeted support, while the freezing of tax thresholds increased effective tax burdens through fiscal drag.

Losses were most pronounced among upper middle- and high-income households (deciles seven to ten). Total reductions in equivalised consumable income ranged from about 9 to 14 percent. Market income effects were moderately negative (around 1 to 3 percent losses in market incomes), while policy effects were sharply negative, accounting for 8 to 11 percent

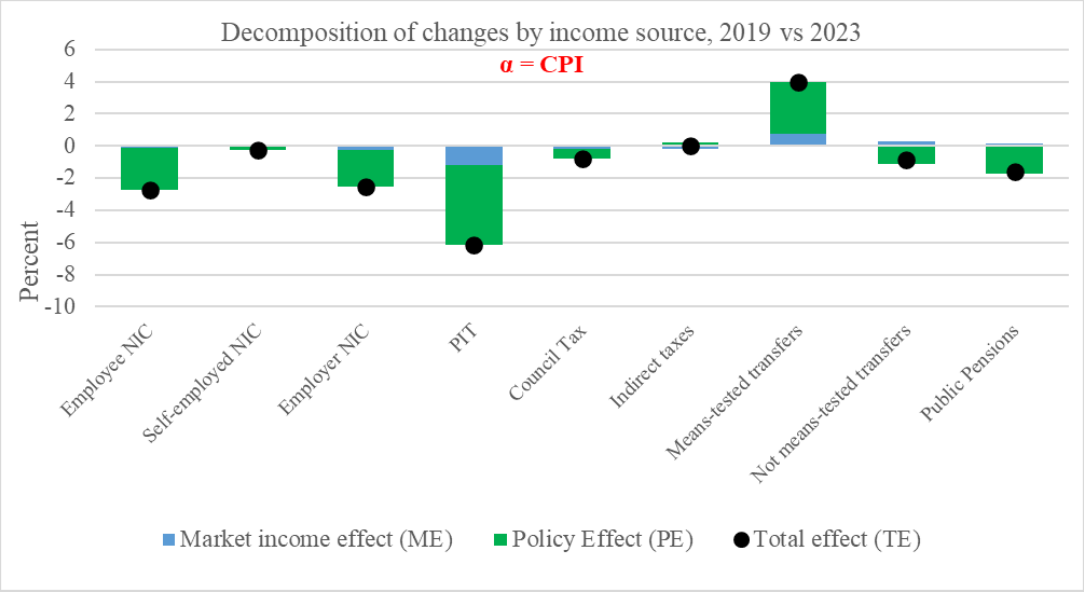
losses in consumable income. This pattern reflects the significant real term rise in effective tax liabilities driven by the prolonged freeze of income tax thresholds and allowances, which disproportionately affected higher earners.

Comparing the two panels clarifies how households fared relative to wage growth (right panel). Under the MII benchmark, market income effects turn positive for the upper deciles, indicating that nominal incomes at the top grew faster than median wages even though they still declined in real CPI terms. By contrast, the lowest deciles show losses both in real terms and relative to the median. This implies that inequality in market incomes widened over the period (as was also shown in Figure 5), with higher income households experiencing the smallest real declines.

Figure 9 clarifies which components of the tax-benefit system drove the overall change in equivalised consumable income between 2019 and 2023. On the tax side, policy changes to PIT generate the largest negative contribution, with a reduction of around 5 percent, reflecting the real increase in effective tax liabilities induced by frozen income tax thresholds and allowances. Policy effects from employee and employer NICs are also negative, though more modest. Policy effects for the self-employed NIC, Council tax and indirect taxes appear to be marginal.

On the transfer side, means-tested benefits exert a strong positive policy effect of around 4 percent of equivalised consumable income, in line with the earlier finding that targeted uprating and cost-of-living payments increased the generosity of the system for lower income households under CPI uprating. By contrast, policy changes to non-means-tested transfers and public pensions make small negative contributions, reflecting that uprating did not fully protect their real value relative to inflation.

Figure 9: Decomposition of changes by income source, 2019 vs 2023



Source: Authors' calculations using UKMOD with FRS-HBAI data and imputed consumption.

Notes: Deciles are defined using equivalised disposable income. All effects are expressed as percentage changes relative to the 2019 equivalised consumable income.

Taken together, the figure shows that, under a CPI counterfactual, the overall decline in real consumable income was driven primarily by policy choices, notably fiscal drag in PIT, partially offset by expanded and uprated means-tested support. This pattern is consistent with a system that became more generous at the bottom of the distribution while imposing rising real tax burdens on the rest of the population.

