

The impact of the minimum wage on household incomes: an analysis using data from the UK Family Resources Survey

FINAL REPORT

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Executive summary

Introduction

This is the final report from the Low Pay Commission research project LPC 2024/02 “Impact of the minimum wage on household incomes”. The project looks at the relationship between increases in the National Minimum Wage (NMW) rates – the National Living Wage (NLW) for employees aged 21 and over, and the NMW rates for 18 to 20-year-olds and 16 and 17-year-olds – and increases in net incomes for households. The project ran from April to November 2025 and was conducted by Landman Economics.

Methodology

This project uses data from the 2023/24 UK Family Resources Survey (FRS) running on the Landman Economics Tax-Transfer Model (a microsimulation model of the UK tax and benefit system) to estimate changes in household net incomes which arise from changes in gross earnings for employees covered by the NMW and NLW. The FRS tends to underestimate hourly wages for employees in the survey due to measurement error. To correct this and improve the accuracy of the analysis, the analysis in this report uses hourly earnings data from the Annual Survey of Hours and Earnings (ASHE) to adjust the hourly earnings data in the FRS so that they more accurately reflect actual hourly earnings for employees in the UK. The modelling uprates earnings and other incomes in the FRS to forecast levels for the 2025/26 tax year and takes payments of income tax and employee National Insurance Contributions into account as well as Universal Credit and the taper on earned incomes for individuals and families in receipt of Universal Credit in the FRS dataset.

Results

The characteristics of people earning at NMW levels

Employees paid at NMW or NLW are mainly – but not entirely – located in the lowest seven deciles of the household income distribution. If income deciles are redefined to exclude households with no-one in paid work, there is a clear gradient whereby minimum wage employees are most likely to be located in the bottom income decile, with the proportion of NMW/NLW employees in each decile falling as we go up the income distribution. Employees in the lower reaches of the income distribution are also much likely to be paid at NMW/NLW than employees higher up the income distribution.

In terms of characteristics associated with being paid at NMW/NLW, employees are particularly likely to be paid at minimum wage levels if aged under 21, female, and/or

if they are secondary earners in the main benefit unit in the household (i.e. a second earner with lower earnings than the main earner), or if they are an employee in a second or third benefit unit in the household (e.g. adult children living with their parents). However, employees in benefit units with only one earner are more likely to be paid at NMW/NLW than employees in benefit units with two earners. Primary earners paid at NMW/NLW are more likely to be located in the bottom three deciles of the income distribution, whereas secondary earners and earners in other benefit units are more likely to be higher up the income distribution.

Part-time employees are much more likely to be paid at NMW/NLW levels than full-time employees. The occupations with the highest number of NLW/NMW employees – and also where employees are most likely to be paid at NMW/NLW – are customer services, caring, leisure and service occupations and elementary occupations.

Lone parents and couple pensioners are the benefit unit types where employees are most likely to be paid at NMW/NLW. Employees in benefit units claiming Universal Credit are more than twice as likely to be paid at NMW/NLW levels than non-claimants. For lone parents, the proportion of minimum wage employees claiming UC is almost 80 per cent.

Employees in London are much less likely to be paid at NMW/NLW than those in other regions of the UK. Employees in households who are tenants – either social renters or private renters – are significantly more likely to be paid at NMW/NLW than owner-occupiers.

Coverage and spillovers

This report models the potential impact of *spillovers* arising from minimum wage increases, where employees paid above the minimum wage receive wage increases that keep them above the minimum wage level after a rise in the NLW and NMW. This happens, for example, because employers want to preserve pay differentials for workers on higher pay grades.

If spillover effects are not taken into account then the results show a very large increase in the number of employees paid at NMW/NLW in response to minimum wage increases of 4% or above. This is mainly due to the density of the wage distribution above the current NMW/NLW levels. A 10% increase in the NMW and NLW nearly doubles the number of employees covered, while a 20% increase more than triples coverage. When spillovers are taken into account, the forecast increases in coverage are much more modest. Coverage of the minimum wage is projected to rise from 8.5% of employees in the April 2025 baseline to 9.2% for a 5% increase, to 11.3% for a 10% increase and to just under 17% for a 20% increase.

Distributional effects of minimum wage increases

Overall, the definition of household income deciles – whether the deciles include all households, or exclude households with no-one in paid work – is very important when assessing the distributional impact of increases in the National Minimum Wage and National Living Wage. The impacts of minimum wage increases look much more progressive if non-working households are excluded from the analysis. However, the pattern of gains across the all-household distribution remains important when we are thinking about the impact on the very poorest households, as in the analysis of poverty later in the report.

The progressiveness of increases in the NMW and NLW depends crucially on what type of households we are interested in. Their impact across all households is most relevant for considering their effect on poverty or the very poorest households. On the other hand, focussing on the impact on working households does a better job at isolating those who might be affected and arguably provides a more like-for-like comparison between households. Using the all-household distribution, the gains from minimum wage increases in weekly cash terms have an “inverse U shape” with the largest gains in the middle of the income distribution. The gains look more progressive as a percentage of net income or when non-working households are excluded from the decile definition. By comparison, the choice of BHC or AHC income for the distributional analysis does not make a huge amount of difference to the results.

The use of breakdown variables other than household income decile to analyse the distributional effects of increases in the NMW and NLW provides some useful additional analytical results. For example, the analysis by average age of adults in the primary benefit unit shows that the largest gains (in percentage terms) from a 10 per cent minimum wage increase are for primary benefit units with average age 21 to 29, followed by 18 to 20-year olds.

By composition of primary benefit unit, the largest cash impacts (including spillovers) are for couples with no children, with the smallest for lone parents. However, when percentage impacts are considered, the largest impacts are for single adults with no children and lone parents. This result largely reflects the lower average incomes of households where the primary benefit unit is a single adult (plus dependent children if applicable) compared to households where the primary benefit unit is a couple.

The distributional analysis of the effects of increasing the NMW rate for employees aged under 21 to the main NLW rate for employees aged 21 and over show that the distributional effects at household level are quite different to an across-the-board increase. This is largely due to the fact that employees aged under 21 who earn minimum wage are more likely to be in the middle-to-upper reaches of the income distribution than those aged 21 and over, largely because many under-21s are in secondary benefit units in households where the primary benefit unit (often their parents) has higher net incomes than they do.

Poverty and inequality

This report analyses the impact on minimum wage increases on estimated poverty and inequality rates for the FRS sample. The simulated impact of increases in the NMW and NLW on poverty and inequality measures is very small for increases of between 1% and 5%. For minimum wage increases of 10%, 15% or 20% the impacts on poverty and inequality are slightly larger, but remain fairly small. This section explores the reasons why the impacts are so small.

For children, a reduction in poverty rates of 0.7 percentage points arising from a 20 per cent increase in the minimum wage (using the 60% AHC relative poverty measure) is equivalent to just over 100,000 children being moved out of poverty. For comparison, the abolition of the 2-child limit for Universal Credit announced in the November 2025 Budget is forecast to lift 450,000 children out of poverty (Department for Work and Pensions, 2025b). So the Universal Credit measure has a bigger impact on poverty, but it is far more targeted on families in poverty than the NMW is.

Analysis of the uprated 2023/24 FRS data shows that only around one-fifth of children in poverty (using the relative BHC or AHC poverty measures) are in households where anyone earns at NMW/NLW in the 2025/26 baseline. For working age adults, only 9% of those in poverty are earning at NMW/NLW and for pensioners the equivalent figure is only 1% (again, using the relative BHC or AHC poverty measures). This means that the extent to which even large increases in the NMW can result in substantial reductions in poverty is quite limited. For *relative* poverty there is the additional complication that increases in the NMW and NLW can raise median incomes. For pensioners (very few of whom are in work and earning at NMW/NLW levels), the increase in the median income arising from NMW/NLW increases of 10% or more actually *increases* relative pensioner poverty. This is not the case for children and working age adults, however.

Looking specifically at households with at least one person earning NMW or NLW, using the AHC relative poverty measure around 850,000 children (around 40% of children in minimum wage households) are in poverty in the 2025/26 baseline. We estimate that a 20% increase in the NMW and NLW would lift around 135,000 children in these households out of poverty – a decrease of around 7 percentage points.

The main reason that the impact of NMW and NLW increases on inequality is so small has to do with the findings of Figure 7.1 and 7.2 in Chapter 7 (the weekly impacts on net income of minimum wage increases of between 1% and 20% in cash terms). Figures 7.1 and 7.2 show that the cash impacts are largest in the middle of the income distribution rather than at the bottom of the income distribution, using a definition of deciles which includes all households (which is the relevant definition when considering changes in inequality across the whole household income

distribution). While the average cash impacts of minimum wage increases are larger for the poorest deciles than for the richest deciles, the difference between the impacts at both ends of the income distribution is relatively small. This means that increases in the NMW and NLW have only a relatively minor impact on measured inequality of net incomes.

Marginal deduction rates and gross and net income gains

The majority of employees paid at NMW/NLW in the 2025/26 baseline either have gross earnings below the income tax personal allowance (and equivalent for employee National Insurance Contributions), or are paying basic rate income tax (20%) and the standard rate of employee NICs (8%). There are however a significant minority of NMW/NLW employees (around 15%) claiming UC and subject to much higher marginal deduction rates (MDRs) due to the net income taper of 55%. There is essentially a bifurcation between a large group of NMW/NLW employees with relatively low MDRs and a small group with relatively high MDRs.¹ (This is discounting the very small sample on higher income tax rates due to very long hours of work per week or income from other sources).

Looking at the gross and net gains and the distribution of MDRs arising from a 10% increase in the NMW and NLW, the pattern of net gains does not look that different to the pattern of gross gains. Average MDRs for minimum wage earners by decile are slightly higher in deciles 2 to 5 than for other deciles (using income deciles which include all households, including non-working households) but the difference is not that large – only about 7 percentage points higher in decile 2 than in deciles 6 to 9. The distribution of MDRs *within* each decile shows much more variation than the average MDRs across each decile, due to the net income taper for Universal Credit recipients.

¹ In reality, the group with high MDRs may be larger due to the underreporting of benefit receipt in the FRS; however as it is not known who doesn't report we can't determine whether or not they would be on the taper.

1 Introduction

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The structure of this report is as follows. Chapters 2 through 4 provide the background and methodology. Chapter 2 sets out the context and objectives for the research project. Chapter 3 explains the methodology used for the analysis of the impact of the minimum wage on household incomes. Chapter 4 gives details of the procedure used to recalibrate the hourly earnings data from the UK Family Resources Survey so that they align more closely with the Annual Survey of Hours and Earnings.

Chapters 5 through 11 present the results from the analysis. Chapter 5 presents descriptive statistics regarding the distribution of minimum wage workers across the household income distribution and according to various individual, family and household characteristics. This analysis uses data from the Family Resources Survey and so may differ from analysis using other data sources.

From Chapter 6 onwards, we look at the impact of increases in the minimum wage. Chapter 6 assesses the effects of increases in the NMW and NLW on the number of workers paid at minimum wage levels, taking account of ‘spillover effects’ on the wages of employees paid above the minimum wage. Chapter 7 presents results on the distributional effects of increases in the NMW and NLW according to household net income decile. Chapter 8 presents distributional results for the impact of increases in the NMW and NLW using a range of other household-level breakdown variables (for example the average age of adults in the primary benefit unit of the household, and housing tenure). Chapter 9 shows the impact of reducing the age of entitlement to the main National Living Wage rate to those aged 18 and over or 16 and over.

Chapter 10 analyses the effect of increases in the NMW and NLW on the number of children, working age adults and pensioners in poverty in the UK, as well as the impacts of minimum wage increases on inequality.

To understand the pattern of gains from NLW/NMW increases, it is important to distinguish between gross and net impact. Chapter 11 analyses the marginal deduction rates for individuals who are paid at NMW or NLW levels – including income tax and employee National Insurance contributions as well as Universal Credit.

Chapters 12 and 13 conclude. Chapter 12 discusses the results from this report in the context of previous research on the impact of increases in the National Minimum Wage and National Living Wage in the UK in recent years. Finally, Chapter 13 indicates possible directions for future work on the distributional effects of the minimum wage and minimum wage increases.

2 Context and objectives

2.1 Context

The LPC has an ongoing remit to monitor the operation of the National Minimum Wage (NMW) at all age levels, including the National Living Wage (NLW) for employees aged 21 and over. An important aspect of the impact of the NMW/NLW² is its overall distributional impact on household incomes.

This research project looks at the relationship between increases in gross earnings for employees covered by the NMW/NLW and increases in net incomes for households. The relationship between increases in the NMW/NLW and the distribution of gross earnings is relatively straightforward. Assuming that:

- (i) NMW/NLW rates increase faster than average earnings growth;
- (ii) there is not an increase in the number of employers paying employees (illegally) below NMW/NLW rates; and
- (iii) that any spillover effects from the increase in NMW/NLW rates are not sufficiently large to lead to expansion of the wage distribution above NMW/NLW levels,

an increase in the NMW/NLW should compress the hourly earnings distribution at the lower end, and reduce inequality in hourly earnings in the lower half of the distribution.

By contrast, the relationship between increases in the NMW/NLW and the distribution of net household incomes is more complicated, for several reasons:

1. For most workers, the increase in net income arising from the NMW/NLW will be lower than the increase in gross earnings because of the income tax and employee National Insurance Contributions (NICs) schedules. For example, for workers in England, Wales or Northern Ireland³ earning above the income

² The expression NMW/NLW is used as a summary term for “National Minimum Wage, including National Living Wage” in this report.

³ Scotland has a more complex marginal rate structure for income tax below the higher rate threshold, with 19%, 20% and 21% rates.

tax personal allowance threshold and below the higher rate threshold⁴, the marginal direct tax rate is 28% - based on a 20% income tax rate plus 8% employee NICs. Take-home pay increases by 72 pence for each extra £1 of weekly gross earnings.

2. For workers in benefit units who are claiming Universal Credit or legacy tax credits and means-tested benefits, the marginal deduction rate is likely to be a lot higher. For example, Universal Credit (UC) has a taper rate of 55% on net earnings after income tax and employee NICs (above the monthly work allowance where applicable). For someone on the UC taper and paying a marginal direct tax rate of 28%, this means that just under 68 pence⁵ out of every additional pound earned is returned to the Exchequer (through increased tax and/or reduced UC), with the worker keeping around 32 pence for each extra £1 of weekly gross earnings. Hence the net gain from an increase in the NMW is much lower than the gross gain for people in this group.
3. Not all workers covered by the NMW are in the lower reaches of the income distribution. This is for two reasons. Firstly, the income distribution contains many households with particularly low net incomes (for example working age households with no-one working and households with self-employed adults, many of whom earn less than the equivalent NMW/NLW rate⁶). Most households with workers earning at NMW/NLW levels have higher net incomes than these two groups. Secondly, some people covered by the minimum wage are in households with other adults on high incomes (e.g. secondary earners in households where the primary earner is earning above NMW levels).
4. A household's position in the income distribution (as measured using the UK Government's official definition of net income in its Households Below Average Income statistical release) depends on the household's equivalised income, which controls for household size (i.e. the number of adults and children in the household). This means that a household with two adults working a combined total of (e.g.) 60 hours per week at NMW levels with two children would be lower down the net income distribution than a household with adults earning the same gross amount but no children.
5. Household incomes are measured in weekly (or annual) terms whereas the NMW is specified in hourly terms. This means that the impact on household incomes will depend on the hours worked by workers earning the NMW, as well as the hourly wage rate.

⁴ The current income tax personal allowance threshold is £12,570 per year, while the higher rate income tax threshold (in England, Wales and Northern Ireland) is £50,270 per year (expressed in terms of total gross income).

⁵ Calculated as the 28 pence combined income tax and employee NICs rate, plus a reduction in Universal Credit of 39.6 pence (which is 55 per cent of the remaining 72 pence increase in net income).

⁶ For example, recent analysis by Landman Economics for the TUC showed that just under 2 million self-employed workers earned less than two-thirds of the median wage in hourly terms (TUC, 2025).

2.2 Research requirements

Because of the complexity of the relationship between gross earnings and net incomes it is essential to use tax-benefit microsimulation modelling to analyse the relationship. This requires household survey data with information on individual earnings and employment as well as household demographic information necessary to model payments of income tax and NICs accurately. The dataset also needs to have information on which benefit units are claiming UC or legacy tax credits (as some families who are eligible do not claim). Additionally, the dataset needs to be able to accurately identify employees being paid at NMW/NLW levels; the hourly wage information in the dataset needs to be accurate (or at the least, there needs to be an econometric strategy to adjust the measured hourly wages in the data to make them more accurate). I discuss tax-benefit modelling, hourly wage adjustment and the most suitable datasets in detail in Chapter 3 of this report.

The policy context for this research is crucial. If the NMW/NLW increases faster than average earnings, there are three possible questions arising from the changes in the income distribution that may be of interest to policymakers:

1. Do increases in the NMW/NLW reduce inequalities in household income, and if so, to what extent?
2. Do increases in the NMW reduce cross-sectional poverty (measured using either absolute or relative income poverty definitions)?
3. What is the impact of increases in the NMW on persistent poverty (looking across a number of years)?

There is also a possible fourth question regarding the potential employment impacts of increases in the NMW/NLW. I assume in this report that employment effects of minimum wage increases are negligible and can be ignored for the purposes of the analysis. This is consistent with most recent research on the impact of the UK minimum wage.⁷ However it is important to note that firstly, some of the minimum wage increases modelled here are larger than have previously been tested in the UK and secondly, as yet we do not have detailed evidence on the employment effects of minimum wage increases in the 2020s due to data issues stemming from the Covid-19 pandemic.

The household survey with the best data for looking at cross-sectional household income inequality is the Family Resources Survey (discussed in more detail in the methodology section). This dataset is normally published in the April following the end of the financial year for which the interviews are conducted (for example, the

⁷ See for example G Giupponi *et al* (2024), “The employment and distributional impacts of nationwide minimum wage changes”, *Journal of Labour Economics*, Vol 42 Number S1, April 2024. <https://www.journals.uchicago.edu/doi/10.1086/728471> which presents evidence up to 2019

data collected in the 2023/24 financial year should be published in April 2025). This project uses FRS data for 2023/24, meaning that the analysis is at least a year out of date⁸. However, given the necessity of survey data for this analysis, the FRS is the most timely data that can be used. Other data sources (for example the Labour Force Survey) are more timely but do not contain the necessary information on household demographic composition required to perform the modelling accurately.

2.3 Objectives of the research

This project has two main requirements:

1. To provide the most accurate information possible (given any limitations of the methodology) on the distributional impact of recent and planned future increases in the National Minimum Wage (including the National Living Wage).
2. To provide a reliable and accurate methodology that can be re-used by LPC to show the distributional impact of future increases to the NMW (both actual and planned), which can be implemented using any tax-benefit microsimulation model.

⁸ However, the 2023/24 FRS includes the effects of the April 2023 9.7% nominal increase in the National Living Wage to £10.42 per hour.

3 Methodology

This project uses data from the UK Family Resources Survey (FRS) running on the Landman Economics Tax-Transfer Model to estimate changes in household net incomes which arise from changes in gross earnings for employees covered by the NMW/NLW. This chapter outlines the methodologies used to model the distributional effects of minimum wage increases, taking into account the interaction between the UK tax and benefit system and gross and net household incomes, adjustments of the FRS hourly wage data to correct for measurement error in the data, the need to impute hourly earnings data for 18 to 18 year-olds in the FRS child record, and the need to model the distributional effects of spillovers.

3.1 Estimating household net incomes using the Family Resources Survey and the Landman Economics Tax-Transfer Model

The Landman Economics Tax-Transfer Model (TTM) is a microsimulation model of the tax–benefit system. The model was originally developed for the Institute for Public Policy Research in the late 2000s and has been substantially revised and updated since then.

The TTM uses data from the Family Resources Survey (FRS) to analyse the impact of direct taxes, benefits, tax credits and Universal Credit, and data from the Living Costs and Food Survey (LCFS) to model the impact of expenditure taxes. For this project, only FRS data is required as we do not consider expenditure taxes. The FRS is an annual survey of households (around 17,000 households in the latest published data, consisting of interviews in the 2023/24 tax year) which collects information on individual gross incomes (including earnings from work, investment income, property income and pensions) and employment circumstances (e.g. hours of work, whether the person is an employee or self-employed, etc). There is also information on family demographics (e.g. single/couple status, number and age of children) housing tenure, and claims for Universal Credit and other benefits.

The information in the Family Resources Survey allows payments of direct taxes and receipts of benefits, tax credits and/or Universal Credit to be modelled based on reported gross earnings and gross income from other sources (such as savings, investments and property) with a reasonable degree of precision for each household in the Family Resources Survey, using either the current tax-benefit system or an alternative model. For example, the user can look at what the impact of an increase in the income tax personal allowance would be. Using a ‘base’ system (often the

actual current tax–benefit system) and one or more ‘reform’ systems, the model can produce the following outputs:

- aggregate costings of each system (amount received by the exchequer in direct taxes and NICs, and amount paid out in benefits, tax credits and Universal Credit).
- distributional impacts of reform system(s) compared with the base system (e.g. change in incomes in cash terms and as a percentage of weekly incomes in the base system). The distributional effects can be broken down according to several different variables, e.g. by income decile (ten equally sized groups of households, from poorest to richest according to equivalised disposable income), type of household (e.g. working age couples with children, lone parents, single adults without children, couples without children) and so on.
- winners and losers from a particular reform or set of reforms.
- the impact of reforms on overall inequality of disposable incomes (for example, Gini coefficient).
- the impact of reforms on household and child poverty rates.

Appendix A contains more detailed technical information on how the various aspects of the tax-benefit modelling process are implemented in the Tax-Transfer Model.

3.2 Suitability of the Family Resources Survey data

The FRS is the best UK survey dataset available for the types of distributional analysis that this report focuses on. In particular, it has the following useful features:

- Income tax and employee NICs can be estimated with a high degree of accuracy based on reported gross weekly earnings data. For income tax the accuracy depends to some extent on the assumption that the employee is in work at the stated weekly earnings over the tax year; NICs are based on weekly earnings anyway. The FRS also allows us to take account of tax and NICs payments for people working multiple jobs, and also income from other sources.
- Universal Credit, legacy tax credits and means tested benefits can be estimated given information about whether each person is claiming (or is in a benefit unit that is claiming) or not, and other information about household composition and attributes (number of children, whether any adults or children in the household are disabled, housing tenure and rent levels if applicable, and use of paid childcare if any).
- Other disability-related benefits such as Personal Independence Payment are recorded in the FRS and can be taken into account when calculating

household net incomes. Other benefits such as Carers Allowance and Child Benefit are also recorded in the data.

- For pensioners who are in work, any state or private pension receipt (and Pension Credit if applicable) is included in the calculations so that income tax liability can be accurately assessed.
- The FRS contains data for all four UK countries and so the modelling is able to take account of differences in the tax and benefit system across the UK (for example, Scottish income tax rates and differences in the benefit system in Scotland compared to the rest of the UK; domestic rates rather than Council Tax in Northern Ireland).
- The dataset has age information so that it is possible to look at the impact of changes in the National Living Wage and also the NMW rates being paid to younger age groups.

Appendix A contains additional technical information on how the FRS data are used for these purposes.

3.3 Identifying the group of workers paid at NMW/NLW rates by recalibrating hourly wages in the FRS dataset

The FRS is a reasonably reliable source of information on *weekly* earnings, but the *hourly* wage information is not fully reliable because the survey responses on the number of hours each person works per week in the survey, and the survey responses on weekly wages, are taken from different weeks in many cases. Because of this, the FRS hourly wage measure is an overestimate of the proportion of workers in the UK working at, or just above, the minimum wage⁹. Appendix B of this report summarises recent empirical evidence on the reliability of the FRS weekly and hourly earnings distribution and provides some further analysis of the 2023/24 FRS to back this up.

To address this problem, the analysis in this report uses data from the Annual Survey of Hours and Earnings – a much bigger survey than the FRS which collects data on hours and earnings from employers and is used as the benchmark for minimum wage coverage – to recalibrate the hourly wage measures in the FRS so that the adjusted FRS offers a more accurate representation of the hourly wage distribution in the UK.

⁹ The tendency of the FRS to underestimate hourly wages is noted in previous Low Pay Commission publications – for example paragraph A3.71 in the LPC 2024 *Annual report* (https://assets.publishing.service.gov.uk/media/679ce5e8a9ee53687470a34e/Low_Pay_Commission_2024_report.pdf)

We recalibrate the FRS by using the Annual Survey of Hours and Earnings for 2024¹⁰ with a bespoke set of weights provided by the LPC which show various percentiles of the hourly wage distribution for workers, disaggregated by age group. These percentile points are compared with percentile points in the FRS distribution of hourly wages in the FRS dataset for 2023/24. Hourly wages for workers in each industry in the pooled FRS dataset are adjusted so that the distribution of hourly wages in the FRS matches the distribution of hourly wages in ASHE. More technical details of the wage calibration procedure are given in Appendix B of this report. The results from this calibration procedure are shown in Chapter 4.

3.4 Imputing hourly earnings for 16-18 year olds in the FRS child record

The sample of 16, 17 and 18-year-old employees in the FRS adult record is not the complete set of 16, 17 and 18-year-olds in the data. This is because around 88 per cent of working 16 and 17-year-olds in paid work in the FRS – and around 38 per cent of working 18-year-olds – are in the child data record rather than the adult data record, because they are dependent children living with their parents. To make the sample of young employees in the FRS data more representative, the working 16 to 18-year-olds in the child record are appended to the employees from the adult record. This process requires some additional imputation because there is no “hours worked” variable in the FRS child record – only weekly earnings are available. The imputation uses hourly wage information from the Labour Force Survey (LFS), randomly assigning an hourly wage to each 16-18 year old employee in the FRS child record based on matching their weekly earnings information with employees in the same age range with similar weekly wages in the 2023/24 LFS data. Appendix C gives technical details of this process.

3.5 Accounting for spillover effects of increases in the National Living Wage and National Minimum Wage

An increase in the minimum wage has two separate impacts on the distribution of earnings. As well as the *direct* effect of hourly wages being increased, there is an *indirect* effect of the minimum wage increase on wages above the minimum through **spillover** effects. As explained in a previous report by the Low Pay Commission, “spillovers” is the term for how minimum wages affect the pay of jobs paid above the minimum. This can occur both within and between employers. For example,

¹⁰ See

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/dataset/s/industry2digsicashetable4> - 2024 provisional dataset

employers with minimum wage employees try to maintain a pay differential in recognition of the greater responsibility, skill or seniority of manager or supervisor roles. Other employers may increase their lowest wages in order to stay above the minimum wage, perhaps to attract workers or avoid being seen as a low-paying employer. These differentials cause minimum wage increases to “spill over” up the pay distribution’ (Low Pay Commission 2024, p63).

The results in Chapter 6 of this report estimate the impact of increases in the NLW and NMW on the coverage of the national minimum wage (the number of employees paid at their age-specific minimum wage rate) with and without taking account of spillover effects. The methodology for modelling spillovers is based on analysis of previous spillover effects between 2015 and 2019 as modelled by the Low Pay Commission (2024), uprated to take account of price inflation and wage increases since then. Chapters 7 and 8 present results for the distributional effects of minimum wage increases taking account of spillover effects, using a modelling procedure which assigns a probability to employees just above the relevant April 2025 age-specific minimum wage rates of receiving a spillover hourly wage increase that keeps their hourly wage above the minimum wage level in the event of an increase in the NMW/NLW. Appendix D outlines the detailed methodology for the modelling of spillovers in this report.

4 Recalibrating the Family Resources Survey hourly wage data using the Annual Survey of Hours and Earnings

4.1 Outline

This chapter presents a comparison of the hourly wage data in the FRS with the data from ASHE. The FRS hourly wage variable used is the INEARNNS variable (total weekly¹¹ earnings from employment) divided by TOTHOURS (total weekly hours worked)¹². The FRS data are weighted using the standard GROSS4 weighting variable in the FRS End User Licence dataset available from the UK Data Archive¹³.

The ASHE hourly wage variable is the main hourly wage measure as featured in the ONS's public release datasets (ONS, 2024). The ASHE data have been weighted using the 'low pay weights', which are used for calculating minimum wage coverage. These are adjusted to exclude those who had loss of pay due to absence in the reference period. Appendix A presents a comparison of the percentiles of the ASHE hourly wage distribution for different age groups using the standard ASHE weights and the revised weights which give a more accurate representation of low-paid workers.

The FRS and ASHE data are divided into seven age ranges:

- 1 16 and 17- year-olds
- 2 18-20 years
- 3 21-29 years
- 4 30-39 years
- 5 40-49 years
- 6 50-59 years
- 7 60 and older.

Age groups 1 and 2 are chosen to match the under 18 rate (£7.55 per hour from April 2025) and the 18-20 year old rate (£10 per hour from April 2025) respectively¹⁴. The

¹¹ Note that the INEARNNS variable in the FRS public release dataset is in weekly terms, but survey respondents can report earnings over a number of time periods, including weekly, monthly and annual. Appendix A gives details of the distribution of reporting periods for employees in the 2023/24 FRS.

¹² Corrections are made for people with multiple jobs and who have income from earnings at the same time as having income from self-employment, because the TOTHOURS variable is total hours worked per week across all jobs plus any time worked as self-employed. Appendix A gives more details of these.

¹³ <https://beta.ukdataservice.ac.uk/datacatalogue/studies/study?id=9367>

¹⁴ It is important to note that 21 and 22 year olds were on a rate below the NLW in 2023/24 – the rate for 21 and 22 year olds from April 2023 was £10.18, whereas the NLW for employees aged 23 and over was £10.42.

other five age groups receive the National Living Wage rate (£12.21 per hour from April 2025).

4.2 Upating the 2023/24 FRS to 2024/25 levels

Table 4.1 shows the percentiles of the FRS hourly wage distribution (for the 10th percentile through the 60th) based on the 2023/24 survey for each age group, while Table 4.2 shows the corresponding ASHE hourly wage distribution percentiles for 2023, and Table 4.3 shows the corresponding ASHE percentiles for 2024. We focus on the 10th through the 60th percentiles of the hourly earnings distribution because higher percentiles of the earnings distribution are not particularly relevant to analysing the distributional effects of minimum wage increases. Table 4.2 shows that the 2023/24 FRS earnings percentiles are below the equivalent 2023 ASHE earnings percentiles in every case.

Table 4.1. Percentiles of the FRS hourly wage distribution (10th through 60th), 2023/24

Percentile	16-17	18-20	21-29	30-39	40-49	50-59	60+
10	£3.75	£5.08	£8.78	£9.85	£9.78	£9.84	£8.83
20	£5.00	£6.33	£10.40	£11.18	£11.17	£11.01	£10.38
30	£5.71	£7.43	£11.38	£12.77	£12.46	£12.38	£11.34
40	£6.25	£8.25	£12.24	£14.40	£14.35	£13.88	£12.48
50	£6.89	£9.09	£13.20	£16.35	£16.94	£15.94	£13.96
60	£7.69	£10.23	£14.53	£19.11	£19.80	£18.61	£16.10

Source: author's analysis of 2023/24 FRS data

Table 4.2. Percentiles of the ASHE hourly wage distribution (10th through 60th), 2023

Percentile	16-17	18-20	21-29	30-39	40-49	50-59	60+
10	£5.28	£7.50	£10.55	£10.98	£11.00	£10.90	£10.59
20	£6.00	£8.50	£11.09	£12.00	£12.07	£11.76	£11.08
30	£6.86	£9.69	£11.86	£13.44	£13.64	£12.94	£11.89
40	£7.49	£10.35	£12.75	£15.09	£15.50	£14.50	£12.93
50	£8.00	£10.57	£13.84	£17.14	£17.98	£16.59	£14.38
60	£8.48	£10.90	£15.17	£19.59	£20.81	£19.08	£16.33

Source: Low Pay Commission analysis of 2023 ASHE data using low pay weights

Table 4.3. Percentiles of the ASHE hourly wage distribution, 2024

Percentile	16-17	18-20	21-29	30-39	40-49	50-59	60+
10	£6.39	£8.60	£11.50	£11.96	£11.99	£11.82	£11.50
20	£6.50	£9.48	£12.00	£12.98	£13.00	£12.61	£12.02
30	£7.24	£10.45	£12.67	£14.37	£14.50	£13.89	£12.80
40	£8.01	£11.32	£13.47	£16.07	£16.55	£15.41	£13.89
50	£8.64	£11.53	£14.53	£18.10	£19.00	£17.66	£15.22
60	£9.43	£11.81	£15.91	£20.60	£22.07	£20.38	£17.31

Source: Low Pay Commission analysis of ASHE using low pay weights

To enable a direct comparison of the FRS data with ASHE as if both were collected during 2024, we uprate FRS hourly wages at each of the percentile points and for each age group using a multiplier equal to the ASHE age-specific hourly wage for 2024 divided by the age-specific hourly wage for the 2023/24 FRS. These multipliers are shown in Table 4.4. For percentiles below the 10th percentile, the 10th percentile multiplier is used. For intermediate percentiles between 10th and 20th, a linear interpolation of the 10th and 20th percentile multiplier is used (and similarly for percentiles between the 20th and 30th, between the 30th and 40th, and so on). This transformation produces a simulated FRS hourly earnings dataset for 2024/25 which is then compared with the 2024 ASHE data in Section 4.4 below.

Table 4.4. Hourly wage multipliers from FRS 2023/24 to ASHE 2024

Percentile	16-17	18-20	21-29	30-39	40-49	50-59	60+
10	1.707	1.692	1.310	1.214	1.226	1.201	1.303
20	1.300	1.497	1.154	1.161	1.163	1.145	1.159
30	1.267	1.406	1.114	1.125	1.164	1.122	1.129
40	1.282	1.372	1.100	1.116	1.153	1.110	1.114
50	1.255	1.269	1.101	1.107	1.121	1.107	1.091
60	1.226	1.155	1.094	1.078	1.114	1.095	1.075

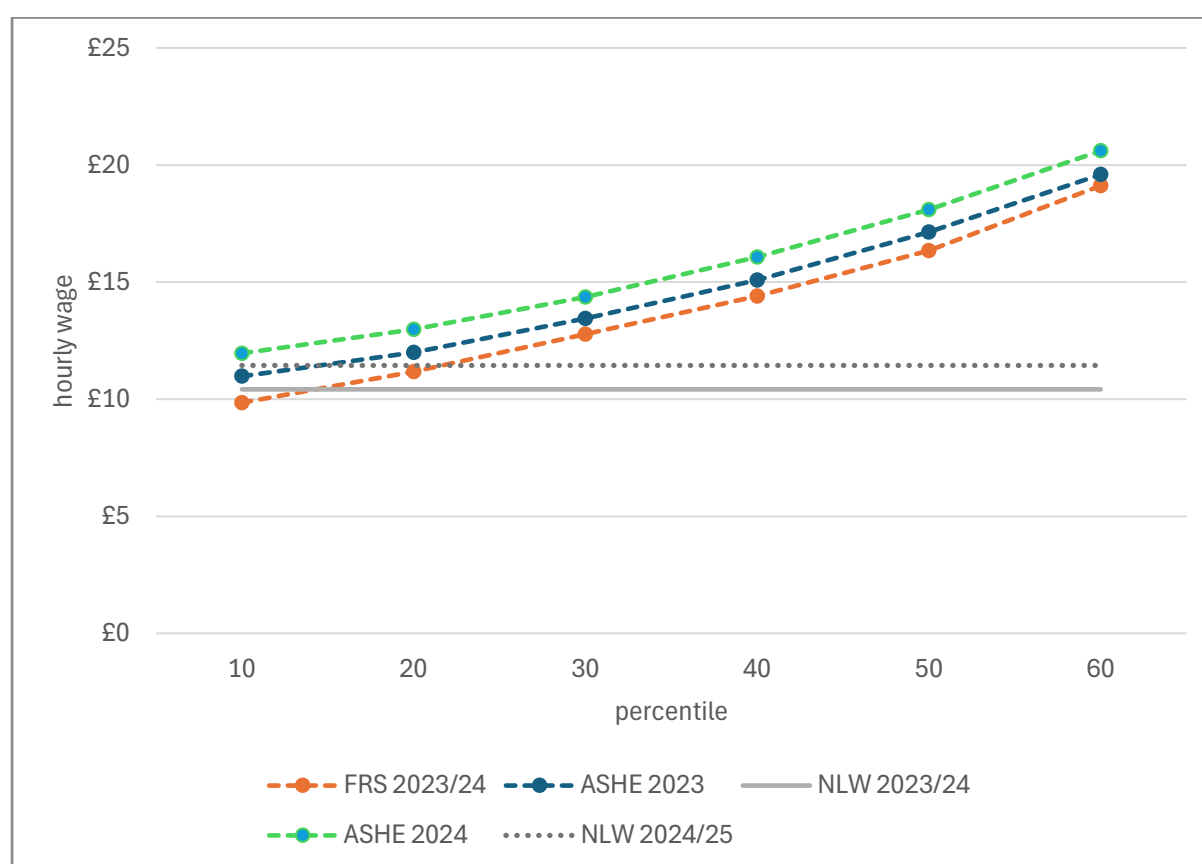
Source: author's calculations based on Tables 4.1 and 4.3

This method of adjusting wages in the FRS has the advantage of simplicity: the wages of all workers are uprated based solely on their original calculated wage, without requiring assumptions as to which observations are more or less prone to measurement error. It also ensures that the final distribution reflects the best available data source. However, in reality, some calculated wages will be accurate while others are not. This means that inevitably some individuals' wages will be 'over-inflated' while some are 'under-inflated', leading to a degree of error in categorising those who are NLW workers. We expect the impact of this – particularly on the overall results and distributional analysis – to be limited. We discuss alternative approaches and possible extensions in Chapters 12 and 13.

