HM Treasury

Impact on households:

distributional analysis to accompany Autumn Statement 2022

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Contents

Chapter 1

Distributional analysis of tax, welfare and public service spending decisions

1.1 This chapter sets out the estimated impact of tax, welfare and public service spending changes announced from Spending Round 2019 onwards and at Autumn Statement 2022 that carry a direct, quantifiable impact on households. It also presents estimates of the overall level of tax paid and public spending received by households.

1.2 The modelling in this chapter is on a static basis, that is, it shows the effect of tax and spending policy in isolation, and not the impact of wider economic factors which will drive households' living standards in 2023-24 and 2024-25. It also illustrates the immediate impact of policy on household incomes, before behavioural responses are taken into account. The analysis presents average effects on households within each income decile, but there will be variation around this average.

Box 1.A Measuring household incomes

The analysis in this document uses household income as the measure of a household's standard of living.[1] While this is the standard measure, some households experience periods of low income temporarily, or finance their standard of living by using wealth rather than income (for example, students, the temporarily unemployed, or the self-employed). Therefore, income may not always best represent their general standard of living. The most recent analysis[2] by the Department for Work and Pensions (DWP) has shown that, of those

1 Note that the metric of household income used in this document differs from the Real Household Disposable Income (RHDI) metric used by the Office for Budget Responsibility (OBR) in their "Economic and fiscal outlook", which is an aggregate metric based on ONS National Accounts statistics and not available by household income decile. RHDI is an aggregate measure that, for example, averages across non-labour income, which is skewed towards older households, and labour income, which is skewed towards those of working age. This means that movements in RHDI per capita may not be representative of a typical household and are not useful for examining varying experiences across the income distribution.

2 DWP, Income Dynamics: Movements between quintiles: 2010 to 2020, March 2022

surveyed in 2019-20, 60% of those in the bottom quintile in 2010-11 were in a higher income quintile in 2019-20.

Alternative approaches to approximate a household's standard of living have used household expenditure. Approximately 20% of those in the bottom income decile are in the top half of the distribution when households are ranked by their total expenditure. Due to a lack of data on expenditure in some of the datasets used in this analysis, an expenditure-based approach is not used here, but the impacts of government decisions on low-income households should be considered in the context of these methodological choices.

Many of the charts included in this document are presented by household equivalised net income decile. This means that a household's net income (income after taxes and benefits) is adjusted to take account of the size and composition of the household. Households are then ranked from lowest to highest equivalised net income and divided into 10 equally-sized groups.

To help understand where different households sit in the income distribution, Chapter 2 includes the median gross income for each decile, as well as a more detailed explanation of the data sources, methodology, and the equivalisation process.

1.3 Figures 1.A-1.E in this document include the impact of the following measures announced at Autumn Statement 2022, and which have an impact in 2023-24 or 2024-25:

- Energy Price Guarantee: limiting typical household energy bills to £3,000 in 2023-24
- Cost of Living Payments for households on means-tested benefits, pensioner households, and individuals on non-means tested disability benefits
- Council Tax: Referendum Principles
- Income Tax: reduce the dividend allowance from £2,000 to £1,000 from April 2023 and then £500 from April 2024
- Income Tax: reduce additional rate threshold from £150,000 to £125,140 from April 2023
- Capital Gains Tax: reduce the annual exempt amount from £12,300 to £6,000 from April 2023 then £3,000 from April 2024
- Pension Credit: uprate Standard Minimum Guarantee by CPI in 2023-24
- Benefit Cap levels: uprate by CPI in 2023-24
- Support for Mortgage Interest: reduce wait period from 9 to 3 months and abolish the zero earnings rule

- Employment and Support Allowance: delay managed move to Universal Credit until 2028

1.4 In addition, Figures 1.D and 1.E include the impact of all measures and spending settlements announced from Spending Round 2019 onwards, including the impact of Spending Review 2021 spending settlements, as well as several other measures announced at and prior to Autumn Statement 2022 which have an impact in 2024-25, including:

- NHS and social care: addressing pressures in the system
- Schools: restore Spending Review 2021 levels of per pupil funding in real terms
- Income Tax: maintaining the basic rate at 20%
- National Insurance: reverse temporary 1.25pp increase in rates from November 2022, and cancel the Health and Social Care Levy
- Stamp Duty Land Tax: increases to nil-rate thresholds from 23 September 2022

1.5 As set out in more detail in Chapter 2, the analysis contained in this document generally only considers those measures with a direct impact in the specified year on benefit income, tax paid or the benefits-in-kind received through public services by UK residents. The charts exclude the impact of business taxes, changes to regulation including the National Living Wage (NLW), the impact of government borrowing, and the impact of measures in later years (for example, maintaining Income Tax and National Insurance thresholds until April 2028). They also exclude the impact of any changes that are not new policy decisions at Autumn Statement 2022 (and so do not appear in Table 5.1 of the Autumn Statement document), for example uprating of working age means-tested benefits by CPI in 2023-24.