5. Discussion and Conclusions

The years from 2019 to 2023 confronted the UK tax-benefit system with an unusual sequence of shocks. The COVID-19 crisis produced a short but severe fall in market incomes, followed by only a partial recovery. Inflation then rose to levels not seen for decades and placed sustained pressure on real living standards. At the same time, the policy response reflected a continued preference for fiscal consolidation through indirect rather than explicit measures. Against this backdrop, our analysis provides three main insights into how the structure and performance of the UK tax-benefit system evolved over the period 2019 to 2023.

First, the tax-benefit system delivered a marked increase in redistribution during the pandemic. Temporary measures, including the Universal Credit uplift, the suspension of the minimum income floor for the self-employed, and furlough schemes, raised incomes across much of the distribution in 2020 and 2021. Inequality and poverty at disposable income fell, and the redistributive effect of the system reached its highest point in the period we study. However, once the temporary measures were withdrawn, disposable income inequality returned to values close to those seen before the pandemic. By 2023, the profile of net gains and losses from the tax-benefit system across income deciles had reverted to its pre-COVID pattern.

Second, the structure of the tax-benefit system shifted in ways that increased reliance on implicit fiscal consolidation. On the tax side, frozen income tax thresholds generated substantial fiscal drag. The progressivity of income tax declined, and consumption taxes became slightly more regressive, partly because inflation raised the cost of goods that make up a larger share of spending for lower income households. On the transfer side, the overall progressivity of cash benefits remained broadly stable. Together, these developments shifted more of the fiscal adjustment onto working age households in the middle and upper parts of the income distribution.

Third, the decomposition of changes in real consumable income between 2019 and 2023 shows clearly the net effect of policy choices versus changes in market incomes and population characteristics, on households across the income distribution. Real consumable income fell in most deciles between 2019 and 2023, except for the bottom three. Gains were largest for the bottom decile, where market incomes declined sharply but were more than offset by generous welfare support. Middle-income households experienced moderate losses driven mainly by policy changes rather than market income losses. Total losses were greatest among upper middle- and high-income households, where policy effects accounted for most of the reduction in real consumable income. This points to a consistent pattern: policy changes between 2019 and 2023 can be considered progressive in relative terms, since they protected low-income households, but contractionary in absolute terms, since they reduced the real generosity of the system for the rest of the population.

Taken together, the results highlight the growing role of indirect and less visible mechanisms in UK fiscal policymaking. Rather than raising headline tax rates, the Conservative government that was in power in 2019-2023 relied heavily on the real term erosion of income tax thresholds, selective uprating decisions, and temporary cash top-ups for low-income households. The outcome is a tax-benefit system that remains progressive in structure but increasingly constrained by fiscal consolidation pressures. Low-income households were largely protected from the worst effects of falling real wages and high inflation, while middle- and higher-income households absorbed most of the adjustment through higher effective tax burdens.

Looking ahead, these findings raise important questions about the sustainability and political viability of continued reliance on implicit tools of fiscal consolidation. As demographic ageing reduces the share of working age taxpayers and economic growth remains weak and volatile, fiscal drag risks further eroding transparency and intensifying distributional tensions. While this strategy has allowed governments to protect low-income households in the short run, it has done so by placing increasing real burdens on middle- and higher-income groups whose living standards are already under pressure, while leaving wealth based taxation largely unchanged. If this trajectory persists, the tradeoffs between redistribution, work incentives and fiscal sustainability are likely to become increasingly difficult to manage, and the political costs of fiscal consolidation by stealth may become harder to contain.

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Annex 1: Imputation of consumption data into the FRS

Imputation of consumption data from the Living Costs and Food (LCF) survey into UKMOD input data (coming from the Family Resources Survey) is done by matching households in the two datasets based on common variables, using exact matching for (appropriately aggregated to common definitions) categorical variables, and nearest neighbour (minimum Mahalanobis distance) for non-categorical variables, with a cutoff value for the maximum allowed distance. The procedure entails 9 rounds of matching, gradually moving integer variables from exact to minimum distance matching. Table A 1 summarises the procedure.