4.3 Example comparison of the 2023 and 2024 ASHE and adjusted FRS 2023/24 hourly wage percentiles for 30-39 year olds

Figure 4.1 shows a comparison of percentiles 10 to 60 (inclusive) of the 2023/24 FRS data for FRS employees aged between 30 and 39 with the percentiles of the ASHE hourly earnings distributions for 2023 and 2024. The NLW hourly wage levels in April 2023 and April 2024 are included on the chart for reference purposes.

Figure 4.1. FRS 2023/24 and ASHE 2023 and 2024 hourly wage percentiles (10th through 60th), 30-39 year olds



Source: author's analysis of ASHE 2023 and 2024 data and FRS 2023/24 data

Figure 4.1 shows that the 2023/24 hourly earnings measure is around £1.15 per hour below the 2023 ASHE measure at the 10th percentile (a difference of around 10 per cent). At the 20th percentile and above, the difference between the FRS and ASHE hourly wage measures is smaller, at approximately 70 to 80 pence per hour. In this age group, the 10th percentile of the ASHE wage measures is more than 50 pence per hour above the NLW in 2023 and 2024.

Section C.2 in Appendix C contains equivalent charts for the other six age groups in the analysis.

It is important to note that for 16, 17 and 18-year-olds in the FRS child record (where only weekly earnings are available, but no information on hours of work), the hourly wages are imputed using data from the Labour Force Survey for the same period. Section C.1 in Appendix C gives more details of this procedure.

4.4 Summary of results for other age groups

Appendix C shows the detailed results from the comparison of the ASHE hourly earnings distribution for 2023/24 with the ASHE earnings distributions for 2023 and 2024. Overall, the comparison of the ASHE hourly earnings distribution for 2023 with the FRS hourly earnings distribution for 2023/24 shows that for most age groups, FRS hourly earnings are lowest relative to ASHE in the lower reaches of the earnings distribution (particularly at the 10th percentile). Going up the distribution, the discrepancy between FRS and ASHE reduces. At the median of the distribution, the discrepancy between the 2023/24 FRS and 2023 ASHE hourly wage measures is just over 20 per cent for 16-17 year-olds and 18-20 year-olds, and around 10 to 12 per cent for the older age groups.

4.5 Upating FRS earnings from 2024/25 to 2025/26

After applying the multipliers in Table 4.4 to the 2023/24 FRS to produce an ASHE-adjusted 2024/25 hourly earnings distribution, one further round of uprating is required to produce the simulated 2025/26 earnings distribution used to analyse the impact of the minimum wage and increases to the minimum wage, in Chapters 5 to 9 of this report. There are two aspects to this final uprating:

- 1) Hourly and weekly earnings are uprated according to forecast growth in average earnings between the fiscal years 2024/25 and 2025/26, using the most recent forecast from the Office of Budget Responsibility at the time of writing (the March 2025 *Economic and Fiscal Outlook*).
- 2) Because the increases to the NMW and NLW rates for April 2025 are above the forecast rate of average earnings growth for the economy as a whole, hourly and weekly earnings for employees whose earnings would be below the NMW/NLW levels after uprating using general average earnings growth are further uprated so that these employees' hourly wages are at the relevant NMW/NLW level. An extension of this approach to adjust for 'spillovers' from the minimum wage to the wages of those paid above it is considered in Chapter 6.

After updating FRS earnings from 2024/25 to 2025/26, the adjusted FRS hourly earnings distribution is ready for analysis of the characteristics of employees who are paid at NMW/NLW levels and the impact of increases in the NMW and NLW. Other household incomes – such as income from savings and investments – are also updated from 2024/25 to 2025/26; details of this procedure are explained in Appendix A.

5 Descriptive statistics for people earning at NMW/NLW levels

This chapter presents descriptive statistics for people earning at National Minimum Wage/National Living Wage levels. Section 5.1 shows the distribution of employees paid at NMW/NLW across household income deciles, while Section 5.2 looks at where NMW/NLW workers are located in the household income distribution. The subsequent sections analyse the characteristics of minimum wage workers by the characteristics of the individual employee (5.3), job characteristics (5.4), the benefit unit that the employee is located in (5.5) and the household that the employee is located in (5.6). Finally, Section 5.7 shows a selection of “two-way” breakdowns by two characteristics at once.

These results use the uprated earnings distribution for 2025/26, based on the adjusted FRS hourly earnings measure as detailed in Chapter 4 above. As discussed, there are key differences between the FRS and other data sources used for analysis of the characteristics of minimum wage workers, including the Annual Survey of Hours and Earnings (ASHE) and the Labour Force Survey (LFS). In addition, the previous chapter outlined how the process of wage recalibration creates an accurate picture of the overall earnings distribution, but will still have a degree of error in whether some individuals are categorised as NLW workers or not. As such, some of the breakdowns by characteristic here may differ from those using other data sources.

5.1 Where NMW/NLW workers are located across the household income distribution

Table 5.1 shows the location of workers paid at NMW/NLW in the income distribution using the HBAI Before Housing Costs definition of equivalised disposable household income (uprated to 2025/26 levels)¹⁵. The deciles used for this table include all the households in the FRS, including households with no working adults in them. The left-hand column shows the distribution of minimum wage workers according to BHC (Before Housing Costs) deciles, while the right-hand column shows the distribution according to AHC (After Housing Costs) deciles.

Looking at the BHC deciles across all households in Table 5.1, NMW/NLW workers are most likely to be located in the bottom seven deciles, with fewer in the top three deciles. The AHC deciles show a slightly tighter concentration of minimum wage workers in the lower deciles of the income distribution – for example, 26.3% of

¹⁵ Details of the uprating factors used for different components of household income are included in Appendix A of this report.

employees on NMW/NLW are in the bottom two AHC income deciles, compared to 23% in the bottom two BHC deciles.

Analysis of housing costs in the 2023/24 Family Resources Survey (equivalised to take account of household size) show that median housing costs for households with at least one person in work and earning at minimum wage level are just over £30 per week higher than median housing costs for households with no-one earning at minimum wage levels. This helps explain why employees earning at NMW/NLW are more likely to be at the bottom of the income distribution using an AHC definition of income compared with a BHC definition of income.

Table 5.1. Location of NMW/NLW employees in the BHC and AHC income distribution: income distribution: all households

	Before Housing Costs	After Housing Costs
Decile	Percentage of all NMW/NLW employees	Percentage of all NMW/NLW employees
1st (lowest)	10.9%	12.5%
2nd	12.1%	13.8%
3rd	11.4%	11.4%
4th	11.7%	13.9%
5th	12.1%	10.7%
6th	11.7%	10.5%
7th	10.5%	9.3%
8th	7.4%	7.4%
9th	6.6%	5.0%
10th (richest)	5.6%	5.7%
Total	100.0%	100.0%

Source: author's analysis of FRS 2023/24 dataset (with earnings data adjusted using 2024 ASHE and uprated to 2025/26 levels)

The reason that NMW/NLW employees are more likely to be found towards the bottom of the income distribution is because they – by definition – have the lowest hourly wages and therefore often have low weekly and annual wages, too. Income from earnings is an important component of overall incomes (around 75 per cent of gross income in the 2023/24 FRS was income from earnings¹⁶).

¹⁶ Author's calculation based on comparing the FRS variable INEARN (gross earnings) with total gross income before taxes and benefits (INEARN+SEINCM2+ININV+INPEN+DIVIDGRO+INRINC).

There are two reasons why NMW/NLW employees are located further up the income distribution in some cases. Firstly, many NMW/NLW employees live with other household members – partners or other adults – who have higher earnings or income from self-employment, and this is often sufficient to place the household in the middle or upper reaches of the income distribution. In addition, some NMW/NLW employees live in households with adults with significant amounts of income from other sources such as investments, property or pensions. So NMW/NLW workers are more likely to be in the lower reaches of the income distribution, but they are not *all* in that part of the income distribution.

Using deciles based on all households, the situation is complicated further by the fact that there are a large number of households with no-one in work and many of these (though not all of them) are towards the bottom of the income distribution – unemployed and inactive working-age households for example, as well as poorer pensioner households. To compare the position of NMW/NLW earner households to other *working* households, we can remove non-households from the income distribution and use income deciles for households with at least one household only.

Table 5.2 shows BHC and AHC income decile breakdowns of NMW/NLW workers for *households with at least one person in work only* (i.e. excluding households where the only adults are pensioners). Using this definition of deciles, minimum wage employees are skewed more towards the bottom of the income distribution. For example, around 61% of workers paid at NMW/NLW are in the bottom four deciles of the BHC income distribution using deciles restricted to households with at least one person in work, and the proportion is similar for the AHC income deciles. The proportion of employees paid at NMW/NLW who are at the top of the income distribution is lower using these income deciles than for income deciles which contain all households including non-working households.

Table 5.2. Location of NMW/NLW employees in the BHC and AHC income distribution: income distribution: households with at least one person in work only

	Before Housing Costs	After Housing Costs
Decile	Percentage of all NMW/NLW employees	Percentage of all NMW/NLW employees
1st (lowest)	17.9%	18.8%
2nd	16.7%	16.0%
3rd	12.6%	15.8%
4th	13.4%	10.9%
5th	10.2%	9.9%
6th	9.0%	8.2%
7th	5.6%	6.8%
8th	6.1%	5.6%
9th	4.6%	4.1%
10th (richest)	4.0%	3.9%
Total	100.0%	100.0%

Source: as Table 5.1

5.2 The proportion of workers who are NMW/NLW workers in each decile of the income distribution

Whereas the previous section looked at the distribution of minimum wage workers across deciles of the income distribution, this section looks at the proportion of workers in households in each decile of the income distribution who are paid at NMW/NLW ('coverage' of the minimum wage).

Table 5.3 shows this for the BHC and AHC income decile breakdowns for all households and for households with at least one person in work only. Using the BHC income definition, around 33.5 per cent of workers located in the poorest income decile are paid at NMW/NLW for the decile definition that includes all households, and around 28 per cent for deciles including only households with at least one person in work. The equivalent figures for the bottom AHC income deciles are around 31 per cent across all households and just under 29 per cent for working households. The proportion of NMW/NLW workers is smaller the higher up the income distribution we go – until in the top two deciles, only around 4 per cent of workers are paid at NMW/NLW (using either the BHC or AHC income definitions, and either of the income decile definitions). Therefore, the lower down the household

income distribution we look, the more likely are employees to be paid at NMW/NLW using the 2025/26 minimum wage rates.

Table 5.3. The proportion of workers who are paid at NMW/NLW in each decile of the income distribution: BHC and AHC incomes

Decile	BHC: all households	BHC: households with at least one person in work	AHC: all households	AHC: households with at least one person in work
1st (lowest)	33.4%	28.2%	31.1%	28.9%
2nd	25.4%	20.5%	22.8%	19.0%
3rd	18.9%	14.2%	17.5%	17.4%
4th	14.7%	14.0%	17.2%	10.7%
5th	13.4%	10.0%	10.3%	9.2%
6th	10.7%	7.9%	9.4%	7.5%
7th	8.1%	4.9%	7.3%	5.9%
8th	5.1%	4.9%	5.3%	4.6%
9th	3.9%	3.9%	3.4%	3.7%
10th (richest)	3.9%	3.6%	4.2%	3.8%
Total	9.9%	9.9%	9.9%	9.9%

Source: as Table 5.1

5.3 Breakdowns by individual characteristics

The remaining sections of this chapter summarise the evidence on coverage of the NMW and NLW according to breakdown variables other than income decile. Note that Appendix E contains a full set of results for breakdowns by these characteristics.

The main results regarding the breakdown by **individual** characteristics are as follows:

- By **age group**, around 80 per cent of NMW/NLW employees are aged between 21 and 59 years of age. Around 10 per cent are aged 60 and over, and around 10 per cent are between 16 and 20. The proportion of minimum wage employees within each age group is highest for 16 and 17 year olds (just under 29 per cent) and for 18-20 year olds (just under 21 per cent).
- By **sex**, just over 57 per cent of employees paid at NMW/NLW are women. Female employees are more likely to be paid at NMW/NLW (just under 12 percent) than male employees (just over 8 per cent).

- By **ethnicity**, just under 82 per cent of NMW/NLW employees are White, 10 per cent are Asian or Asian British and just under 5 per cent are Black, African/Caribbean or Black British. The proportion of employees paid at NLW/NLW does not vary much across ethnic groups, at between 9.6 and 11.1 per cent in all cases.
- 18 per cent of NMW/NLW employees are **disabled** under the core FRS disability definition. Disabled employees are slightly more likely to be paid at NMW/NLW than non-disabled employees but the difference is very small.
- Around 42 per cent of employees paid at NMW/NLW are “**primary earners**” – either the sole working adult in a household, or the adult working the most hours in a two-earner household.¹⁷ 35 per cent are “**secondary earners**” in two-earner couples, while the remaining 23 per cent of minimum wage employees are children, parents or other relatives of the adults in the main benefit unit in the household, or nonrelatives living in the same household. Secondary earners and “other earners” in the household are much more likely to be paid at minimum wage than primary earners.

5.4 Breakdowns by job characteristics

- By **number of hours worked**, around 37 per cent of all employees paid at NMW/NLW are part-time (working less than 30 hours per week).¹⁸ Part-time workers are more than twice as likely to be paid at NMW/NLW than full-time workers (just under 19 per cent compared to just under 8 per cent).
- The **industry sectors** with the largest number of minimum wage workers are human health and social work (around 17 per cent), wholesale and retail trade (just under 16 per cent), education (14 per cent) and accommodation and food service activities (13 per cent). The sectors where employees are most likely to be paid at NMW/NLW are agriculture, forestry and fishing (over 30 per cent of employees) and transportation and storage (around 24 per cent of employees).
- The **occupations** with the largest number of NMW/NLW employees are elementary occupations (23 per cent), caring, leisure and service occupations (20.5 per cent) and sales and customer service occupations (12 per cent).

¹⁷ Note that this definition differs slightly from that of ‘main earners’ used by the LPC, which is based on earned income, rather than hours worked.

¹⁸ While most of the descriptive analysis presented here is broadly in line with what is found in other data sources (where available), the part-time/full-time split in the FRS is noticeably different from ASHE, where a majority of minimum wage workers are part time. It is not clear what the reason for this is, but may relate to some of the same issues with reported hours that lead to inaccurate hourly wage data (the pattern of full-time/part-time work between the two datasets differs for all workers, not just NLW workers). We have not adjusted hours to account for this as hours worked is not essential to this analysis.

These three sectors are also where employees are most likely to be paid at NMW/NLW (probability of around 20 per cent in each case).

5.5 Breakdowns by benefit unit characteristics

- In terms of **demographic group**, employees paid at NMW/NLW are most likely to be working age couples with children (just over 32 per cent of all NMW/NLW employees), working age single adults without children (28 per cent) and working age couples without children (around 26.5 per cent). As a proportion of employees in each demographic group, couple pensioners are most likely to be paid at NMW/NLW (just under a quarter), followed by lone parents (just under a fifth).
- By **number of workers in the benefit unit**, around 48% of NMW/NLW employees are in benefit units with two earners compared to 47% in benefit units with one earner. Employees in benefit units with one earner are more likely to be paid at NMW/NLW levels (11.5%) compared to 8.5% of two employees in two-earner benefit units.
- Just under one in six workers paid at NMW/NLW are in benefit units claiming **Universal Credit** or legacy benefits or tax credits. Although it should be noted that benefit receipt tends to be underreported in the FRS. Employees claiming Universal Credit are significantly more likely to be paid at NMW/NLW levels (21 per cent) than non-claimants (9 per cent).

5.6 Breakdowns by household characteristics

- By **region and country** in the UK, the regions with the highest numbers of NMW/NLW workers are the South East, South West, North West and the East of England. The regions and countries where workers are most likely to be paid at NMW/NLW are the South West (almost 13 per cent), the North West, Yorkshire and the Humber, the East Midlands and Wales. The region where workers are least likely to be paid at NMW/NLW is London (less than 7 per cent) – this may be because of the London earnings premium which tends to push wages up above the legal minimum level.
- By **housing tenure**, employees paid at NMW/NLW are most likely to be owner-occupiers (including those buying their house with a mortgage) – around 56 per cent of minimum wage employees are in this position. However, only just over 8 per cent of employees in owner-occupier households are owner-occupiers compared to just over 12 per cent of private renter households and 14.5 per cent of social renter households.

5.7 Two-way breakdowns

Finally, this section presents a number of two-way breakdowns using a 2-year pooled FRS sample to provide an increased sample size for the accuracy of the results.

- By **income decile and sex**, men paid at NMW/NLW are more likely than women to be located in the poorest decile of AHC income among working households. However, women are more likely than men to be located in deciles 2 through 6. At the top of the income distribution, men are slightly more likely than women to be located in deciles 7 through 10. Men in the lowest AHC income decile for working households are more likely to be paid at NMW/NLW than women in the lowest decile. In the other 9 deciles the converse is the case – women are more likely to be paid at minimum wage than men.
- By **age group and sex**, the distribution of men and women paid at NMW/NLW by age group is fairly similar. However, as a proportion of employees by age group and sex, women are much more likely than men to be paid at minimum wage in the 16-17 year-old age group (33.5 per cent of women in this age group compared to 24 per cent of men).
- Analysis by **disability and sex** shows that the proportion of female minimum wage employees who are disabled is just over 22 per cent, compared to 15 per cent for men.
- By **hours of work and sex**, the proportion of female minimum wage employees who work part-time is 45 per cent, much higher than the equivalent for men (27 per cent).¹⁹ However, the proportion of male part-time employees paid at NMW/NLW (22.5 per cent) is higher than female part-time employees (18 per cent). For full-timers by contrast, men are more likely to be paid at NMW/NLW than women (9 per cent of men compared to 7 per cent of women).
- By **income decile and earner type**, primary earners paid at NMW/NLW are most likely to be located in the bottom three deciles of the AHC income distribution for working households only, whereas secondary earners and earners in other benefit units (e.g. adult children still living in the family home) are more likely to be higher up the income distribution. This helps explain the findings of Tables 5.1 and 5.2 above, where there were significant numbers of minimum wage employees in the upper reaches of the income distribution – many of these are secondary earners or earners in other benefit units in the household.
- By **Universal Credit receipt and benefit unit type**, almost 80 per cent of lone parents paid at NMW/NLW are claiming Universal Credit compared to less than a quarter of couples with children, 10 per cent of single adults

¹⁹ See note above regarding possible underestimates of part-time working in the FRS.

without children and less than 5 per cent of couples with children paid at NMW/NLW.²⁰

5.8 Summary and Discussion

The evidence from the earnings-adjusted FRS in this chapter shows that employees paid at NMW or NLW are mainly – but not entirely – located in the lowest seven deciles of the household income distribution. If income deciles are redefined to exclude households with no-one in paid work, there is a clear gradient whereby minimum wage employees are most likely to be located in the bottom income decile, with the proportion of NMW/NLW employees in each decile falling as we go up the income distribution. Employees in the lower reaches of the income distribution are also much likely to be paid at NMW/NLW than employees higher up the income distribution. Overall, then, minimum wage employees are clearly skewed towards the lower reaches of the income distribution but the composition of household incomes – both in terms of households with multiple earners and the fact that earned income is only one component of household net income – mean that there are also significant numbers of minimum wage employees located in the top half of the income distribution.

In terms of characteristics associated with being paid at NMW/NLW, employees are particularly likely to be paid at minimum wage levels if aged under 21, female, and/or if they are secondary earners in the main benefit unit in the household (i.e. a second earner with lower earnings than the main earner), or if they are an employee in a second or third benefit unit in the household (e.g. adult children living with their parents). However, employees in benefit units with only one earner are more likely to be paid at NMW/NLW than employees in benefit units with two earners. Primary earners paid at NMW/NLW are more likely to be located in the bottom three deciles of the income distribution whereas secondary earners and earners in other benefit units are more likely to be higher up the income distribution.

Part-time employees are much more likely to be paid at NMW/NLW levels than full-timers. The occupations with the highest number of NLW/NMW employees – and also where employees are most likely to be paid at NMW/NLW – are customer services, caring, leisure and service occupations and elementary occupations.

Lone parents and couple pensioners are the benefit unit types where employees are most likely to be paid at NMW/NLW. Employees in benefit units claiming Universal Credit are more than twice as likely to be paid at NMW/NLW levels than non-claimants. For lone parents, the proportion of minimum wage employees claiming UC is almost 80%.

²⁰ See note above regarding underreporting of benefit receipt in the FRS.

Employees in London are much less likely to be paid at NMW/NLW than those in other regions of the UK. Employees in households who are tenants – either social renters or private renters – are significantly more likely to be paid at NMW/NLW than owner-occupiers.

6 The impact of NMW/NLW increases on the number of workers paid at minimum wage levels

6.1 Introduction

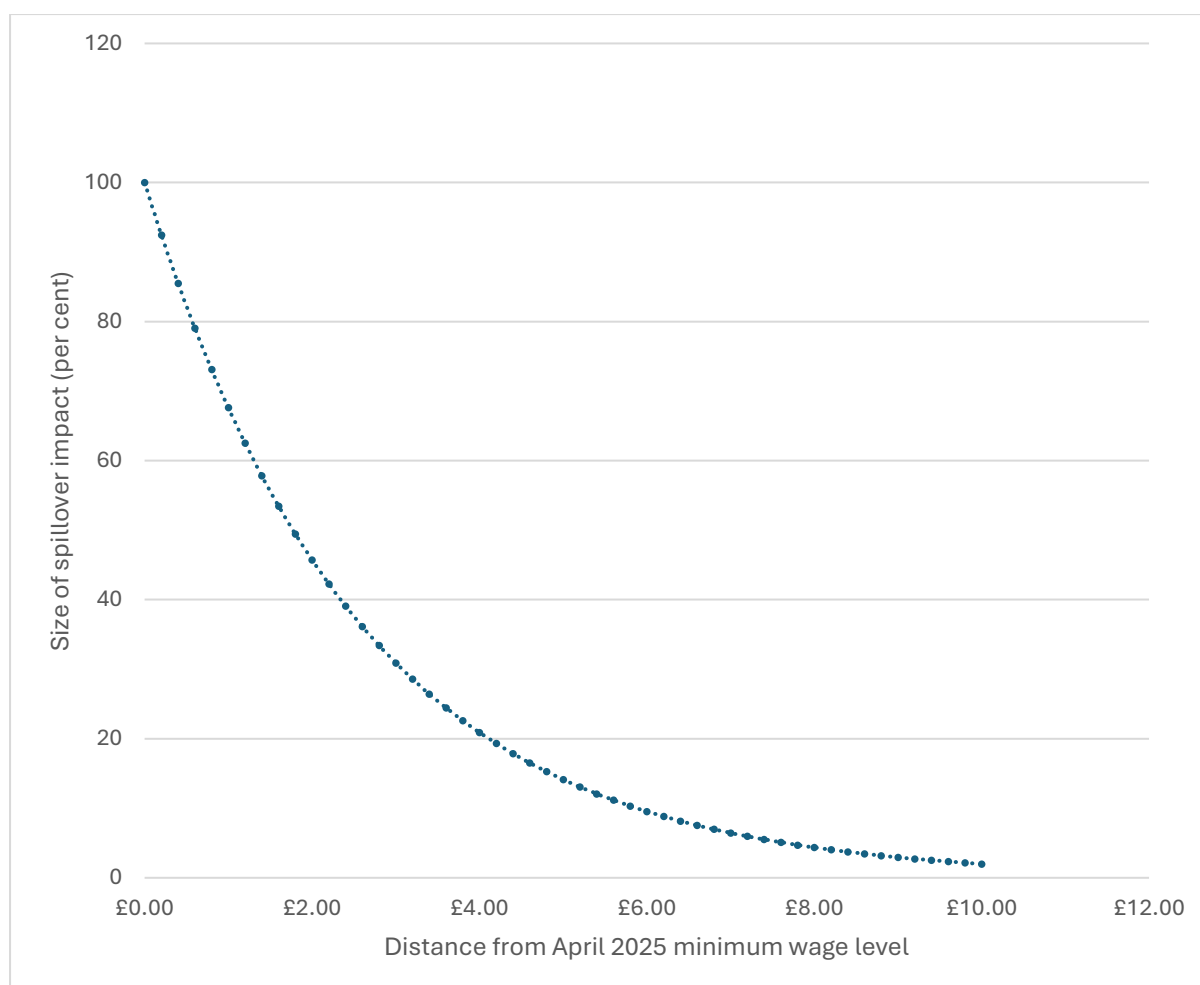
This chapter shows the projected impact of future NMW/NLW increases on the number of people paid at NLW/NMW wage levels (the coverage of the NMW and MLW). We estimate increases in coverage with and without taking account of **spillover** effects, defined as increases in hourly wages for employees paid *above* the relevant minimum wage level which mean that the number of people on the increased minimum wage rate is lower than it would otherwise have been. Note that coverage estimates derived from the FRS, even after recalibrating wages, tend to be higher than coverage estimates from ASHE, which is considered the definitive source for coverage by the Low Pay Commission.

Section 6.2 of this chapter gives an overview of the assumptions we use to model spillover effects. Section 6.3 estimates the number of additional employees who are paid at NMW/NLW levels after the increases in the rates in April 2025. Section 7.4 models the impact of a number of different increases in the NMW/NLW (at the NLW rate and the two NMW rates for workers aged 18-20 and 16-17 years old); 1%, 2%, 3%, 4%, 5%, 10%, 15% and 20%. The analysis in this chapter assumes that the increases occur in the 2025/26 tax year.

6.2 Spillover assumptions

To model spillovers, we use a technique developed by the Low Pay Commission in its March 2024 report *The National Minimum Wage Beyond 2024*. Appendix D gives a detailed explanation of this technique, summarised here. The LPC modelled the spillover effects of the minimum wage for increases between 2015 and 2019 by calculating the percentiles of the pay distribution in 2015 and 2019, deflating the 2019 percentiles by an index of median wages and calculating the percentage growth in each percentile (relative to median growth). Figure 6.1 shows an exponential curve fitted to a similar distribution to Figure A1.2 in LPC (2024), with the horizontal scale “distance from April 2025 minimum wage level” adjusted to take account of overall earnings growth between 2019 and 2025. The impact of spillovers diminishes as we look further up the wage distribution, reaching close to zero spillovers for wages of £10 above the minimum wage level.

Figure 6.1. Assumed size of spillover impact above the April 2025 National Living Wage level



We use the assumed relationship between the distance above the April 2025 minimum wage level and the size of the spillover impact to estimate the size of spillovers. These are then used as the basis of the “spillover-corrected” increases in coverage shown in this chapter.

6.3 The impact of minimum wage increases in April 2025

In April 2025 the National Living Wage for employees aged 21 and over increased from £11.44 to £12.21 per hour. The National Minimum Wage rate for 18-20 year olds increased from £8.40 to £10.00, while the rate for 16 and 17 year olds increased from £6.40 to £7.55.

Table 6.1 shows the estimated impact of the April 2025 NLW and NMW increases on coverage. Without accounting for spillovers, after the April 2025 increases, coverage rises by just over 400,000 employees – from around 2.4 million to 2.8 million. When

spillovers are accounted for, the increase in coverage is much smaller at around 30,000.

Table 6.1. Estimated impact of April 2025 National Minimum Wage and National Minimum Wage increases on the number of employees paid at NMW and NLW

Date	Number of employees paid at NMW/NLW by age group (1000s)			
	16-17	18-20	21+	Total
April 2024	41	110	2,260	2,411
April 2025: no spillovers	90	190	2,542	2,822
April 2025: with spillovers	48	123	2,271	2,442

Source: author's analysis of FRS 2034/25 dataset uprated to 2025/26 levels

6.4 The impact of future minimum wage increases

Table 6.2 shows the rates for the NLW rate (for employees aged 21 and over) and the NMW rates for younger workers in our simulations. We model increases in percentage steps from 1 to 5 per cent, as well as 10, 15 and 20 per cent increases.

Table 6.2. Simulated increases in NLW/NMW rates: Rates for NLW and NMW in the simulations

Scenario	NLW rate	NMW rate, 18-20 year olds	NMW rate, 16-17 year olds
April 2025 baseline	£12.21	£10.00	£7.55
Increases:			
1%	£12.33	£10.10	£7.63
2%	£12.45	£10.20	£7.70
3%	£12.58	£10.30	£7.78
4%	£12.70	£10.40	£7.85
5%	£12.82	£10.50	£7.93
10%	£13.43	£11.00	£8.31
15%	£14.04	£11.50	£8.68
20%	£14.65	£12.00	£9.06

Table 6.3 shows the estimated impact of increases in the NMW and NLW rates of between 1% and 20% on the number of people paid at NMW/NLW levels in the absence of spillover effects. The results show that a 1% increase in minimum wage rates would increase the number of people paid at NMW/NLW level by around 110,000 workers. This would be a 4% increase in the number of people paid at NMW/NLW level, or an additional 0.4 per cent of the workforce. By comparison, a 5% increase in minimum wage rates is forecast to increase the number of people paid at NMW/NLW level by over 1.5 million, to around 4.4 million workers in total. This would be an increase of 57 per cent, or an additional 5.5 per cent of the workforce. A 20% increase in NMW rates would more than triple the number of workers paid at NMW/NLW levels, to a third of the workforce (33.3 per cent). In the absence of spillovers, even a fairly modest increase in the NMW/NLW rates leads to a substantial increase in the coverage of the minimum wage.

Table 6.3. Simulated increases in NLW/NMW: Impact on number of people paid at NLW/NMW (no spillovers)

Scenario	Number of people receiving NMW/NLW	Increase compared to baseline	% of workers receiving NMW/NLW	Increase compared to baseline (%)
April 2025 baseline	2,882		9.9%	
Increases:				
1%	2,930	108	10.3%	4%
2%	3,047	225	10.7%	8%
3%	3,315	493	11.7%	17%
4%	3,869	1,047	13.6%	37%
5%	4,382	1,560	15.4%	55%
10%	6,559	3,737	23.1%	132%
15%	8,090	5,268	28.5%	187%
20%	9,442	6,620	33.3%	235%

Source: author's analysis of FRS 2034/25 dataset uprated to 2025/26 levels

Table 6.4 shows the estimated impact of increases in the NMW and NLW rates on coverage when taking spillovers into account. The estimated increase in coverage is much lower in this scenario – only around 10,000 additional employees for a 2% increase, just under 100,000 employees for a 4% increase, around 750,000 additional employees for a 10% increase and just over 2.3 million for a 20% increase (note that all estimates are relative to the baseline estimate of 2.44 million workers covered by the NMW/NLW in April 2025, when spillovers between April 2024 and 2025 are taken into account). A 5% rise in the minimum wage rates increases the

number of covered employees by 7 per cent in this scenario, while a 20% rise in the minimum wage increases the number of covered employees by 95 per cent – which is substantial, but much less than the 235 per cent increase forecast in the absence of spillovers.

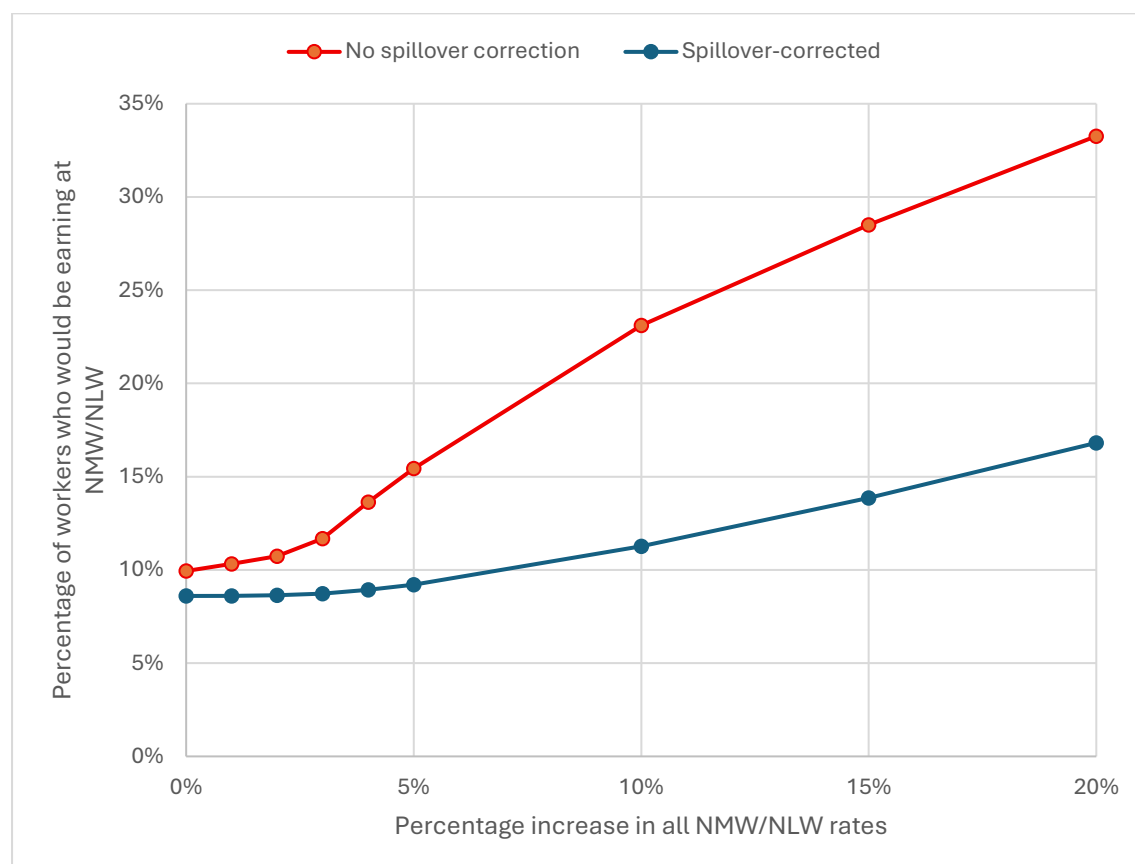
Table 6.4. Simulated increases in NLW/NMW: Impact on number of people paid at NLW/NMW (including spillovers)

Scenario	Number of people receiving NMW/NLW	Increase compared to baseline	% of workers receiving NMW/NLW	Increase compared to baseline (%)
April 2025 baseline	2,442		8.6%	
Increases:				
1%	2,445	2	8.6%	0%
2%	2,452	10	8.6%	0%
3%	2,476	34	8.7%	1%
4%	2,536	94	8.9%	4%
5%	2,613	170	9.2%	7%
10%	3,201	759	11.3%	31%
15%	3,933	1,491	13.9%	61%
20%	4,773	2,330	16.8%	95%

Source: author's analysis of FRS 2034/25 dataset uprated to 2025/26 levels

Finally in this section, Figure 6.2 shows the projected increase in the percentage of UK workers paid at NMW/NLW as a result of increases in the minimum wage rates of between 1% and 20%. The red line on the graph shows the estimates without taking account of spillovers, while the blue line shows the spillover-corrected estimates. The spillover-corrected estimates show a much shallower profile in the increase in coverage over the range of minimum wage increases from 1% to 5% than the uncorrected estimates. For minimum wage increases of 10%, 15% and 20%, the number of employees paid at NMW/NLW rises at a faster rate than below 5%, but the rate of increase is still slower than for the “raw” estimates without correcting for spillovers.

