

# Impact on households: distributional analysis to accompany Budget 2020

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Budget 2020

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ISBN 978-1-913635-05-3  
PU2945

# Contents

Executive summary		2
Chapter 1	Trends in the distribution of household incomes	4
Chapter 2	Distributional analysis of tax, welfare and public service spending decisions at Budget 2020 and Spending Round 2019	13
Chapter 3	Data sources and methodology	18

# Executive summary

This document sets out the impact on household finances of the government's decisions at Budget 2020 and Spending Round 2019. The government has not asked the Office for Budget Responsibility (OBR) to incorporate the fiscal and economic impacts of the government's plan to tackle the economic impact of Covid-19 into their final forecast. This document takes a consistent approach with the OBR forecast, also excluding these measures. Households' living standards are affected both by the general performance of the economy and by the direct impact of government decisions. A strong economy means there are more job opportunities and wages are higher. The government's stewardship of the economy, such as through fiscal policy and the regulatory environment for businesses, influences these factors. In addition, policy decisions, for example about whether to raise or cut particular taxes, or to invest in public services, have a direct impact on household living standards.

This document is split into three sections: Chapter 1 describes recent trends in living standards, earnings, and employment; Chapter 2 estimates the direct impact of policy decisions on households' living standards; and Chapter 3 details the data sources and methodology used for this analysis. The analysis in Chapter 2 reflects both the measures announced at Spending Round 2019 and the Budget 2020 measures listed in Tables 2.1 and 1.12 of the Budget document where there is a direct, quantifiable impact on households.

The analysis in this document shows that:

- disposable household income growth between 2009-10 and 2017-18 has been strongest for those on lower and middle incomes
- employment has risen to record levels, increasing by 3.9 million since 2010, and unemployment rates have fallen in every region and nation in

the UK, with the largest falls being seen in Wales, and Yorkshire and the Humber

- growth in employment rates has overwhelmingly benefitted the poorest 20% of households, whose employment rate is now more than 9 percentage points higher than in 2009-10
- supported by the National Living Wage (NLW), the lowest earners have seen their wages grow by 11% above inflation between April 2015 and April 2019
- the proportion of jobs that are low paid has fallen in every region and nation in the UK since 2010, with the largest falls in Scotland and Wales
- on average, in 2020-21, our modelling shows households in the lowest income decile will receive over £4 in public spending for every £1 they pay in tax, while households in the highest income decile will contribute over £5 in tax for every £1 they receive in public spending
- households in each income decile are better off as a result of decisions taken at Budget 2020 and Spending Round 2019, with the poorest income deciles gaining the most as a percentage of net income

# Chapter 1

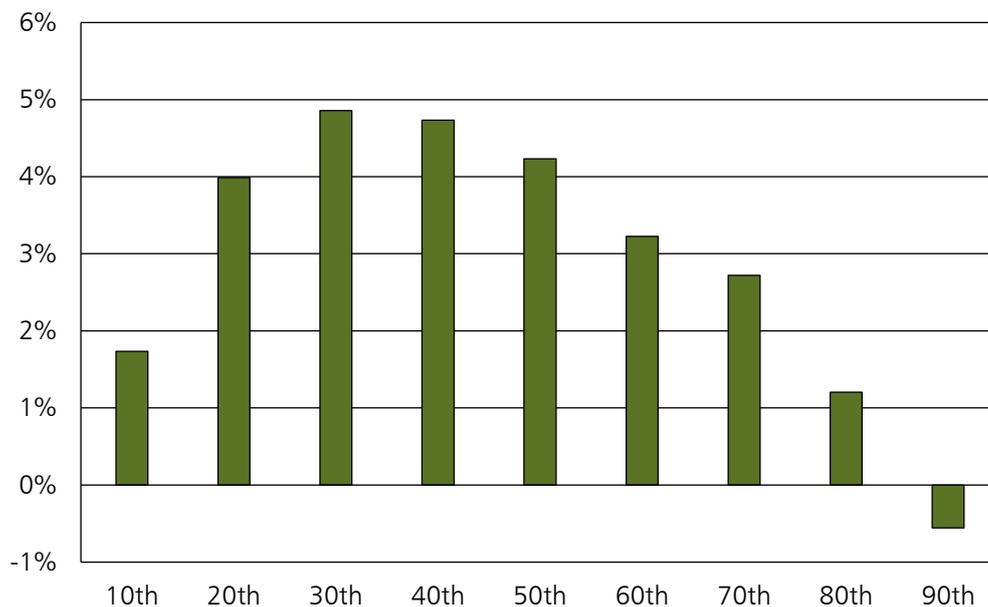
## Trends in the distribution of household incomes

- 1.1 This chapter describes recent trends in living standards and the labour market. These trends provide the context for the decisions that the government, devolved administrations and local governments have taken, and demonstrate that changes outside of fiscal policy also determine a household's standard of living.
- 1.2 Looking at the overall trend in household incomes, the analysis presented here shows that:
- disposable household income growth between 2009-10 and 2017-18 has been strongest for those on lower and middle incomes
  - employment has risen to record levels, increasing by 3.9 million since 2010, and unemployment rates have fallen in every region and nation in the UK, with the largest falls being seen in Wales, and Yorkshire and the Humber
  - growth in employment rates has overwhelmingly benefitted the poorest 20% of households, whose employment rate is now more than 9 percentage points higher than in 2009-10
- 1.3 As shown in Chart 1.A, since 2009-10, households across most of the income distribution have seen real growth in their disposable incomes.<sup>1</sup> That growth has been stronger for those on lower and middle incomes than for those on the highest incomes.

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<sup>1</sup> Disposable household incomes are net of taxes and benefits and equivalised. This means that a household's net income is adjusted to take account of the size and composition of the household.

