HM Treasury

Impact on households:

distributional analysis to accompany Spring Budget 2023

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Chapter 1

Distributional analysis of tax, welfare and public service spending decisions

1.1 This chapter sets out the estimated impact of changes to tax, welfare and public service spending policy 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. Chapter 2 sets out more detail on the data sources and methodology that we have followed to produce this analysis.

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

- Childcare for working parents: extend 30 free hours to children from 9 months old until they start school and increase the government funding rate for all free hours
- Pay Universal Credit childcare support upfront for parents moving into work and increase the maximum support available in Universal Credit for childcare costs
- Employment programme for disabled people and additional Work Coach Time for Incapacity Benefits claimants
- Occupational health: SME subsidy pilot scheme expansion
- Increase employment advisers in health settings
- Digital health innovations for mental health, musculoskeletal and cardiovascular conditions, and scaling up musculoskeletal support hubs

- Remove the couples Administrative Earnings Threshold (AET), additional support and conditionality for carers of young children, and increase the AET from 15 to 18 hours per week at the National Living Wage
- Lifetime Allowance (LTA): remove charge from April 2023 and abolish from April 2024
- Annual Allowance (AA): increase to £60,000 and allow Pension Input Amount aggregation between open and closed public service pension schemes from April 2023
- Money Purchase Annual Allowance (MPAA): increase to £10,000 from April 2023
- Improve and expand access to Midlife MOT
- Sector-Based Work Academy Programme (SWAPS): expansion to 80,000 starts in both 2023-24 and 2024-25 to support Returnerships
- Skills Bootcamps: expansion to 64,000 places from 2024-25 to support Returnerships
- Fuel Duty: 12 month extension to the 5p cut in rates and no RPI increase in 2023-24
- Alcohol Duty: freeze rates until August 2023 then uprate by RPI and increase Draught Relief to 9.2% for beer and cider and 23% for wine, other fermented beverages and spirits
- Energy Price Guarantee (EPG): extend the support rate at £2,500 until 30 June 2023
- Energy Bills Discount Scheme: support for Domestic Heat Network Customers on non-domestic contracts
- Changes to the Energy Price Guarantee and technical changes relating to other energy support (domestic only)
- Maintain the Universal Credit surplus earnings threshold at £2,500 in 2023-24
- Individual Savings Accounts: maintain annual subscription limit at £20,000 for 2023-24
- Starting rate limit for savings income: maintain at £5,000 for 2023-24
- Tobacco Duty: increase duty on hand rolling tobacco by an additional 4% and the minimum excise tax by an additional 1%
- Council tax precepting authorities: implications of referendum principles.

1.4 In addition, Figures 1.B. and 1.C also include the impact of measures announced from Autumn Statement 2022 onwards, while

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.

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).

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

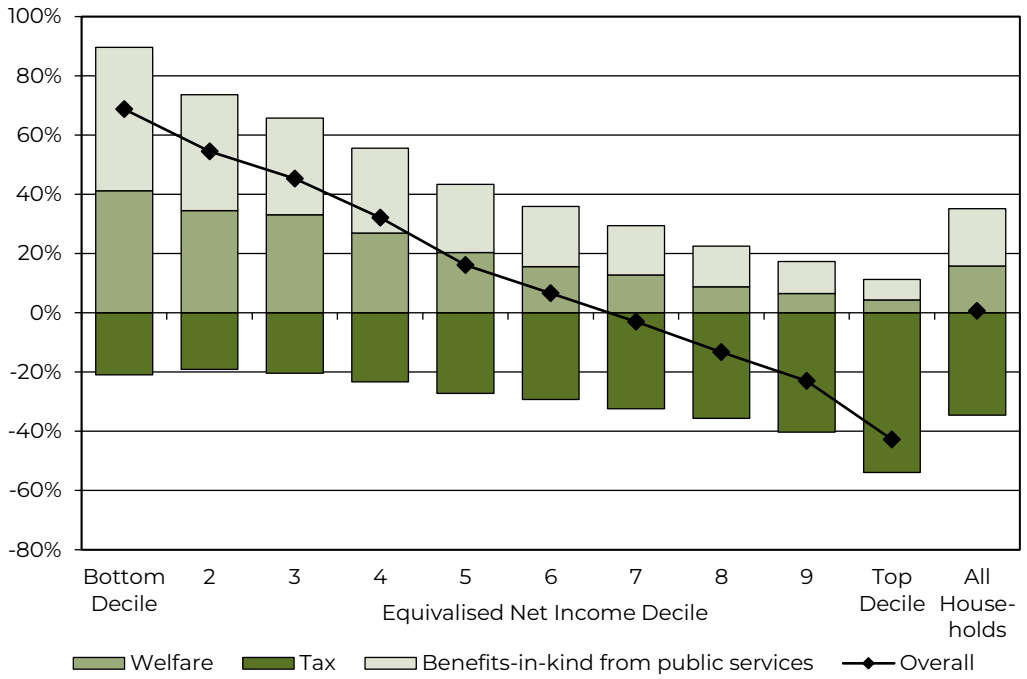
Overall level of tax, welfare and public service spending