Figure 6.2. Projected Increase in percentage of employees paid at NMW/NLW as a result of simulated NMW/NLW increases, 2025/26



Source: As for Table 6.2

6.5 Summary and discussion

To summarise the results in this chapter, if spillover effects are not taken into account then the results show a very large increase in the number of employees paid at NMW/NLW in response to minimum wage increases of 4% or above. This is mainly due to the density of the wage distribution above the current NMW/NLW levels. A 10% increase in the NMW and NLW nearly doubles the number of employees covered, while a 20% increase more than triples coverage. When spillovers are taken into account, the forecast increases in coverage are much more modest. Coverage of the minimum wage is projected to rise from 8.5% of employees in the April 2025 baseline to 9.2% for a 5% increase, to 11.3% for a 10% increase and to just under 17% for a 20% increase. Note that the baseline will differ than that estimated by the Low Pay Commission using ASHE.

The reduction in the estimates of increased coverage when spillovers are taken in consideration shows that it is very important to allow for spillover effects when

modelling increases in the coverage of the National Minimum Wage and National Living Wage.

7 The distributional impact of increases in the NMW/NLW by household income decile

This chapter analyses the distributional impact of simulated increases in the NLW using the increases of between 1% and 20% modelled for the previous chapter.

Initially we focus on the distributional impact of a range of increases in the minimum wage, from 1% through to 20%, without taking account of additional increases in hourly earnings arising from spillover effects. Section 7.1 presents results presented as stacked bar charts showing the cumulative impact of increases of 1%, 2%, 3%, 4% and 5% (on one set of charts) and the cumulative impact of increases of 5%, 10%, 15% and 20% (on a separate set of charts). We show impacts in cash terms per week and as a percentage of net incomes. These results are presented using a Before Housing Costs definition of household incomes, for income deciles which include all households.

Section 7.2 expands the analysis to consider spillover effects of increases in the NLW and NMW, using the same assumptions regarding spillovers as those outlined in Chapter 6. We focus on a 10% increase in the NMW and NLW and show the “direct” distributional impacts (arising solely from the increase in the minimum wage rates without taking spillovers into account) and the additional impacts of increases in hourly wages due to spillover effects. Section 7.2 presents results using household income deciles under Before Housing Costs and After Housing Costs measures of net income, because the pattern of distributional impacts looks somewhat different depending on which income measure is used. This section also uses two different sets of household income deciles, as in Chapter 5; deciles that include all households, and deciles including only those households containing at least one working adult.

Appendix G contains a full set of distributional results for the impact of NMW and NLW increases from 1% to 20% for AHC incomes using both household decile definitions (and for the BHC income measure using the working households decile definition).

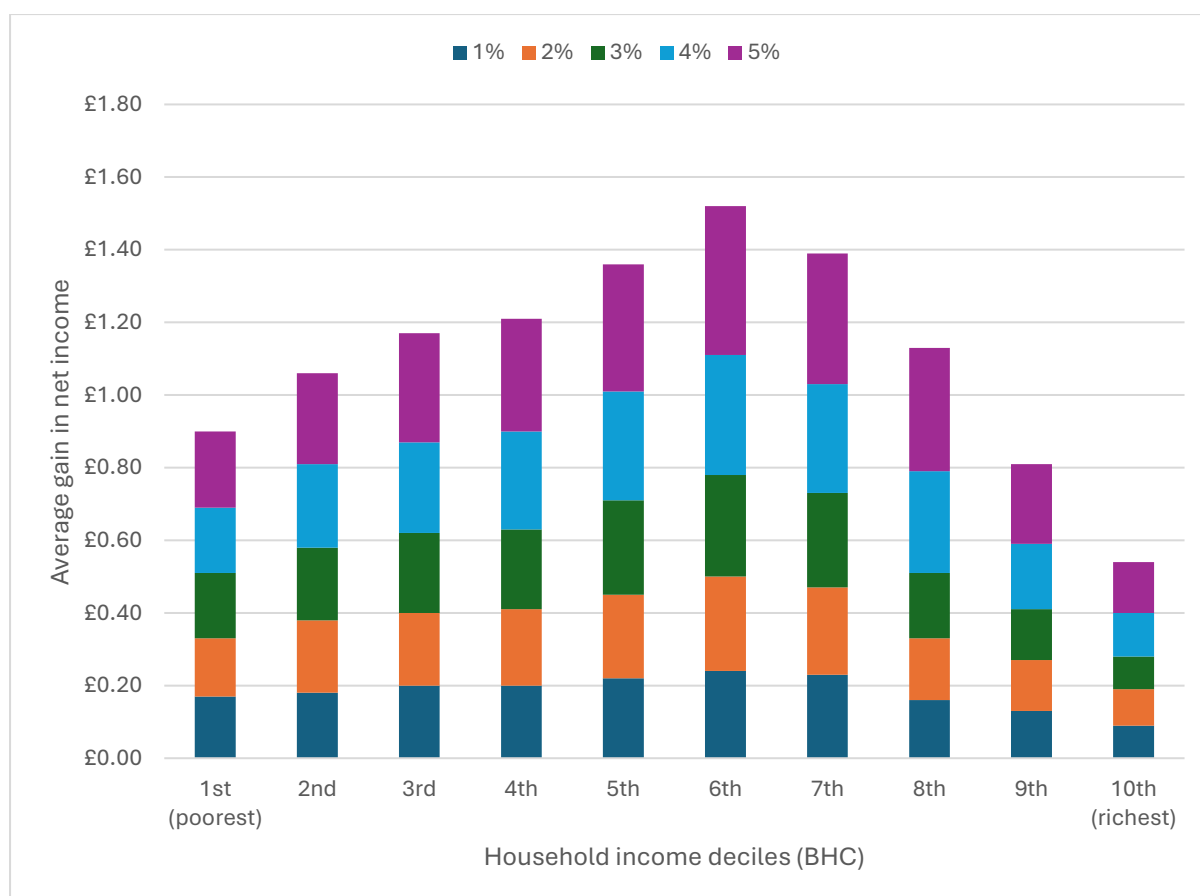
7.1 Distributional impact of increases from 1% to 20%

Impacts in weekly cash terms

Figure 7.1 shows the distributional impact of NMW/NLW increases of 1% up to 5% in weekly cash terms, using BHC household net income deciles for all households. The gains shown are the average across all households in that decile (both with and without an NMW/NLW worker). The results show that NMW increases have the largest cash impacts in deciles 5 through 7 of the BHC income distribution. The smallest cash impacts are in the richest two deciles (9 and 10). For minimum wage increases of 1% up to 3%, the cash impacts in the poorest decile are larger than the impacts in decile 8, but for 4% and 5% increases, the impacts in decile 8 are larger than decile 1.

Across all deciles, the average boost in income from NMW/NLW increases per percentage point gets larger, the larger the total size of the increase. This is because the number of workers who are earning at NMW/NLW goes up with every percentage increase in minimum wage (as shown in Table 7.2 and Figure 7.2 in the previous chapter).

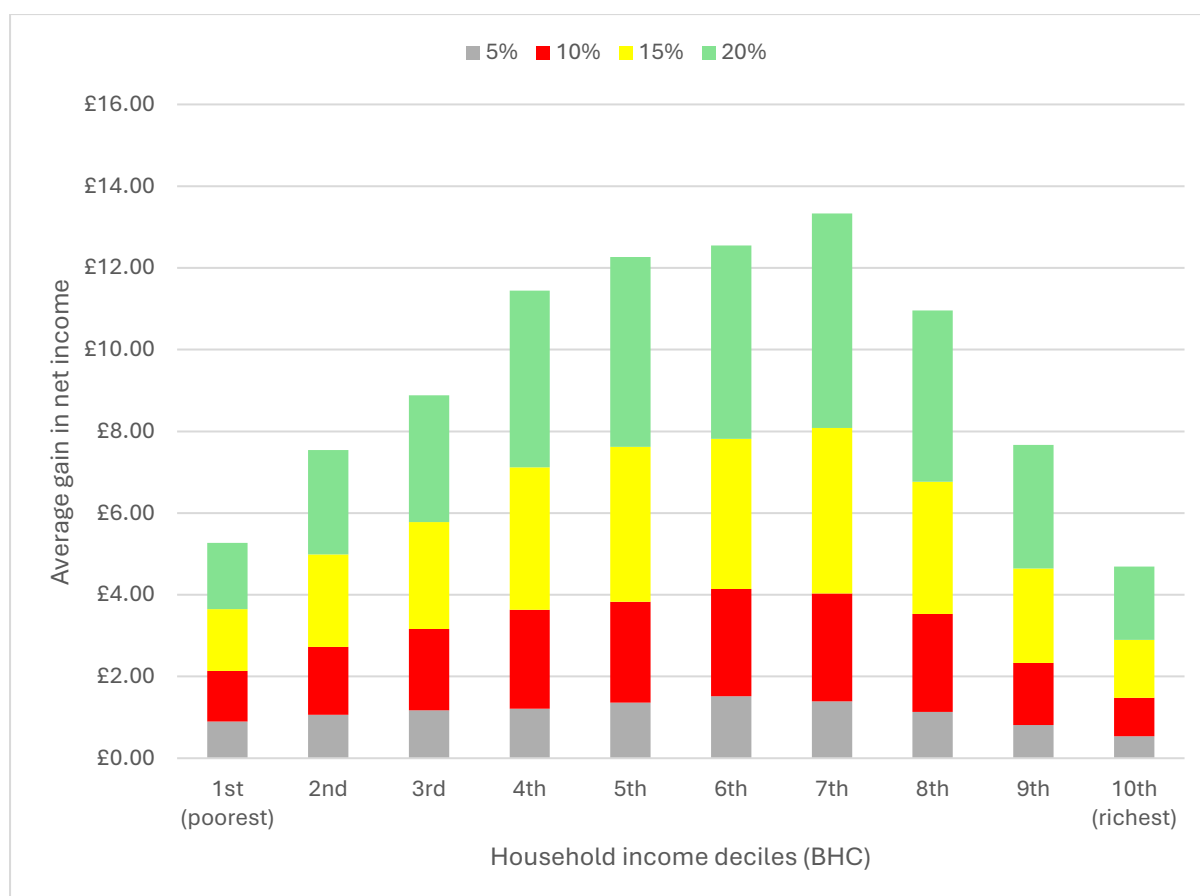
Figure 7.1. Distributional impact of 1% through 5% increases in NMW/NLW rates, cash terms: BHC income deciles, all households



Source: author's analysis of FRS 2023/24 dataset uprated to 2025/26 levels using Landman Economics Tax-Transfer Model to estimate changes in household net incomes

Figure 7.2 shows the distributional impacts of larger increases in the NMW/NLW – from 5% up to 20% - in cash terms using the BHC income definition. As with the smaller percentage increases in Figure 7.1, the largest cash increases are in deciles 5 through 7. The increases in decile 8 are also larger compared to deciles 1 to 3 in this Figure compared to Figure 7.1. The reason for this is that as the level of the NMW and NLW increase, more workers in the upper reaches of the household income distribution are paid at NMW/NLW levels and so the overall distributional impact of the NLW/NMW increase is skewed upwards, the larger the size of the minimum wage increase.

Figure 7.2. Distributional impact of 5% through 20% increases in NMW/NLW rates, cash terms: BHC income deciles, all households

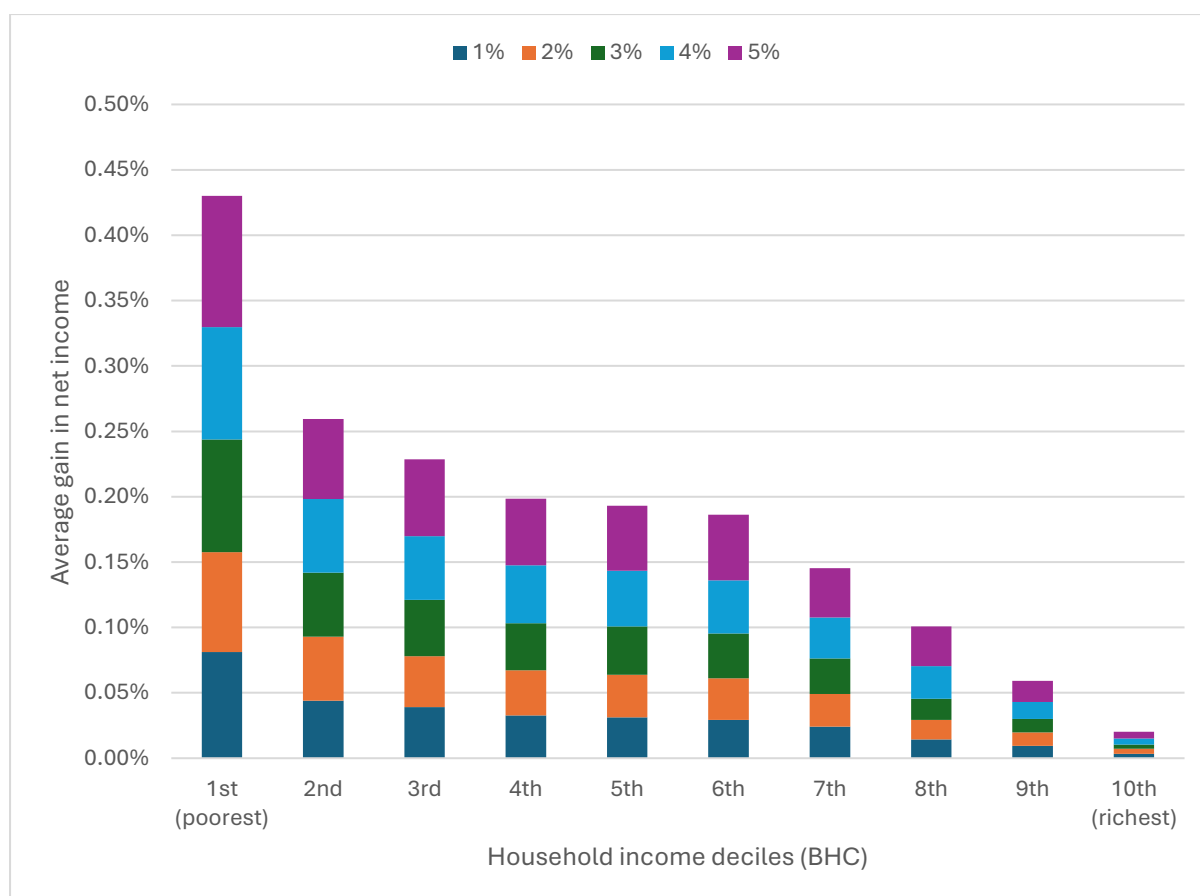


Source: as for Figure 7.1

Impacts as a percentage of net incomes

Figure 7.3 shows the distributional impact of NMW/NLW increases from 1% to 5% as a percentage of household BHC net incomes, by net income decile for deciles containing all households. The results show that minimum wage increases are progressive as a proportion of net incomes, especially in the lowest decile. A 5% increase in the NMW/NLW increases average household incomes in the poorest decile by just under 0.45%, compared to just under 0.2% in the 4th and 5th deciles. In the top decile the average increase in net incomes is only around 0.02%.

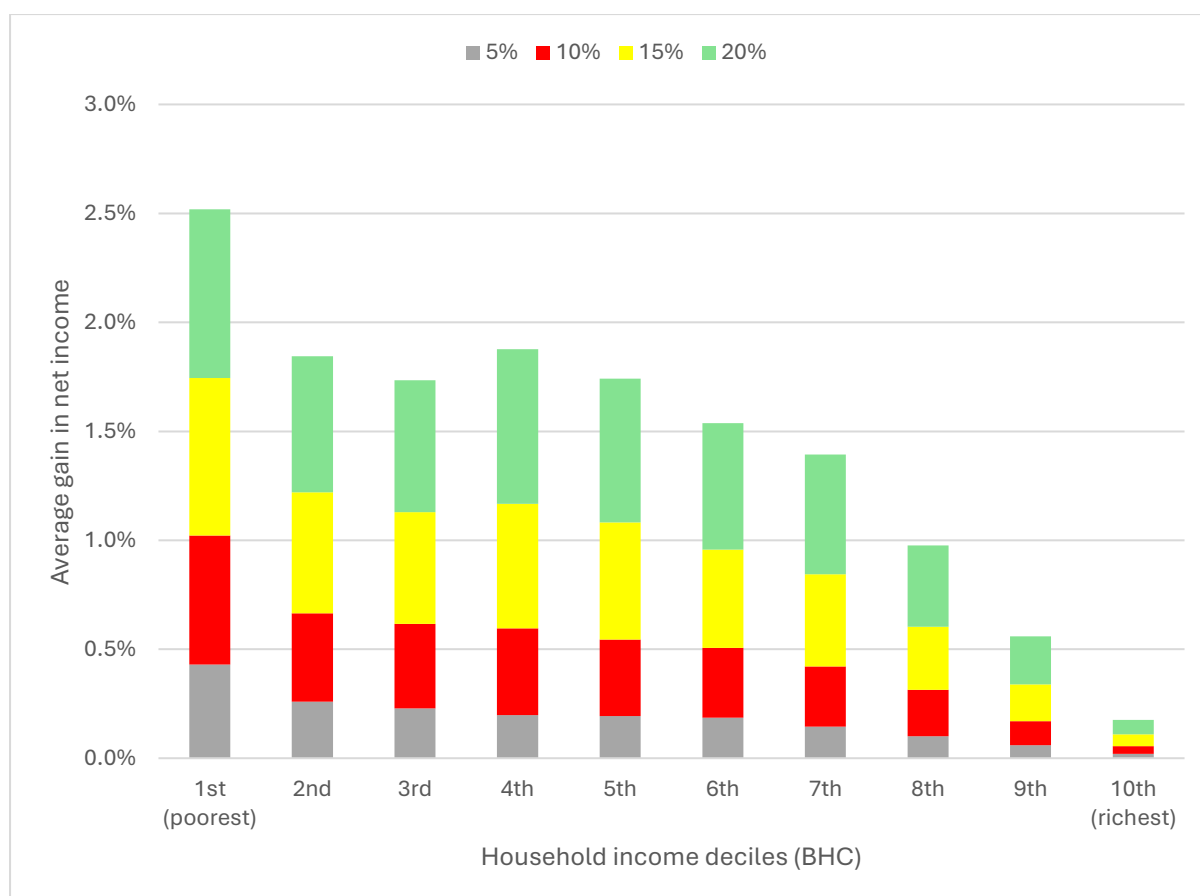
Figure 7.3. Distributional impact of 1% through 5% increases in NMW/NLW rates as a percentage of BHC net income, all households



Source: as for Figure 7.1

Figure 7.4 shows percentage impacts of the larger NMW/NLW increases as a percentage of BHC net income. The effects are progressive overall, although fairly even in percentage terms between deciles 2 and 5. A 20% increase in the NMW/NLW increases average BHC net incomes by around 2.5% in the poorest decile, around 1.7% in decile 5 and around 0.2% in the top decile.

Figure 7.4. Distributional impact of 5% through 20% increases in NMW/NLW rates as a percentage of BHC net income



Source: as for Figure 7.1

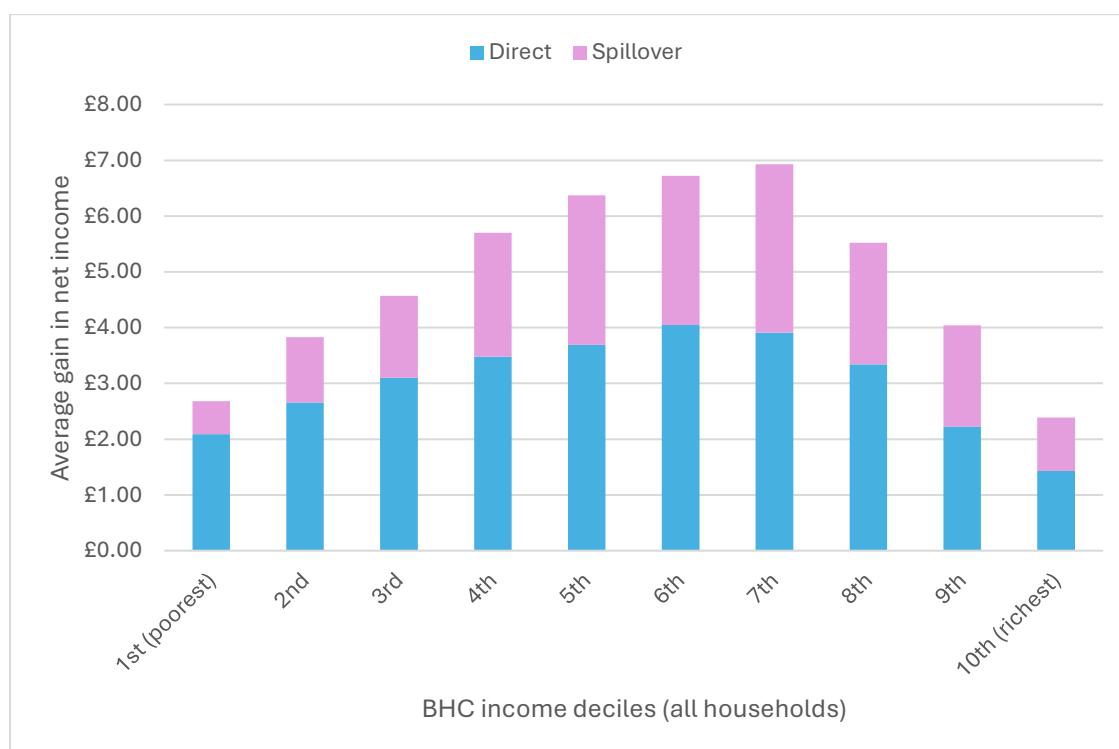
7.2 Distributional effects by income decile including spillover effects

The remainder of this chapter focuses on the distributional impact of a 10 per cent increase in the National Minimum Wage and National Living Wage, including the spillover effects on the income distribution which arise because of increases in hourly wages for employees above the minimum wage level. In the charts that follow, the 'direct' impacts of the 10% minimum wage increase on net incomes are shown in blue columns, while the additional impacts of spillovers are shown in pink.

Effects by income decile across all households

Figures 7.5 and 7.6 show the impact of a 10% increase in the NMW and NLW by BHC income decile, using deciles which include all households (including those without any adult members in work)²¹. Figure 7.5 shows cash impacts whereas Figure 7.6 shows impacts as a percentage of net income.

Figure 7.5. Distributional impact of 10% increase in NMW/NLW rates including direct effects and spillover effects, weekly cash terms: BHC income deciles, all households



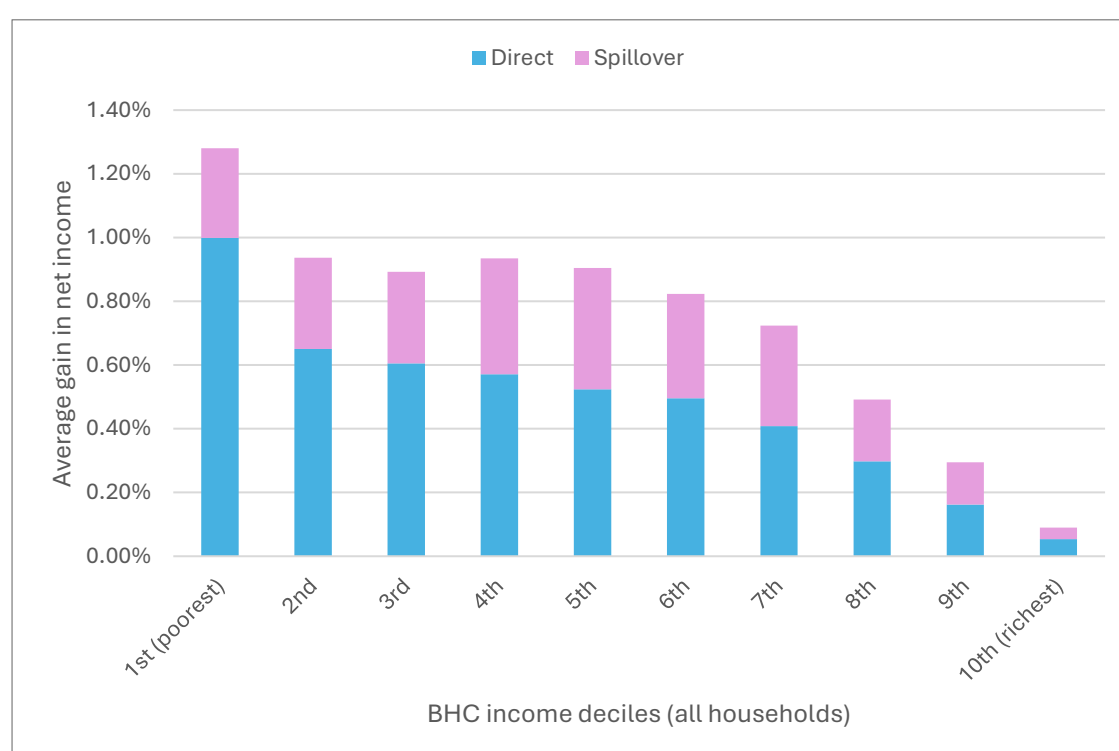
Source: author's analysis of FRS 2023/24 dataset uprated to 2025/26 levels using Landman Economics Tax-Transfer Model to estimate changes in household net incomes

Figure 7.5 shows that the direct effects of a 10% increase are largest in average cash terms at the 6th decile at around £4 per household per week. The impacts are

²¹ It is important to note that the cash gain and percentage gain results for the impact of a 10% increase in the NMW and NLW in Figures 7.5, 7.6 and the subsequent charts in this chapter all differ slightly from the results for a 10% increase in Figures 7.1 through 7.4. This is because Figures 7.5 and following use the baseline estimate of coverage which takes spillover effects for the increase in the NMW and NLW from April 2024 to April 2025 into account, whereas Figures 7.1 to 7.4 use the "raw" baseline coverage estimate which does not take spillover effects into account. This means that the number of employees affected by a 10% increase in the "direct" columns in Figures 7.5 and following is lower than the number of employees affected in Figures 7.1 to 7.4, and so the distributional impacts are slightly smaller in the later Figures.

smallest in the top decile, with an “inverted U shape” overall, the largest gainers being in the middle of the household income distribution. The spillover effects also follow an inverted U-shape pattern but are slightly more skewed towards the upper-middle reaches of the income distribution than the direct effects, with the highest average cash impact in the 7th decile. This result echoes the findings of Figure 7.2 that the impacts of larger increase in the NMW and NLW are skewed more towards the upper reaches of the income distribution.

Figure 7.6. Distributional impact of 10% increase in NMW/NLW rates including direct effects and spillover effects, as a percentage of net incomes: BHC income deciles, all households

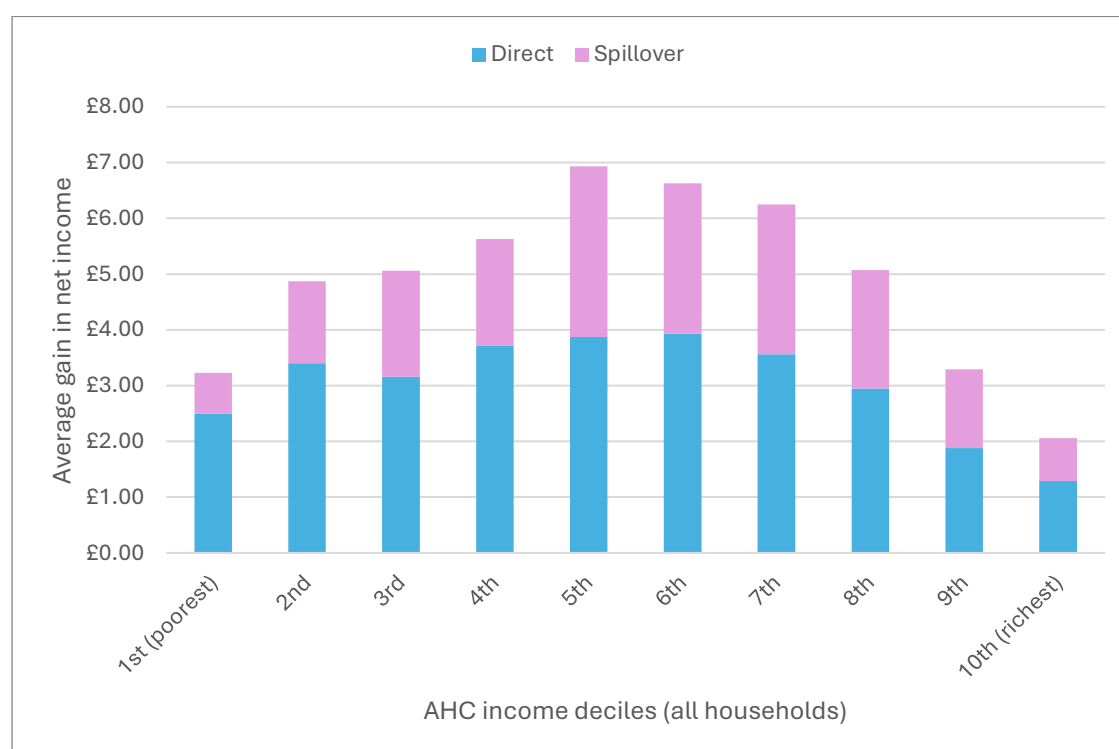


Source: as Figure 7.5

Figure 7.6 shows that as a percentage of net income, the direct impacts of a 10% increase in the NMW/NLW are largest in the bottom decile (averaging around 1% of net income) and are progressive, with the average impact falling as we go further up the distribution, reaching less than 0.2% by the 9th decile and almost zero for the top decile. The distributional effects of spillovers are largest in percentage terms in the 4th and 5th decile, but are relatively even in percentage terms between the bottom and 7th decile (inclusive), and then smaller in the top three deciles.

Figures 7.7 and 7.8 use an income decile definition which includes all households but in this case the income deciles are defined based on After Housing Costs (AHC) incomes.

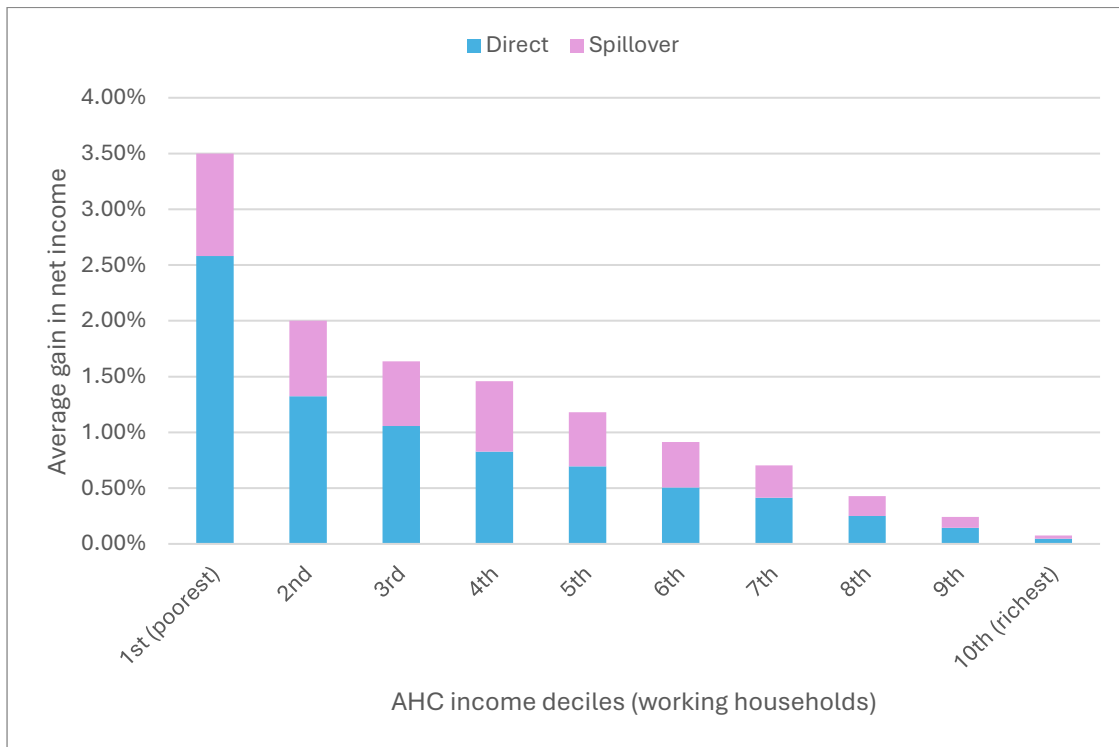
Figure 7.7. Distributional impact of 10% increase in NMW/NLW rates including direct effects and spillover effects, weekly cash terms: AHC income deciles, all households



Source: as Figure 7.5

Figure 7.7 shows that the average direct weekly cash impacts of a 10% increase in the NMW and NLW are largest in deciles 5 and 6 of the household income distribution, and also show slightly larger impacts in the two poorest deciles than for the BHC income chart in Figure 7.5. This is because employees paid at minimum wage are more likely to be in the bottom two deciles of the income distribution using an AHC definition of income than a BHC definition of income (as shown in Table 5.1 above). Meanwhile, the average spillover effects are largest in deciles 5 to 7, and considerably smaller at both ends of the income distribution.