1.6 Figures 1.B-1.C and 1.F-1.G are presented in 2023-24, the year in which several short-term measures such as the Energy Price Guarantee and one-off Cost of Living Payments will impact households. Figures 1.A and 1.D-1.E are presented in the fiscal year 2024-25, the last year of the current Spending Review period.

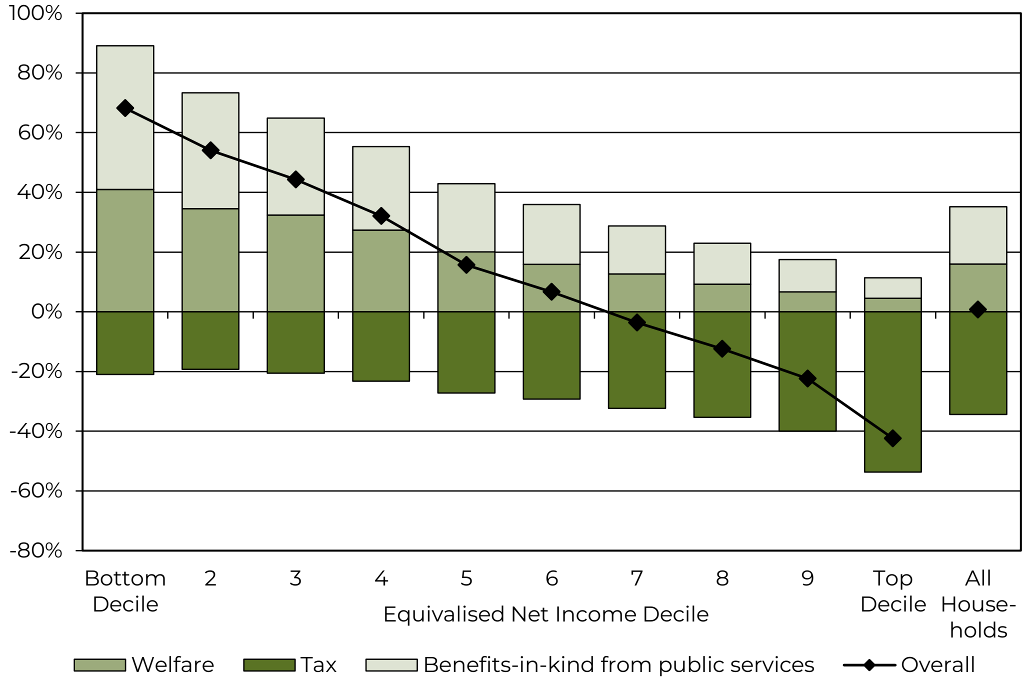
Overall level of tax, welfare and public service spending

1.7 Government policy continues to be highly redistributive. Figure 1.A shows the estimated overall level of public spending received, and tax paid, by households across the income distribution (the black diamonds indicate the net position). It shows that in 2024-25:

- on average, households in the lowest income decile will receive over £4 in public spending for every £1 they pay in tax

- on average, the bottom and middle of the income distribution – 60% of all households – will receive more in public spending than they contribute in tax[3]

Figure 1.A Overall level of public spending received, and tax paid, as a percentage of net income (including households' benefits-in-kind from public services), by income decile, in 2024-25



Source: HM Treasury distributional analysis model

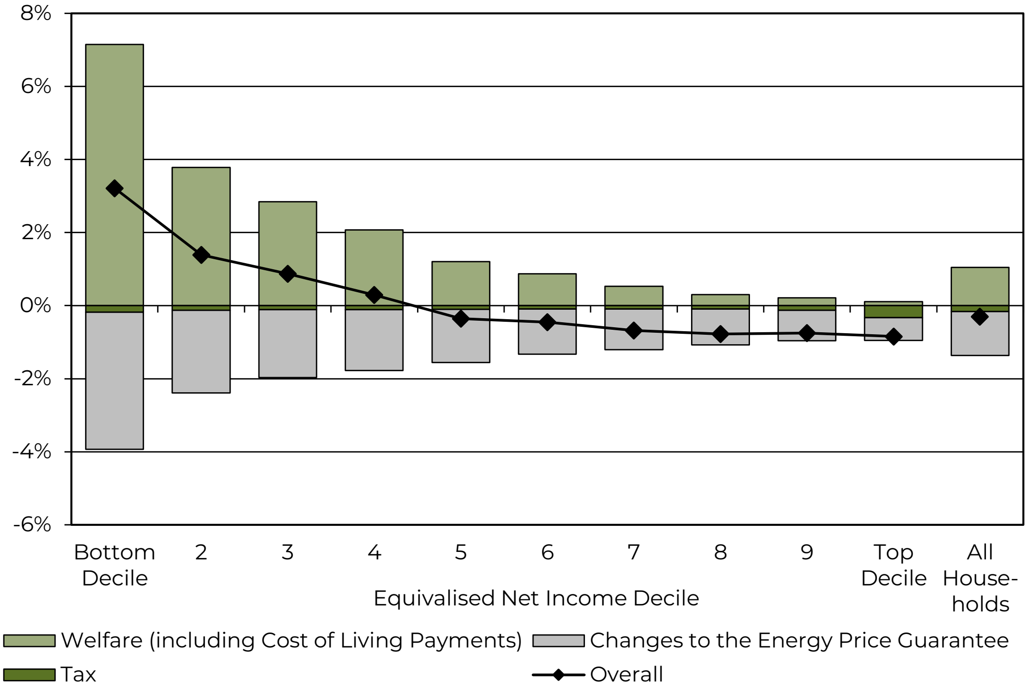
Analysis of decisions announced at Autumn Statement 2022