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.[1]

[1] 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.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



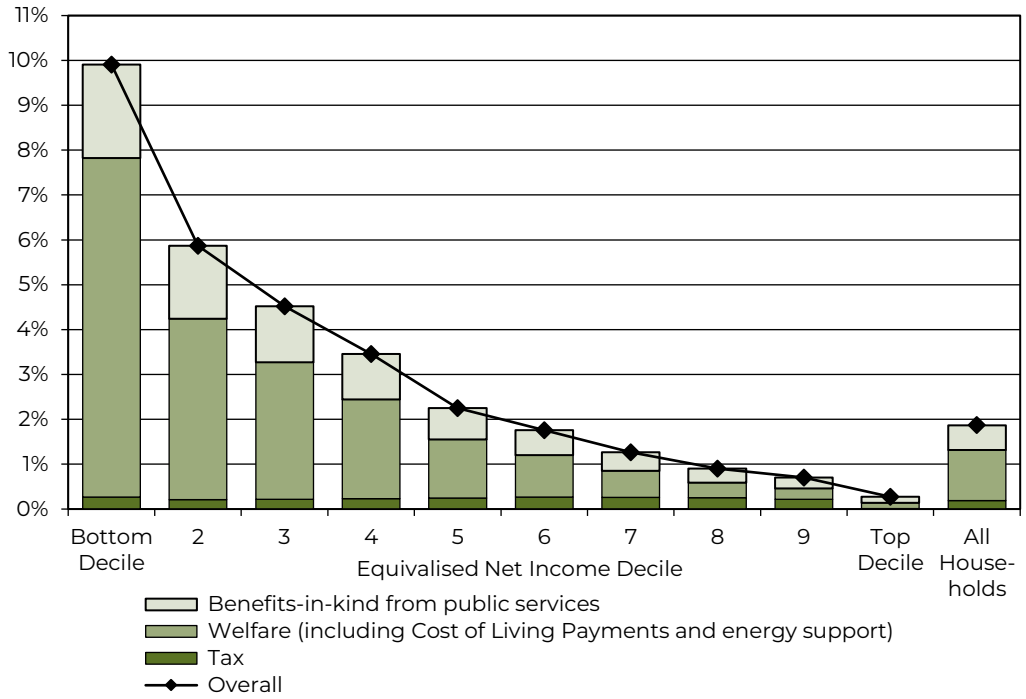
Source: HM Treasury distributional analysis model

Analysis of decisions announced from Autumn Statement 2022 onwards

1.8 Figures 1.B and 1.C set out the estimated impact of decisions announced from Autumn Statement 2022 onwards, including Spring Budget 2023, across the household income distribution in 2023-24. Only those measures set out in paragraphs 1.3 and 1.4 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 the modelled policies were not introduced.