Figure 7.8. Distributional impact of 10% increase in NMW/NLW rates including direct effects and spillover effects, as a percentage of net incomes: AHC income deciles, all households



Source: as Figure 7.5

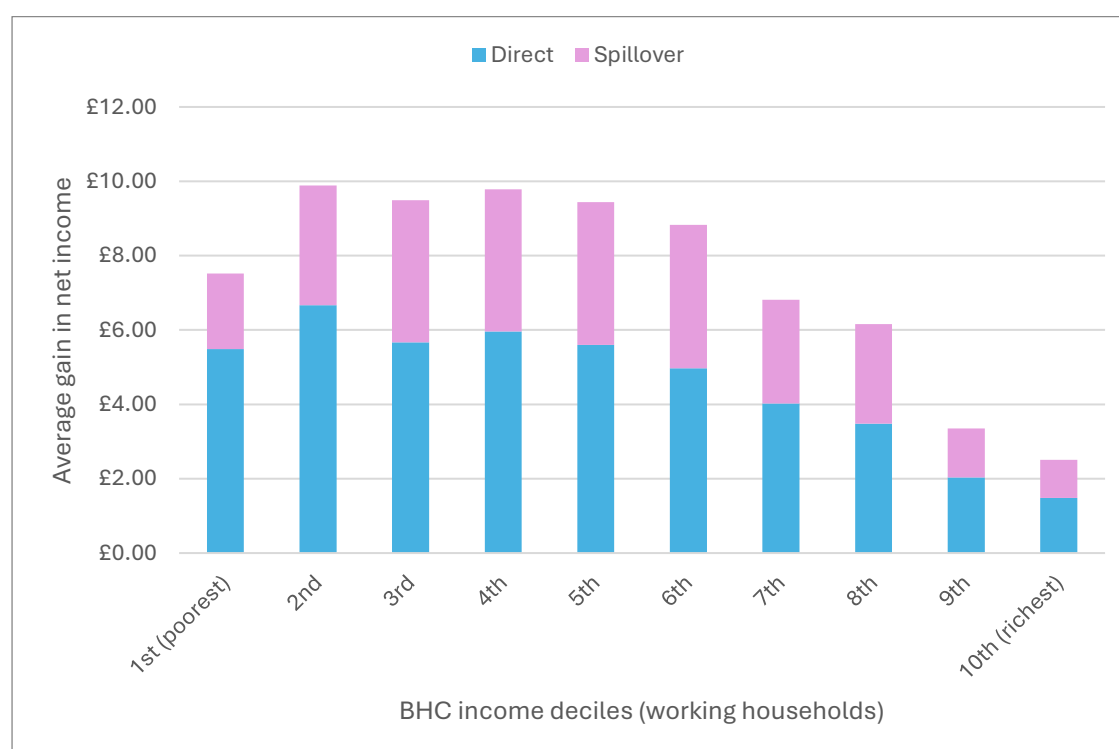
Figure 7.8 shows that measured as a proportion of AHC income and using AHC household income deciles, a 10% increase in minimum wage rates has a more progressive pattern than for BHC income deciles. This is largely because average AHC incomes are significantly lower than BHC incomes in the poorest income decile in particular – average AHC income is only around £100 per week in the lowest decile compared with average BHC income of £210. This means that in percentage terms the average gains from the minimum wage increase of 10% (both the direct gains and the gains from spillovers) are considerably larger for AHC incomes than BHC incomes. Direct and spillover gains have a progressive pattern as a share of AHC income, with total gains of around 3.5% of net income in the poorest decile, falling to around 0.9% of net income at decile 6 and less than 0.1% of net income in the top decile.

Effects by income decile for households with at least one person in work only

The next section shows distributional effects of a 10% increase in the NMW/NLW using BHC and AHC incomes as defined already in the chapter, but here the income deciles include only those households in the FRS with at least one person in paid employment. This means that the decile definition here excludes households where all the adults are unemployed or inactive (for example disabled adults, parents looking after children full-time, and pensioners). As shown in Table 5.2 compared to Table 5.1 earlier, the exclusion of non-working households from the income decile definition means that employees paid at minimum wage are significantly more likely to be located in the bottom three deciles of the income distribution in particular, because many non-working households – especially those containing working-age adults rather than pensioners – are in the bottom three deciles of the all-household income distribution. This is the case for both the BHC and AHC income measures.

Figure 7.9 shows the average weekly cash impacts of a 10% minimum wage increase by BHC income decile for households with at least one person in work only.

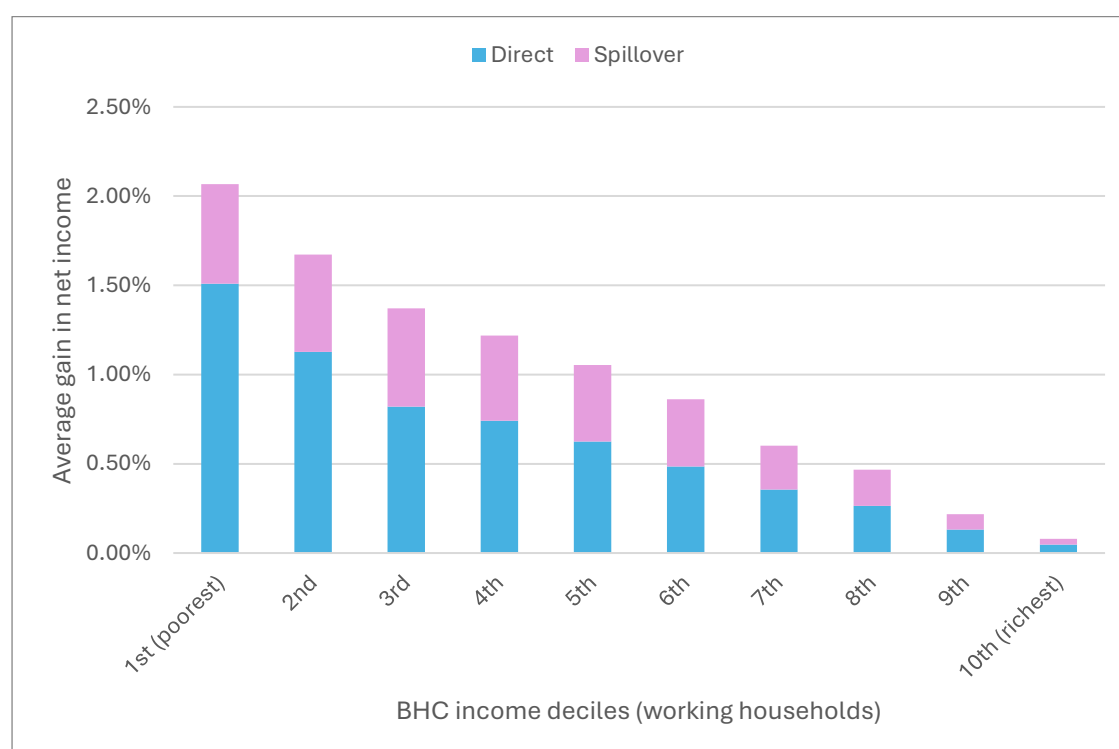
Figure 7.9. Distributional impact of 10% increase in NMW/NLW rates including direct effects and spillover effects, weekly cash terms: BHC income deciles, households with at least one person in work only



Source: as Figure 7.5

Figure 7.9 shows that the distributional impact of a 10% increase in the NMW/NLW is more skewed towards the left hand side of the chart – the poorer income deciles – when non-working households are excluded from the deciles. The largest average direct impact in cash terms (around £6.50) is in decile 2 using these deciles. The average direct weekly impact in each of the bottom 5 deciles is at least £5.50 per week, whereas the average direct weekly impact in each of the top 4 deciles is less than £4.00 per week. The spillover effects are largest in deciles 3 through 6 (at around £3.50 to £4 per week in each case), and smallest in the top two deciles.

Figure 7.10. Distributional impact of 10% increase in NMW/NLW rates including direct effects and spillover effects, as a percentage of net incomes: BHC income deciles, households with at least one person in work only



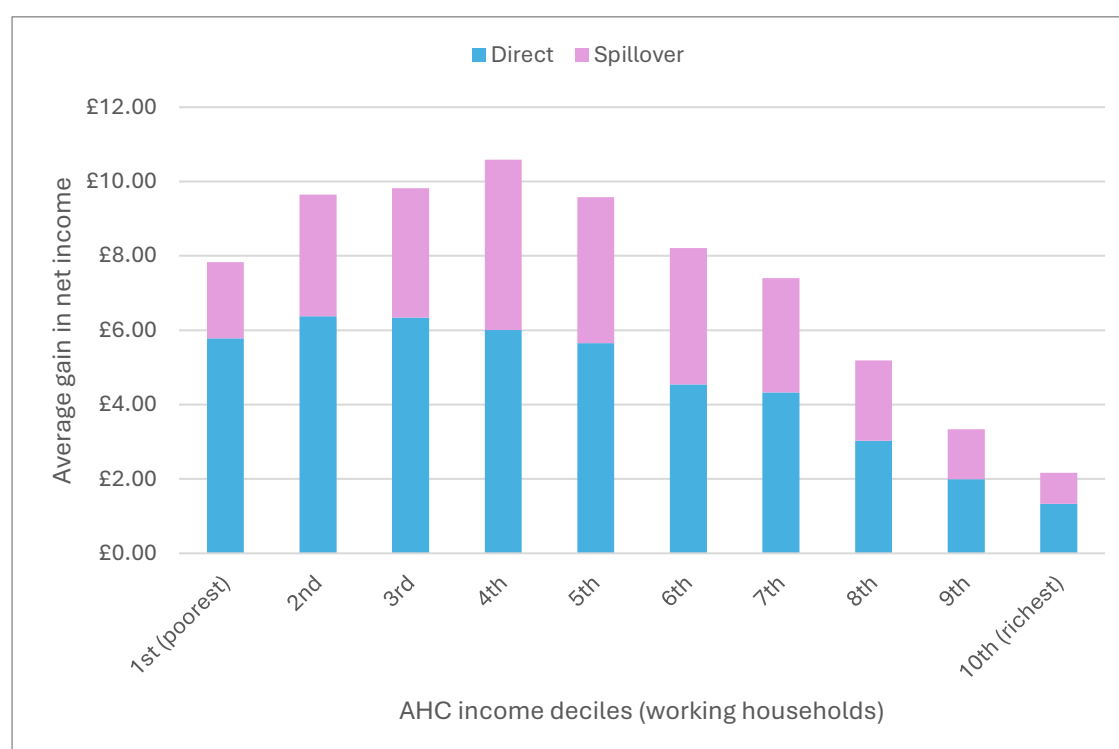
Source: as Figure 7.5

Analysis of the percentage impacts of a 10% minimum wage increase by BHC income decile for households with at least one adult in work only in Figure 7.10 shows a progressive pattern for both the direct effects and the spillover effects. Overall, the spillover effects are somewhat smaller than the direct effects, especially at the top and bottom ends of the income distribution. The total effects (direct plus spillovers) are equal to just over 2% of net income in the poorest decile, around 0.8% in decile 6 and less than 0.1% in the top decile. The slope of the percentage impacts

is a smoother gradient from poor to richest households using this income decile definition.

Finally in this section, Figures 7.11 and 7.12 show the distributional impact of a 10% increase in minimum wage rates using an AHC income definition and AHC income deciles for households with at least one person in work only.

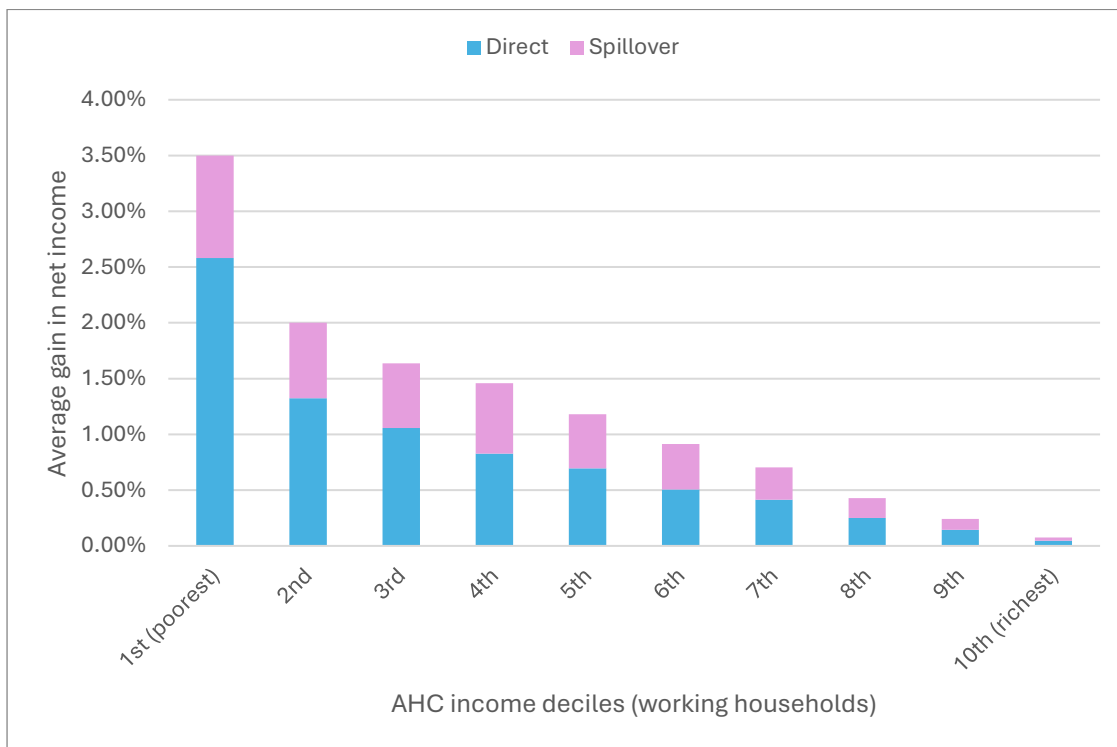
Figure 7.11. Distributional impact of 10% increase in NMW/NLW rates including direct effects and spillover effects, weekly cash terms: AHC income deciles, households with at least one person in work only



Source: as Figure 7.5

Figure 7.11 shows that the average weekly cash impacts are skewed left using AHC income deciles for households with at least one person in work only, in a similar fashion to the BHC decile chart in Figure 7.9.

Figure 7.12. Distributional impact of 10% increase in NMW/NLW rates including direct effects and spillover effects, as a percentage of net incomes: BHC income deciles, households with at least one person in work only



Source: as Figure 7.5

Figure 7.12 shows that the percentage impacts of a 10% NMW/NLW increase are significantly larger in the bottom decile using the AHC income definition compared to the BHC income definition. As with Figure 7.8 above, this is mainly because average AHC incomes in the bottom decile are significantly lower than average BHC incomes due to housing costs. For deciles 2 through 10 there is a smoother downward trend in the percentage impact of the minimum wage increase (taking direct and spillover effects into account), as with Figure 7.12 for the BHC impacts by deciles of working households.

7.3 Summary and Discussion

The results in this chapter show that the weekly cash gains in household net income of increases in the minimum wage of between 1% and 5% show that the cash gains peak in the 5th through the 7th decile for deciles based on a BHC income definition and all households (including BHC households). As a percentage of household net income, average gains are largest for the lowest decile. For smaller NMW increases (1% to 5%) the next largest gains are for deciles 2 and 3, followed by fairly even

gains in deciles 4 to 6. Average gains are progressively smaller in the top four deciles. For larger increases in the NMW and NLW increases (10% or above), the percentage gains in 4 and 5 are similar to 2 and 3 (and slightly above, even, for a 10% increase).

The results in Figures 7.1 to 7.4 show that, when spillovers are not taken into account, the distributional effects of larger increases in the minimum wage skew increasingly towards richer households compared to smaller increases. This makes obvious sense because an increase in the minimum wage increases coverage of the minimum wage (as shown in Figure 6.2 earlier). Taking spillovers into account, this effect is less strong. Instead, the spillover effects skew more towards richer households than the direct effects.

When spillover effects are incorporated, the distributional effect of spillovers in cash terms peaks slightly further up the distribution than the direct cash impacts. This shows that the impact of minimum wage increases on net household incomes may be slightly less progressive when spillover effects are taken into account. It makes intuitive sense that the distributional effects should have this pattern, because spillover effects occur further up the hourly wage distribution than the minimum wage level by definition. Without taking spillovers into account, the maximum cash impact of a 10% NMW/NLW increase is in decile 6 at around per £4 week. With spillovers, the maximum is around £7 at decile 7. The percentage impacts of a 10% NMW/NLW increase incorporating spillover effects are largest in the poorest decile, followed by the 4th decile, using a BHC income definition that includes all households.

Using an AHC income definition with deciles that include all households, the distributional impact of a 10% increase in the NMW/NLW is similar to the BHC impacts but not identical, with the AHC impacts being skewed slightly further down the income distribution than the BHC impacts. This makes sense, given the finding in Table 5.1 that employees earning at minimum wage are more likely to be in the poorest two deciles of household net income using an AHC definition than a BHC definition. The maximum weekly cash impact of the 10% minimum wage increase is around £4 per week for deciles 5 and 6 based on direct effects alone. When spillover effects are considered the maximum weekly cash impact is around £7 per week in decile 5.

When non-working households are excluded from the income decile definition, the weekly cash impacts of a 10% minimum wage increase are skewed much more towards poorer deciles. This makes sense, given that a large proportion of non-working households – especially non-working households with working age adults – are in the poorest two deciles of the all-household income distribution. The maximum impact of a 10% NMW/NLW increase using these deciles, and a BHC income definition, is in decile 2 (around £6.50 per week without considering spillovers, and around £10 per week when spillovers are included). The smallest cash impact is around £2.30 per week in the top decile.

Considering average impacts of a 10% minimum wage increase as a percentage of net income, the impacts for deciles excluding non-working households have a smooth negative gradient with the largest gains in the lowest households. This is true for both BHC and AHC households (although the lower average income in the poorest AHC decile makes the average effects particularly large larger there, at 3.5% of net income including spillover effects).

Overall, the results in this chapter show that the definition of household income deciles – whether the deciles include all households, or exclude households with no-one in paid work – is very important when assessing the distributional impact of increases in the National Minimum Wage and National Living Wage. The impacts of minimum wage increases look much more progressive if non-working households are excluded from the analysis. However, the pattern of gains across the all-household distribution remains important when we are thinking about the impact on the very poorest households, as in our analysis of poverty in Chapter 11.

8 Distributional impact of NMW/NLW increases using other breakdown variables

This chapter shows the distributional impact of increases in the NMW and NLW using a range of breakdown variables other than household income decile. Because the distributional analysis uses household measures of income, it is necessary to use household-level breakdown variables to analyse the distributional results. This chapter uses four different variables:

1. Average age of adults in the primary benefit unit in the household
2. Benefit unit type of primary benefit unit in the household
3. Region
4. Housing tenure.

Note that households without anyone in work are removed from this analysis – so all of the distributional results in this chapter are for working households only. The analysis uses the After Housing Costs measure of household income.

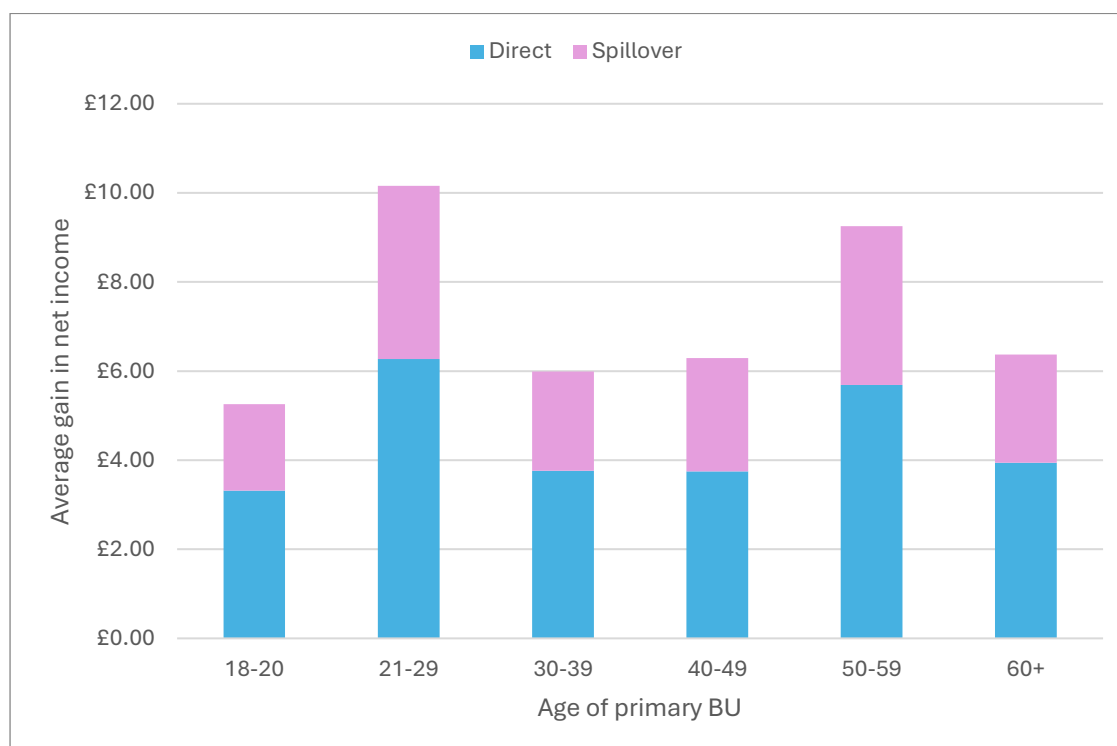
The analysis shows the distributional effects of a 10 per cent increase in the National Minimum Wage and National Living Wage, both directly and once spillovers are taken into account.

8.1 Average age of adults in primary benefit unit

Figure 8.1 shows the average weekly cash impacts of NMW/NLW increases of 10% by the average age of adults in the primary benefit unit. The largest direct cash impacts are for households with average age 21-29 and 50-59, averaging around £6 per week in each case. The average direct weekly impacts for the other age groups - average age 18-20²², 30-39, 40-49 and 60 or over – are between £3.30 and £4 per week. The spillover effects follow a similar pattern to the direct effects by age group, with the largest impacts for the 21-29 and 50-59 age groups.

²² Note that the charts in this section do not include a category for 16-17 year olds because the sample of 16 and 17 year olds earning NMW who are defined as adults (rather than children) in the FRS is very small and so they are excluded from this part of the analysis due to low sample size.

Figure 8.1. Distributional impact of 10% in NMW/NLW rates including direct effects and spillover effects, weekly cash terms by average age of adults in main benefit unit, working households only

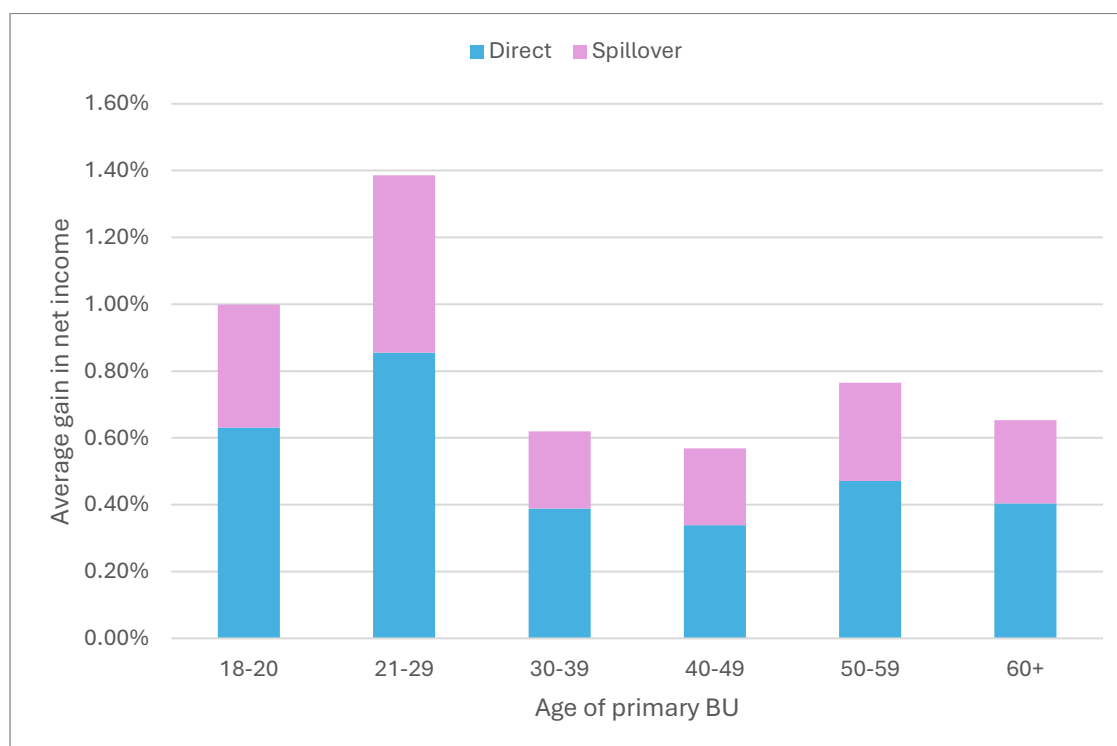


Source: author's analysis of FRS 2023/24 dataset uprated to 2025/26 levels using Landman Economics Tax-Transfer Model to estimate changes in household net incomes

Figure 8.2 shows the impact of a 10% minimum wage increase by average age of adults in the primary benefit unit as a percentage of net income. In percentage terms the impacts for 21-29 year olds are largest, with a total average impact (including direct effects and spillover effects) of around 1.4% of net incomes. The smallest impacts are for the 30-39 and 40-49 year old age groups. The different pattern of Figure 8.2 compared to Figure 8.1 reflects the fact that average AHC weekly incomes are significantly higher in households where the average age of adults in the main benefit unit is 30-39 or older than they are in households where the average age of adults in the main benefit unit is 18-20 or 21-29.

The larger average cash impact of the minimum wage increase for households where the average age of adults in the primary benefit unit is 21-29 or 50-59 compared to the other age groups is because these age groups have a larger average number of employees paid at NMW/NLW (per household) than households where the average age of adults in the primary benefit unit is 30-39, 40-49 or 60 or older.

Figure 8.2. Distributional impact of 10% in NMW/NLW rates including direct effects and spillover effects, as a percentage of net income by average age of adults in main benefit unit, working households only



Source: as Figure 8.1

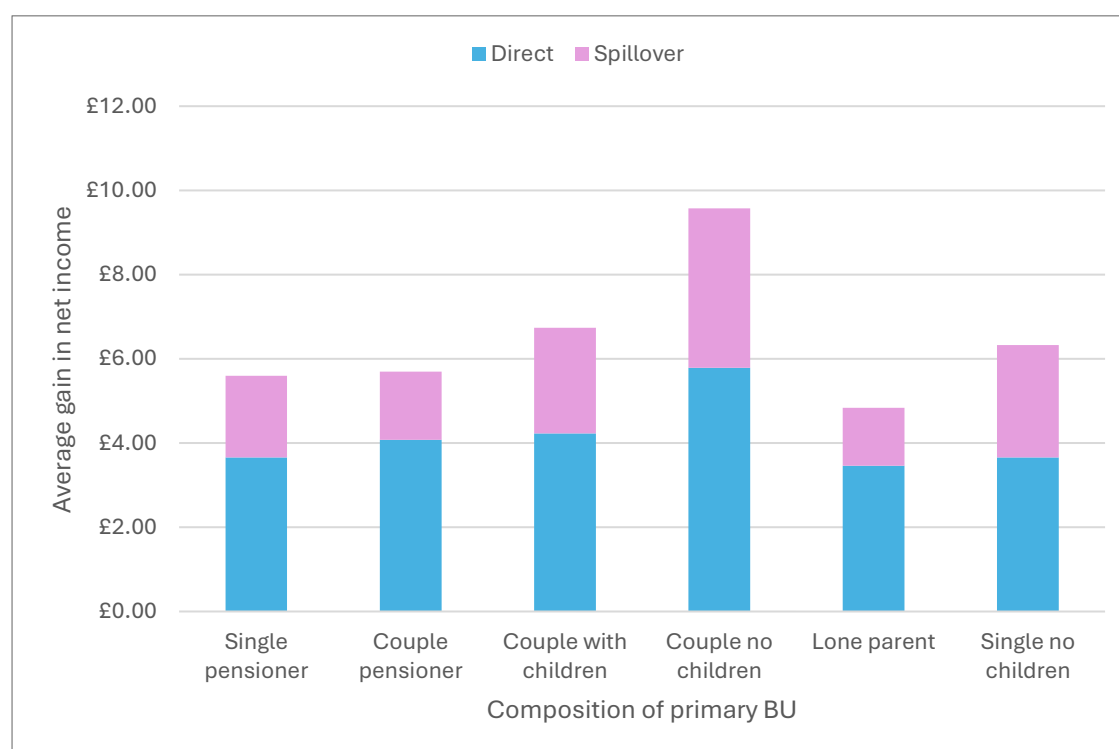
8.2 Benefit unit type of primary benefit unit

This section presents distributional breakdowns using the benefit unit type of the primary benefit unit as the breakdown variable. This breakdown variable has the limitation that some minimum wage earners are in secondary benefit units, but it is nonetheless useful. It is also important to remember when analysing these results that the analysis excludes households with no-one in work.

Figure 8.3 shows the distributional impact of a minimum wage increase of 10% in weekly cash terms. Average gains are largest for couples with no children; the average direct weekly cash impact is around £5.80, with average spillover effects of around £3.80. The next highest average direct cash gains are for couples with children and couple pensioners, although couples with children have larger spillover impacts than couple pensioners (mainly because there are fewer two-earner couples with pensioners than couples with children, which reduces the potential spillover gains for the former group). The larger average cash gains for couples with no children compared to couples with children reflect the fact that the former group have a larger average number of employees paid at NMW/NLW (per household than the latter group), especially when employees whose hourly earnings are less than 10%

above the relevant minimum wage level for their age group (and hence who would also benefit from a 10% increase in the minimum wage, in addition to those who are already paid at NMW or NLW in the 2025/26 baseline) are taken into account.

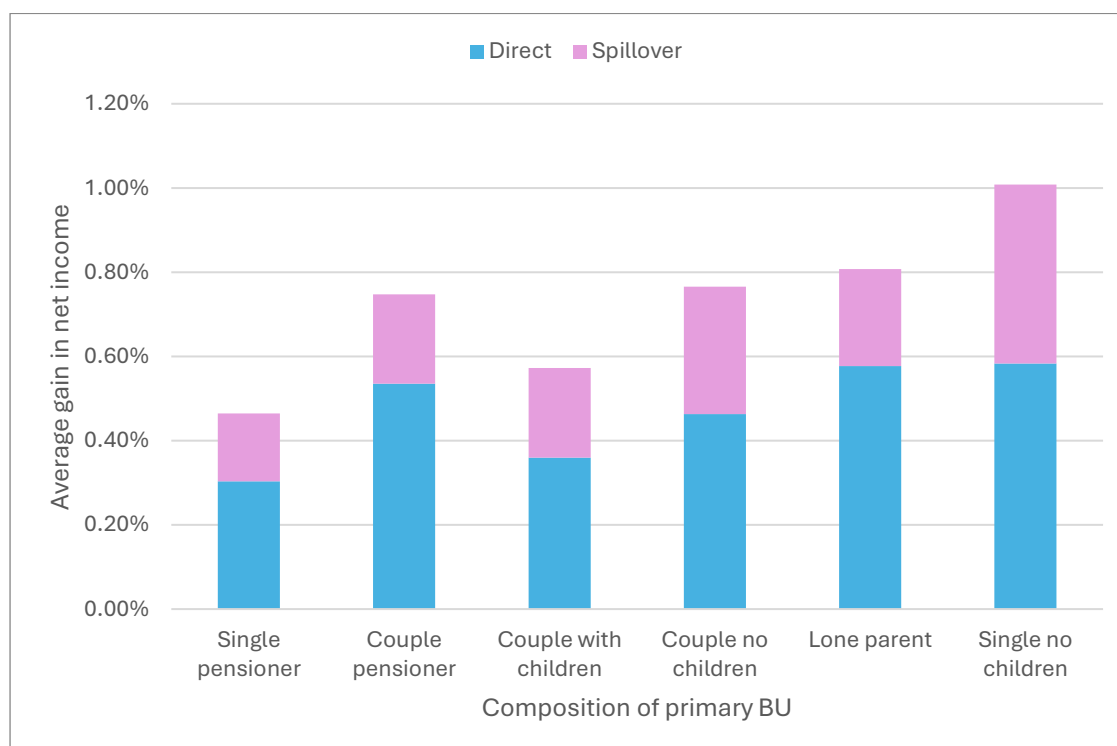
Figure 8.3. Distributional impact of 10% in NMW/NLW rates including direct effects and spillover effects, weekly cash terms by composition of primary benefit unit, working households only



Source: as Figure 8.1

Figure 8.4 shows average impacts of a 10% increase in NMW/NLW as a percentage of net income by benefit unit composition. The distributional pattern looks rather different from the weekly cash gains in Figure 8.3, partly reflecting the fact that households where lone parents and single adults with no children are the primary benefit units have lower average incomes than the other four groups, and so their average percentage gains are correspondingly higher compared to the other groups. Households where single adults with no children and lone parents are the primary benefit unit have the largest average direct gain as a percentage of net income, at just under 0.6%. However, the average spillover gain for single adults with no children is around twice as high as for lone parents. The smallest direct and spillover average percentage gains are for households where single pensioners are the primary benefit unit.

Figure 8.4. Distributional impact of 10% in NMW/NLW rates including direct effects and spillover effects, as a percentage of net income by composition of primary benefit unit, working households only

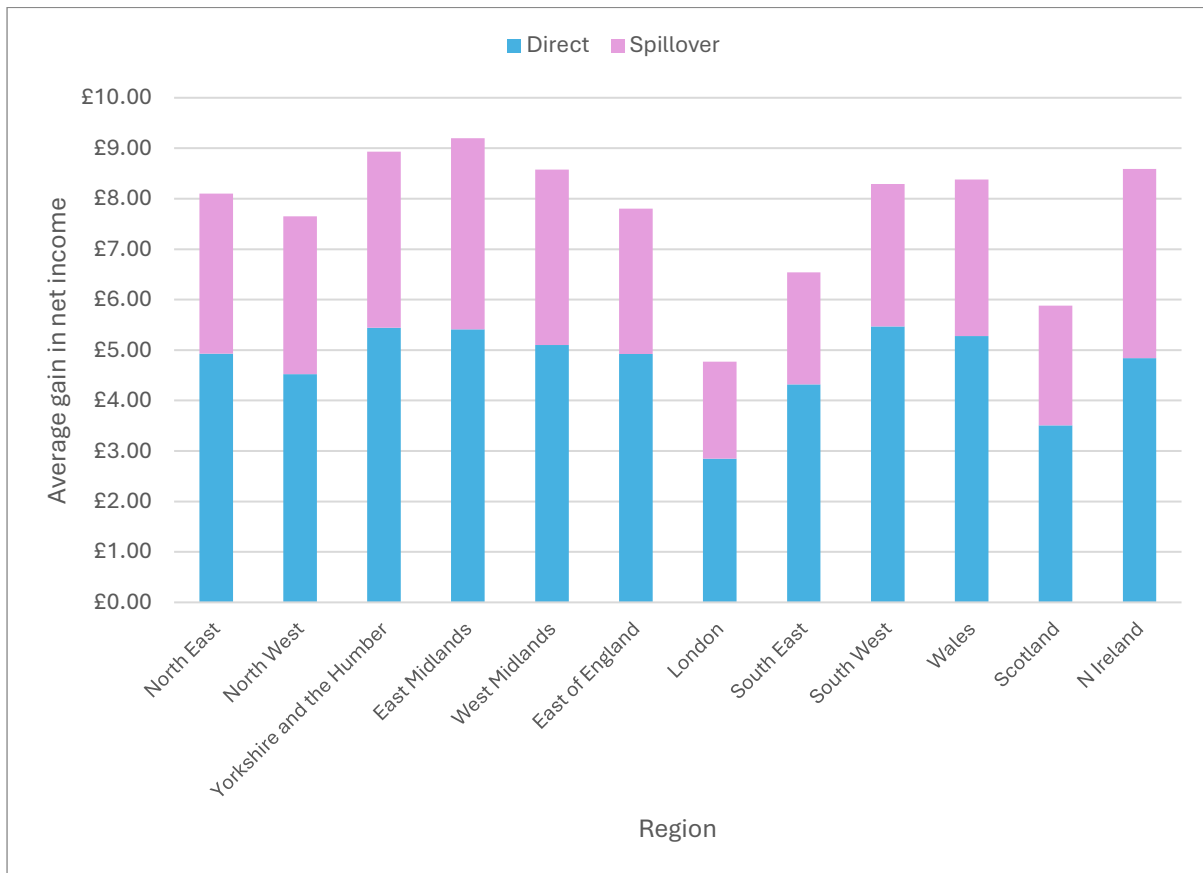


Source: as Figure 8.1

8.3 Region

Figure 8.5 shows the average weekly cash impacts of increases in the NMW/NLW of 10% by region. The largest average direct gains from minimum wage increases at this level are in Yorkshire and the Humber, the East Midlands, the West Midlands, the South West of England and Wales (all of which have average direct gains of over £5 per week). The largest spillover gains are for Northern Ireland, Yorkshire and the Humber and the East and West Midlands. The smallest average gains are for London, with an average of less than £3 per week direct gains and around £2 per week spillover gains. This is due to the “London wage premium”, whereby forecast median hourly wages in London for 2025/26 are around £19.75 per hour – around £2.25 per hour higher than the median for the UK excluding London and there is a lower percentage of workers paid at NMW/NLW in London than any other region. Scotland also has relatively low average cash gains from a 10% increase in the minimum wage. Forecast median wages for Scotland in 2025/26 are around £17.80 per hour, which is around £1.20 per hour higher than the median for the UK excluding London.