1.8 Figures 1.B and 1.C set out the estimated impact of decisions announced at Autumn Statement 2022 across the household income distribution, in 2023-24. Only those measures set out in paragraph 1.3 are included in the analysis presented here. Figure 1.B shows these impacts as a percentage of net household income while Figure 1.C is expressed in annual cash terms. The charts show the impacts on households in the specified year compared to a hypothetical world in which modelled government policies announced at Autumn Statement 2022 were not introduced.

1.9 This analysis shows that, on average, households in the poorest income deciles are gaining the most in cash terms and as a percentage of net income in 2023-24 as a result of government policies announced at Autumn Statement 2022.

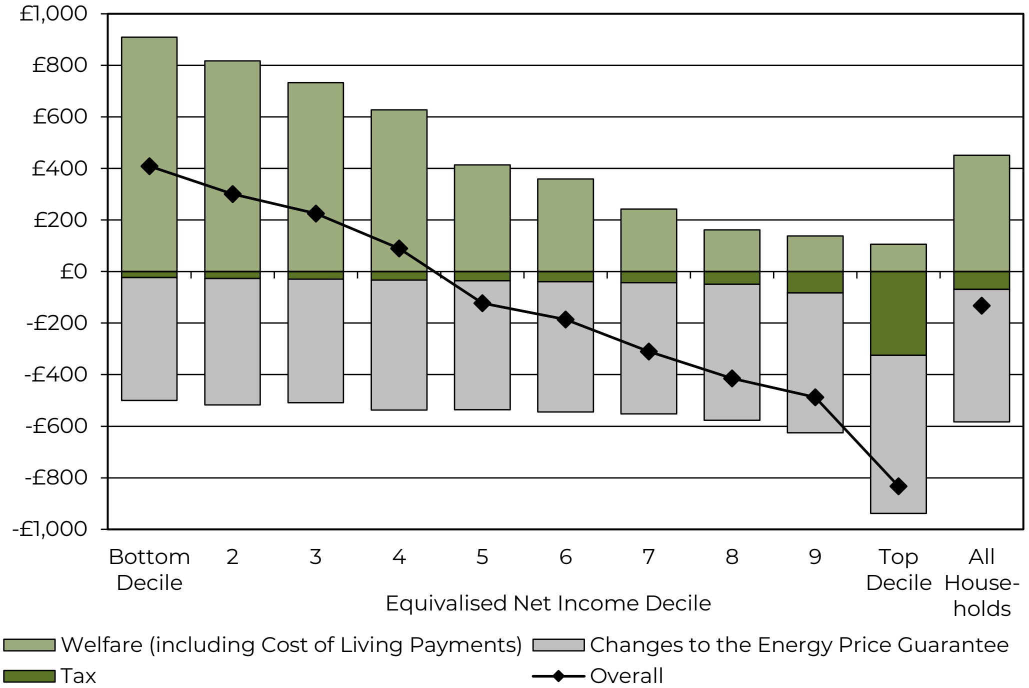
[3] Households will usually move between income deciles over time, and may therefore make net contributions in some years while being net beneficiaries in other years.

Figure 1.B Impact of decisions announced at Autumn Statement 2022 on households in 2023-24, as a percentage of net income, by income decile



Source: HM Treasury distributional analysis model

Figure 1.C Impact of decisions announced at Autumn Statement 2022 on households in 2023-24, in cash terms (£ per year), by income decile