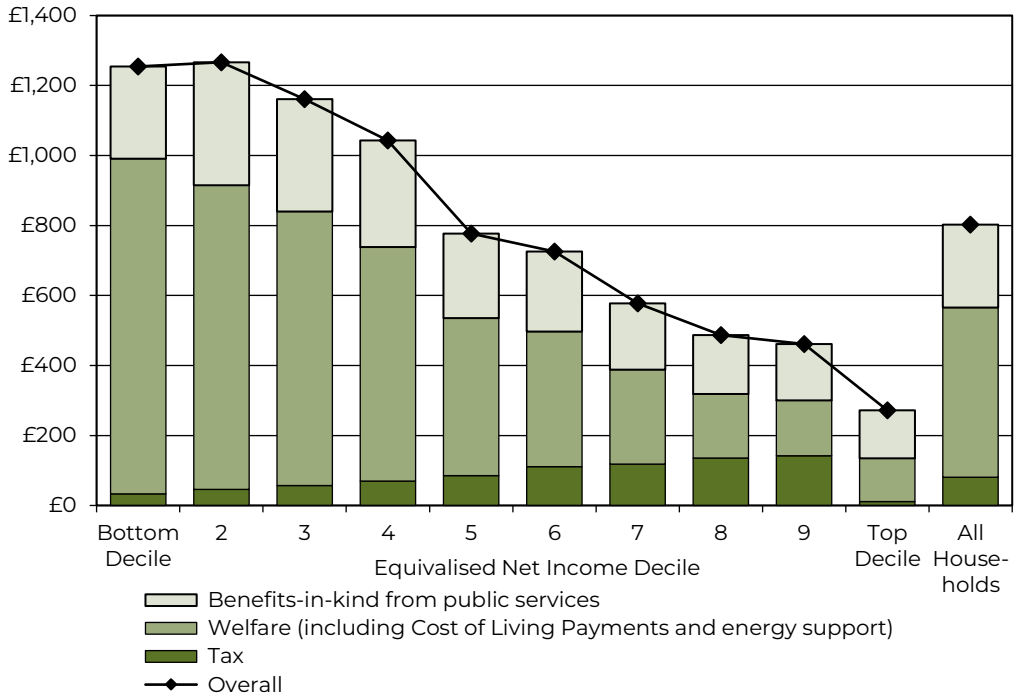
This analysis shows that, on average, households in the lowest income deciles benefit the most in cash terms and as a percentage of net income in 2023-24 as a result of government policies announced from Autumn Statement 2022 onwards, benefiting twice as much as households in the top half of the distribution.

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



Source: HM Treasury distributional analysis model

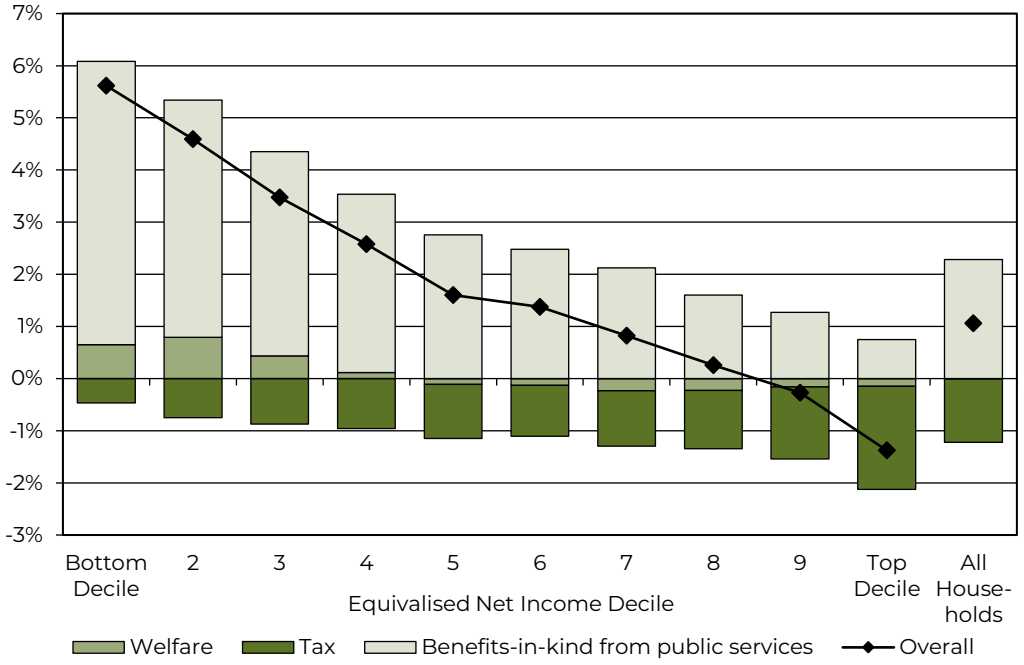
Analysis of decisions announced from Spending Round 2019 onwards

1.9 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 Spending Review 2021 spending settlements and other 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.