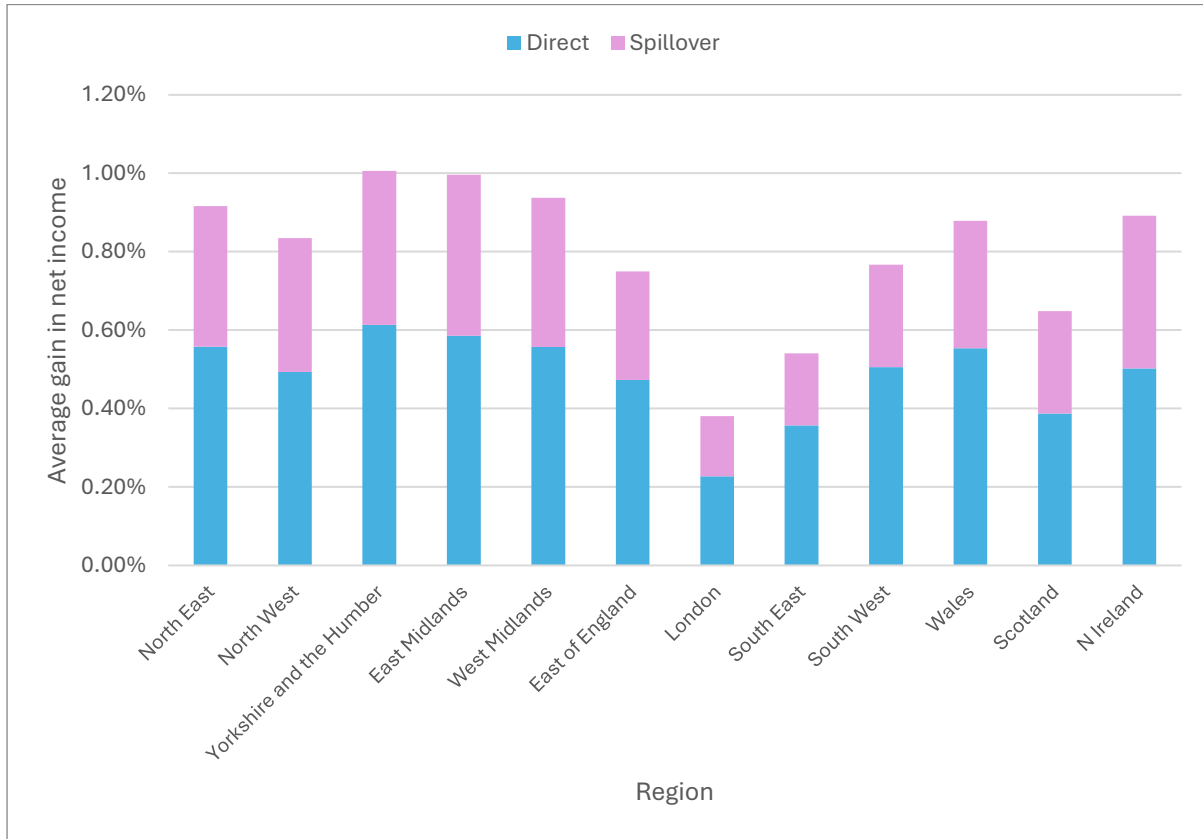
Figure 8.5. Distributional impact of 10% in NMW/NLW rates including direct effects and spillover effects, weekly cash terms by region of residence, working households only



Source: as Figure 8.1

Figure 8.6 shows the average distributional impact of a 10% increase in the NMW/NLW as a percentage of net income by region. The largest overall increases as a percentage of net income are for the North East East Midlands, Yorkshire and the Humber, Wales and Northern Ireland, all of which show average gains of around 0.9 to 1 per cent of net income in total. The smallest average percentage increases are for London, South East England and Scotland. Overall the pattern of regional variation in the impacts of a 10% minimum wage increase in percentage terms does not look that different to the cash impacts, except that the average impact for London is even lower compared to the other regions than for the cash impacts in Figure 8.5. This is because average household incomes in London are relatively high compared to the other regions.

Figure 8.6. Distributional impact of 10% in NMW/NLW rates including direct effects and spillover effects, as a percentage of net income by region of residence, working households only



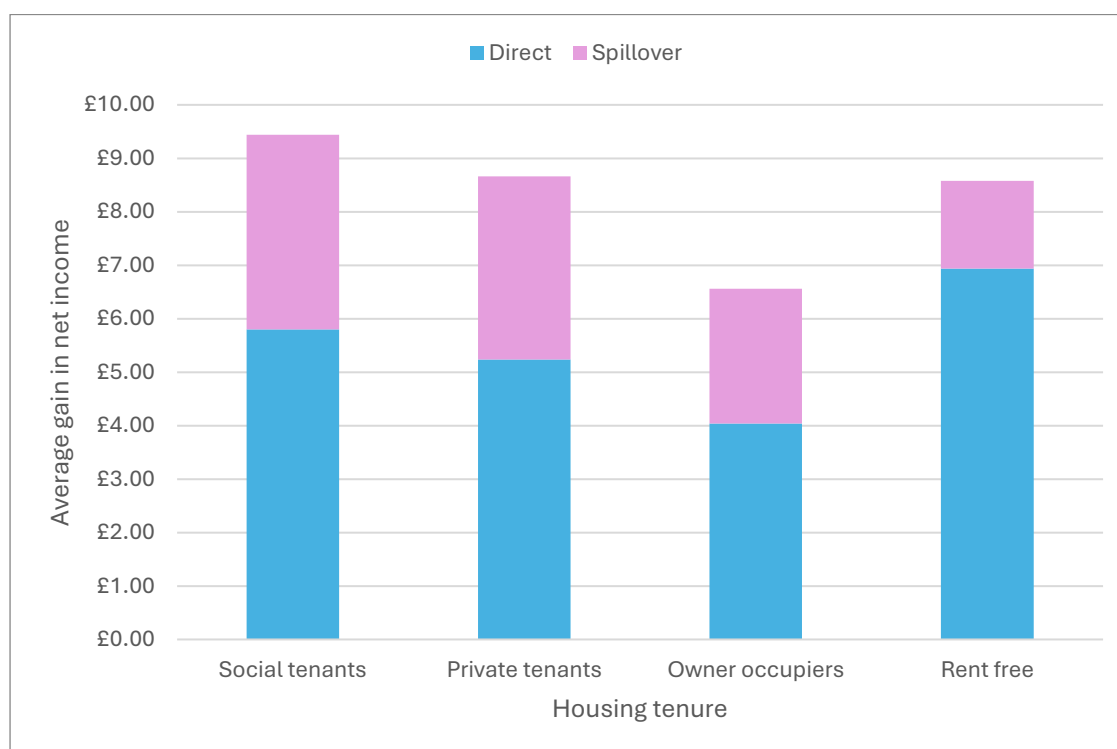
Source: as Figure 8.1

8.4 Housing tenure

Finally in this chapter, Figure 8.7 shows the average weekly cash gains from a 10% increase in the NMW and NLW according to the tenure of the household. The largest average direct weekly cash gains are for rent-free households (almost £7 per week) – although this makes up a very small share of all households (around 1 per cent). This is followed by social and private tenant households (between £5 and £6 per week), with owner-occupiers having the smallest average direct cash gains (around £4 per week). However, the pattern of spillovers is very different to the pattern of direct gains; the largest average spillovers are for tenant households (around £3.50 per week for social and private tenant households) with rent-free households only having an average spillover of £1.50 per week. Summing the overall effects, the total

cash impact is largest for social tenant households at just under £9.50 per week on average.

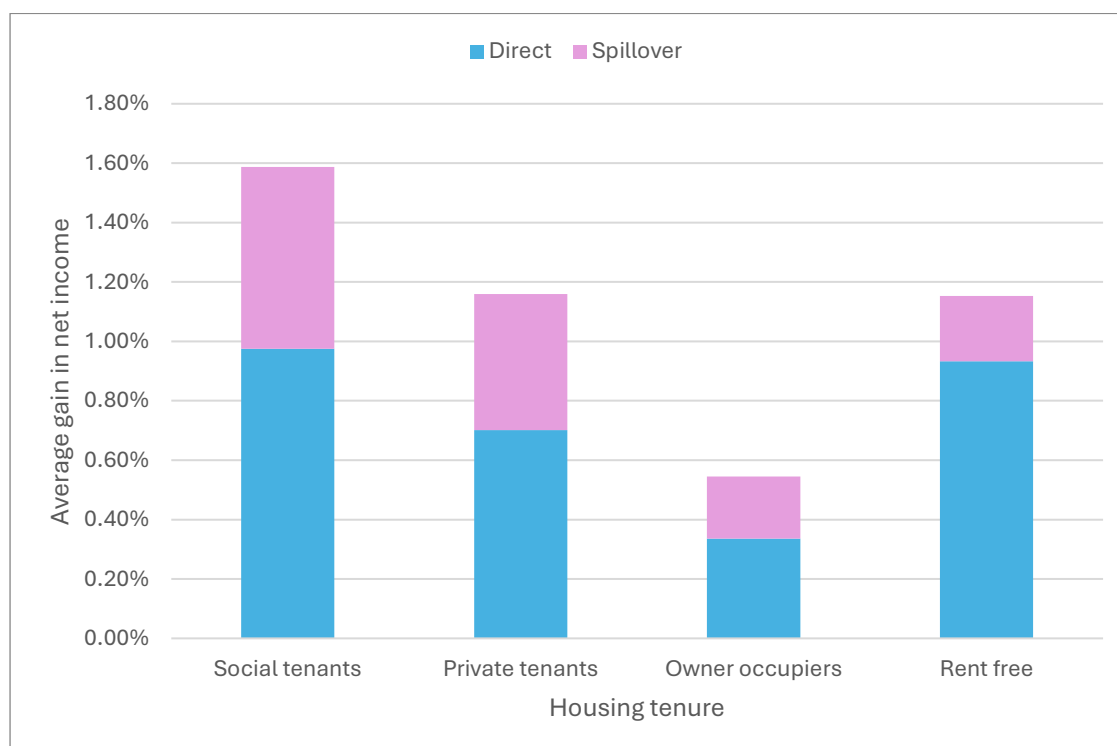
Figure 8.7. Distributional impact of 10% in NMW/NLW rates including direct effects and spillover effects, weekly cash terms by housing tenure, working households only



Source: as Figure 8.1

Figure 8.8 shows the distributional impact of minimum wage increases of up to 5% by housing tenure as a percentage of net incomes. The largest direct impacts are for social tenants and rent-free households with average gains of between 0.9 and 1% compared to around 0.3% for owner-occupiers and 0.7% for private tenants. The largest average spillover impacts are for social tenants (around 0.6%) and private tenants (around 0.4%).

Figure 8.8. Distributional impact of 10% in NMW/NLW rates including direct effects and spillover effects, as percentage of net income by housing tenure, working households only



Source: as Figure 8.1

8.5 Summary and discussion

Overall, the use of breakdown variables other than household income decile to analyse the distributional effects of increases in the NMW and NLW provides some useful additional analytical results. For example, the analysis by average age of adults in the primary benefit unit shows that the largest gains (in percentage terms) from a 10% minimum wage increase are for primary benefit units with average age 21 to 29, followed by 18 to 20-year olds.

By composition of primary benefit unit the largest cash impacts (including spillovers) are for couples with no children, with the smallest for lone parents. However, when percentage impacts are considered the largest impacts are for single adults with no children and lone parents. This result largely reflect the lower average incomes of households where the primary benefit unit is a single adult (plus dependent children if applicable) compared to households where the primary benefit unit is a couple.

By region, the main result is that average impacts are smaller for London (and to a lesser extent Scotland) than for other regions/countries. This reflects higher median

wages in these regions and a lower proportion of employees paid at NMW/NLW in these regions/countries than elsewhere in the UK.

By housing tenure, households who rent their accommodation (both private and social renters) and households who live rent-free benefit more (in both cash and percentage terms) from a 10% increase in the minimum wage than owner-occupier households.

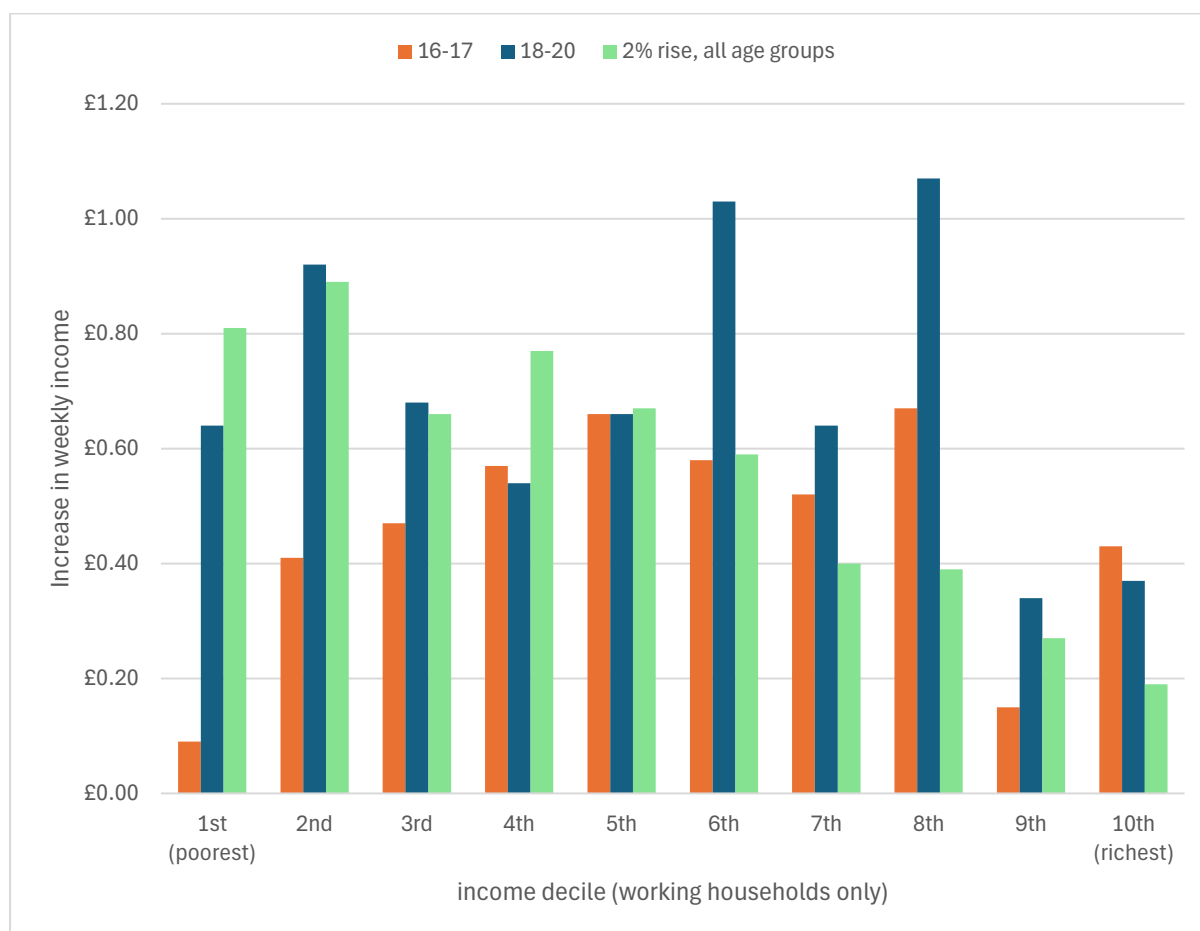
The patterns in average cash gains seen in this section are largely a consequence of the types of family and household where minimum wage workers are most likely to be found, as presented in Chapter 5 (although this will be mediated by the marginal deduction rates discussed in Chapter 10). However, when it comes to percentage gains, the starting income of the household is a key factor, with lower-income groups typically seeing larger percentage gains.

9 Distributional impact of increasing the National Minimum Wage for under-21s to National Living Wage levels

This chapter presents an analysis of the distributional impact of increasing the National Minimum Wage rates for 16-17 year olds and 18-20 year olds to the April 2025 National Living Wage rate. For 16-17 year olds this would be an increase from £7.55 per hour to £12.21 (just under 62 per cent), and for 18-20 year olds this would be an increase from £10.00 per hour to £12.21 (just over 12 per cent). It is useful to look at equalising the National Minimum Wage rates with the National Living Wage rate as the UK Government has expressed an intention to move to a single adult rate for everyone aged 18 and over (Department for Business and Trade, 2024). With this in mind, it is useful to look at the impact of moving the rates for the under-21 age groups up to the main National Living Wage rate. Note that this chapter does not consider potential spillover effects of increasing the under-21 rates to the NLW level. Nor does it consider any potential employment effects of these increases.

Figure 9.1 shows the average distributional impact of increasing the NMW rates for 16 and 17 year olds and 18-20 year olds, by household income decile (excluding households with no-one in work from the analysis). The orange bars show the impact of increasing the NMW for 16 and 17-year-olds to the NLW level, while the blue bars show the impact of increasing the NMW for 18-20 year-olds to the NLW level. In these scenarios, it is assumed that there is no further increase in the NLW. For comparison purposes we have included the distributional impact of an across-the-board increase of 2% in NMW and NLW rates for all age groups (as shown in Chapter 8 earlier). An across-the-board increase of 2% was chosen as a comparator because the average size of the gains from this increase was roughly similar to the size of the gains from increasing the NMW for the under-21 age groups to the NLW level.

Figure 9.1. Distributional impact of increasing National Minimum Wage rates to National Living Wage levels, 2025/26: Weekly cash terms, by household income decile (working households only)



Source: author's analysis of FRS 2023/24 dataset uprated to 2025/26 levels using Landman Economics Tax-Transfer Model to estimate changes in household net incomes

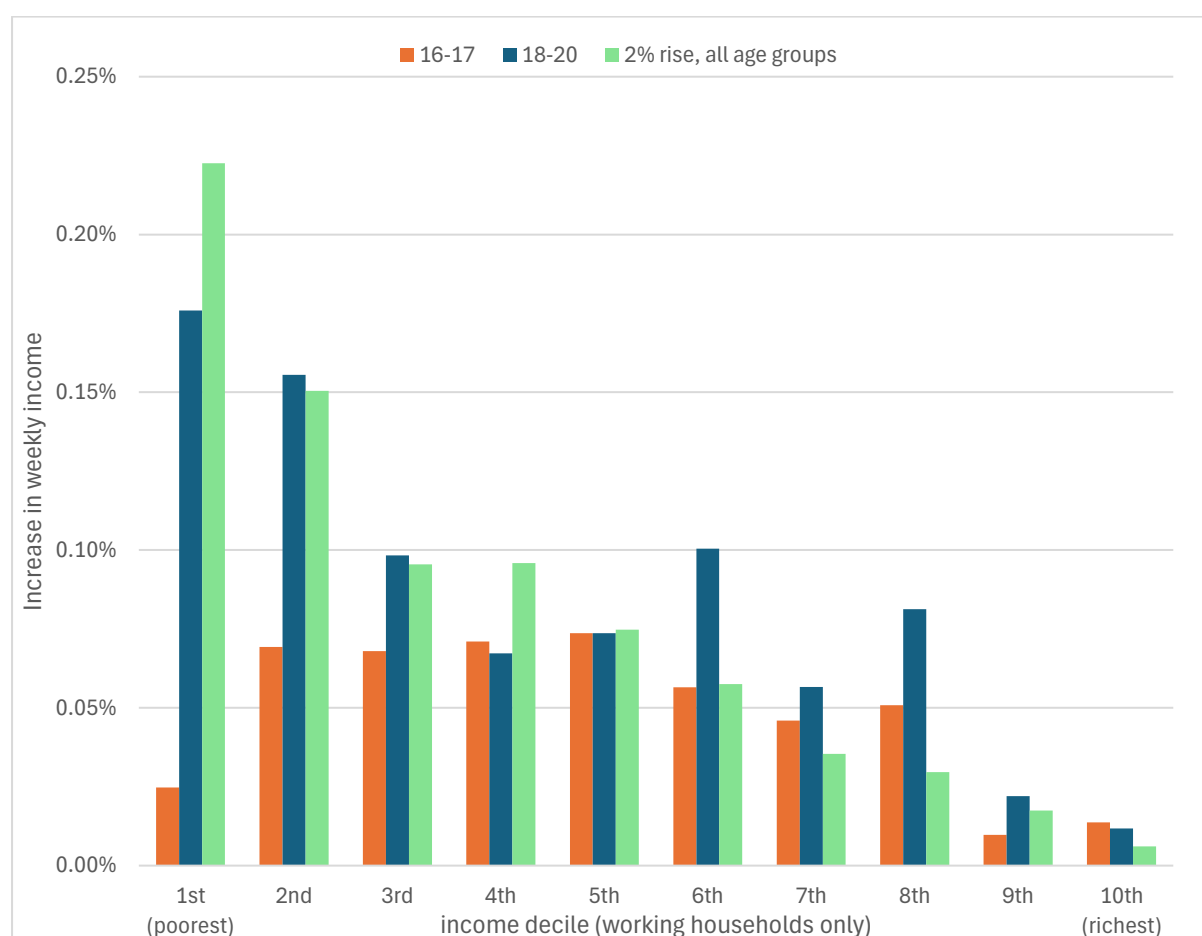
Figure 9.1 shows that the largest cash impacts of increasing the NMW for 16 and 17-year-olds are in the middle of the household income distribution – in deciles 4 through 8. The largest positive impact is in the 8th decile – an average gain of just over 65 pence per week. The impact in the poorest decile is relatively limited because there are relatively few working 16 and 17-year-olds in the poorest decile.

The average cash impacts for increasing the NMW for 18-20 year olds to NLW levels are in the 6th and 8th deciles (with average gains of over £1 per week), followed by the 2nd decile. The results for increasing the NMW rate for 18-20 year olds show no obvious pattern across the bottom 8 deciles, but the impacts for the top two deciles are smaller than for the rest of the household income distribution.

By comparison, the distributional pattern for a 2% increase in all minimum wage rates looks more progressive in cash terms than the increases for the under-21 age groups. This reflects the position of minimum wage earners in the household income

distribution; 16-17 year olds and 18-20 year olds are significantly more likely to be located in the top half of the income distribution than older age groups, mainly because they are more likely to be located in households where the main benefit unit – often their parent or parents – has net income of a sufficient level to place the household in the middle or upper reaches of the income distribution.

Figure 9.2. Distributional impact of increasing National Minimum Wage rates to National Living Wage levels, 2025/26: Percentage of net income, by household income decile (working households only)



Source: author's analysis of FRS 2023/24 dataset uprated to 2025/26 levels using Landman Economics Tax-Transfer Model to estimate changes in household net incomes

Figure 9.2 shows the average distributional impacts as a percentage of household net incomes. The impact of the NMW increases for 16-17 year olds is relatively flat across deciles 2 through 5 (at around 0.07% of net income), somewhat lower in deciles 6 to 8 (at about 0.5% of net income) and significantly smaller in the top two

deciles and the poorest decile. The impact of the NMW increases for 18-20 year olds is more progressive across the distribution (albeit with “spikes” in deciles 6 and 8).

Meanwhile, the comparison example of a 2% minimum wage increase at all age groups shows a more progressive profile than the increase for 18-20 age group and is *much* more progressive than the increase for the 16-17 age group. Once again, the “inverted U shape” impact of increasing the NMW to NLW levels for 16-17 year olds is mainly a function of the location of 16 and 17 year old minimum wage earners in the household income distribution; 16 and 17-year-olds who earn NMW are significantly less likely to be in the bottom income decile, and significantly more likely to be in the middle-to-upper reaches of the income distribution, than 18-20 year old minimum wage workers, or employees aged 21 and over currently earning the NLW rate.

10 Impact of NMW/NLW increases on poverty and inequality

This chapter shows the impact of increases in NMW/NLW on poverty rates and inequality. Section 10.1 covers the impact of minimum wage increases on poverty rates, while Section 10.2 shows the estimated impact of minimum wage increases on inequality. This part of the analysis does not take spillover effects into account.

11.1 Poverty

We analyse poverty rates for three population subgroups: children, working age adults and pensioners. The poverty measures used are two of the UK government's headline poverty measure:

1. **Relative** poverty: the proportion of people in the relevant population subgroup who live in households where equivalised household net income is below 60% of the median income in 2025/26.
2. **Absolute** poverty: the proportion of people in the relevant population subgroup who live in households where equivalised household net income is below 60% of median income in 2010/11 (uprated for inflation).

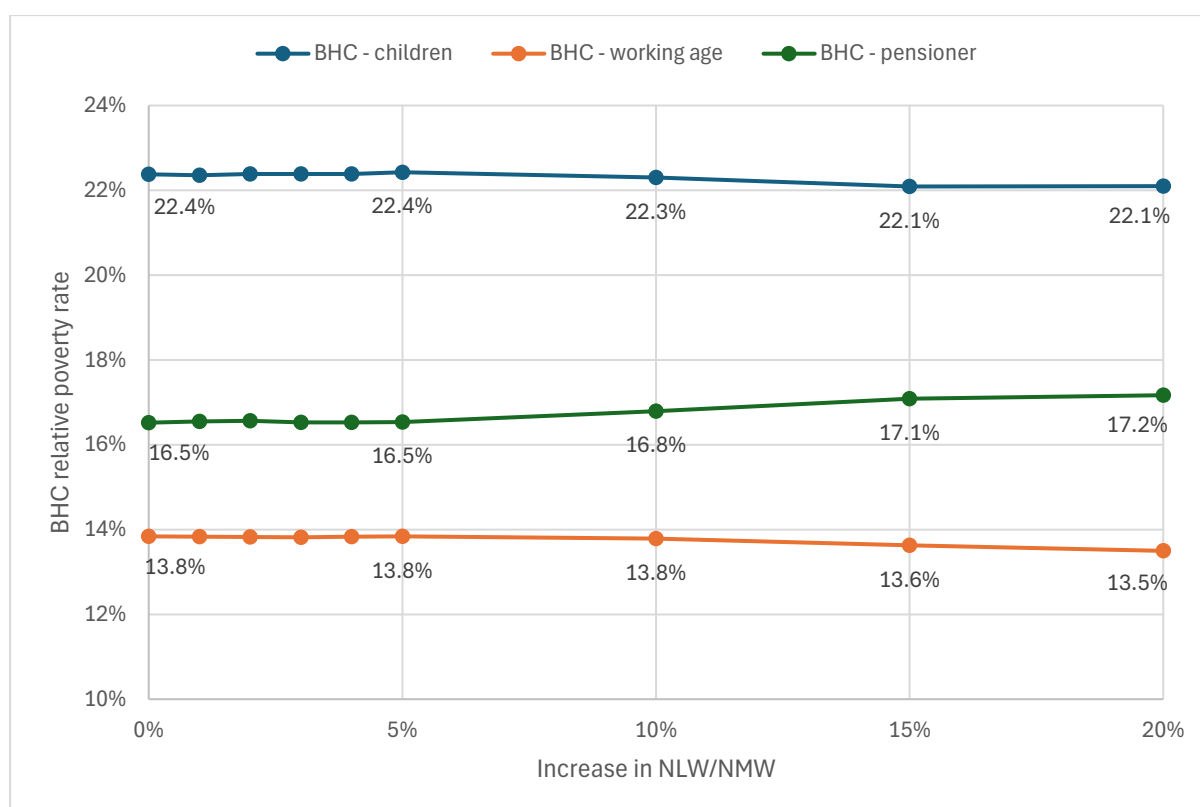
A cross-tabulation of the all-household BHC income decile breakdown used for the distributional analysis in Chapter 7 against the relative poverty measure shows that all the households in the lowest decile of the BHC income distribution, and most households in the second decile, are in poverty under the relative BHC measure. The reason that the child poverty rate is higher than the working age adult poverty rate is that households with children are more likely to be located towards the bottom of the equivalised BHC income distribution than households with working age adults (on average). Conversely, pensioners are less likely to be located at the bottom of the equivalised BHC income distribution than working age adults.

We estimate the impact of minimum wage increases on poverty separately for Before Housing Costs and After Housing Costs net income measures as poverty rates are quite different using the two measures (Department for Work and Pensions, 2025).

Relative poverty

Figure 10.1 shows the impact of NMW and NLW increases on BHC relative poverty, while Figure 10.2 shows the results for AHC relative poverty. The results are shown for minimum wage increases of 1% to 20%.

Figure 10.1. Poverty rates (%), baseline and simulated increases in NMW/NLW, 2025/26: BHC relative 60% poverty measure

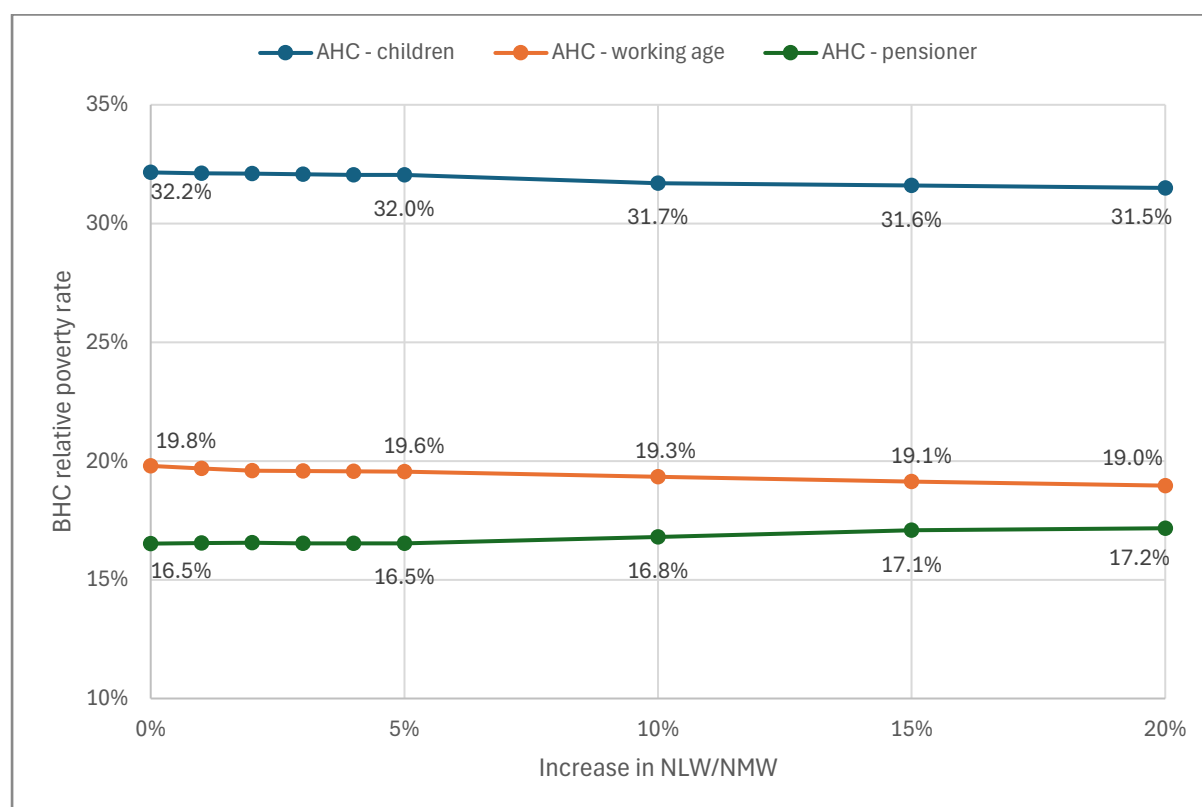


Source: author's analysis of FRS 2023/24 dataset updated to 2025/26 levels using Landman Economics Tax-Transfer Model to estimate changes in poverty rates

Figure 10.1 shows that an increase of 2% or 5% in the NMW/NLW has no impact on measured poverty rates for children, working age adults or pensioners. Larger increases in the NMW/NLW reduce poverty for children and working age adults; for a 20% increase in the minimum wage, relative child poverty and working age adult poverty both reduce by 0.3 percentage points relative to the baseline. By contrast, there is an *increase* of 0.7 percentage points in relative pensioner poverty. The increase in poverty for pensioners occurs because relatively few pensioners are in work (even through pensioners are the demographic group most likely to be earning at NMW/NLW levels *conditional on* being in work). So the increase in median incomes resulting from relatively large increases in the minimum wage pushes some

of the pensioners who are not in work below the poverty line. This cannot happen for absolute poverty (as shown in Figures 10.3 and 10.4 below) because the absolute poverty lines are fixed rather than being recalculated based on the distribution of equivalised household net incomes after the minimum wage is increased.