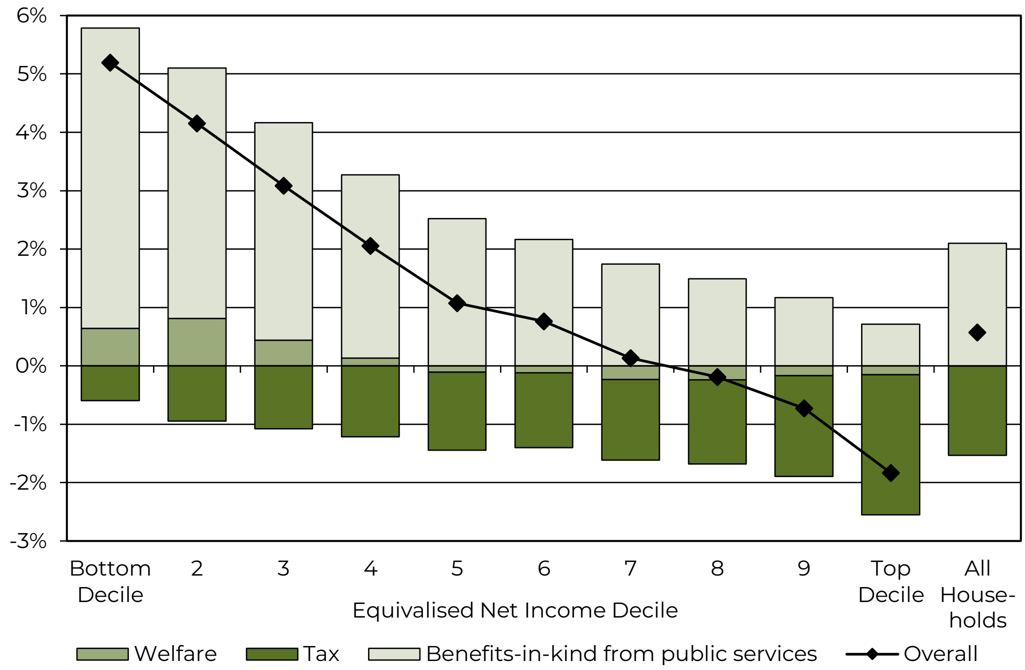
Source: HM Treasury distributional analysis model

Analysis of decisions announced from Spending Round 2019 onwards

1.10 Figures 1.D and 1.E set out the estimated impact of decisions announced from Spending Round 2019 onwards across the household income distribution. This includes the impact of measures in paragraph 1.3, alongside additional measures announced at and prior to Autumn Statement 2022 that have an impact in 2024-25, Spending Review 2021 spending settlements, and tax and welfare decisions from Spending Round 2019 onwards. Figure 1.D shows these impacts as a percentage of net household income (including benefits-in-kind from public services), while Figure 1.E is expressed in annual cash terms. The charts show the impacts on households in 2024-25 (the last year of the current Spending Review period) compared to a hypothetical world in which modelled government policies announced since Spending Round 2019 onwards were not introduced. This analysis shows that, on average, households in the poorest income deciles are gaining the most as a percentage of net income.

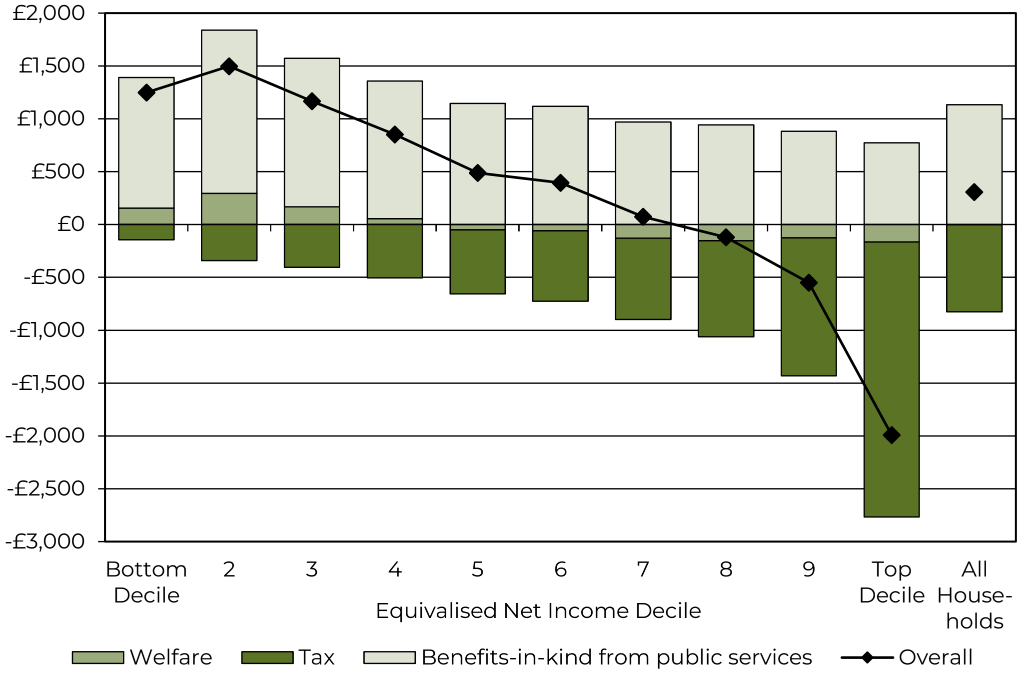
1.11 The benefits-in-kind illustrated here are based on Autumn Statement 2022 and Spring Statement 2022 spending decisions that have an impact in 2024-25, and Spending Review 2021 settlements. The analysis does not account for unspecified spending assumptions in later years announced alongside the Autumn Statement.