1.10 This analysis shows that, on average, households in the lowest income deciles benefit the most as a percentage of net income.

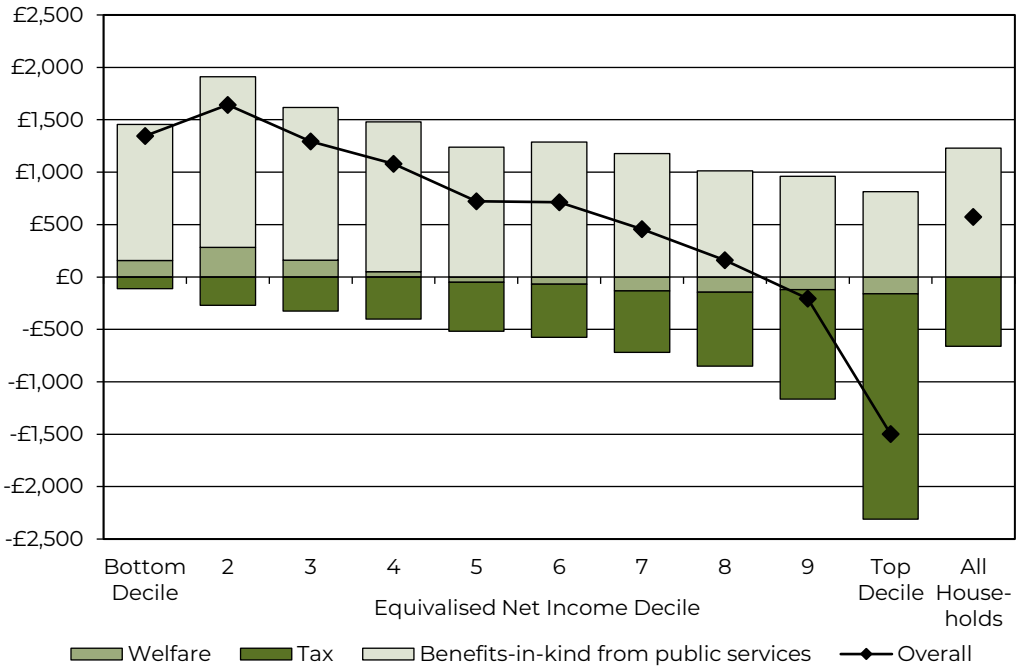
1.11 The benefits-in-kind illustrated here are based on Spending Review 2021 settlements, and spending decisions since then, that have an impact in 2024-25.