Table A 1: Variables considered for matching LCF and UKMOD data

Variable	**Type of matching**
Disposable household income	Minimum distance
Disposable household income decile	Exact matching
Age of household responsible person	Exact matching within age bands for round 1, minimum distance from round 2 onwards
Number of children aged 5-17	Exact matching up to round 2, minimum distance from round 3 onwards
Number of children aged 2-4	Exact matching up to round 2, minimum distance from round 3 onwards
Number of children aged 0-1	Exact matching up to round 2, minimum distance from round 3 onwards
Number of children aged 0-17	Exact matching thing up to round 2, minimum distance from round 3 onwards
Household size	Exact matching up to round 2, minimum distance from round 3 onwards
Number of inactive persons	Exact matching up to round 3, minimum distance from round 4 onwards
Number of students	Exact matching up to round 3, minimum distance from round 4 onwards
Number of retired persons	Exact matching up to round 3, minimum distance from round 4 onwards
Number of unemployed persons	Exact matching up to round 3, minimum distance from round 4 onwards
Number of employed persons	Exact matching up to round 3, minimum distance from round 4 onwards
Region	Exact matching up to round 4, then excluded
Education of household responsible person	Exact matching up to round 5, then excluded
Ethnicity of household	Exact matching up to round 6, then excluded
Gender of household responsible person	Exact matching up to round 7, then excluded
Housing tenure	Exact matching up to round 8, then excluded

Table A ***2*** reports the outcome of each round of the matching procedure, for the 2023-24 data. In Round 1, only 2,807 observations out of 16,754 match all the categorical criteria, and of those 1,674 are retained based on their distance value. Reducing the categorical variables used for exact matching

increases the number of matched observations, with big increases obtained in Round 2 (age of responsible individual moved from exact to minimum distance matching), Round 4 (activity status moved from exact to minimum distance matching) and Round 5 (region excluded). Overall, only 106 observations remain unmatched, corresponding to 0.6% of the total.

Table A 2: Outcome of the matching procedure

	Matched	**Retained**	**Total**
Round 1	2807	1674	16754
Round 2	4029	4029	15080
Round 3	124	115	11051
Round 4	7448	5434	10936
Round 5	5366	5077	5502
Round 6	425	300	425
Round 7	125	7	125
Round 8	118	2	118
Round 9	116	10	116
Final unmatched			106

The distribution of the Mahalanobis distance at each round of matching is reported in Table A 3. The cutoff for accepting a match was kept constant throughout the rounds. The table confirms that Round 7, 8 and 9 contributed little to the matching outcomes.

Table A 3: Distribution of the Mahalanobis distance in the matching procedure

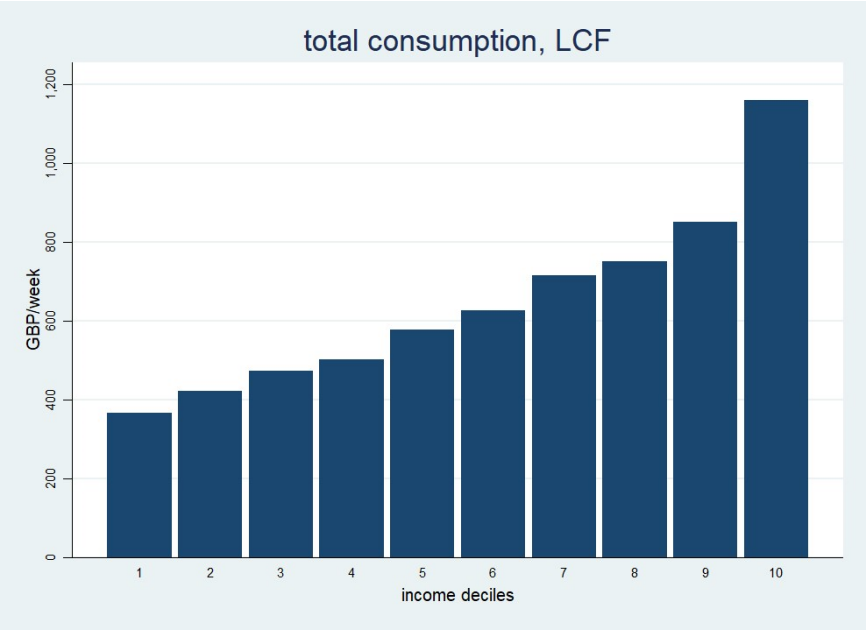
	p(5)	**p(10)**	**p(25)**	**p(50)**	**p(75)**	**p(90)**	**p(95)**	**max**	**cutoff**
Round 1	0.28	0.58	1.64	3.98	7.16	10.17	11.92	18.73	5
Round 2	0.18	0.21	0.27	0.39	0.60	0.97	1.36	3.30	5
Round 3	1.99	2.67	2.74	2.97	4.66	4.93	5.06	6.41	5
Round 4	2.31	2.53	3.11	3.95	5.09	6.06	6.71	11.31	5
Round 5	0.30	0.56	2.33	3.15	4.01	4.57	5.08	7.69	5
Round 6	2.29	3.18	4.03	4.52	5.16	6.02	6.28	7.04	5
Round 7	4.32	4.32	5.11	6.16	6.28	6.41	6.57	8.50	5
Round 8	6.09	6.39	7.42	7.46	8.33	8.34	8.34	11.84	5
Round 9	2	6	8.83	12.94	14.88	16.71	16.71	17.56	5