Figure 1.D Impact of decisions announced from Spending Round 2019 onwards on households in 2024-25, as a percentage of net income, by income decile



Source: HM Treasury distributional analysis model

Figure 1.E Impact of decisions announced from Spending Round 2019 onwards on households in 2024-25, in cash terms (£ per year), by income decile

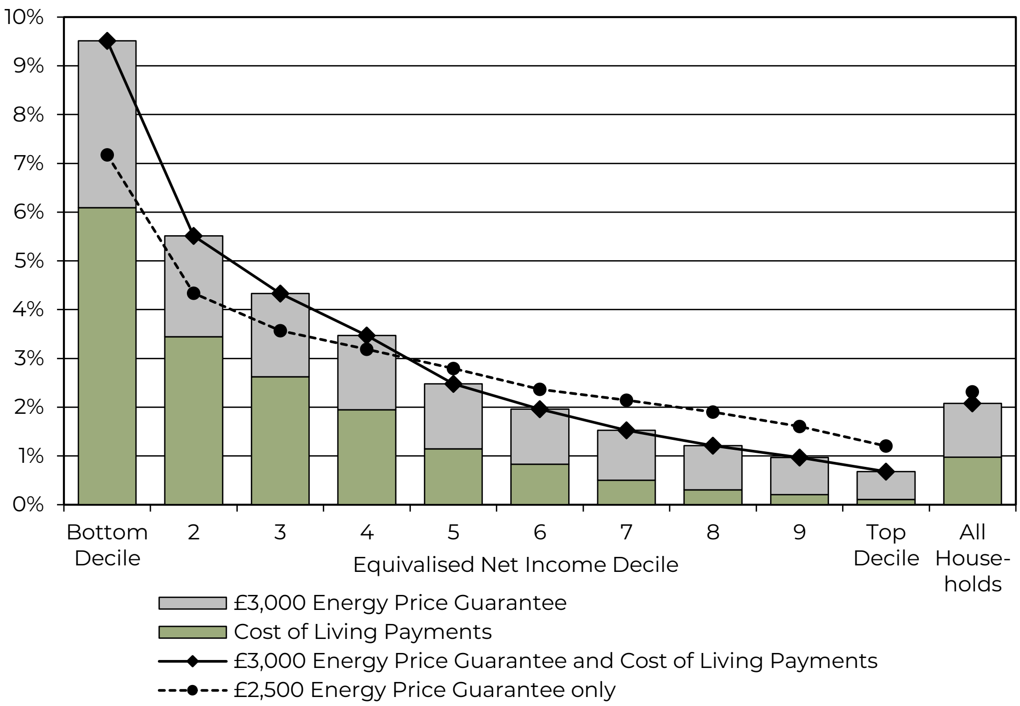


Source: HM Treasury distributional analysis model

Cost of living support to households in 2023-24

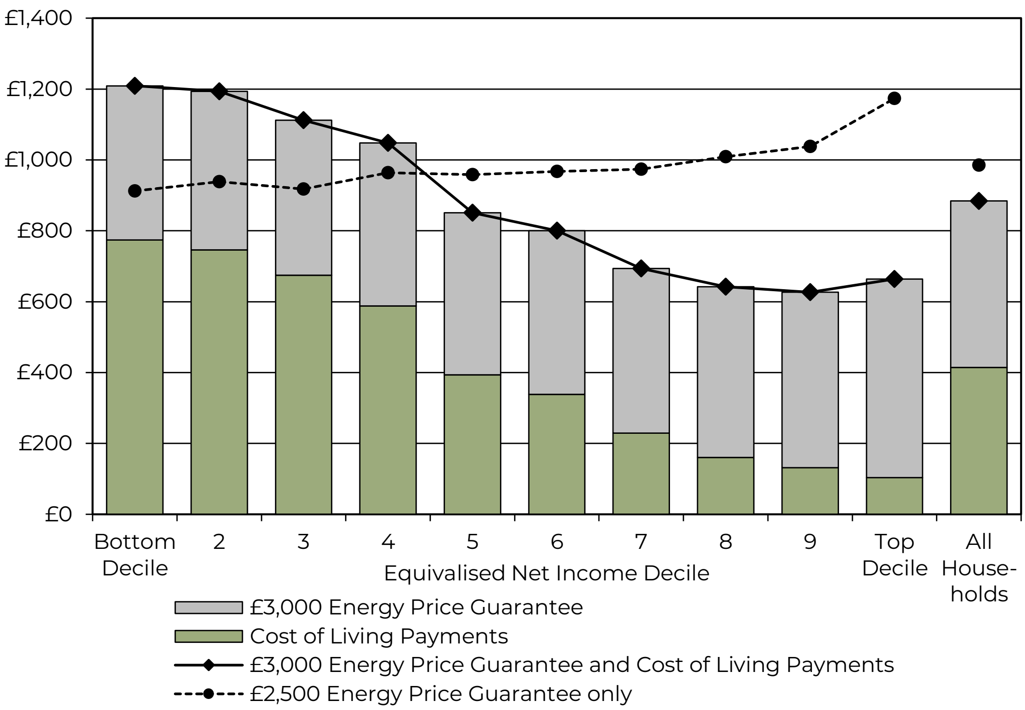
1.12 Figures 1.F and 1.G show the impact on households of those measures directly aimed at helping households with cost of living pressures in 2023-24. It shows that, both as a percentage of net income and in cash terms, the Energy Price Guarantee and Cost of Living payments provide greater support to those households at the bottom end of the distribution than at the top. It also shows this package is better targeted to low-income households than the previous £2,500 cap alone, and is on average more generous than that policy for households in the bottom four income deciles.