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

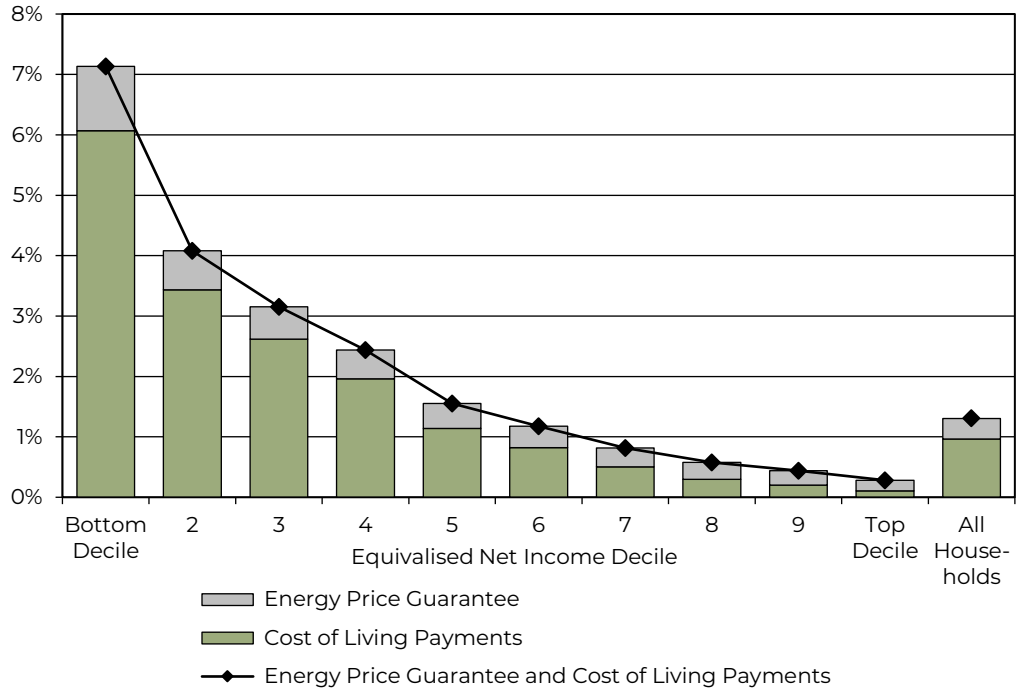


Source: HM Treasury distributional analysis model

Support to households in 2023-24 from the Energy Price Guarantee and Cost of Living Payments

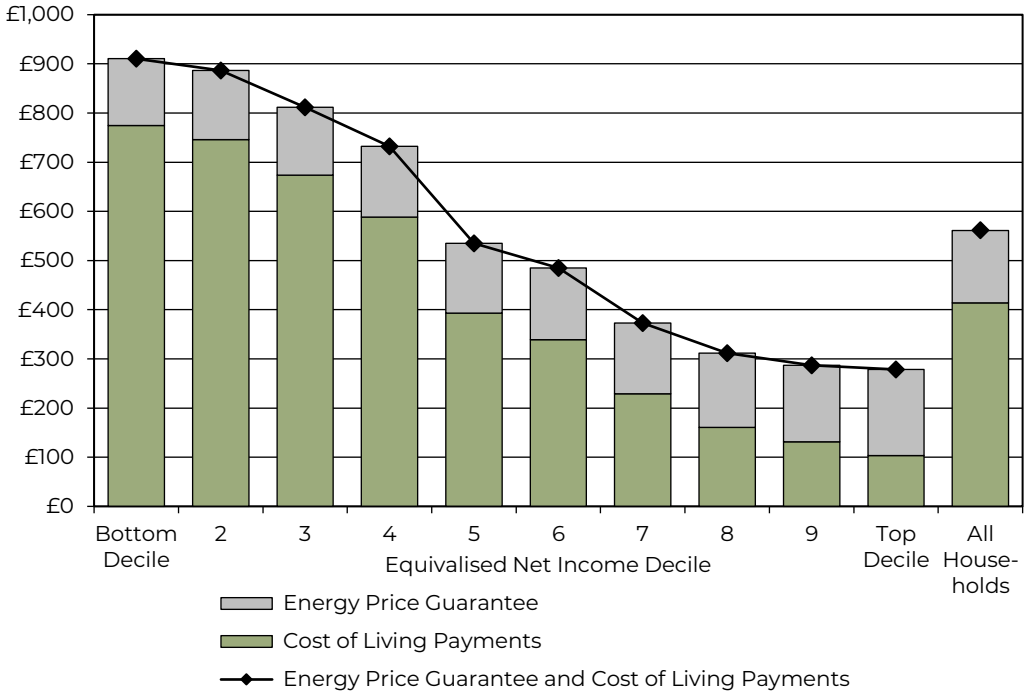
1.12 Figures 1.F and 1.G show the impact on households of government policies directly aimed at helping households with cost of living pressures in 2023-24. As previously shown in the Autumn Statement 2022 "Impact on Households" publication, the Energy Price Guarantee and Cost of Living Payments provide greater support to those households at the bottom end of the distribution than at the top, both as a percentage of net income and in cash terms.

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 to 1.G	Internal HM Treasury modelling. See 2.9 to 2.32

Table 2.B Data sources for statistics

Paragraph	Statistic	Source
2.7	Income movements	DWP, Income Dynamics: Movements between quintiles: 2010 to 2020, March 2022
2.8	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.