Chart 1.A: Cumulative percentage change in equivalised real disposable household income, before housing costs, at different percentile points of the equivalised net household income distribution, 2009-10 to 2017-18

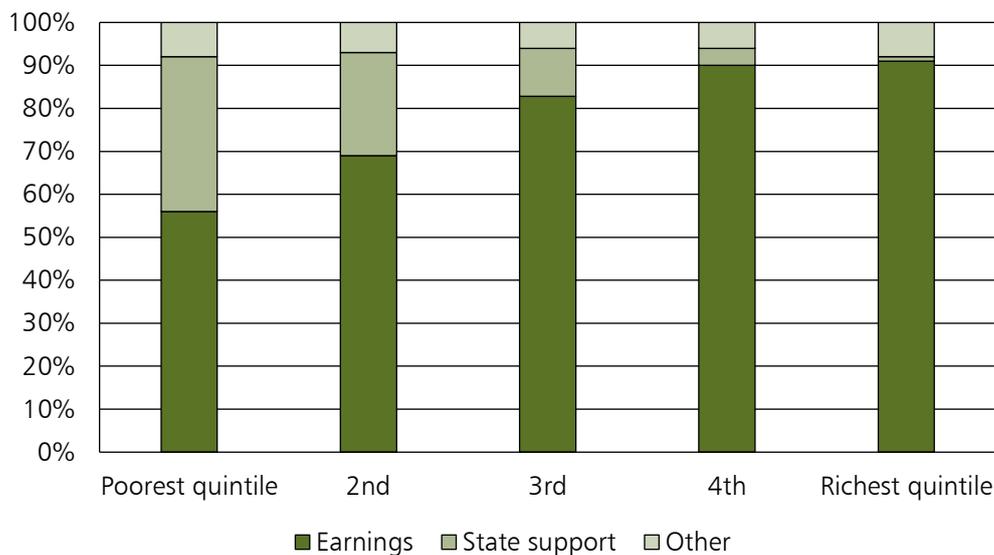


Source: *Households Below Average Income, DWP*

## Employment and earnings

- 1.4 One of the main drivers of living standards in the UK is the performance of the labour market, including the ability of working-age individuals to move into employment and increase their earnings. Chart 1.B shows the importance of earnings for the incomes of working-age households and households with children, across the income distribution.

Chart 1.B: Sources of household income by equivalised net household income quintile, before housing costs, for working-age households and households with children<sup>2</sup>



Source: *Households Below Average Income, DWP*

1.5 The UK has achieved significant employment growth:<sup>3</sup>

- the number of people in work has risen by 3.9 million since 2010 and at 32.9 million stands at a record high
- the employment rate is at 76.5% as shown in Chart 1.C, a record high
- there are over 1,000,000 fewer workless households now than in 2010
- the unemployment rate stands at 3.8%, the joint-lowest rate since 1975

1.6 Chart 1.D shows that the unemployment rate has fallen in every region and nation of the UK since 2010, with the highest falls in Wales, and Yorkshire and the Humber.

<sup>2</sup> Households are ranked based on income quintiles for the whole population.

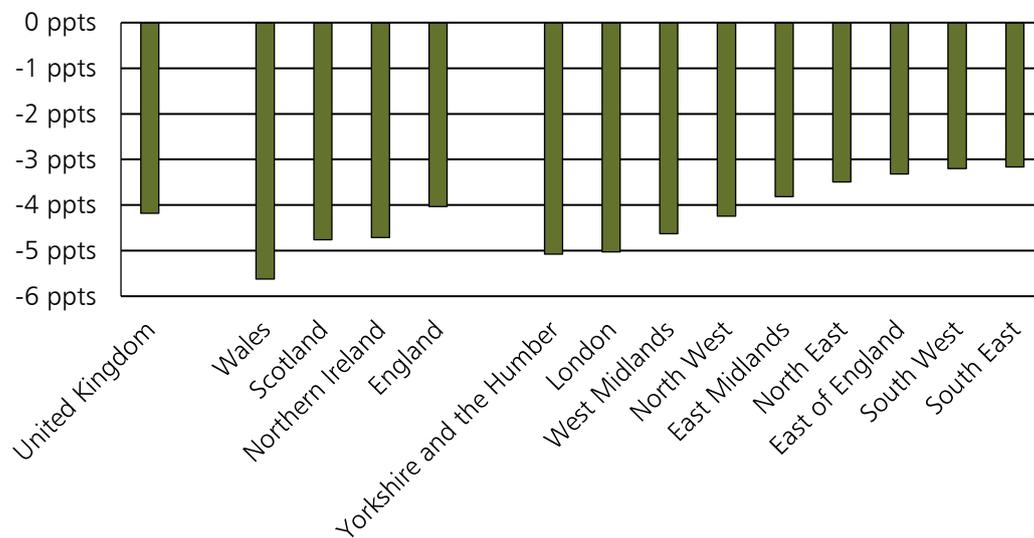
<sup>3</sup> All figures are taken from the ONS and use latest available data. Employment changes since 2010 are based on comparisons to Feb-April 2010 data. Figure on workless households compares Q4 2019 to Q4 2010.

Chart 1.C: UK employment rate (ages 16 to 64 and seasonally adjusted)



Source: Labour Force Survey, ONS

Chart 1.D: Change in unemployment rate (ages 16 years and over) by nation and region of the UK, 2010 to 2019 (seasonally adjusted)<sup>4</sup>