Figure 1.F Impact of the Energy Price Guarantee and Cost of Living Payments on households in 2023-24, as a percentage of net income, by income decile



Source: HM Treasury distributional analysis model

Figure 1.G Impact of the Energy Price Guarantee and Cost of Living Payments on households in 2023-24, in cash terms (£ per year), by income decile



Source: HM Treasury distributional analysis model

Chapter 2

Data sources and methodology

Table 2.A Data sources for charts

Figure	Source
1.A-1.G	Internal HM Treasury modelling. See 2.9 to 2.27

Table 2.B Data sources for statistics

Paragraph	Statistic	Source
Box 1.A	Income movements	DWP, Income Dynamics: Movements between quintiles: 2010 to 2020, March 2022
Box 1.A	Expenditure distribution	Internal HM Treasury modelling

Constructing Figures 1.A to 1.G

2.1 Figure 1.A shows estimates of the overall level of public spending received, and tax paid, by households in 2024-25 across the household income distribution. Figures 1.B and 1.C compare the estimated impact of changes to tax and welfare policy against a counterfactual of no tax and welfare policy changes at Autumn Statement 2022. They also estimate the impact of changes to the Energy Price Guarantee (EPG) on households, presented as a separate bar. In addition, Figures 1.D and 1.E compare the estimated impact of changes in tax, welfare, public service spending policy, and the EPG against a counterfactual of no tax and welfare policy changes, and no change to real public service spending per capita, from Spending Round 2019 onwards. Measures are only included if they have a clear first order impact on the benefit income, tax paid, or the benefits-in-kind received through public services by UK residents.

2.2 Figures 1.F and 1.G show the impact on households of measures to help households with cost of living pressures in 2023-24 (specifically the EPG and one-off Cost of Living Payments), across the household income distribution. It presents the impact of these measures against a counterfactual of no government support on cost of living, alongside the impact of the pre-Autumn Statement EPG package (which would have capped the unit cost of energy bills at an annual level corresponding to £2,500 for the typical dual-fuel household).

2.3 The following policy impacts are out of the scope for this analysis:

- the impact of changes to regulation, for example the National Living Wage (NLW), which are not direct changes to the distribution of tax or public spending
- Exchequer impacts resulting from reduced fraud, error or debt in the welfare system, as full compliance with the rules of the welfare system is assumed throughout the modelling
- Exchequer impacts resulting from reduced tax evasion, as full compliance with the rules of the tax system is assumed throughout the modelling. Anti-avoidance measures are captured where they result in a change in tax liabilities in the year being analysed
- impacts of decisions made by devolved administrations
- impacts of taxes where the incidence of the tax does not fall directly on households, for example Employer NICs. We exclude such taxes from this analysis as we are unable to determine the distributional consequences of how these taxes are passed through to households
- the impact of measures without a direct impact in 2023-24 or 2024-25, for example temporary Cost of Living support measures introduced in February 2022, and maintaining Income Tax and National Insurance thresholds until April 2028

2.4 Smaller tax and welfare measures are also excluded from this analysis where there is insufficient data to robustly model the distributional impacts.

Defining income and ranking households

2.5 This distributional analysis uses equivalised net household income, before housing costs, as the main indicator by which to rank households from lowest income to highest income. This indicator is comprised of several components:

- Equivalised: equivalisation is a process that adjusts a household's net income to take into account the fact that larger households will require a higher net income to achieve the same standard of living as a household with fewer members. The equivalisation factors used in the analysis are the modified OECD factors (as used in DWP's Households Below Average Income publication).
- Net: household incomes are ranked after deductions from direct taxes, and after additions from welfare benefits. Deductions from indirect taxes, or additions through benefits-in-kind from public services, are not used to rank households.
- Household: incomes are assessed in aggregate at the household, not individual level. Comparing household, rather than individual, incomes reduces the subjectivity of this analysis, ensuring that no assumptions are made about how incomes or expenditure are shared between separate individuals within the household.