Finally, Figure A1 shows the income gradients of the total consumption expenditure in the original LCF data (left panel) and in the imputed UKMOD input data (right panel). The distributional properties of the original data are broadly maintained by the imputation procedure, with a steep income gradient, especially for the last decile. Figure A2 compares total consumption by income decile across the one digit COICOP categories in the observed LCF data (panel a) and the imputed UKMOD input data (panel b). The imputation reproduces the income gradients observed in the LCF remarkably closely across categories. In both datasets, categories such as clothing, bills, transport, recreation, restaurants and hotels, and miscellaneous goods and services display steep and increasingly pronounced gradients towards the top income deciles, while more essential categories, including housing and food, exhibit flatter profiles. Health and education, which are characterised by small sample sizes and lumpy

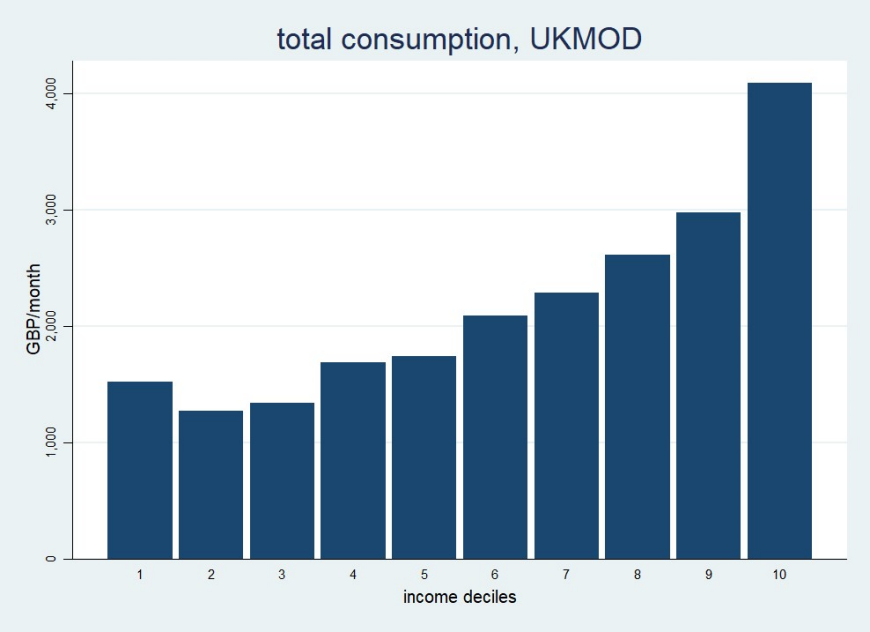
expenditure patterns, display non monotonic profiles in both panels, indicating that these features are structural characteristics of the data rather than artefacts of the imputation procedure. Overall, the imputed UKMOD data preserve the key distributional properties of consumption observed in the LCF.