Figure 10.2. Poverty rates (%), baseline and simulated increases in NMW/NLW, 2025/26: AHC relative 60% poverty measure



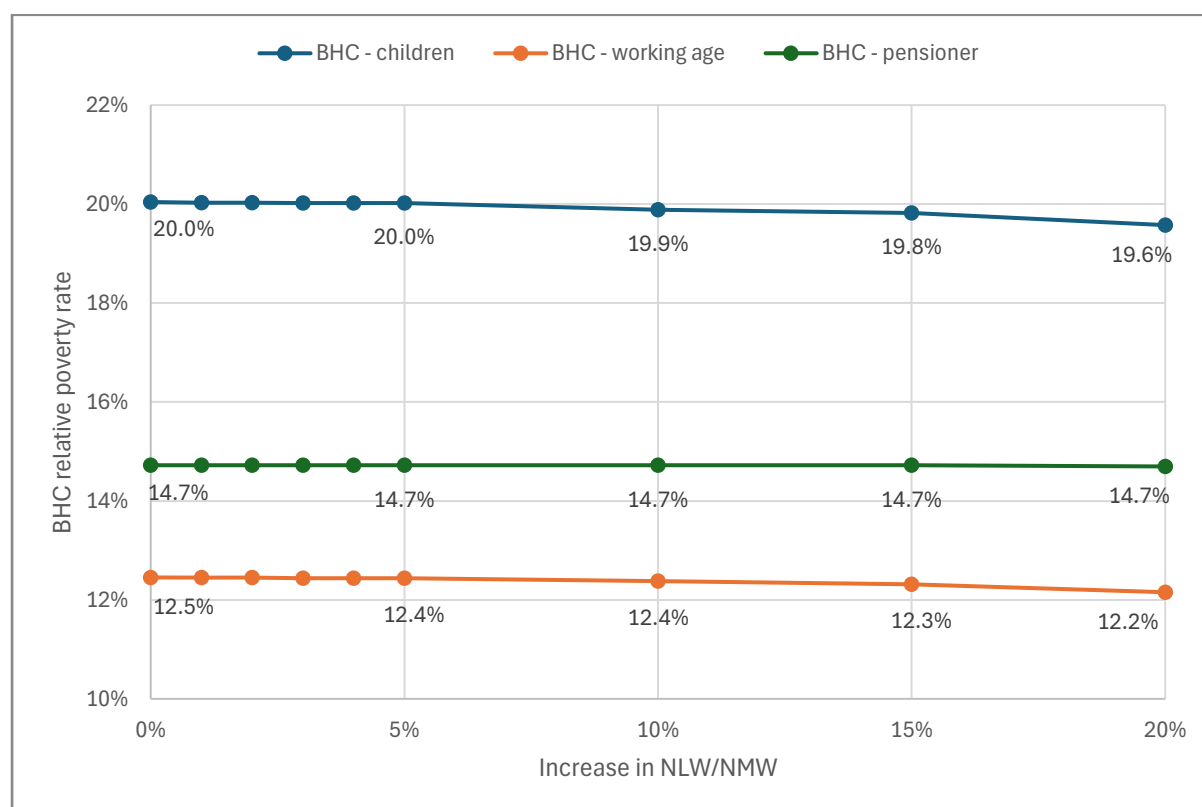
Source: as Figure 10.1

Figure 10.2 shows that the baseline rates of relative AHC poverty for children and working age adults are much higher than the corresponding relative BHC poverty rates. For children, increases in the minimum wage reduce AHC relative poverty somewhat more than BHC relative poverty – a 10% NMW/NLW increase reduces BHC poverty by 0.5 percentage points, while a 20% increase reduces BHC poverty by 0.7 percentage points. For working age adults, the reduction in AHC relative poverty is also larger than the corresponding reduction in BHC poverty – a reduction of 0.8 percentage points resulting from a 20% increase in minimum wage rates. The larger reduction for AHC poverty than BHC poverty is partly because AHC poverty is higher than BHC poverty in the baseline. For pensioners, the *increase* in relative AHC poverty is of similar magnitude to the increase in relative BHC poverty.

Absolute poverty

Tables 10.3 and 10.4 show the estimated impacts of increases in the NMW/NLW on absolute poverty rates (BHC in Table 10.3 and AHC in Table 10.4). The results in Table 10.3 show that increases in the minimum wage reduce absolute BHC poverty for children and working age adults (a 20% increase in minimum wage rates leads to a 0.4 percentage point reduction in absolute child poverty and a 0.3 percentage point reduction in absolute working age adult poverty). For pensioners, there is no measurable impact on absolute poverty in percentage terms to one decimal place.

Figure 10.3. Poverty rates (%), baseline and simulated increases in NMW/NLW, 2025/26: BHC absolute 60% poverty measure

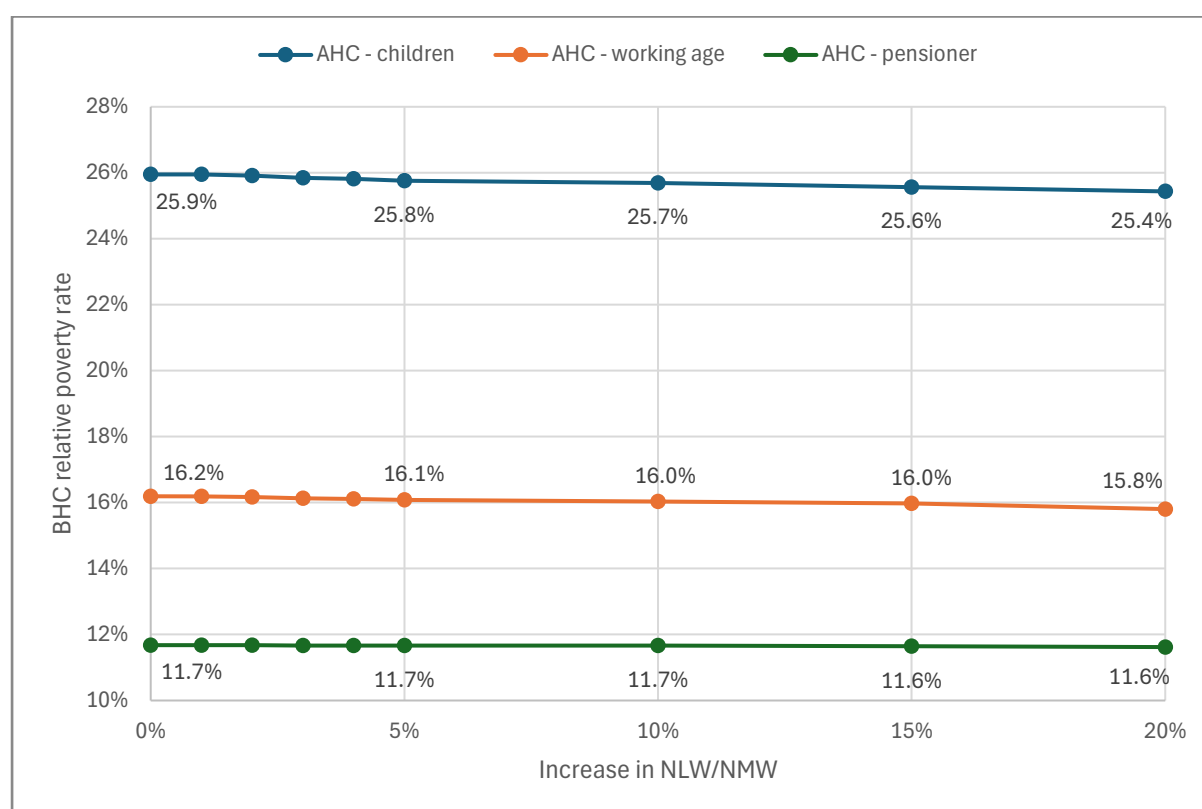


Source: as Figure 10.1

Figure 10.4 shows that increases in the minimum wage result in modest reductions in absolute AHC poverty for children and working age adults. A 20% increase in minimum wage rates leads to 0.4 percentage point reductions in absolute AHC child poverty and working age poverty. There is a very slight reduction (of 0.1 percentage points) in pensioner poverty for minimum wage increases of 15% or 20%. The

reduction in absolute poverty for pensioners is smaller than the reduction for working age adults and children because households with pensioners have a much smaller proportion of working people than working age households and households with children.

Table 10.4. Poverty rates (%), baseline and simulated increases in NMW/NLW, 2025/26: AHC absolute 60% poverty measure



Source: as Figure 10.1

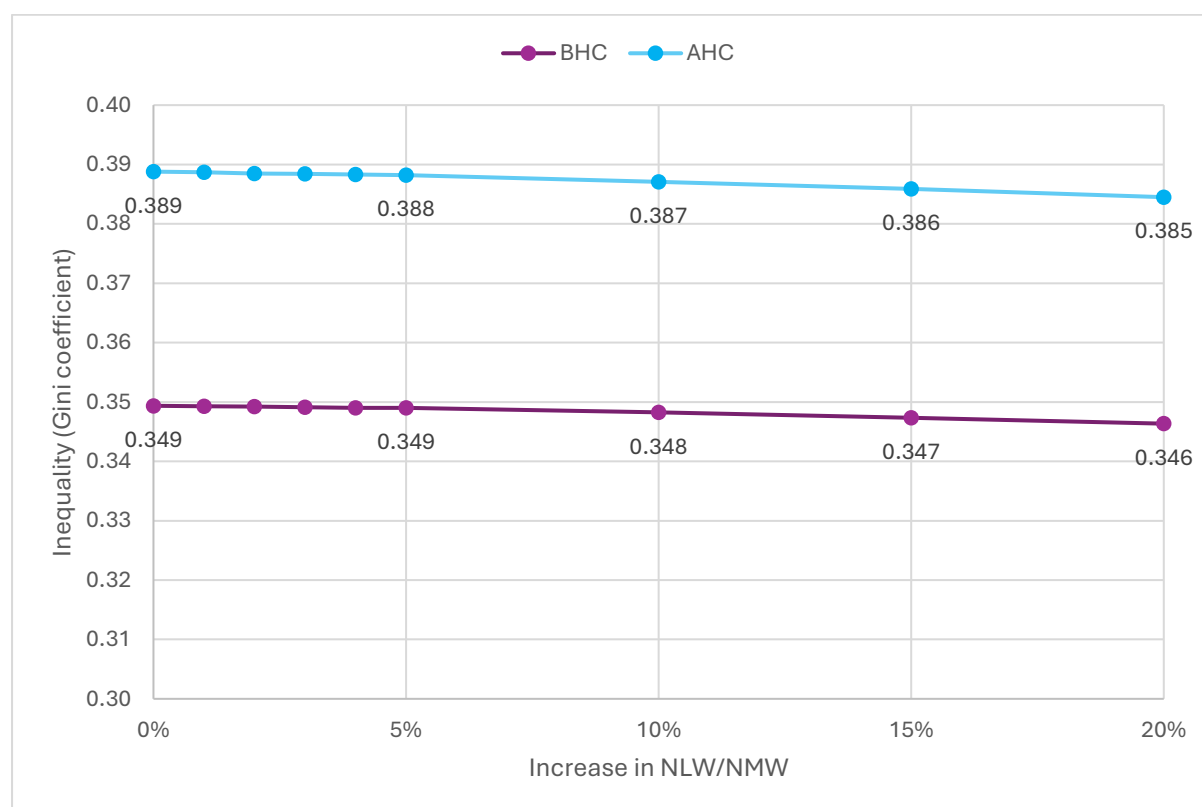
10.2 Inequality

Next, we show the impact of simulated increases in the NMW and NLW on inequality in the distribution of (equivalised) household incomes in the UK, measured using the Gini coefficient (one of the most widely used summary measures of income inequality). A lower value of the Gini coefficient corresponds to lower inequality. Figure 10.5 shows the impact of minimum wage increases on the Gini coefficient for BHC incomes (top row) and AHC incomes (bottom row). The BHC results show that the Gini coefficient for the baseline scenario (before simulating minimum wage increases) is 0.349. Increases in the NMW and NLW below 10% have no effect on BHC inequality to three decimal places. Increases of 10% or above lead to a slight

reduction in BHC inequality; a 20% increase in the minimum wage reduces the Gini by 0.003.

For AHC incomes, the effects of minimum wage increases are fairly similar – a 5% increase in minimum wage rates leads to a reduction of 0.001 in the AHC Gini, while a 20% minimum wage increase reduces the AHC Gini by 0.004 in total. In summary, increases in the minimum wage do reduce inequality but the effects are fairly small.

Figure 10.5. Inequality (Gini coefficient on equivalised household net income), baseline and simulated increases in NMW/NLW, 2025/26: BHC and AHC income measures



Source: as Figure 11.1

10.3 Discussion

The results in this chapter show that the simulated impact of increases in the NMW and NLW on poverty and inequality measures is very small for increases of between 1% and 5%. For minimum wage increases of 10%, 15% or 20% the impacts on poverty and inequality are slightly larger, but remain fairly small. This section explores the reasons why the impacts are so small.

For children, a reduction in poverty rates of 0.7 percentage points arising from a 20 per cent increase in the minimum wage (using the 60% AHC relative poverty measure) is equivalent to just over 100,000 children being moved out of poverty. For comparison, The abolition of the 2-child limit for Universal Credit announced in the November 2025 Budget is forecast to lift 450,000 children out of poverty (Department for Work and Pensions, 2025b). So the Universal Credit measure has a bigger impact on poverty, but it is far more targeted on families in poverty than the NMW is.

Analysis of the uprated 2023/24 FRS data shows that only around one-fifth of children in poverty (using the relative BHC or AHC poverty measures) are in households where anyone earns at NMW/NLW in the 2025/26 baseline. For working age adults, only 9% of those in poverty are earning at NMW/NLW and for pensioners the equivalent figure is only 1% (again, using the relative BHC or AHC poverty measures). This means that the extent to which even large increases in the NMW can result in substantial reductions in poverty is quite limited. For *relative* poverty there is the additional complication that increases in the NMW and NLW can raise median incomes. For pensioners (very few of whom are in work and earning at NMW/NLW levels), the increase in the median income arising from NMW/NLW increases of 10% or more actually *increases* relative pensioner poverty. This is not the case for children and working age adults, however.

Looking specifically at households with at least one person earning NMW or NLW, using the AHC relative poverty measure around 850,000 children (around 40% of children in minimum wage households) are in poverty in the 2025/26 baseline. We estimate that a 20% increase in the NMW and NLW would lift around 135,000 children in these households out of poverty – a decrease of around 7 percentage points.

The main reason that the impact of NMW and NLW increases on inequality is so small has to do with the findings of Figure 7.1 and 7.2 in Chapter 7 (the weekly impacts on net income of minimum wage increases of between 1% and 20% in cash terms). Figures 7.1 and 7.2 show that the cash impacts are largest in the middle of the income distribution rather than at the bottom of the income distribution, using a definition of deciles which includes all households (which is the relevant definition when considering changes in inequality across the whole household income distribution). While the average cash impacts of minimum wage increases are larger for the poorest deciles than for the richest deciles, the difference between the impacts at both ends of the income distribution is relatively small. This means that increases in the NMW and NLW have only a relatively minor impact on measured inequality of net incomes.

11 Marginal deduction rates for employees earning at NMW/NLW

This chapter analyses the marginal deduction rates (MDRs) faced by employees earning NMW/NLW – i.e. the amount of each extra pound they earn which goes to the Exchequer rather than boosting their take-home pay. There are three components of marginal deduction rates: (a) the marginal rate of income tax, (b) the marginal rate of employee National Insurance Contributions (NICs)²³ and (c) for Universal Credit (UC) claimants earning above work allowance levels, the net income taper on UC (currently 55 per cent).

The MDRs in this chapter are estimated based on the 2025/26 tax, NICs and Universal Credit systems – i.e. those in place alongside the most recent April 2025 NMW/NLW rates. The impacts do not include spillover effects.

Sections 11.1, 11.2 and 11.3 look at MDRs for employees at the actual minimum wage rates in place in the 2025/26 tax year, while Section 10.4 shows the MDRs arising from a 10% increase in the NMW and NLW.

11.1 Income tax marginal rates for employees earning at NMW/NLW in 2025/26

Table 11.1 shows the marginal rates of income tax faced by employees on NMW/NLW at the rates announced by the LPC and implemented by the UK Government for the 2025/26 tax year, on their current earnings.

²³ This chapter does not consider *employer* National Insurance Contributions. However, it is certainly possible that the final incidence of employer NICs is on workers rather than firms (because of lower wage rises as a result of higher NICs), which would mean that the effective marginal rates faced by workers are higher than the estimates given in this report.

Table 11.1. Income tax marginal rates faced by employees on NMW/NLW, 2025/26 tax year

Income tax rate	Description	Number (1000s)	percent of total
0%	Below personal allowance	1,074	38.1%
19%	Starter rate (Scotland)	30	1.1%
20%	Basic rate	1,560	55.3%
21%	Intermediate rate (Scotland)	38	1.3%
40%	Higher rate (England/Wales/Ni)	76	2.7%
42%	Higher rate (Scotland)	13	0.5%
45%	Additional rate (England/Wales/Ni) or advanced rate (Scotland)	16	0.6%
60%/65%	Personal allowance taper (between £100,000 and £125,140 annual earnings)	14	0.5%
Total		2,822	100.0%

Source: author's analysis of FRS 2023/24 dataset updated to 2025/26 levels, using Landman Economics Tax-Transfer Model to calculate marginal deduction rates

Table 11.1 shows that around 38 per cent of NMW/NLW workers – just over one million people – are below the personal allowance of £12,570 per year and so have an effective income tax rate of zero. 55 per cent – just over 1.5 million – are on the basic rate of 20 per cent, with around 30,000 workers in Scotland on the starter Scottish income tax rate of 19% and a similar number on the intermediate rate of 21%. Around 100,000 NMW/NLW workers are on rates of 40% or above – the higher rate²⁴ or the Scottish advanced rate. A very small number of workers have total taxable income above £100,000 per year and are on an effective tax rate of 65% (in Scotland) or 60% (elsewhere in the UK) as the personal allowance is withdrawn at the rate of 50 pence for every £1 of extra income.

²⁴ It is important to note that this situation is unusual. A worker with no income from any other sources except for earnings on the NLW rate of £12.21 per hour would have to be working over 78 hours per week to be on the higher rate in England/Wales/Northern Ireland (or 69 hours per week in Scotland where the higher rate threshold is lower). In fact, most of these workers have taxable income from other sources in addition to earnings – for example self-employed income or income from savings or investments.

10.2 Employee National Insurance Contributions rates at NLW/NMW in 2025/26

Table 10.2. Employee NICs rates faced by employees on NMW/NLW

Employee NICs rates	Number (1000s)	percent of total
0% (below Primary Threshold)	1,346	47.7%
8%	1,472	52.2%
2% (above UEL)	3	0.1%
Total	2,822	100.0%

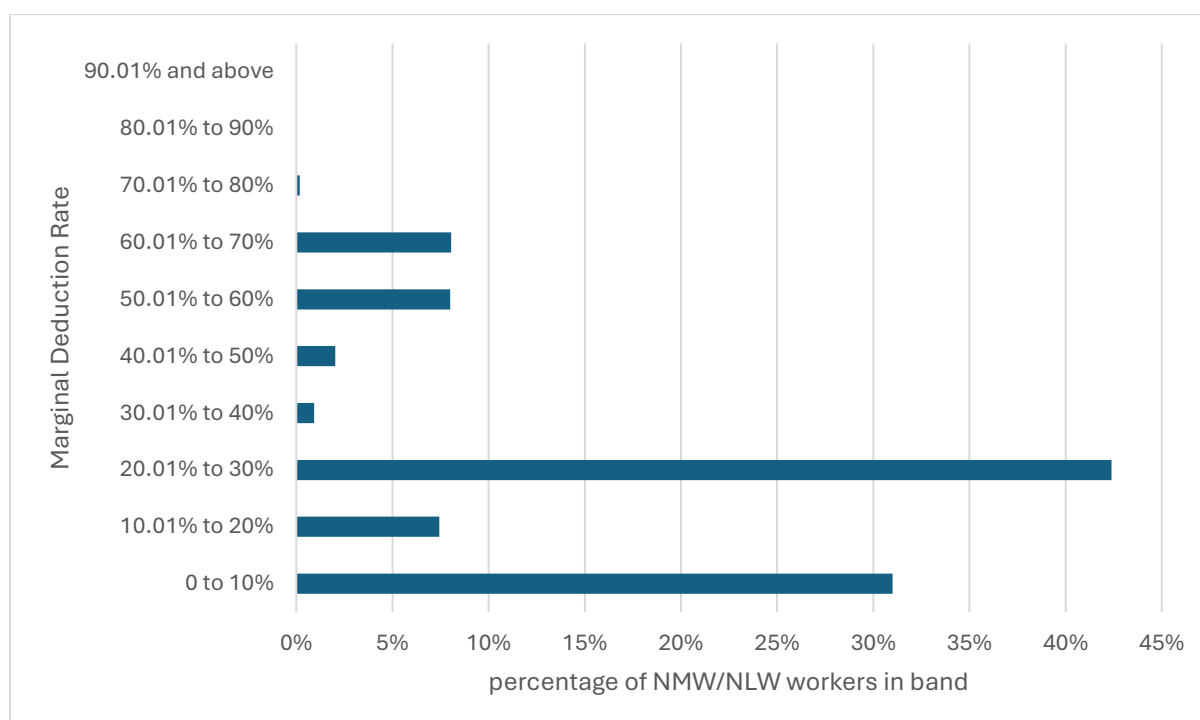
Source: As for Table 10.1

Table 10.2 shows that just under half of NMW/NLW employees are below the primary threshold (which is aligned with the income tax PA on an annualised basis) while just over half (around 1.5 million) are on the main 8% rate of employee NICs. Only a very few are above the Upper Earnings Limit (UEL). Note that some employees earning at the main NLW rate would have to be working over 78 hours per week to be paying NICs above the UEL.

10.3 Distribution of Marginal Deduction Rates at NMW in 2025/26 including income tax, employee NICs and Universal Credit taper

Figure 10.1 shows the combined MDRs for employees paid at NMW/NLW levels in 2025/26 – including income tax and employee NICs marginal rates plus the Universal Credit taper. The rates are arranged in bands of width of 10 percentage points each, going from the bottom to the top of the chart. So the lowest bar shows the proportion of NMW/NLW employees with marginal deduction rates of below 10 per cent, the next lowest bar shows the proportion with MDRs between 10.01% and 20%, and so on up to MDRs above 90.01% at the top of the chart. (The top two bars are empty because there are no employees with MDRs above 80 per cent in the FRS sample).

Figure 11.1. Combined Marginal Deduction Rates for employees on NMW/NLW by range

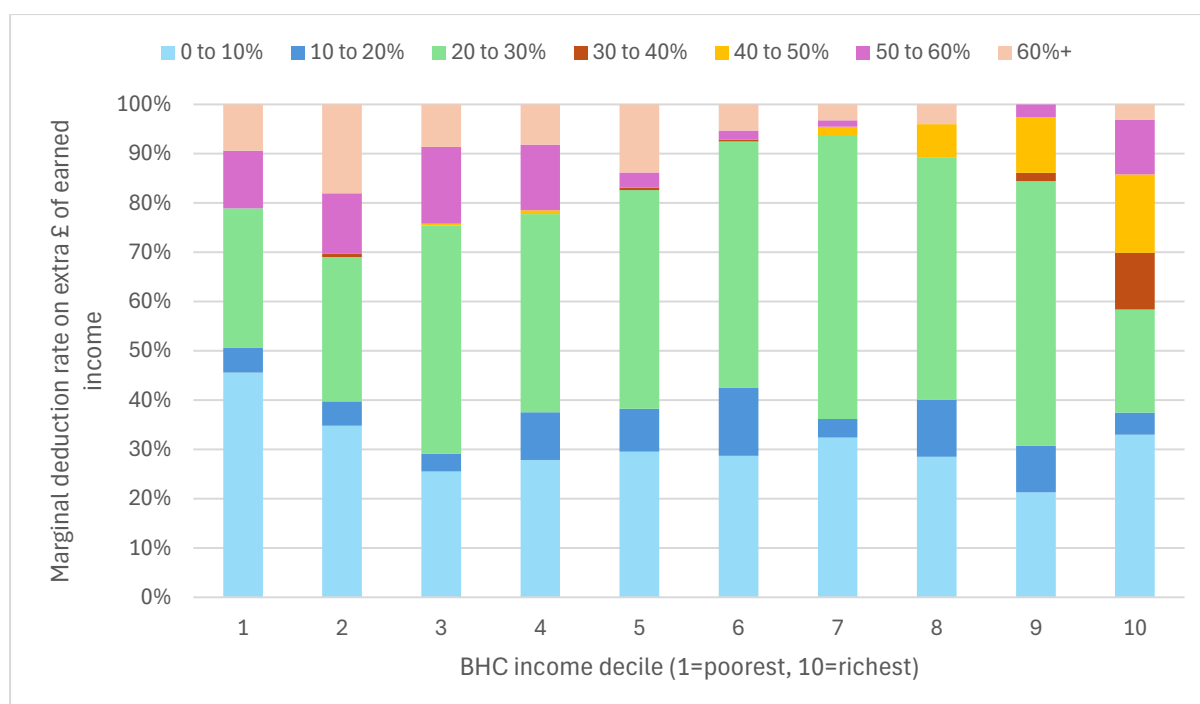


Source: As for Table 10.1

Figure 11.1 shows that most workers paid at NMW/NLW face combined marginal rates of between 20.01 and 30 per cent (around 42 per cent minimum wage workers) or rates of between zero and 10 per cent (31 per cent of workers). About 16 per cent of all minimum wage employees are on MDRs in excess of 50% - the vast majority of these are Universal Credit recipients on the net income taper.

Next, Figure 11.2 shows the distribution of MDRs for minimum wage employees by income decile, using the Before Housing Costs definition of income (across all households). The different colours in the chart show the proportion of minimum wage employees paid in each of the MDR bands shown in Figure 11.1.

Figure 11.2. Distribution of Marginal Deduction Rates for minimum wage employees by household income decile, all households



Source: As for Table 11.1

Figure 11.2 shows that the poorest two deciles of the household income distribution have a larger proportion of minimum wage employees with marginal rates below 10% than anywhere else in the income distribution. However, there are a substantial proportion of minimum wage employees with MDRs below 10% across the whole income distribution – a third of employees in the top decile, for example. Marginal rates between 20 and 30 per cent (which includes people on the basic rate income tax band) are most common for minimum wage workers in deciles 3 through 9. The highest proportion of minimum wage employees facing MDRs of 50% or above is in income decile 2, followed by deciles 1, 3 and 4. This is because Universal Credit claimants are mostly in the lower reaches of the household income distribution. The top decile has a relatively large number of minimum wage employees on marginal rates between 30 and 50 per cent – these are higher rate income taxpayers.

Overall, it is certainly the case that minimum wage earners in the bottom two income deciles are more likely to face MDRs of below 10 per cent than any other groups. However, the bottom four deciles are also more likely to face MDRs above 50 per cent than any other group – due to the Universal Credit earnings taper.

11.4 Gross and net income gains and MDRs from an increase in minimum wage rates by income decile

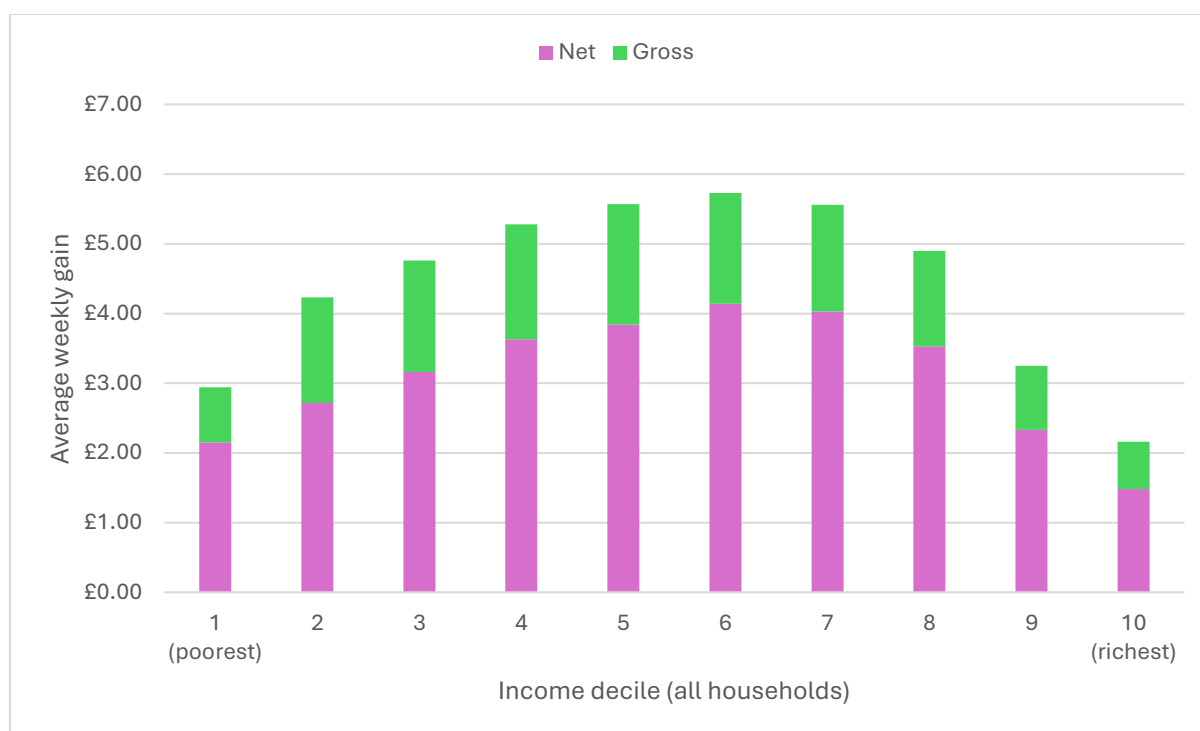
Previous sections in this chapter looked at the distribution of Marginal Deduction Rates for employees earning NMW or NLW in the 2025/26 baseline. This section shows what the impact of a 10 per cent increase in all NMW and NLW rates is across households, looking at the average gross and net gains in household income by BHC income decile – for all households, and then restricting the analysis to households with at least one person in work. These figures are averaged across all households – including those with no-one being paid at minimum wage. The gross figures show the average gain in household incomes before taking account of increased income tax and NICs payments, and reductions in Universal Credit. The net figures show the gains after taking account of increased income tax and NICs and reduced UC²⁵.

Figure 11.3 shows the average gross and net gains in BHC income across income deciles for all households, while Figure 7.2 shows the gross and net gains for households with at least one adult in work only. The figures are shown as stacked columns, with the net gain shown by the pink segments, and the total gross gain shown by the pink segments *plus* the green segments.

Figure 11.3 shows that the distribution of gross gains from a 10% increase in the NMW and NLW follows an “inverted U-shape” pattern, with the highest gains being in the middle of the household income distribution and the lowest gains at both ends (especially the top of the distribution). The distribution of net gains is reasonably similar.

²⁵ To save space, the results using AHC incomes have not been included in the report because they looked very similar to the BHC income results.

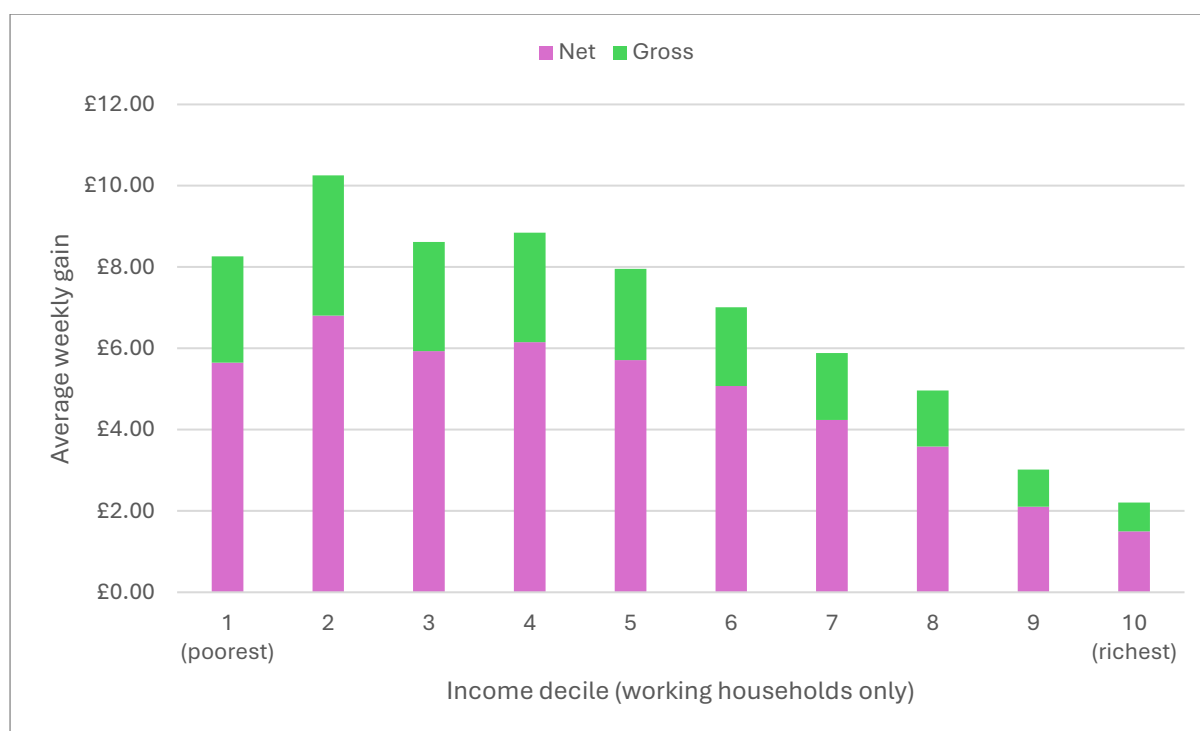
Figure 11.3. Average gross and net gains from a 10 per cent increase in the NMW/NLW for all households



Source: author's analysis of FRS 2023/24 dataset uprated to 2025/26 levels, using Landman Economics Tax-Transfer Model to calculate marginal deduction rates

Figure 11.4 shows a similar distributional analysis but removes households without anyone in work from the analysis. As with the distributional analyses of the impact of NMW and NLW increases shown in Chapter 7, the pattern of average gross and net gains is more skewed to the left of the chart when non-working households are removed from the decile definition. This is because minimum wage earners are much more likely to be in the lower reaches of the income distribution when household income deciles are redefined in this way.

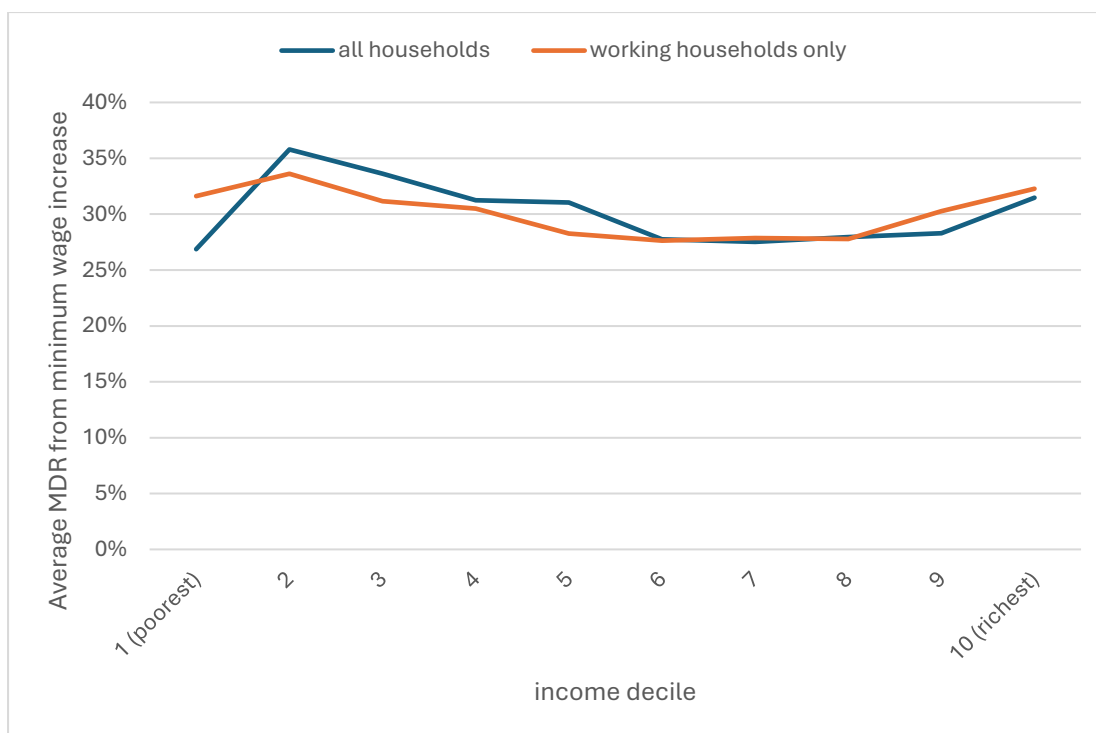
Figure 11.4. Average gross and net gains from a 10 per cent increase in the NMW/NLW: working households only



Source: as Figure 11.3

Figure 11.5 shows the average (mean) marginal deduction rates by BHC income decile, using the all-household deciles (in blue) and the deciles for households with at least one adult in work only (in orange). Figure 10.5 shows that the highest average MDRs are in decile 2, and the lowest in deciles 1 and 6 through 9 (for deciles defined across all households) and deciles 5 through 8 (for deciles including working households only). There is an increase in average MDRs in the top decile (and for decile 9, for deciles including working households only).