- Before housing costs: housing costs such as rent or the cost of servicing a mortgage are not deducted from household incomes.

2.6 The household income distribution is created by ranking households from the lowest equivalised net income to the highest equivalised net income, and then dividing this ranking into ten equally sized groups called deciles, across which the analysis is produced.

2.7 Table 2.C below shows estimated median gross incomes (pre-tax private income including earnings, private pensions, savings and investments, plus benefit income) within each decile. This gives a less precise estimate of a household's position in the income distribution than net income, but is easier to understand because many people think about their incomes or salaries in gross rather than net terms.

2.8 Table 2.C should therefore be used to approximate where a household will be found in the income distribution. For example, if a household consisting of two adults earns £27,300 per year between them, there is a high likelihood that this household will be found in the third income decile. However, this is not guaranteed, as different gross household incomes can result in different net household incomes, depending on how many earners there are in the household, the size of the household, and for which benefits the household qualifies.

Table 2.C Median gross income for each decile (£ per year, 2023-24) for different household compositions[4][5]

Median gross income of households in decile	1 adult	1 adult and 1 child	2 adults	2 adults and 1 child	2 adults and 2 children
Top decile	77,100	-	114,500	158,800	196,100
Ninth decile	52,100	-	76,600	100,500	123,100
Eighth decile	41,400	-	61,300	81,600	101,000
Seventh decile	34,500	48,400	51,600	67,500	84,800
Sixth decile	30,200	42,600	44,400	58,900	70,900
Fifth decile	25,800	33,100	37,900	50,600	59,900
Fourth decile	21,700	28,900	32,400	42,900	51,200
Third decile	18,200	23,800	27,300	35,500	42,700
Second decile	15,000	20,300	22,900	29,200	34,900
Bottom decile	10,600	14,900	16,100	21,200	22,900

Source: HM Treasury distributional analysis model

4 Categories with insufficient underlying sample sizes have been left blank.

5 One-off Cost of Living Payments not included in the figures presented here.

Analysis of tax and welfare measures

2.9 Where possible, tax and welfare policy changes are analysed using HM Treasury's Intra-Governmental Tax and Benefit Microsimulation model (IGOTM), which is underpinned by data from the ONS's Living Costs and Food (LCF) survey. The sample size of the LCF means that in order to produce robust analysis three years of data have been pooled together, specifically 2016-17 to 2018-19. This data is then projected forward to reflect the financial year being modelled, using historical Annual Survey of Hours and Earnings data on earnings growth at different points across the income distribution as well as the latest OBR average earnings and inflation forecasts. The model makes no changes to the underlying demographics, employment levels or expenditure patterns in the base data.

2.10 For Figures 1.B and 1.C, the counterfactual is a hypothetical scenario in which tax and welfare policy changes announced at Autumn Statement 2022, including the increase in the EPG to £3,000, were not implemented.

2.11 For Figures 1.D and 1.E, the counterfactual is a hypothetical scenario in which tax, welfare and public service spending decisions policy changes announced from Spending Round 2019 onwards were not implemented.

2.12 Not all households take up all the benefits to which they are entitled. HM Treasury's microsimulation modelling takes this into account when calculating the effects of policy changes by using information on the take-up of benefits in the underlying survey data. A policy which will lead to an increase in take-up will therefore be modelled as an increase in household income. This methodology provides a more accurate estimate of the impact on households.

2.13 Modelling of tax and welfare measures in IGOTM takes into account the devolution of decisions in some areas from the UK government to devolved administrations. UK government decisions are modelled as applying only to households directly affected by the measure, while decisions taken by the devolved administrations are not included as policy impacts.

2.14 Within the tax system, the main taxes microsimulated in this analysis are: Income Tax, employee and self-employed National Insurance contributions, Council Tax, VAT, Insurance Premium Tax, Fuel Duty, Alcohol Duty, Tobacco Duty, Stamp Duty Land Tax, and Air Passenger Duty.

2.15 Within the welfare system, the most significant welfare benefits microsimulated in this analysis are: the State Pension, Pension Credit, Winter Fuel Payments, Attendance Allowance, Jobseeker's Allowance, Employment and Support Allowance, Housing Benefit, Universal Credit, Child Benefit, Disability Living Allowance, Personal Independence Payment and Tax-Free Childcare.

2.16 All charts in Chapter 1 assume for simplicity that Universal Credit has been fully rolled out and claimants are no longer claiming benefits under the older legacy system.