Figure A 1: Total consumption by income deciles

(a) Observed LCF data



(b) Imputed UKMOD data

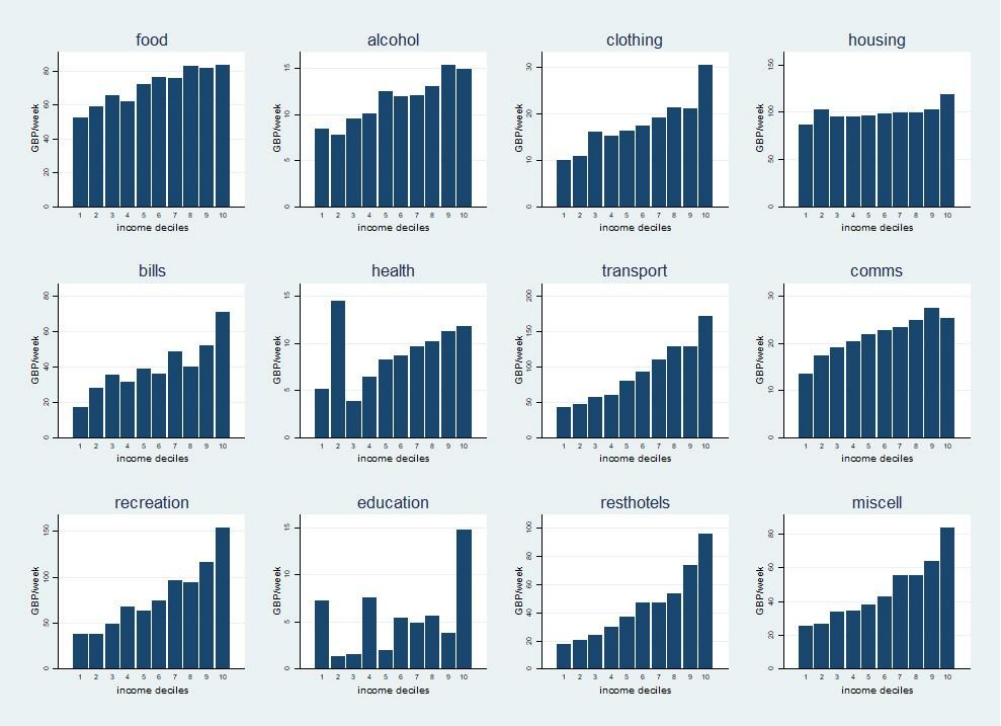


Source: Authors' calculations using LCF data and UKMOD with FRS-HBAI data and imputed consumption from LCF.

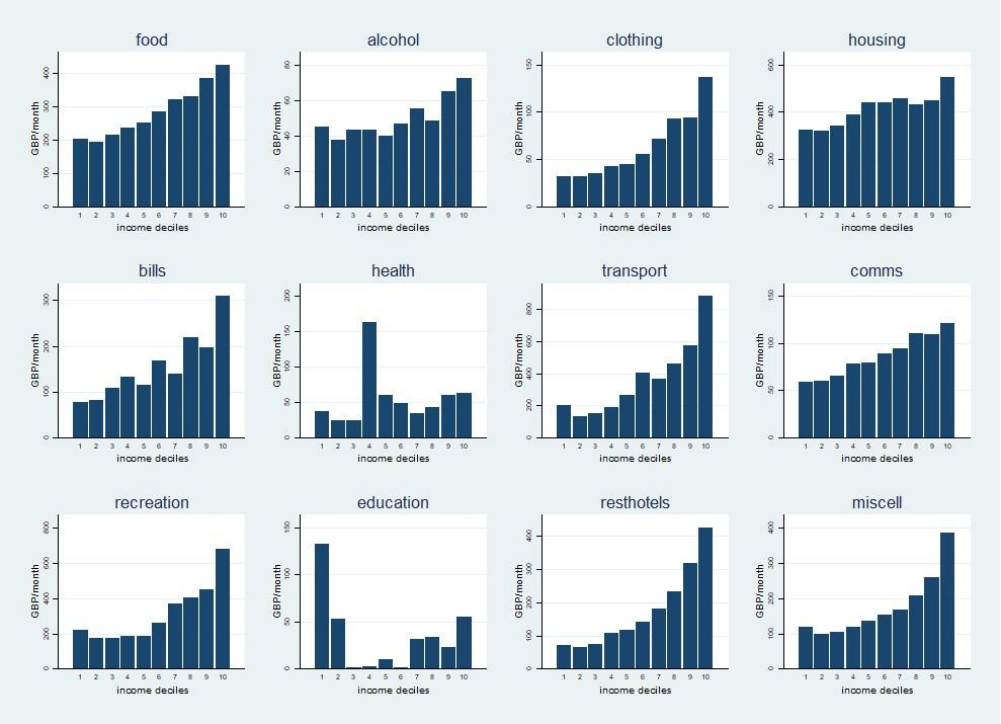
Notes: The figure shows mean total consumption expenditure by deciles of equivalised disposable income.

Figure A 2: Total consumption by income deciles, breakdown by COICOP category

(a) Observed LCF data



(b) Imputed UKMOD data



Source: Authors' calculations using LCF data and UKMOD with FRS-HBAI data and imputed consumption from LCF.

Notes: The figure shows consumption expenditure in GBP/week by deciles of equivalised disposable income, by COICOP category. The categories correspond to 1 digit COICOP divisions, representing the highest level of aggregation in the COICOP classification.