Figure 10.5. Mean marginal deduction rates for employees paid at NMW/NLW by BHC household income deciles



Source: as Figure 11.3

11.5 Discussion

The analysis in this chapter shows that the majority of employees paid at NMW/NLW in the 2025/26 baseline are either below the income tax personal allowance (and equivalent for employee National Insurance Contributions), or are paying basic rate income tax (20%) and the standard rate of employee NICs (8%). There are however a significant minority of NMW/NLW employees (around 15%) claiming UC and subject to much higher MDRs due to the net income taper of 55%. This means that there is essentially a bifurcation between a large group of NMW/NLW employees with relatively low MDRs and a small group with relatively high MDRs.²⁶ (This is discounting the v small sample on higher income tax rates due to very long hours of work per week or income from other sources).

Looking at the gross and net gains and the distribution of MDRs arising from a 10% increase in the NMW and NLW, the pattern of net gains does not look that different to the pattern of gross gains (as shown in Figure 10.4). Average MDRs for minimum wage earners by decile are slightly higher in deciles 2 to 5 than for other deciles

²⁶ In reality, the group with high MDRs may be larger due to the underreporting of benefit receipt in the FRS, however as it is not known who doesn't report we can't determine whether or not they would be on the taper.

(using income deciles which include all households, including non-working households) but the difference is not that large – only about 7 percentage points higher in decile 2 than in deciles 6 to 9. The distribution of MDRs *within* each decile shows much more variation than the average MDRs across each decile, due to the net income taper for Universal Credit recipients.

12 Discussion of results

This chapter discusses the results of the report in more detail. Section 12.1 draws out the main findings and their implications, while Section 12.2 compares our results with other recent research work on the distributional impacts of the NMW and NLW.

12.1 Main findings and implications

In terms of important findings from this research, the first point to note is that it is essential to use the FRS in combination with ASHE to model hourly earnings accurately. Neither dataset by itself is sufficient. The FRS has good data for modelling income tax, NICs and UC and other social security payments but doesn't give accurate information on hourly earnings. The ASHE data has good data on hourly earnings but doesn't have the covariates required to model taxes and benefits.

Secondly, the progressiveness of increases in the NMW and NLW depends crucially on what type of households we are interested in. Their impact across *all* households is most relevant for considering their effect on poverty or the very poorest households. On the other hand, focussing on the impact on *working* households does a better job at isolating those who might be affected and arguably provides a more like-for-like comparison between households. Using the all-household distribution, the gains from minimum wage increases in weekly cash terms have an "inverse U shape" with the largest gains in the middle of the income distribution. The gains look more progressive as a percentage of net income or when non-working households are excluded from the decile definition. By comparison, the choice of BHC or AHC income for the distributional analysis does not make a huge amount of difference to the results.

Thirdly, the use of different breakdown variables – both to show who is receiving the NMW/NLW and for distributional analysis of potential increases in minimum wage rates – is useful in terms of drawing out aspects of the minimum wage and households receiving it that are often overlooked. Some important examples of these are:

- NMW/NLW employees are more likely to be female than male;
- The interaction of Universal Credit receipt with NMW/NLW receipt, particularly for lone parents on NMW/NLW, around 80% of whom claim UC.
- The differences between one-earner and two-earner benefit units and between primary, secondary and other earners.
- The fact that employees are much more likely to be paid at NMW/NLW in particular industry sectors (agriculture, forestry and fishing, and transportation

and storage) and particular occupations (elementary occupations and caring, leisure and service occupations).

- the regional profile of minimum wage earners (with London and to a lesser extent Scotland less likely to be paid NMW/NLW than other regions);
- and the finding that employees in rented accommodation are more likely to be paid at NMW than owner-occupiers.

All of these research findings are useful for policymakers looking to see how minimum wage increases might interact with other policies.

Fourthly, the estimates of coverage in Chapter 6 – as well as the distributional analyses in Chapters 7 and 8 – show that it is very important to take account of spillover effects where possible, as projected increases in coverage look very different when considering spillovers, and the inclusion of spillovers also changes the pattern of estimated gains from increases in the NMW and NLW to some extent.

Fifth, the distributional analysis of the effects of increasing the NMW rate for employees aged under 21 to the main NLW rate for employees aged 21 and over show that the distributional effects at household level are quite different to an across-the-board increase. This is largely due the fact that employees aged under 21 who earn minimum wage are more likely to be in the middle-to-upper reaches of the income distribution than those aged 21 and over, largely because many under-21s are in secondary benefit units in households where the primary benefit unit (often their parents) has higher net incomes than they do.

Sixth, the analysis of marginal deduction rates for employees in receipt of NMW or NLW shows a complex picture. For most employees who are not in receipt of Universal Credit, marginal deduction rates are relatively low – either zero (for those below the income tax personal allowance and employee NICs primary threshold) or 28% (the basic rate of income tax in England, Wales and Northern Ireland plus the standard rate of employee NICs). However, for the minority of minimum wage employees who claim Universal Credit, marginal deduction rates are well above 50% in most cases.

Finally, the poverty and inequality analysis shows that while large-scale increases in the NMW and NLW can have a poverty impact, this is fairly small – mainly because a relatively small proportion of adults in poverty are earning at the minimum wage level. Likewise for inequality, the “inverse U-shape” distribution of net income gains from increases in the minimum wage mean that it is not a very efficient instrument for reducing inequality.

12.2 Comparison of results with previous work

Brewer and de Agostini (2017)

An analysis by Brewer and de Agostini (2017) for the Low Pay Commission find that NMW and NLW families are mostly found in the bottom half of the working age income distribution, with NMW families especially likely to be in the poorest 10%. However this is based on a *benefit unit* income definition not a household income definition²⁷, and so their results are not fully comparable with the results in this report, which are based on household incomes. The same goes for Brewer and de Agostini's finding that NMW workers contribute more to their families' income than NLW workers – this is highly contingent on using a benefit unit measure of income rather than a whole household measure.

Brewer and de Agostini use hourly wage information from the Labour Force Survey to correct the FRS hourly wage data (by matching in hourly wage data from the LFS based on observable characteristics which are common to both). This is a viable alternative approach to using ASHE (and indeed we have used the LFS in this report to impute hourly wages for 16-18 year olds in the child record) but the low response rate of LFS in recent years means that the representativeness of the data is now being questioned (Francis-Devine, 2023) and ASHE seems like a better option to use at the current time.

Brewer and de Agostini's results on financial incentives to work – which show the highest marginal deduction rates among NMW/NLW workers in decile groups 2 through 4 – are broadly comparable with the results in Chapter 10.

Brewer and de Agostini find that a simulated 5% rise in the NMW/NLW in 2020-21 would increase the net incomes of NMW/NLW families by less than 1.2% on average. Our results show that a simulated 5% rise in the NMW/NLW in 2025-26 would increase the net incomes of households with at least one person earning at NMW or NLW in the baseline scenario by just over 1% on average.

Other than this, there are some aspects of the Brewer and de Agostini analysis which this report does not look at – e.g. the roll-out of Universal Credit (which was in just starting in the mid-2010s when Brewer and de Agostini were doing their analysis, but which is now almost complete) and in-work conditionality.

²⁷ Note that Brewer and de Agostini use “family” as a synonym for “benefit unit” in their report, whether the benefit unit contains children or not.

Cribb et al (2021)

An analysis by researchers at the Institute for Fiscal Studies (Cribb et al, 2021), also for the Low Pay Commission, estimates the effect of the introduction of the NLW in 2016, and increases in it up to 2019, using a “bunching approach” – which compares employment changes in each part of the wage distribution in low-wage areas to employment changes among similar workers living in higher-wage areas who are less exposed to increases in the NMW/NLW because their nominal wages are further above it. The analysis finds substantial positive wage effects including statistically significant spillovers up to about the 20th percentile of wages. It is important to note that the NMW and NLW are now significantly higher relative to median wages than they were 2016-19 and so the spillover results from Cribb *et al* will now be somewhat out of date.

Cribb *et al* estimate the effect on household incomes using the IFS’s TAXBEN microsimulation model and find that the largest gains from the increases in the NLW go to the middle of the income distribution, though they are more concentrated within the bottom third if they consider only households with at least one person in paid work. The gains to poorer working households are limited by the withdrawal of means-tested benefits as earnings increase. The results from Figure 9 and 10, showing marginal deduction rates for employees in receipt of NMW and NLW, look comparable to Figures 10.1 and 10.2 in the current report. The spillover effects measured by Cribb *et al* in Figure 12 of their report look slightly bigger (relative to the direct or “mechanical” effects of NMW/NLW increases) than the spillover effects in Chapters 7 and 8 of our report, but when estimating the size of spillovers, small changes in the methodology can have very large impacts on the results. Because our analysis assumes no employment effects we are unable to compare the estimated employment effects in Cribb *et al* with the current report.

Analysis in this report with no recent comparators

There are a number of results in this report which aren’t covered in the two reports analysed here – in particular:

- breakdowns of the number of NMW/NLW workers by various individual, job, benefit unit and household characteristics (Chapter 5);
- the impact of minimum wage increases on coverage (chapter 6);
- distributional effects by characteristics other than household income decile (chapter 8);
- the specific impact of increases in the under-21 NMW rates to the main NLW rate (chapter 9);
- poverty and inequality (ch 11).

The analysis of marginal deduction rates in this report is also more detailed than the other two papers referenced here.

13 Priorities for future research

Going forward, the provision of code to the LPC for modelling the distributional effect of NMW/NLW should ensure that the analysis can be updated for future years.

This report identifies three priorities for potential future research on the National Minimum Wage and National Living Wage. Firstly, a comparison between our results and Brewer and de Agostini (2017) shows that it would be useful to do further research analysing the distributional impact of NMW and NLW increases using a benefit unit measure of net income compared to household measures of net income, and showing how much difference this makes to the distributional results in a unified analytical framework. This is particularly important when analysing the impact of minimum wage increases for 16-17 year olds and 18-20 year olds.

Secondly, it would be useful to do a more detailed analysis of take-up of Universal Credit and the interaction of Universal Credit with increases in the NMW and NLW. This report uses reported receipt of Universal Credit (and legacy tax credits and benefits) in the FRS when modelling the impact of increases in the NMW/NLW on net incomes. Reported take-up of UC in the FRS – when grossed up to the national level – is lower than the levels of take-up implied by DWP administrative statistics²⁸, and it would be useful to explore how much difference it makes to the distributional results if UC take-up estimates are recalibrated to match administrative data.

Thirdly, it would be useful to do a more detailed analysis of the spillover effects of increases in the NMW and NLW. As a cross-sectional survey, the Family Resources Survey cannot be used for analysis of the spillover effects of minimum wage increases on individual employees because we do not observe the same person multiple times in the dataset. For this, panel data would need to be used. The UK Household Longitudinal Study (Understanding Society) is one possibility, but hourly wage measures in the UKHLS suffer from similar measurement problems to the FRS. The Annual Survey of Hours and Earnings micro dataset – which tracks the same individuals year after year, and has specific hourly wage measures for them – is probably the best option for detailed analysis of spillover effects.

Finally, a more fine-grained analysis of the potential impact of minimum wage increases on poverty rates would be welcome. The analysis in this report has only used headline poverty indicators – the 60% median household income absolute and

²⁸ Specifically, Table M6a in the DWP's "Methodology and Standard Error" tables for the 2023/24 FRS finds that the grossed-up number of recipients of Universal Credit in the FRS data is 3.2 million compared to administrative figures of almost 4.8 million for the same time period (DWP, 2025).

relative poverty measures for BHC and AHC incomes. It would be instructive to use “poverty distance” indicators which show how far from the 60% poverty line those households containing minimum wage employees are, in weekly cash terms, and how much closer to the poverty line they get after taking future minimum wage increases into account. There is also significant potential for looking at the relationship between being paid at minimum wage and the wide range of household and child deprivation indicators in the Family Resources Survey data.

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Appendix A: Technical details of the Landman Economics Tax-Transfer Model and processing the Family Resources Survey for the analysis

This Appendix describes the technical details of the key aspects of the Landman Economics Tax-Transfer Model (TTM) which is used to estimate the relationship between gross earnings from employment and other gross incomes and net incomes (after taxes, NICs and social security payments) using the Family Resources Survey data. Section 3.1 in the main text of the report gives an overview of how the TTM operates. This Appendix explains a number of additional technical details.

A.1 Initial hourly wage in 2023/24 Family Resources Survey data

The initial hourly wage variable in the FRS data is calculated using the employee earnings variable INEARNNS divided by TOTTHOUR. For people with positive income for INEARNNS *and* self-employed income (SEINCAM2), TOTTHOUR is assumed to be split in the ratio of (INEARNNS:SEINCAM2), i.e. the person's hourly wage is assumed to be the same across both the employed and self-employed income sources.

This hourly wage is then adjusted using the Annual Survey of Hours and Earnings data for 2023 and 2024 using the procedures outlined in Chapter 4.

A.2 Updating earnings and other incomes from 2023/24 to 2025/26

Earnings and self-employment income

Hourly earnings data from the FRS for employees is updated using the ASHE adjusted wage percentiles (from 10 to 60) as explained in Chapter 4.

Weekly earnings data from the FRS is updated using ASHE median weekly earnings increase from 2023 to 2024 for employees and self-employed people: the INEARNNS variable for employees and SEINCAM2 for self-employed people.

For updating of earnings and self-employment income from 2024 to 2025, the Average Weekly Earnings variable from ONS for July 2024 to July 2025 is used.

We also implement an additional uplift in weekly earnings for people whose hourly wage received additional uplift as a result of minimum wage increases in April 2024, and also April 2025.

Other incomes

For other gross market incomes including:

- Income from investments;
- Income from dividends;
- Income from private pensions;
- Income from property,

the same uprating strategy is used as for weekly earnings and self-employment income (ASHE median earnings for 2023/24 to 2024/25 and average weekly earnings from 2024/25 to 2025/26).

For state benefits the actual uprating factors specified by the UK Government are used. These are the “triple lock” for the State Pension and CPI inflation for most other benefits and Universal Credit.

A.3 Minimum Wage rates

The NMW and NLW rates for 2024/25 and 2025/26 are as announced by the LPC and confirmed by the UK Government.

Simulated minimum wage increases of 1%, 2%, 3%, 4%, 5%, 10%, 15% and 20% are modelled as occurring instantaneously in 2025/26.

A.4 Modelling the tax and benefits system

The **income tax** system implemented using Scottish IT rates for Scotland and England/Wales/N Ireland rates for everywhere else, using the gross incomes information uprated as specified above.

Employee and self-employed National Insurance Contributions are modelled in detail using the information in the FRS on employee earnings in jobs (with weekly earnings adjusted to take account of minimum wage increases where appropriate as explained above)

For **Universal Credit** the model starts with the payments of UC to benefit units in 2023/24, uprated total payments for 2025/26 and then models reduction of Universal Credit based on increase in incomes arising from minimum wage increases (net of income tax and NICs).

For **other benefits** (e.g. State Pension, Pension Credit, Housing Benefit and disability payments such as Personal Independence Payment) the model uses actual

receipt of benefits in the 2023/24 FRS and updates the payments using the UK Government's benefit uprating rules for 2024/25 and 2025/26.

A.3 Implementation

To make it easier for the LPC to implement this model in future years, I have transcoded the Python code for the relevant sections of the model into Stata code which is probably easier for LPC economists to work with.

Appendix B: weekly and hourly wages in the Family Resources Survey

B.1 Evidence from Jenkins and Rios-Avila (2023)

Jenkins and Rios-Avila (2023) analyse measurement errors in weekly earnings in the Family Resources Survey data using individual-level data from the 2011/12 FRS with administrative data on Pay As You Earn (PAYE) records from HM Revenue and Customs for the same individuals. Their analysis focuses on **survey measurement error**, which occurs when the measurement of weekly earnings does not match the true value of weekly earnings in the administrative data. Jenkins and Rios-Avila do not consider the FRS hours of work variable in their analysis, but clearly there is also a potential for measurement error of hours of work as well as weekly earnings in the FRS. This could happen because the time periods over which hours of work and weekly earnings are recorded are different, or alternatively hours of work and weekly earnings could be recorded over the same time period but one or both could be mismeasured in the data.

It is important to note that survey respondents in the FRS do not have to report their earnings strictly over the period of a week but are allowed to choose a number of different time periods, including a fortnight, four weeks, a calendar month, three months, six months and a year. The raw earnings variable is then converted into a weekly earnings variable for the final "end user licence" dataset deposited with the UK Data Archive. Similarly, hours of work can be reported as a weekly average over a longer time period. This increases the scope for measurement error in both variables.

Jenkins and Rios-Avila also identify three other types of measurement error. Two of these are only relevant for administrative data (linkage errors and measurement errors), whereas the third is "reference period error", which occurs when the time

period for which FRS earnings are reported does not match the time period over which administrative earnings data are recorded. We do not discuss these other errors further in this appendix, as the analysis in the current report does not use linked administrative data.

Jenkins and Rios-Avila estimate the probability of measurement error for weekly earnings in the FRS data to be around 94%, which is very high. By contrast, reference period error has a low prevalence (around 8%) but introduces substantial variation into empirical results based on FRS hourly earnings statistics.

B.2 The consequences of measurement error for unadjusted estimates of minimum wage coverage in the 2023/24 FRS

Although Jenkins and Rios-Avila find that measurement error in weekly earnings is more important than reference period error, if it is the case that potential measurement error in hours worked is also substantial, then the consequences for the accuracy of the hourly wage measure in the FRS.

As shown in Table 6.1, after adjusting the FRS hourly wage measure using the Annual Survey of Hours and Earnings we estimate that 2.82 million employees are paid at NMW or NLW in the 2025/26 tax year. Using an *unadjusted* measure of hourly wages from the FRS (uprating to take account of earnings growth between 2023/24 and 2025/26, but making no other adjustments), we estimate that 5.27 million employees are paid at NMW or NLW in 2025/26 – an overestimate of almost 2.5 million, or 87 per cent. Using the “raw” FRS hourly earnings data for 2023/24, we estimate that 4.5 million employees were paid at NMW/NLW in 2023/24, with 4.33 million – around 96 per cent – paid more than 5 pence per hour below the April 2023 NMW/NLW level. In other words, using the unadjusted FRS hourly wage data gives very misleading estimates for the number of employees paid at – or below – minimum wage levels.

Appendix C: Details of imputation of hourly earnings in the 2023/24 Family Resources Survey dataset

C.1 Imputation of hourly earnings for working 16 to 18-year-olds in the FRS child dataset

This section explains how hourly earnings are imputed for 16, 17 and 18 year olds in the FRS child dataset. The child dataset has a weekly earnings variable but no “hours worked” variable and so it is necessary to impute hourly earnings for 16-18 year olds who are in the child dataset rather than the adult dataset.

The imputation procedure uses the Labour Force Survey data for the four quarters 2023 q2, 2023 q3, 2023 q4 and 2024 q1 (the same time period as the 2023/24 FRS). All employees aged 16, 17 or 18 in the LFS with weekly wage information and hours worked information are used as the LFS imputation sample (note that earnings data is only collected in waves 1 and 5 of the 5-quarter rolling LFS panel survey). The LFS sample contains 389 employees in this age group with weekly earnings and hours data. These are ranked by weekly earnings and divided into 39 ‘bins’ of 10 employees each, from lowest to highest earnings (the final bin containing only 9 employees). Table C.1 shows the lower and upper weekly earnings ranges for each bin.

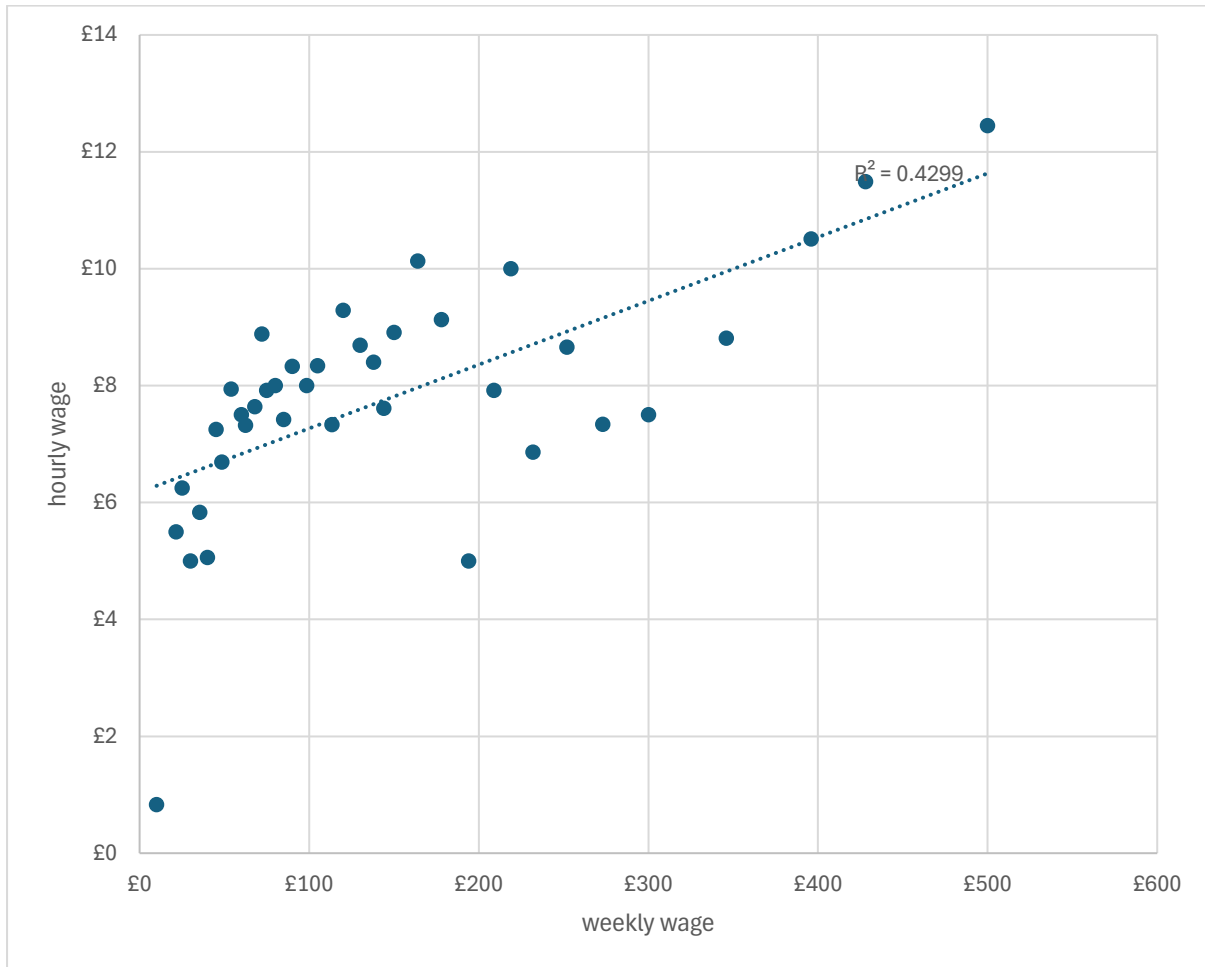
Table C.1. Lower and upper bound hourly earnings

Bin	Lower bound (£ per week)	Upper bound (£ per week)	Bin	Lower bound (£ per week)	Upper bound (£ per week)
1	5	17	21	110	115
2	18	23	22	116	121
3	24	28	23	122	135
4	29	35	24	136	140
5	36	38	25	141	150
6	39	42	26	151	160
7	43	45	27	161	173
8	46	51	28	174	185
9	52	55	29	186	203
10	56	60	30	204	212
11	60	62	31	213	225
13	63	65	32	226	240
14	66	69	33	241	256
14	70	74	34	257	285
15	75	77	35	286	323
16	78	81	36	324	358
17	82	90	37	359	404
18	91	95	38	405	481
19	96	100	39	482	650
20	101	109			

Source: Author's calculations using Labour Force Survey, 2023q2 through 2024q1

Figure C.1 shows a scatterplot of median weekly wage against median hourly wage in the LFS sample of 16-18 year olds. There is a clear positive relationship between the two variables – the trendline from a linear regression of hourly wage against weekly wage shows an R-squared value of just under 0.43.

Figure C.1. Scatterplot of median weekly wages against median hourly wages for 16, 17 and 18 year-old employees in the Labour Force Survey, 2023q2 through 2024q1



Source: Author's calculations using Labour Force Survey, 2023q2 through 2024q1

The employees from the FRS child dataset are allocated into bins based on their weekly earnings (to the nearest integer value of GBP per week) and allocated a randomly drawn hourly wage imputation from the set of 10 hourly wage observations in each LFS.

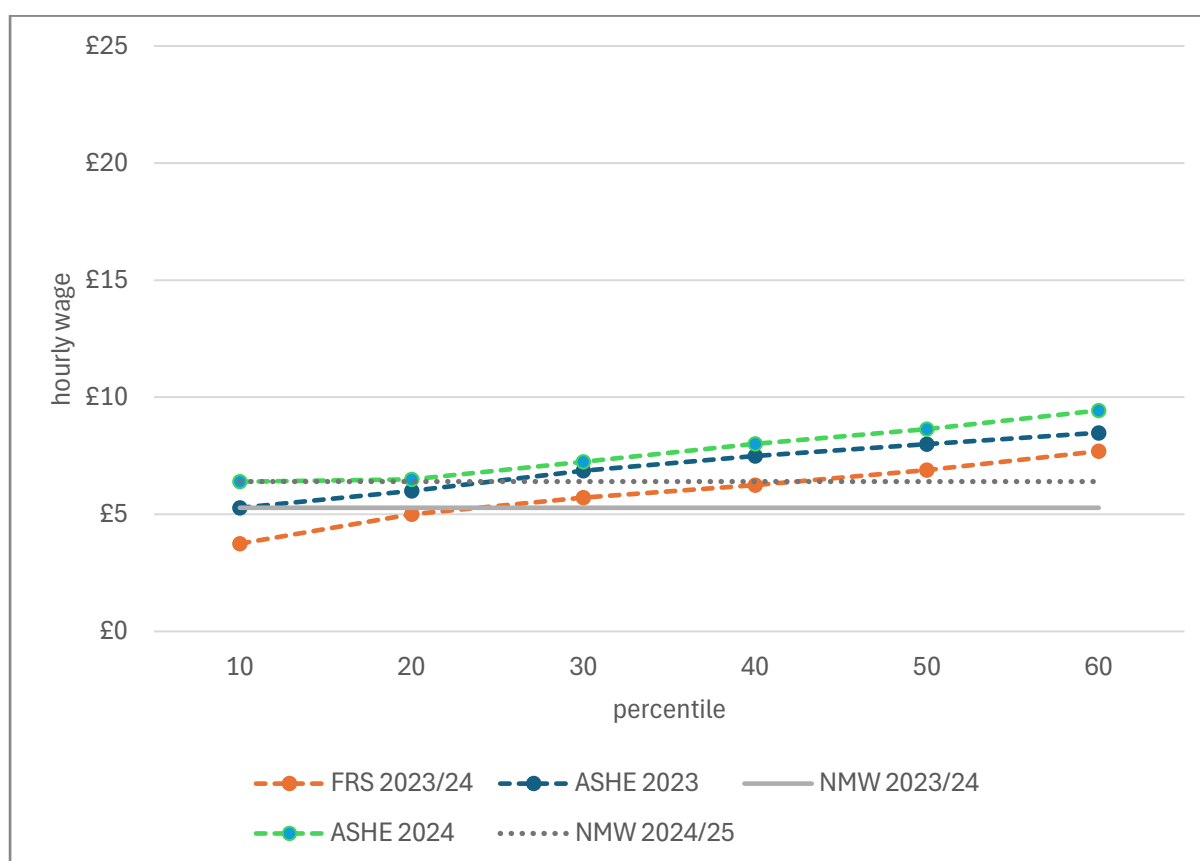
For the 2022/23 FRS data used for the 2-year pooled dataset, a similar procedure is undertaken using the LFS from the same time period (four quarters from 2022q2 through 2023q1 inclusive).

C.2 Comparison of the 2023 and 2024 ASHE and adjusted FRS 2023/24 hourly wage percentiles for other age groups

This section shows the comparison of the 2023 and 2024 ASHE hourly wage percentiles (from 10 to 60) with the 2023/24 FRS hourly wage percentiles for the other six age groups not covered in Chapter 4.

16 and 17 year olds

Figure C.2. FRS 2023/24 and ASHE 2023 and 2024 hourly wage percentiles (10th through 60th), 16 and 17 year olds



Source: author's analysis of ASHE 2023 and 2024 data and FRS 2023/24 data

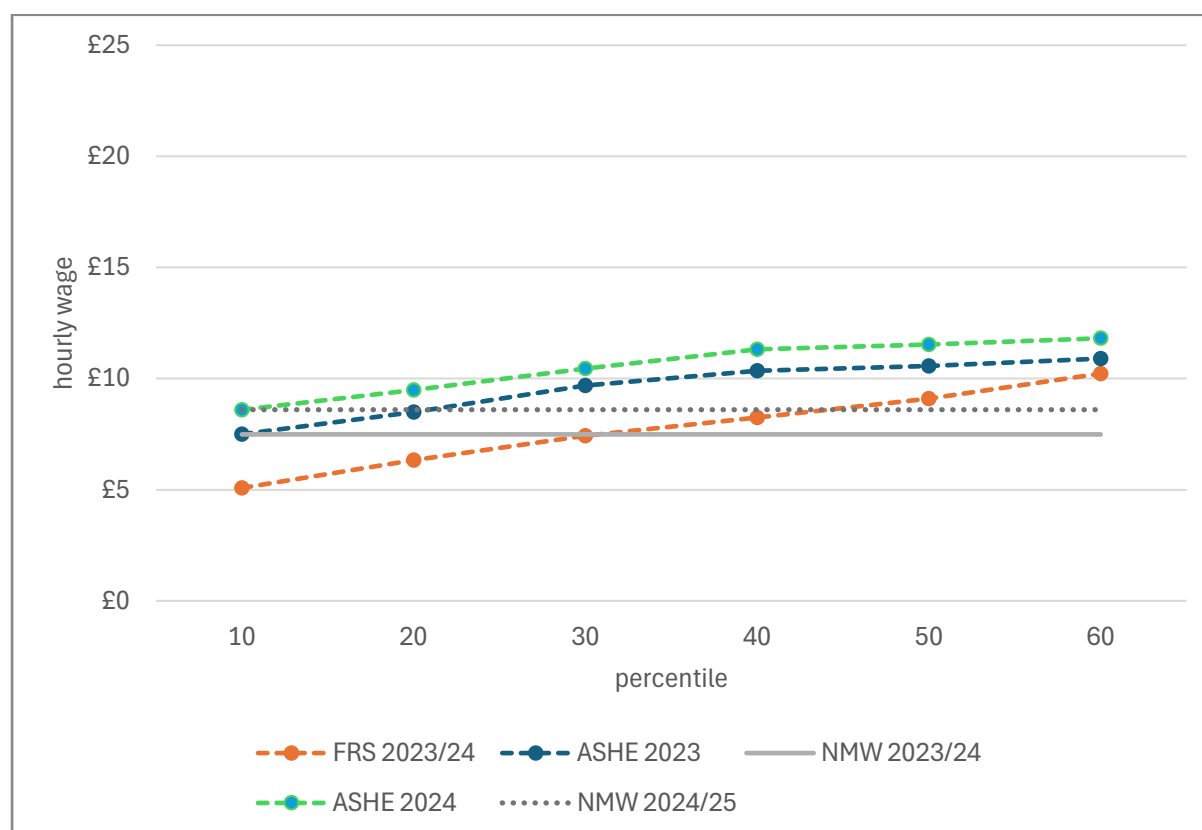
Figure C.2 shows that the 10th percentile of the 2023/24 FRS is £3.75 per hour, which is considerably below the equivalent ASHE percentile for 2023 (£5.28) – a difference of 29 per cent. At the 20th percentile the gap between the 2023/24 FRS hourly wage (£5.00) and the 2023 ASHE hourly wage (£6.00) is smaller, but the 20th percentile of the FRS hourly wage is still below the April 2023 NMW for 16 and 17-

year-olds. The gap between the 2023/24 FRS hourly wage and the 2023 ASHE hourly wage is between 80 pence and £1.25 at the higher percentiles.

A comparison of the ASHE hourly wages for 2023 (dashed blue line) and 2024 (dashed green line) shows that the increase in the NMW rate for 16 and 17-year-olds from £5.28 per hour in 2023 to £6.40 per hour in 2024 seems to have substantially increased the number of employees in this age group paid at NMW rates. The 20th percentile of hourly wages in 2024 is only a few pence above the NMW rate whereas in 2023 it was around 70 pence above the NMW rate.

18 to 20 year olds

Figure C.3. FRS 2023/24 and ASHE 2023 and 2024 hourly wage percentiles (10th through 60th), 18 to 20 year olds



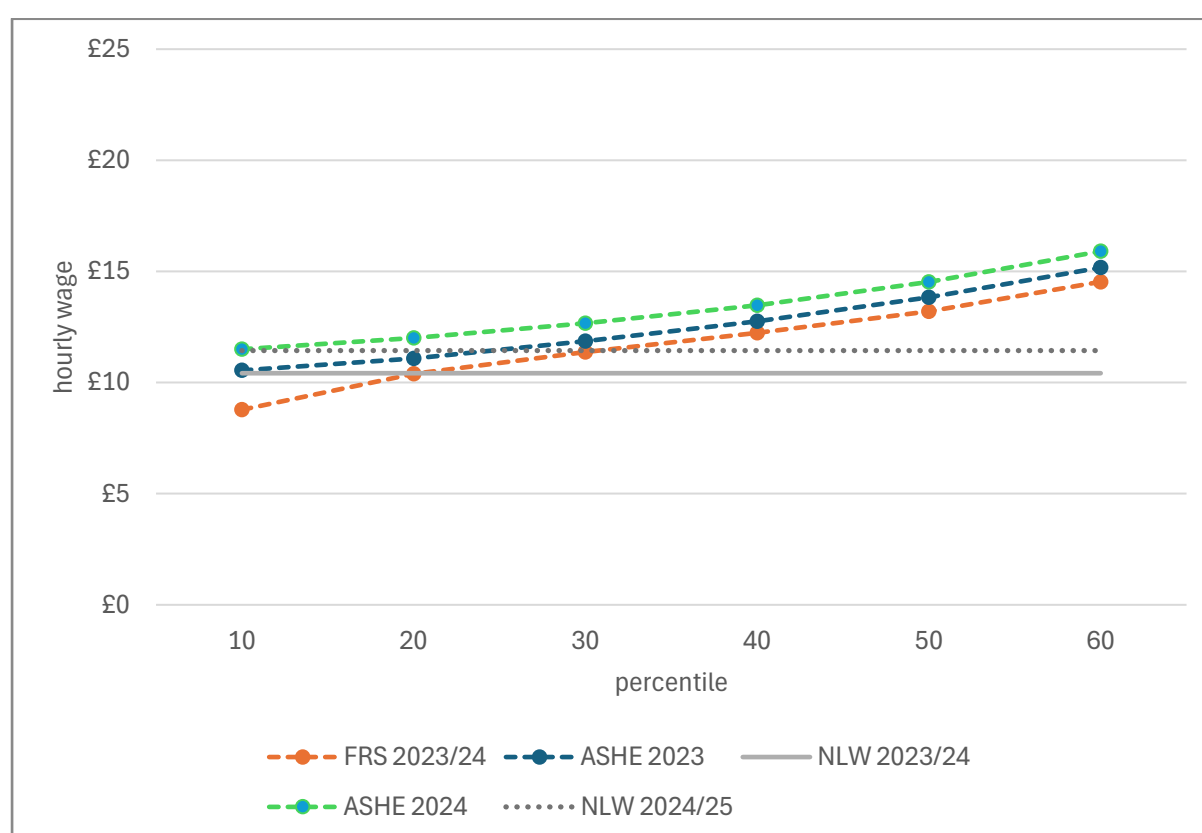
Source: as Figure C.2

Figure C.3 shows that the gap between the 2023/24 FRS and 2023 ASHE hourly wages for 18-20 year olds is largest at the 10th, 20th and 30th percentiles and then falls in absolute terms the further we go up the earnings distribution. Earnings at the 10th percentile of the 2023 ASHE are at the relevant NMW rate for 18-20 year olds. In the 2023/24 FRS, earnings are below the April 2024 NMW rate for the 10th and

20th percentiles, and only just above the NMW rate at the 30th percentile. Comparison of the 2023 and 2024 ASHE data shows that hourly wage rates increased by between 75 pence and £1 per hour at the 20th through the 60th percentiles, but by slightly more - £1.10 – at the 10th percentile, reflecting the increase in the NMW for this age group from £7.49 per hour to £8.60 per hour in April 2024.