2.2 Figures 1.B and 1.C compare the estimated impact of tax, welfare and public services spending policy changes against a counterfactual of no tax, welfare, or public services spending policy changes from Autumn Statement 2022 onwards. This isolates the impact of all in-scope decisions announced at fiscal events since Autumn Statement 2022.

2.3 Figures 1.D and 1.E compare the estimated impact of tax, welfare, public service spending policy 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. This isolates the impact of all in-scope decisions since Spending Round 2019. 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.

2.4 Figures 1.F and 1.G show the impact on households of the Energy Price Guarantee and Cost of Living Payments to help households with cost of living pressures in 2023-24, across the household income distribution.

2.5 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
- the behavioural impacts of measures, including the gains households might see as a result of moving into work
- 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
- 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 National Insurance contributions. 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.

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

Comparing living standards between households

2.7 The analysis in this document uses household income as the measure of a household's living standard. While this is the standard measure, some households experience periods of low income temporarily, or finance their expenditure 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 by the Department for Work and Pensions (DWP) has shown that, of those surveyed in 2019-20, 60% of those in the bottom quintile in 2010-11 were in a higher income quintile in 2019-20.

2.8 Alternative approaches to approximate a household's living standard have used household expenditure. While there is a strong correlation between income and expenditure, there are many households with both low income and high expenditure (and vice versa), and approximately 20% of households in the bottom income decile are in the top half of the expenditure distribution, for example.

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.

Defining income and ranking households

2.9 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 also 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.

2.10 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.

2.11 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.

2.12 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 £27,600 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[2] [3]

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	77,300	-	116,000	159,000	198,200
Ninth decile	52,400	-	76,900	100,900	124,400
Eighth decile	41,900	-	61,500	81,800	101,500
Seventh decile	35,000	47,200	51,900	67,400	84,800
Sixth decile	30,200	44,200	44,800	59,000	70,700
Fifth decile	25,800	32,200	38,200	50,500	58,800
Fourth decile	21,700	29,000	32,600	42,400	50,900
Third decile	18,300	24,100	27,600	35,300	42,600
Second decile	15,000	20,200	23,000	29,100	34,700
Bottom decile	10,900	14,800	16,400	21,300	23,300

Source: HM Treasury distributional analysis model

Analysis of tax and welfare measures

2.13 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 Office for Budget Responsibility average earnings and inflation forecasts. The model makes no changes to the underlying demographics, employment levels or expenditure patterns in the base data.

[2] Categories with insufficient underlying sample sizes have been left blank.

[3] Cost of Living Payments not included in the figures presented here.

2.14 For Figures 1.B and 1.C, the counterfactual is a hypothetical scenario in which tax and welfare policy changes announced from Autumn Statement 2022 onwards were not implemented.

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

2.16 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.

2.17 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.

2.18 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.

2.19 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.

2.20 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.

2.21 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

2.22 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 Culture, Media and Sport, and some services delivered by local government in England.

2.23 The benefits-in-kind illustrated in Figures 1.D and 1.E are based on Spending Review 2021 settlements, and spending decisions since then, that have an impact in 2024-25. The benefits-in-kind illustrated in Figures 1.B and 1.C are based on decisions from just the former two fiscal events. The analysis does not account for spending assumptions in later years announced alongside the Autumn Statement.

2.24 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

2.25 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.

2.26 For Figures 1.D and 1.E, the analysis of public services 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 impacts presented in Figures 1.D and 1.E reflect the impact on households of all in-scope public services spending measures from Spending Round 2019 onwards.

2.27 For Figures 1.B and 1.C, the analysis of public services spending compares a policy scenario including announced measures with a baseline where those policy announcements are not implemented. Because both the baseline and scenario are in the same fiscal year, it is not necessary to account for price or population pressures on spending in these analyses.

2.28 Charts are on a UK basis, though any public services 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 – has no impact on 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.

2.29 The analysis of the benefits-in-kind provided by public service spending is, like with tax 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.

2.30 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.

2.31 As an example, the likelihood of an individual using a service, such as the National Health Service (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.

2.32 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 spending are calculated alongside tax and welfare and presented across the income distribution.

Continuous improvements to modelling and analysis

2.33 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.

2.34 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.

HM Treasury contacts

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