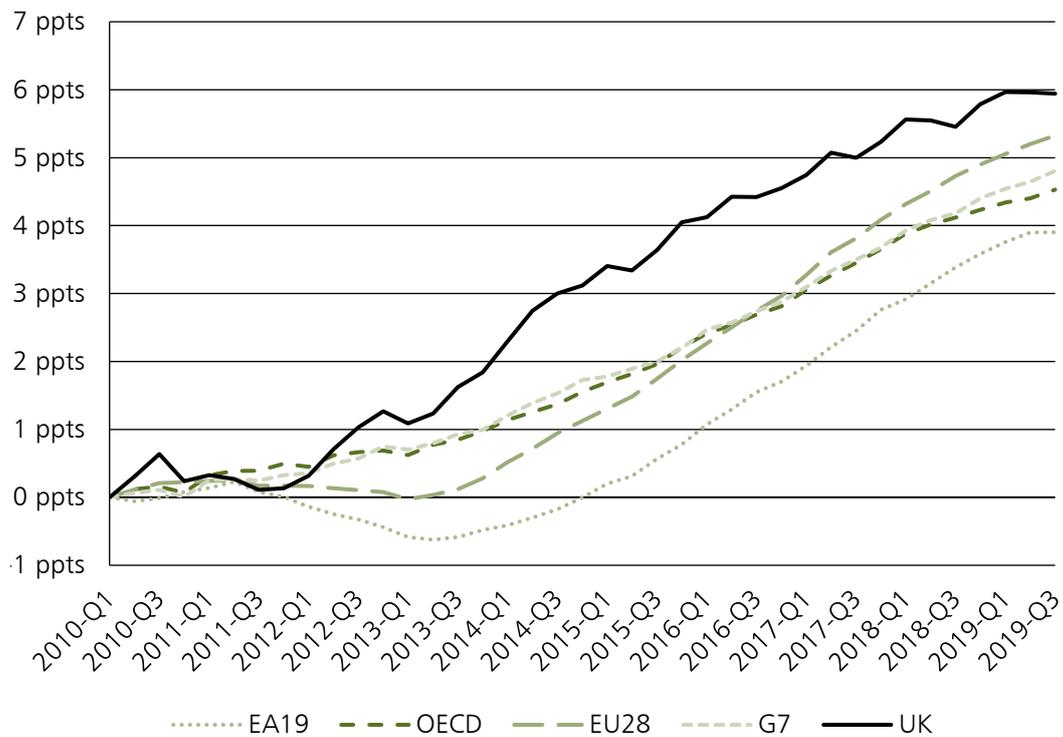


Source: Labour Force Survey, ONS

<sup>4</sup> Unemployment rate change based on comparisons between Feb-Apr 2010 and Oct-Dec 2019 data.

1.7 The UK's employment growth is strong by international standards. As shown in Chart 1.E, employment gains in the UK since 2010 have been stronger than the average in the OECD, EU, euro area (EA19) and G7.

Chart 1.E: Cumulative change in employment rates (percentage points) in the UK and different groups of countries, 2010-2019<sup>5</sup>

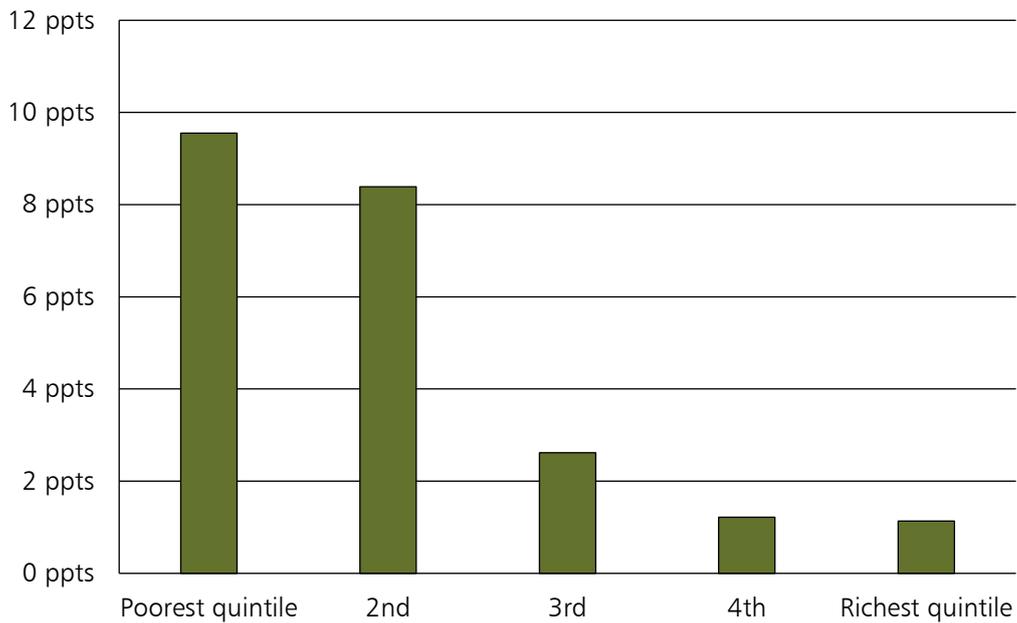


Source: OECD

1.8 Chart 1.F shows the employment rate of the poorest 20% of households is more than 9 percentage points higher than in 2009-10. This increase is greater than any other quintile of the income distribution. Chart 1.G shows single parents have seen the highest increase in employment rates among households in the bottom half of the income distribution.

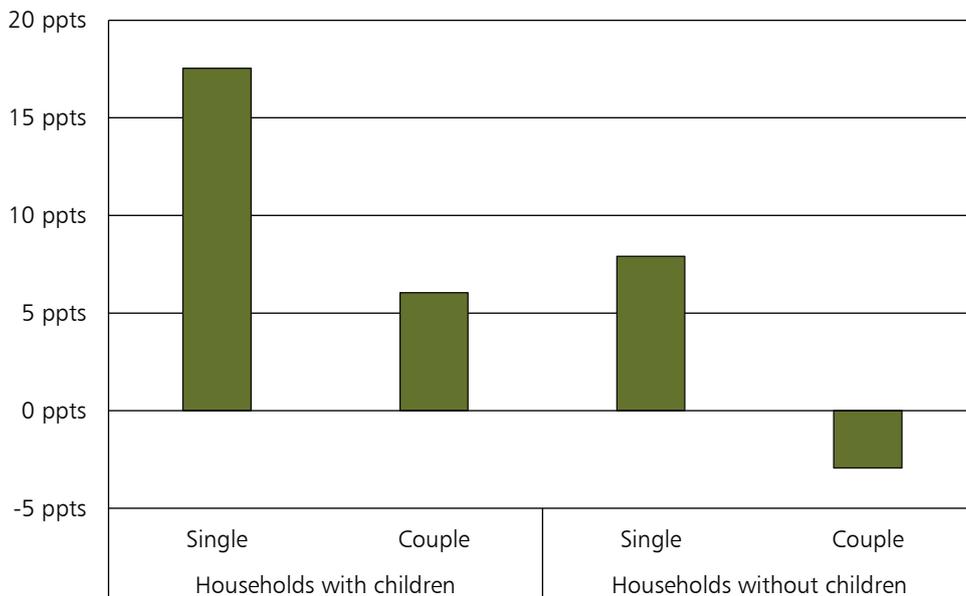
<sup>5</sup> The figures are seasonally adjusted and measured as a percentage of the working-age population (people aged 15 to 64).