2.17 Not all measures can be reliably modelled using IGOTM due to data and/or modelling constraints. Tax and welfare changes that cannot be modelled using microsimulation modelling are, where possible, apportioned to household equivalised income deciles. This is done according to the Exchequer impacts or savings from the measures, based on assumptions about where the impacts are likely to fall.

Analysis of public service spending

2.18 The analysis of public service spending only includes spending on frontline public services with a direct benefit to households. This covers services provided by the Department of Health and Social Care, the Department for Education, the Department for Work and Pensions, the Department for Transport, the Ministry of Justice, the Department for Digital, Culture, Media and Sport, and some services delivered by local government in England.

2.19 The benefits-in-kind illustrated in Figures 1.D and 1.E are based on Autumn Statement 2022 and Spring Statement 2022 spending decisions that have an impact in 2024-25, and Spending Review 2021 settlements. The analysis does not account for RDEL assumptions in later years announced alongside the Autumn Statement.

2.20 Further to this scope, the analysis excludes:

- administrative spending
- capital spending, and the depreciation of capital assets
- spending funded through the Reserve
- spending on public goods where it is not possible to identify the direct benefits from these areas of spending for specific households

2.21 To align with the definition of income used in DWP's Households Below Average Income publication, the analysis of spending on public services also includes financial transactions through student loans. To account for this source of income, estimates of student loan outlay in a given financial year are counted as household income from public spending. Likewise, estimates of student loan repayments in that same financial year are reflected as a loss to households, again through the public spending bars.

2.22 For Figures 1.D and 1.E, the analysis of RDEL spending compares forecast spending in 2024-25 to a baseline of actual spending in 2019-20, projected to 2024-25 in line with both the GDP deflator and population growth (to account for both price and population pressures on real per capita spend received). Therefore, the RDEL impacts presented in Figures 1.D and 1.E reflect the impact on households of all RDEL measures from Spending Round 2019 onwards.

2.23 Charts are on a UK basis, though any RDEL spending that is the responsibility of the devolved administrations in Scotland, Wales, and Northern Ireland is not reflected in this analysis. This has two effects. First, any changes to devolved spending – whether positive or negative – have no impacts in this analysis. Second, where change is expressed as a proportion of household income, the income denominators which underpin this calculation do not include any income from spending devolved to Scotland, Wales, and Northern Ireland.

2.24 The analysis of the benefits-in-kind provided by public service spending is, like with taxes and welfare measures, derived from HM Treasury's IGOTM model. However, the modelling approach taken for public services is slightly different. Where the use of a public service is reported in the LCF, no additional data is required and the approach is similar to that used for most tax and welfare modelling. The spending on a particular public service is allocated between all those households who are expected to use this public service, in proportion to each household's expected use of the service.

2.25 Where the LCF does not contain information about the use of a service, additional data sources are required. This additional data is used to identify characteristics associated with the use of the service and then used to derive probabilities of service use conditional on these characteristics. The cash value spent on public services is converted into an identical cash gain to households and distributed to households based on the probability that any given household uses the service.

2.26 As an example, the likelihood of an individual using a service, such as the NHS, will be influenced by factors such as the individual's age, sex, and so on. Through analysis of NHS allocations models, it is possible to estimate the relative use of the NHS by individuals of different characteristics over a given timeframe. This analysis shows, for example, that the older an adult is, the more likely he or she is to use the NHS. This analysis is then applied to the LCF data that underpins the rest of HM Treasury's distributional analysis modelling. The adjusted LCF data, therefore, then contains estimates of each individual's likelihood of using this particular public service.

2.27 Spending (both actual and for the baseline) is then allocated according to each household's relative likelihood of using the service, where the relative likelihood of use acts as a weight to allocate total spending to each household. Therefore, the spending will be skewed to those individuals and households who are most likely to use a public service over a given time period. In the example of using the NHS, above, the total public spending on this service will be skewed (but not allocated entirely) to those individuals who are estimated to be most likely to use this service over a given timeframe. The cash value spent on public services is converted into an identical cash gain to households. Impacts of changes in RDEL spending are calculated alongside tax and welfare and presented across the income distribution.

Continuous improvements to modelling and analysis

2.28 The modelling underpinning our analysis of tax, welfare and public service spending is under continuous improvement, to enable us to provide the best estimate (subject to time, resource, and data constraints) of how households are impacted by the cumulative tax, welfare and public service spending decisions made by the government. We also aim to capture the most comprehensive and up-to-date record of where government spending is directed to inform this analysis, noting this will continue to evolve as departments decide on final budget allocations. As such, the charts in Chapter 1 represent our best estimates of impacts at the time of publishing. However, whilst we expect these updates to refine our estimates slightly, we do not expect the distributional narrative to be substantively different.

2.29 Finally, the analysis shown in our charts is based on the latest available Office for Budget Responsibility forecast which is updated at every fiscal event. For these reasons, as well as those set out above, charts published at consecutive fiscal events are not directly comparable.

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