Chart 1.F: Cumulative change in employment rates (percentage points) by equivalised net household income quintile, before housing costs, 2009-10 to 2017-18<sup>6</sup>



Source: *Households Below Average Income*, DWP calculations

Chart 1.G: Cumulative change in employment rates (percentage points) within the bottom half of the equivalised net household income distribution, before housing costs, by household type, 2009-10 to 2017-18<sup>7</sup>



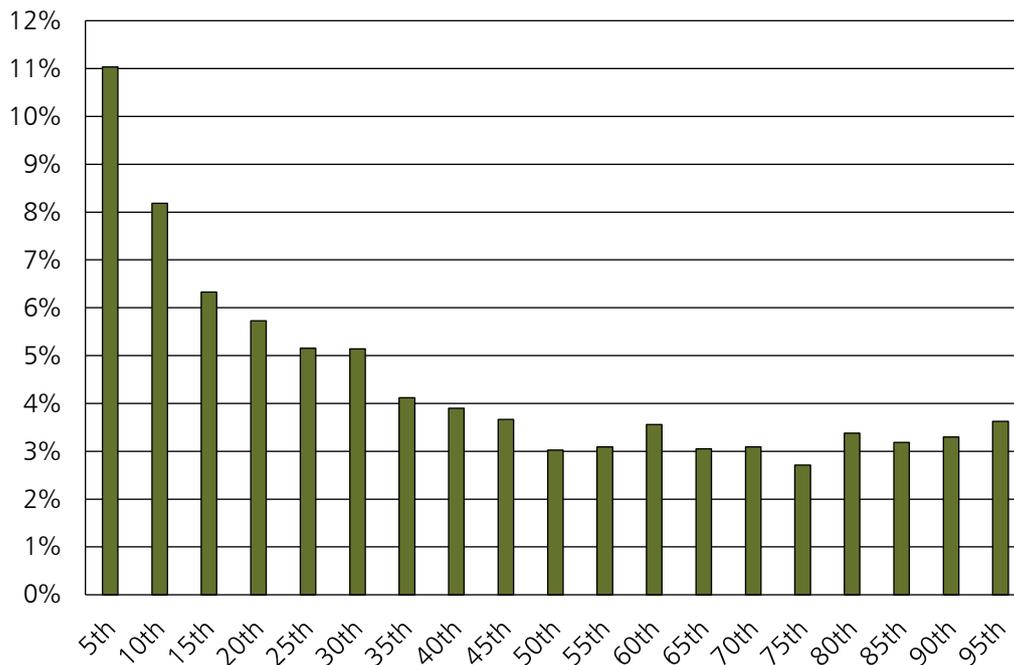
Source: *Households Below Average Income*, DWP calculations

<sup>6</sup> The analysis is based on 16-64 year old employment rates. Households are ranked based on income quintiles for the whole population.

<sup>7</sup> Employment rates are based on whether any adult is in work, for households where at least one person is of working-age (16-64 years old) and in the bottom half of the household income distribution.

1.9 Supported by the introduction of the National Living Wage (NLW) in April 2016 and its subsequent increases, earnings growth has predominantly benefitted lower earners. Chart 1.H shows that individual full-time employees at the fifth earnings percentile saw their real wages grow strongly, by 11%, in the last four years.<sup>8</sup> This is higher than at any other point across the earnings distribution.

Chart 1.H: Percentage change in individual full-time employee gross weekly real earnings across the UK, 2015 to 2019, at example percentile points

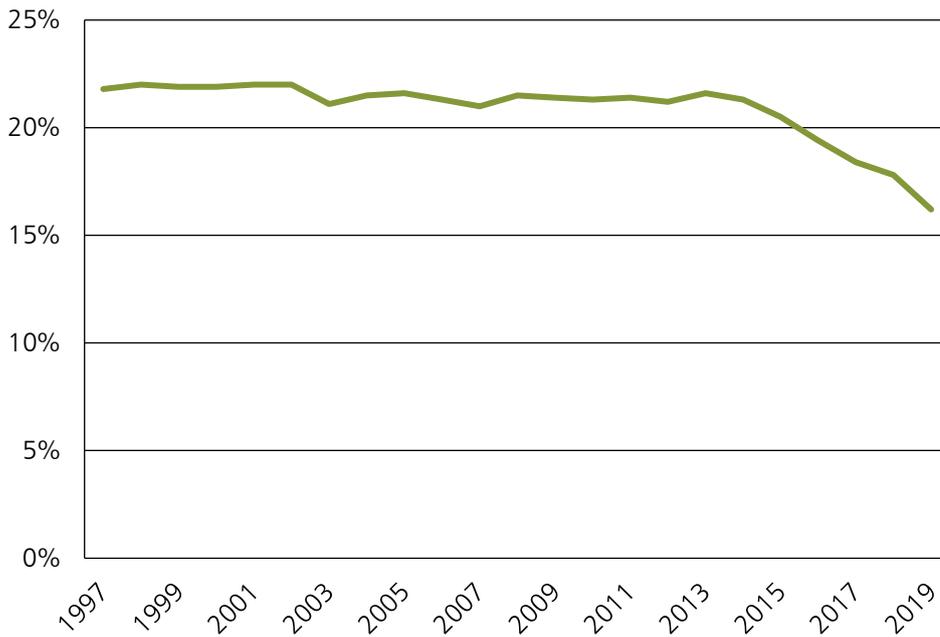


Source: HM Treasury analysis of the Annual Survey of Hours and Earnings: 2015 results and 2019 provisional results, ONS

1.10 Looking over a longer time period, Chart 1.I shows the proportion of jobs that are low paid stands at 16%, the lowest level in at least 20 years. Chart 1.J shows the proportion of jobs that are low paid has fallen in every region and nation since 2010, with the largest falls in Scotland and Wales.

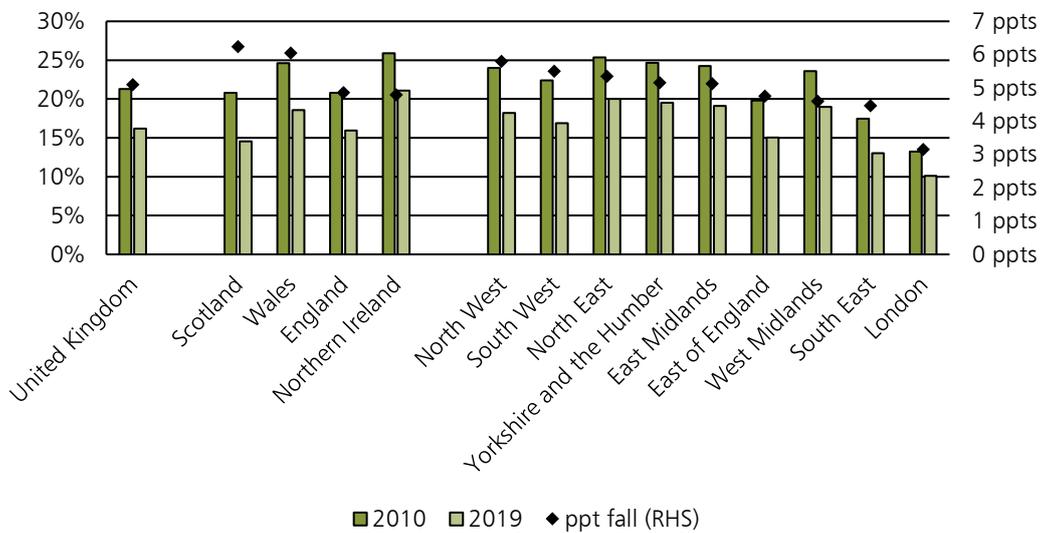
<sup>8</sup> Consistent with the definition used in 'Low and high pay in the UK: 2019', ONS.

Chart 1.I: Percentage of jobs that were low paid, 1997 to 2019<sup>9</sup>



Source: Annual Survey of Hours and Earnings: 2019 provisional results, ONS

Chart 1.J: Percentage of jobs that were low paid by nation and region, 2010 compared to 2019<sup>10</sup>



Source: HM Treasury analysis of the Annual Survey of Hours and Earnings: 2010 results and 2019 provisional results, ONS

<sup>9</sup> All employees. We use the OECD definition of low pay. The OECD define low pay as paying less than two-thirds of hourly median pay.

<sup>10</sup> Based on home government office region in the Annual Survey of Hours and Earnings data. Low pay in a given region is defined as less than two-thirds of the UK hourly median pay.

1.11 Overall, the UK's labour market has performed strongly by global standards, supporting households' standard of living across the UK. Employment has grown to record levels and every region and nation in the UK has seen a fall in the unemployment rate. Some of the strongest growth in employment has been observed amongst low-income and single-parent households in the bottom half of the income distribution. Furthermore, the growth in earnings has continued to predominantly benefit lower earners, supported by the NLW, and the proportion of jobs that are low paid has fallen across the country.

## Chapter 2

# Distributional analysis of tax, welfare and public service spending decisions at Budget 2020 and Spending Round 2019

- 2.1 This chapter sets out the impact of tax, welfare and public service spending changes announced at Budget 2020 and Spending Round 2019 that carry a direct, quantifiable impact on households. It also presents estimates of the overall level of tax and public spending in 2020-21. The government has not asked the Office for Budget Responsibility (OBR) to incorporate the fiscal and economic impacts of the government's plan to tackle the economic impact of Covid-19 into their final forecast. This document takes a consistent approach with the OBR forecast, also excluding these measures. This modelling is on a static basis and shows the effect of tax and spending policy in isolation. For this reason, it only presents some of the factors which will drive households' living standards over the next few years, and importantly does not take into account the labour market performance and wider economic impacts of government policy as highlighted in Chapter 1. The analysis presents average effects on households within each income decile, but there will be variation around this average.

### Box 2.A: Measuring household incomes

The analysis in this document uses household income as the measure of a household's standard of living. While this is the standard measure, some households experience periods of low income temporarily, or finance their standard of living through utilising wealth rather than through income. Therefore, income may not always best represent their general standard of living. Such individuals are often students, the temporarily unemployed, or the self-employed. The most recent analysis by the Department for Work and Pensions (DWP) has shown that, of those surveyed in 2016-17, 55% of those in the bottom quintile in 2010-11 were in a higher income quintile in 2016-17.

Alternative approaches have used household expenditure to approximate a household's standard of living. 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 limitations in the data, 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 3 includes the median gross income for each decile, as well as a more detailed explanation of the data sources, methodology, and the equivalisation process.

2.2 Charts 2.A to 2.C include the impact of departmental spending settlements set out at Spending Round 2019. In addition, the Budget 2020 measures included in these charts are:

- Delivering public service commitments on health, including funding for recruitment, training and retention to deliver 50,000 more nurses for the NHS, and 50 million more GP surgery appointments a year
- Immigration Health Surcharge: increase to £624 with £470 rate for children and extend to EEA nationals
- Pensions: increase annual allowance taper threshold and adjusted income limit, and reduce minimum annual allowance
- National Insurance: increase Primary Threshold and Lower Profits Limit to £9,500 in April 2020
- Fuel duty: freeze for 2020-21
- Alcohol Duty: freeze all rates for 2020-21
- VAT: zero rate e-publications
- VAT: abolish VAT for female sanitary products from January 2021
- Vehicle Excise Duty: change classification of new motorhomes from 12th March 2020
- Vehicle Excise Duty: exempt zero-emission vehicles from the expensive car supplement
- Capital Gains Tax: reduce the lifetime limit in entrepreneurs' relief to £1,000,000
- Tobacco Duty: extend RPI plus 2 percentage points escalator and additional 4 percentage points for hand rolling tobacco in 2020-21
- Universal Credit: delay surplus earnings threshold reduction by one year

- Universal Credit: additional support for claimants transferring to Pension Credit
- Universal Credit: changes to severe disability premium regulations
- Freezing the maximum tuition fee cap: 2020-21 freeze
- Entitlement to part-time maintenance loans

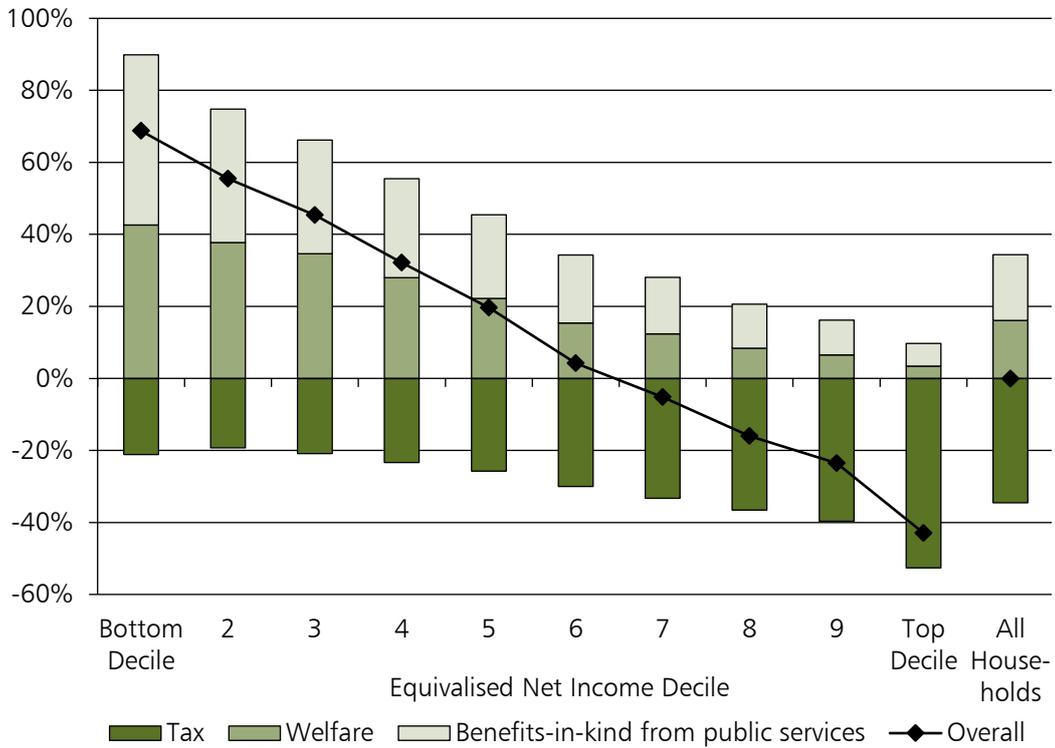
2.3 This analysis is all presented in the fiscal year 2020-21. This is because, for most departments, day-to-day spending – known as Resource Departmental Expenditure Limits (RDEL) – has only been allocated to 2020-21, and therefore it is not possible to estimate the distributional impacts of public spending beyond 2020-21.

## Overall level of tax, welfare and public service spending

2.4 Government policy continues to be highly redistributive. Chart 2.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:

- on average, households in the lowest income decile receive over £4 in public spending for every £1 they pay in tax
- the poorest 60% of households receive more in public spending than they contribute in tax

**Chart 2.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 2020-21**



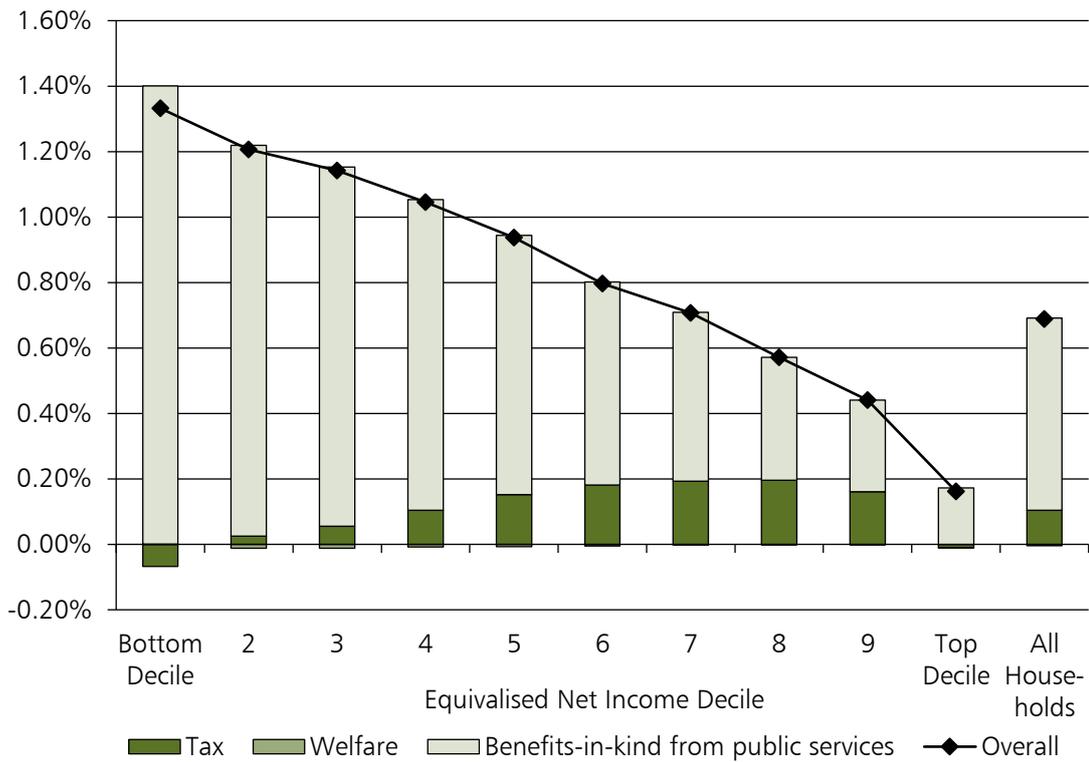
Source: HM Treasury distributional analysis model

## Analysis of decisions announced at Budget 2020 and Spending Round 2019

2.5 Charts 2.B and 2.C set out the estimated impact of decisions announced at Budget 2020 and Spending Round 2019 across the income distribution. Only those measures set out in Tables 2.1 and 1.12 of the Budget 2020 document are included in the analysis presented here. Chart 2.B shows these impacts as a percentage of net household income (including benefits-in-kind from public services), while Chart 2.C is expressed in annual cash terms. The charts show the impacts on households in 2020-21 compared to a hypothetical world in which modelled government policies announced at Budget 2020 and Spending Round 2019 were not introduced. This analysis shows that, on average, households in each income decile are better off as a result of decisions taken at Budget 2020 and Spending Round 2019, with the poorest income deciles gaining the most as a percentage of net income.

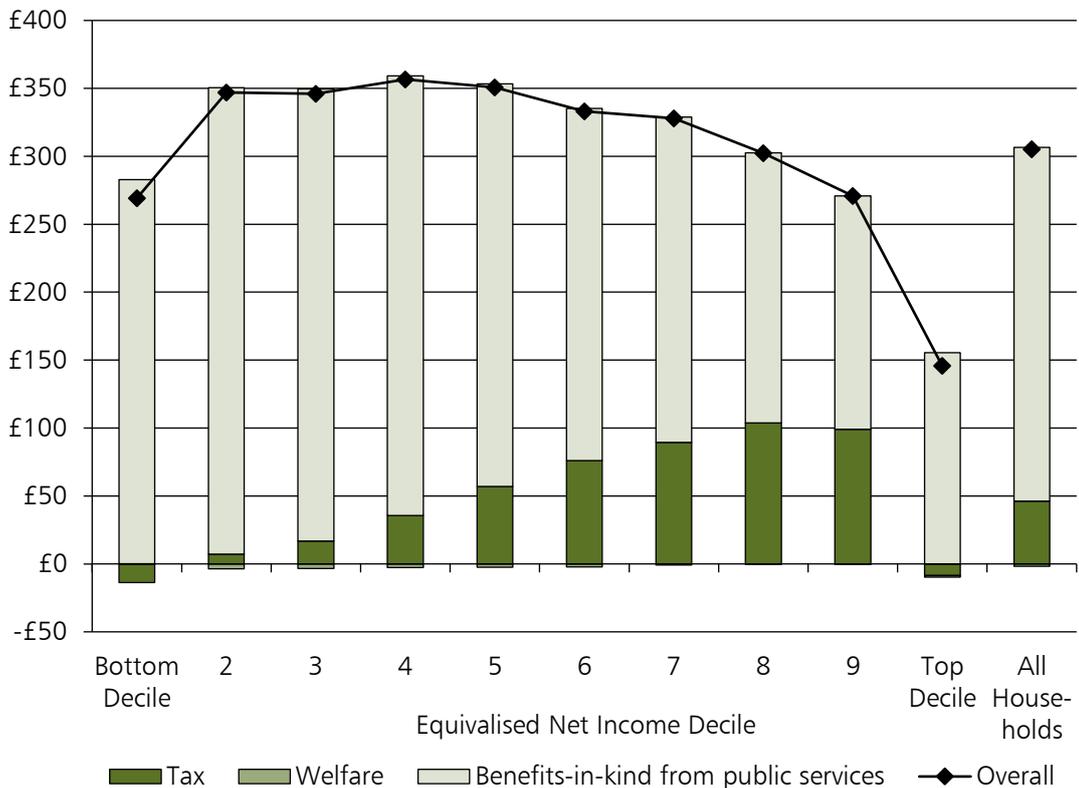
2.6 As set out in more detail in Chapter 3, Charts 2.B and 2.C only show measures with a direct impact in 2020-21 on benefit income, taxes paid, or the benefits-in-kind received through public services by UK residents. The charts exclude the impact of business taxes, changes to regulation including the National Living Wage, the impact of government borrowing, and the impact of measures in years other than 2020-21.

**Chart 2.B: Impact of decisions announced at Budget 2020 and Spending Round 2019 on households in 2020-21, as a percentage of net income, by income decile**



Source: HM Treasury distributional analysis model

**Chart 2.C: Impact of decisions announced at Budget 2020 and Spending Round 2019 on households in 2020-21, in cash terms (£ per year), by income decile**



Source: HM Treasury distributional analysis model

# Chapter 3

## Data sources and methodology

Table 3.A: Data sources for charts

Chart	Source
1.A	DWP, Households Below Average Income 2017-18
1.B	DWP, Households Below Average Income 2017-18
1.C	ONS, Labour market overview, UK: February 2020
1.D	ONS, Regional labour market statistics in the UK: February 2020
1.E	OECD Data, Employment Rates, 2019
1.F	DWP, Households Below Average Income 2017-18, DWP calculations
1.G	DWP, Households Below Average Income 2017-18, DWP calculations
1.H	Analysis of ONS, Annual Survey of Hours and Earnings, 2015 results and 2019 provisional results
1.I	ONS, Annual Survey of Hours and Earnings, 2019 provisional results
1.J	Analysis of ONS, Annual Survey of Hours and Earnings, 2010 results and 2019 provisional results
2.A-2.C	Internal HM Treasury modelling. See 3.2 to 3.8

Table 3.B: Data sources for statistics

Paragraph	Statistic	Source
1.2, 1.5	Number of people in work	ONS, Labour market overview, UK: February 2020
1.5	Employment rates	ONS, Labour market overview, UK: February 2020
1.5	Number of workless households	ONS, Working and Workless Households in the UK, March 2020
1.5	Unemployment rates	ONS, Labour market overview, UK: February 2020
Box 2.A	Income movements	DWP, Income Dynamics: Movements between quintiles: 2010-2017, March 2019
Box 2.A	Expenditure distribution	Internal HM Treasury modelling

## Constructing Charts 2.A to 2.C

### Methodology

- 3.1 Chart 2.A shows estimates of the overall level of public spending received, and tax paid, by households. Charts 2.B and 2.C compare the estimated impact of changes in tax, welfare and public service spending policy against a counterfactual of no tax and welfare policy changes, and no change to real public service spending per capita, since Spending Round 2019. Measures are only included if they have a clear first order impact on the benefit incomes, taxes paid, or the benefits-in-kind received through public services by UK residents.
- 3.2 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 corporation tax. 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 2020-21
- 3.3 A number of tax and welfare measures are also excluded from this analysis because there is insufficient data to model robustly the distributional impacts. Most small public service spending Budget measures have also been excluded for this reason.
- 3.4 Measures that are excluded can nevertheless have a tangible impact on households' living standards. The Budget 2020 tax and welfare measures which carry a direct impact on households in 2020-21, but are not captured in Charts 2.A to 2.C due to data limitations are:
- Car Fuel Benefit: increase by CPI in 2020-21
  - Savings: maintain £20,000 limit for adult ISA in 2020-21
  - Company Car Tax: temporary reduction for new cars registered from 6th April 2020

- 3.5 Throughout the analysis, individual employees are assumed to be paid at least the appropriate level of the National Minimum Wage (NMW) or National Living Wage (NLW) for 2020-21.
- 3.6 Charts 2.A to 2.C show the impact of measures in 2020-21, as most Resource Departmental Expenditure Limits (RDEL) have been allocated in the years to 2020-21 but not beyond that.
- 3.7 Charts published at consecutive fiscal events are not directly comparable, as they are based on the latest available Office for Budget Responsibility (OBR) forecast which is updated at every fiscal event.
- 3.8 HM Treasury continues to update the microsimulation modelling which underpins this analysis. The methodological changes that have been made since Budget 2018 include:
- updates to the household survey data underpinning the HM Treasury distributional analysis models
  - improvements to the modelling of public service spending, to account better for the impact of population pressures on public service spending received by households
  - updates in line with the OBR's latest forecast

## Defining income and ranking households

- 3.9 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 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
- 3.10 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.

- 3.11 Table 3.C below shows 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 it is easier to understand because many people think about their incomes or salaries in gross rather than net terms.
- 3.12 Table 3.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 £22,900 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 3.C: Median gross income for each decile (£ per year, 2020-21) for different household compositions<sup>1</sup>**

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	67,600	-	98,800	134,100	160,200
Ninth decile	45,100	-	66,900	83,900	107,300
Eighth decile	35,800	-	52,900	70,900	86,600
Seventh decile	29,800	41,400	44,100	58,100	71,900
Sixth decile	25,500	34,600	37,500	49,900	60,000
Fifth decile	21,200	28,000	31,300	41,800	49,800
Fourth decile	17,800	22,900	26,900	35,100	42,300
Third decile	15,100	20,300	22,900	30,100	35,300
Second decile	12,500	17,100	19,200	23,400	28,300
Bottom decile	9,300	12,200	14,200	18,100	20,000

Source: HM Treasury distributional analysis model

## Analysis of tax and welfare measures

- 3.13 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' 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

<sup>1</sup> Categories with insufficient underlying sample sizes have been left blank.

2014-15 to 2016-17. 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.

- 3.14 For Charts 2.B and 2.C, the counterfactual for tax and welfare decisions is a hypothetical scenario in which policy changes announced at or after Spending Round 2019 were not implemented.
- 3.15 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.
- 3.16 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.
- 3.17 Within the tax system, the main taxes microsimulated in this analysis are: Income Tax, employee National Insurance contributions, Council Tax, VAT, Insurance Premium Tax, Fuel Duty, Alcohol Duty, Tobacco Duty, Stamp Duty Land Tax, and Air Passenger Duty.
- 3.18 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, Universal Credit, Child Benefit, Disability Living Allowance, Personal Independence Payment and Tax-Free Childcare.
- 3.19 As we are unable to model robustly the impact of partially rolled out Universal Credit in IGOTM, we have assumed throughout the analysis that Universal Credit has been fully rolled out and claimants are no longer claiming benefits under the older legacy system.
- 3.20 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

- 3.21 The analysis of public service spending only includes spending on frontline public services with a direct benefit to households. This covers the majority of services provided by the Department of Health and Social Care, the Department for Education, the Department for Work and Pensions, the

Ministry of Housing, Communities and Local Government, the Department for Transport, the Ministry of Justice, and the Department for Culture, Media and Sport.

- 3.22 The analysis excludes:
- administrative spending
  - capital spending, and the depreciation of capital assets
  - spending funded through the Reserve
  - changes to public sector pay and public service pensions policy
  - spending on public goods, because it is not possible to identify the direct benefits from these areas of spending for specific households
- 3.23 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.
- 3.24 For Charts 2.B and 2.C, the analysis of RDEL spending compares forecast spending in 2020-21 to a baseline of actual spending in 2019-20, projected to 2020-21 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 Charts 2.B and 2.C reflect the impact on households of both Spending Round 2019 settlements, as well as RDEL measures announced at Budget 2020.
- 3.25 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.
- 3.26 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.
- 3.27 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.

- 3.28 As an example, the likelihood of an individual using a service, such as visiting a GP, will be influenced by factors such as the individual's age, sex, level of income, family composition, and so on. Through regression analysis of ONS surveys, it is possible to estimate how strongly these factors affect the likelihood of an individual visiting a GP over a given timeframe. This regression analysis shows, for example, that the older an adult is, the more likely he or she is to visit a GP. The regression model estimated on ONS survey data 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.
- 3.29 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 individual households. 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 visiting a GP 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 time period. 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.

## **HM Treasury contacts**

This document can be downloaded from  
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