21 to 29 year olds

Figure C.4. FRS 2023/24 and ASHE 2023 and 2024 hourly wage percentiles (10th through 60th), 21 to 29 year olds



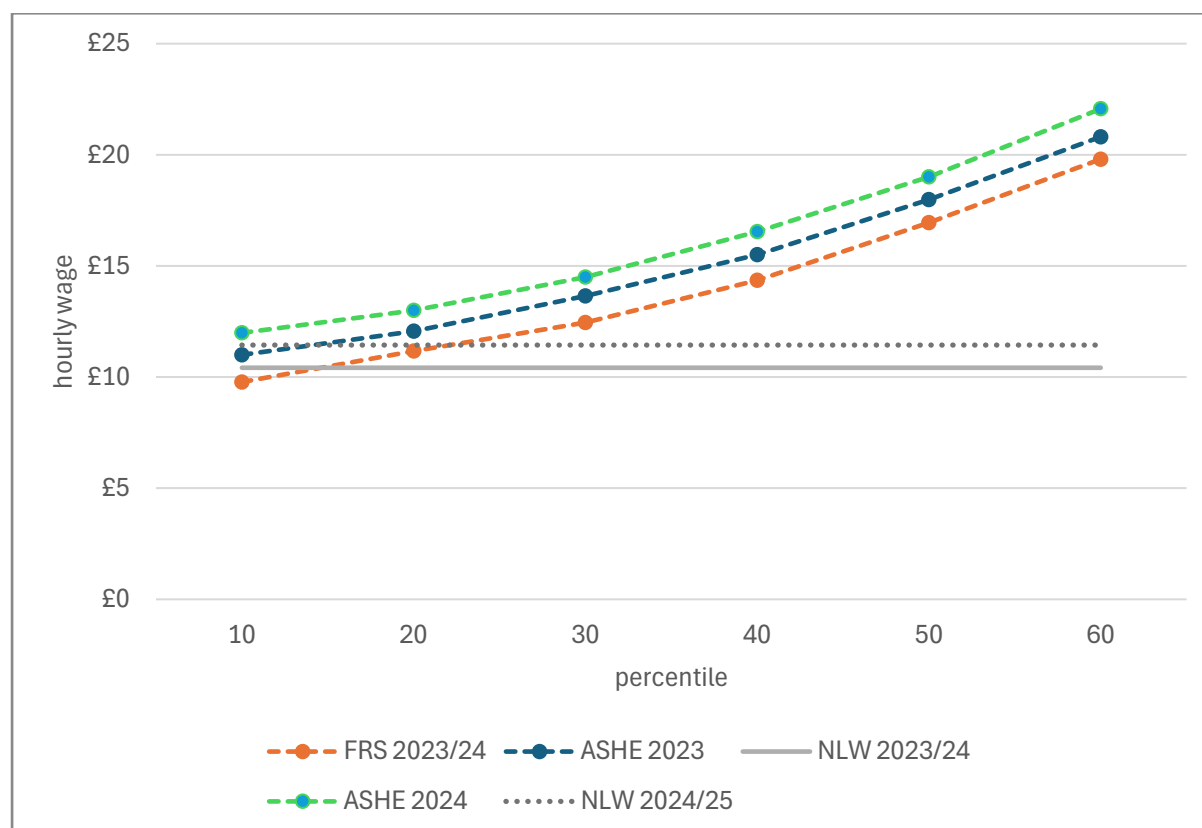
Source: as Figure C.2

Figure C.4 shows that the 2023/24 FRS hourly earnings measure is around £1.75 below the 2023 ASHE measure at the 10th percentile (a shortfall of around 17 per cent). At the 20th percentile the difference is much smaller at around 6 per cent, and . At the 20th percentile the difference falls to around 70 pence (around 4 per cent), and for the 30th through 60th percentiles the gap is even smaller than this in cash and percentage terms. Comparison of the ASHE hourly wage data for 2023 and 2024 shows a larger cash increase at the 10th percentile (£1.05) than at the 20th percentile

and above. This reflects an increase in the National Living Wage (from £10.42 to £11.44) in excess of the general rate of wage growth for this age group.

40 to 49 year olds

Figure C.5. FRS 2023/24 and ASHE 2023 and 2024 hourly wage percentiles (10th through 60th), 40-49 year olds

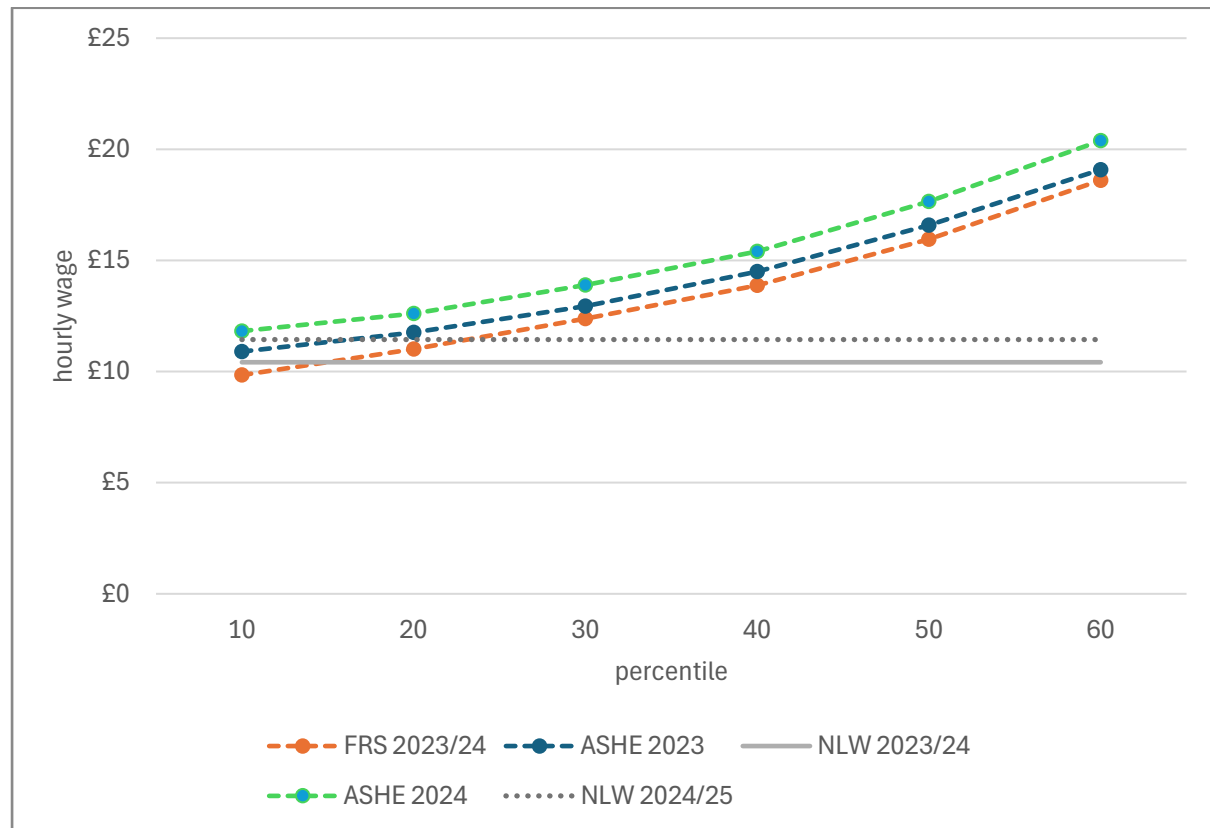


Source: as Figure C.2

Figure C.5 for 40-49 year-olds shows similar results to Figure 4.4 for 30-39 year olds. shows very similar results. Hourly wages in the 2023/24 FRS are around £1.20 per hour lower than the 2023 ASHE at the 10th percentile, and between 90 pence and £1.20 below the 2023 ASHE at the 20th through 60th percentiles.

50 to 59 year olds

Figure C.6. FRS 2023/24 and ASHE 2023 and 2024 hourly wage percentiles (10th through 60th), 50-59 year olds

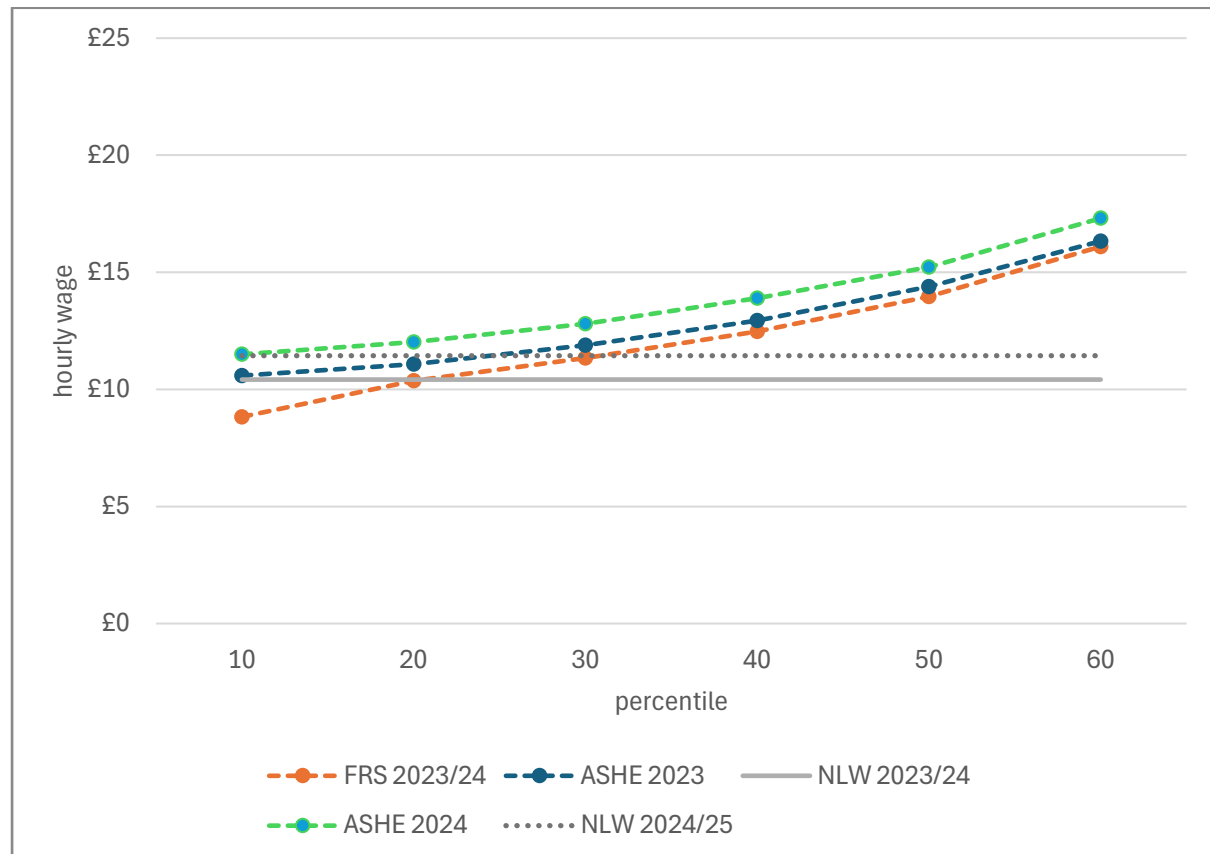


Source: as Figure C.2

Once again, Figure C.6 shows a similar pattern for 2023/24 FRS hourly wages compared to the 2023 ASHE for 50-59 year olds as we saw for 30-39 and 40-49 year olds. The FRS hourly wage data is slightly closer to the ASHE wage levels for the 30th through the 60th percentiles for this age group than it is for the younger age groups.

60 years and older

Figure C.7. FRS 2023/24 and ASHE 2023 and 2024 hourly wage percentiles (10th through 60th), people aged 60 and over



Source: as Figure C.2

Finally in this section, Figure C.7 shows that the shortfall for 2023/24 FRS hourly wages compared to 2023 ASHE wages is larger at the 10th percentile than at higher percentiles. FRS hourly wages are £8.83 at the 10th percentile compared to £10.59 in the 2023 ASHE – a difference of around 17 per cent. The difference between the FRS and ASHE is smaller at the 20th percentile and above, and at the 60th percentile the difference is only around 20 pence per hour (less than 2 per cent).

Appendix D: Details of how spillovers are modelled

D.1 Modelling coverage

To model the impact of spillovers on coverage of the minimum wage, we use a technique developed by the Low Pay Commission in its March 2024 report *The National Minimum Wage Beyond 2024*. The LPC modelled the spillover effects of the minimum wage for increases between 2015 and 2019 by calculating the percentiles of the pay distribution in 2015 and 2019, deflating the 2019 percentiles by an index of median wages and calculating the percentage growth in each percentile (relative to median growth). Figure A1.2 on p106 of Low Pay Commission (2024) shows a scatterplot of the actual and modelled spillover rates for the bottom 50 percentiles of the UK hourly wage distribution above the minimum wage. The LPC then fitted an exponential curve to the scatterplot of percentile changes in the wage distribution. The vertical axis of the graph showed the size of the spillover impact (in percent) – with a 100% spillover corresponding to the full effect of the minimum wage increase at the NLW level, and zero percent corresponding to no spillover effect. An exponential curve was chosen because there is a rapid decrease in the size of the spillover effect near the minimum wage level, which then flattens out the further away we get from the minimum wage.

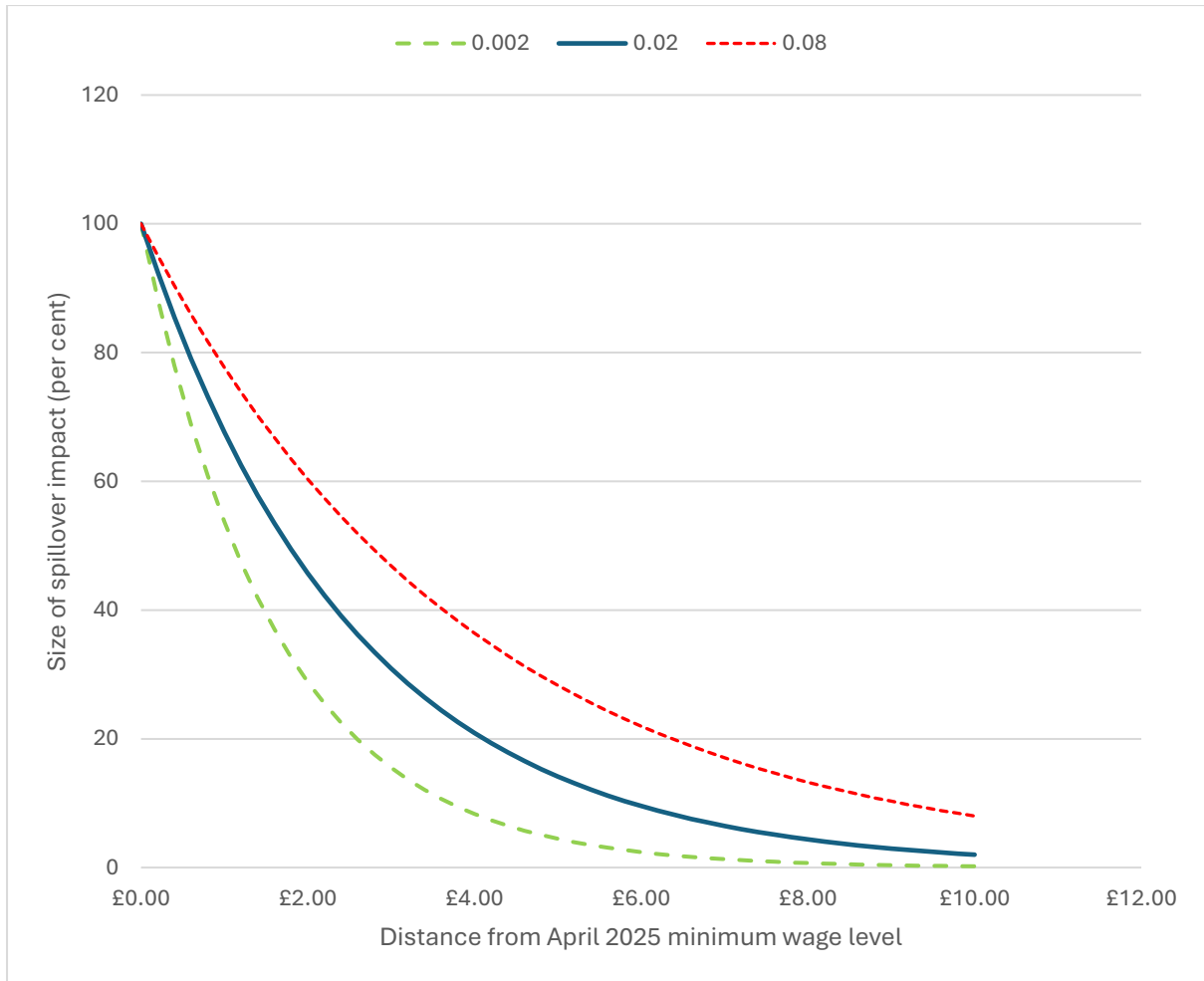
Figure 6.1 shows an exponential curve fitted to a similar distribution to Figure A1.2 in LPC (2024), uprated for inflation. The equation for the exponential distribution is:

$$p = \theta^r \quad (1)$$

Where p is the size of the spillover impact (in percent, maximum 100%, minimum zero; θ is the parameter measuring how slowly the spillover effect ‘fades out’ as we go up the wage distribution (a higher value of θ means a slower rate of fade), and r is the distance between the minimum wage level and the point on the wage distribution for which the extent of spillover is being estimated, ranging from 0 (at the minimum wage level) to 1 (at £10 per hour above the minimum wage level).

Figure D.1 shows the shape of the spillover distribution at $\theta = 0.02$ (our chosen spillover parameter for the analysis in this report), as well as a more generous spillover parameter ($\theta = 0.08$) and a less generous spillover parameter ($\theta = 0.002$).

Figure D.1. Illustration of different assumptions on exponential parameter of spillover model



Note: $r = 0$ at April 2025 minimum wage level, $r = 1$ at £10 above minimum wage level.

D.2. Estimating spillovers for employees paid above minimum wage in the adjusted 2023/24 FRS dataset

For estimation of the effects of spillovers on individual workers in the FRS earning above NMW or NLW in the baseline, a slightly more complex modelling procedure is required. The analysis uses a randomly chosen spillover for each employee in the 2023/24 FRS whose hourly wage (adjusted using ASHE, and uprated) is above the National Living Wage or National Minimum Wage level. The equation for the amount of spillover is:

$$\sigma_i = \psi^{e_i \nu} \quad (2)$$

Where σ_i is the amount of spillover for individual i , ψ is a calibration parameter for the overall extent of spillovers, e is a randomly chosen parameter on the uniform

distribution $[0,1]$ and ν is a secondary calibration parameter equivalent to r in equation (1) above. The values of ψ and ν were set at 0.018 and 0.3 respectively as this gave the best fit between the spillover-adjusted hourly earnings distribution after NLW increases of between 1% and 20% and the spillover-adjusted estimates of coverage shown in Table 6.4 of the main report. Similarly, for employees aged under 21, values of ψ and ν were chosen to match estimates of increases of coverage in the NMW accounting for spillovers (as shown in Table 6.4).

Appendix E. Details of distributional breakdowns of minimum wage coverage

This appendix gives full details of the distributional breakdowns of NLW and NMW coverage summarised in Chapter 5.

E.1 Breakdowns by individual characteristics

This section shows breakdowns of NLW/NMW coverage according to the characteristics of individual workers. In each of the tables in the remainder of this chapter, the left hand column of results shows the breakdown of NMW/NLW workers across the relevant characteristic (e.g. age group in Table E.1) while the right-hand column of results shows the proportion of workers in each category (e.g. 16-17 year olds in the top row of results in Table E.1) who are paid at NMW/NLW.

Age group

Table E.1 shows the breakdown of workers paid at NMW/NLW by age group. Across all NMW/NLW employees (left-hand column), there is a fairly even spread across the age groups between 21-29 and 50-59 years, with between 18 and 22 per cent of minimum wage employees in each age group. 16 and 17-year-olds are a small percentage of total NMW/NLW employees (just over 3 per cent). Just under 7 per cent of minimum wage employees are aged 18 to 20, and around 10 per cent are aged 60 or over. There are also a large number of NMW/NLW workers aged 60 or over.

Looking at the right-hand column, around 29 per cent of workers aged under 18 are paid at NMW and just under 21 per cent of 18-20 year olds. In each of the age groups eligible for the NLW (21 and over), the proportion of workers paid at NLW is between 8 per cent and 11 per cent.

Table E.1. Breakdown of NLW/NMW workers by age group

Age group	Age group as Percentage of all NMW/NLW employees	Minimum wage employees as percentage of all employees in age group
16-17	3.2%	28.9%
18-20	6.7%	20.7%
21-29	19.8%	10.7%
30-39	21.5%	9.1%
40-49	18.6%	8.7%
50-59	20.1%	9.5%
60+	10.1%	10.7%
Total	100.0%	9.9%

Source: author's analysis of FRS 2023/24 dataset (with earnings data adjusted using 2024 ASHE and uprated to 2025/26 levels)

Sex

Table E.2 shows the breakdown of minimum wage employees by sex. Just over 57% of employees paid at NMW/NLW are women, while just under 43% are men. Female workers are more likely to be paid at NMW/NLW (11.6%) than male workers (just over 8%).

Table E.2. Breakdown of NLW/NMW workers by sex

Sex	Percentage of all NMW/NLW employees	Minimum wage employees as percentage of all employees in the group
Male	42.8%	8.3%
Female	57.2%	11.6%
Total	100.0%	9.9%

Source: as Table E.1

Ethnicity

Table E.3 shows the breakdown by ethnicity (using a two-year pooled sample of the FRS due to the small size of some of the ethnic groups). Just under 82 per cent of NMW/NLW workers are White, 10 percent are Asian or Asian British, and around 4.5 per cent are Black, African/Caribbean or Black British. The remainder are from mixed or multiple ethnic groups or from other ethnic groups. The ethnic group with the largest proportion of workers at NMW/NLW are people from other ethnic groups and Asian or Asian British people (around 11 per cent). White workers are the least likely to be paid at NMW/NLW (9.6 per cent). The proportion of employees paid at NLW/NMW does not vary very much across ethnic groups.

Table E.3. Breakdown of NLW/NMW employees by ethnicity

Ethnicity	Percentage of all NMW/NLW employees	Minimum wage employees as percentage of all employees in the group
White	81.6%	9.6%
Mixed/Multiple ethnic groups	1.7%	10.1%
Asian/Asian British	10.0%	11.0%
Black/African/Caribbean/Black British	4.4%	10.4%
Other ethnic group	2.2%	11.1%
Total	100.0%	9.8%

Source: author's analysis of pooled FRS 2022/23 and 2023/24 dataset (with earnings data adjusted using 2024 ASHE and uprated to 2025/26 levels)

Disability

Table E.4 shows a breakdown by disability status using the FRS core disability variable²⁹. Around 18 per cent of workers paid at NMW/NLW are disabled under this definition. Disabled workers are slightly more likely to be paid at NMW/NLW levels than non-disabled workers but the difference is not large (just under 11% of disabled workers compared to just under 10 per cent of non-disabled workers).

²⁹ The FRS core disability variable is one of two definitions of disability in the FRS. Just under 25 per cent of working-age adults (aged under 66) in the FRS are disabled under the core distribution compared to 35 per cent using the other, wider definition of disability.

Table E.4. Breakdown of NLW/NMW workers by disability status

Disability status (FRS core definition)	Percentage of all NMW/NLW employees	Minimum wage employees as percentage of all employees in the group
Disabled	18.0%	10.9%
Non-disabled	82.0%	9.7%
Total	100.0%	9.9%

Source: as Table E.1

Earners type

Table E.5 shows a breakdown by “earner type”, which is a variable derived from the FRS benefit unit classification. We classify employees in the FRS adult record into one of six types according to their benefit unit classification as follows:

1 – primary earner in main benefit unit. In a working single adult benefit unit or a couple with one adult in work, the earner would fall under this classification. In a couple with two adults in work, the adult with the higher earnings is the primary earner³⁰.

2 – secondary earner in main benefit unit. In a couple with two adults in work, the adult with the lower earnings is the secondary earner.

The other 3 categories are for working adults who are in a second or subsequent benefit unit and are defined by the adult’s relationship to the adults in the main benefit unit as follows:

3 – son or daughter

4 – parent

5 – other relative

6 – non-relative.

For employees in the FRS child record, we classify them in category 3 – son or daughter of main benefit unit.

³⁰ If both adults in a couple have the same weekly earnings the adult working fewer hours is designated as the primary earner (on account of having a higher hourly wage).

Table E.5. Breakdown of NLW/NMW workers by earner type

Earner type	Percentage of all NMW/NLW employees	Minimum wage employees as percentage of all employees in the group
Main BU: primary earner	42.3%	7.3%
Main BU: secondary earner	34.8%	14.4%
Main/ Other BU: son/daughter	19.6%	16.0%
Other BU: parent	0.7%	18.9%
Other BU: other relative	1.2%	12.0%
Other BU: non-relative	1.5%	7.5%
Total	100.0%	9.9%

Source: as Table E.1

Table E.5 shows that just over 42 per cent of NLW/NMW employees are primary earners in the main benefit unit, while just under 35 per cent are secondary earners in the main benefit unit. Sons or daughters of the main benefit unit are the next largest group at just under 20 per cent; the other three groups are relatively small. The earner type with the highest proportion of minimum wage workers is parents of the adults in the main benefit unit (around 19 per cent), followed by sons and daughters (16 per cent) and secondary earners in the main benefit unit (around 14.5 per cent).

E.2 Breakdowns by job characteristics

Number of hours worked

Table E.6 shows the breakdown by number of hours worked (part-timers versus full-timers). Part-time workers make up just under 37 per cent of all employees paid at NMW/NLW. Part-time workers are more than twice as likely to be paid at NMW/NLW compared to full-time workers (just under 19 per cent compared to just under 8 per cent).

Table E.6. Breakdown of NLW/NMW workers by number of hours worked

Number of hours worked	Percentage of all NMW/NLW employees	Minimum wage employees as percentage of all employees in the group
Part-time	36.8%	18.6%
Full-time	63.2%	7.8%
Total	100.0%	9.9%

Source: as Table E.1

Industry sector

Table E.7 shows the breakdown of NMW/NLW workers by industry sector using the 1-digit SIC2007 classification into 20 sectors. The sectors with the largest number of minimum wage workers are human health and social work (around 17 per cent), wholesale and retail trade (just under 16 per cent), education (14 per cent) and accommodation and food service activities (13 per cent). The sectors where employees are most likely to be paid at minimum wage are agriculture, forestry and fishing (where over 30 per cent of employees are on minimum wage), transportation and storage (where 23.5 per cent of employees are on minimum wage) and employees who have domestic households as employees (21.5 per cent, although this is a relatively small sample). The sectors with the lowest proportion of minimum wage workers are mining and quarrying and electricity and gas (both of which have no FRS employees on minimum wage), followed by public administration and defence, finance and insurance, real estate and information and communication.

Table E.7. Breakdown of NLW/NMW workers by industry sector (SIC 2007)

Industry	Percentage of all NMW/NLW employees	Minimum wage employees as percentage of all employees in the group
Agriculture, forestry and fishing	1.5%	30.5%
Mining and quarrying	0.0%	0.0%
Manufacturing	5.4%	6.1%
Electricity, gas etc	0.0%	0.0%
Water supply, sewerage and waste management	0.7%	7.9%
Construction	3.6%	7.6%
Wholesale and retail trade	15.8%	14.9%
Transportation and storage	5.1%	8.7%
Accommodation and food service activities	13.1%	23.5%
Information and communication	2.4%	4.4%
Financial and insurance activities	1.6%	3.5%
Real estate activities	0.4%	4.0%
Professional, scientific and technical activities	5.7%	7.1%
Administrative and support service activities	5.4%	12.7%
Public administration and defence	2.0%	2.7%
Education	13.9%	12.4%
Human health and social work	17.2%	10.5%
Arts, entertainment and recreation	3.5%	16.0%
Other service activities	2.4%	13.9%
Households as employers	0.3%	21.5%
Total	100.0%	9.9%

Source: as Table E.1

Occupation

Table E.8 shows the breakdown of NMW/NLW employees by occupation using the 1-digit SOC2020 occupational classification into 9 occupational groups. Minimum wage employees are most likely to be located in elementary occupations (just under 23 per cent), caring, leisure and service occupations (20.5 per cent) and sales and customer service occupations (just under 12 per cent). These three sectors also have the highest proportion of employees on NLW/NMW (around 20 per cent in each case). Professional occupations have the lowest proportion of minimum wage workers (3 per cent) followed by associate professional and technical occupations (4.5 per cent). Interestingly, almost 8 per cent of managers, directors and senior officials are paid at minimum wage.

Table E.8. Breakdown of NLW/NMW workers by occupation (SOC 2020)

Industry	Percentage of all NMW/NLW employees	Minimum wage employees as percentage of all employees in the group
Managers, directors and senior officials	8.2%	7.8%
Professional occupations	8.3%	3.1%
Associate professional and technical occupations	6.7%	4.5%
Admin & secretarial occupations	8.9%	8.6%
Skilled trades occupations	7.1%	9.4%
Caring, leisure & other service occupations	20.5%	21.2%
Sales & customer service occupations	11.8%	17.6%
Process, plant & machine operatives	5.7%	9.3%
Elementary occupations	22.8%	20.7%
Total	100.0%	9.9%

Source: as Table E.1

E.3 Breakdowns by benefit unit characteristics

This section shows breakdowns by characteristics of the benefit unit (a single adult or adult couple plus any dependent children).

Demographic type

Table E.9 shows a breakdown of NMW/NLW employees by the type of benefit unit they are in. The demographic classification uses a six-way split: single and couple pensioners, and working age single people and couples with or without dependent children.

The most common demographic categories for workers paid at NMW/NLW are working age couples with children (just over 32 per cent of minimum wage employees), followed by working age single adults without children (just under 28 per cent) and working age couples without children (around 26.5 per cent). Minimum wage workers are least likely to be couple pensioners (less than 2 per cent of the total). As a proportion of each benefit unit type, couple pensioners are most likely to be paid at NMW/NLW (just under a quarter), followed by lone parents (almost 19 per cent) and single pensioners (just over 16 per cent).

Table E.9. Breakdown of NLW/NMW workers by benefit unit type

Benefit unit type	Percentage of all NMW/NLW employees	Minimum wage employees as percentage of all employees
Single pensioner	3.9%	16.3%
Couple pensioner	1.9%	24.9%
Working age couple with children	32.2%	9.9%
Working age couple without children	26.4%	7.6%
Lone parent	8.0%	18.7%
Working age single adult without children	27.7%	10.7%
Total	100.0%	9.8%

Source: as Table E.1

Number of earners in benefit unit

Table E.10 shows the breakdown by number of earners in the BU. The proportions of minimum wage workers in benefit units with one earner or two earners are very similar (around 47% for one earner and 48% for 2 earners). Only around 4.5 per cent of NMW/NLW employees are in benefit units with three or more earners (these benefit units include working dependent children aged 16 to 18). Employees in benefit units with one earner are more likely to be paid at NMW/NLW levels (11.5% compared to 8.5% of two-earner BUs). Almost one in five employees in benefit units with three or more earners are paid at minimum wage.

Table E.10. Breakdown of NLW/NMW workers by number of earners in benefit unit

Number of earners in benefit unit	Percentage of all earners paid at NMW/NLW	NMW/NLW workers as percentage of all workers in group
One earner	47.1%	11.5%
Two earners	48.3%	8.5%
Three or more earners	4.6%	18.7%
Total	100.0%	9.9%

Source: as Table E.1

Universal Credit receipt

Table E.11 shows a breakdown of employees paid at NMW/NLW according to whether they are in a benefit unit receiving Universal Credit or not. Just under one in six workers paid at NMW/NLW are in benefit units claiming Universal Credit or legacy benefits or tax credits. Workers claiming UC are significantly more likely to be paid at NMW/NLW levels (21 per cent) than non-claimants (9 per cent).

Table E.11. Breakdown of NLW/NMW workers by whether benefit unit receives Universal Credit (or legacy benefits/tax credits) or not

Whether BU receives UC	Percentage of all earners paid at NMW/NLW	NMW/NLW workers as percentage of all workers in group
Receiving UC	15.7%	21.0%
Not receiving UC	84.3%	9.0%
Total	100.0%	9.9%

Source: as Table E.1

E.4 Breakdowns by household characteristics

Region/country

Table E.12 shows a breakdown of NMW/NLW employees by which of the regions and countries of the UK they live in, with twelve categories in total: nine English regions, Scotland, Wales and Northern Ireland. The regions with the highest numbers of NMW/NLW workers are the South East, South West, North West and the East of England. The regions and countries where workers are most likely to be paid at NMW/NLW are the South West (almost 13%), the North West, Yorkshire and the Humber, the East Midlands and Wales. The region where workers are least likely to be paid at NMW/NLW is London (less than 7 per cent)– this may be because of the London earnings premium which tends to push wages up above the legal minimum level.

Table E.12. Breakdown of NLW/NMW workers by region/country

Region / country	Percentage of all NMW/NLW employees	Minimum wage employees as percentage of all employees
England:		
North East	3.5%	9.3%
North West	11.0%	10.4%
Yorkshire and the Humber	8.5%	10.5%
East Midlands	8.6%	11.9%
West Midlands	9.5%	10.8%
East of England	10.4%	11.1%
London	9.6%	6.8%
South East	13.7%	9.5%
South West	10.9%	12.9%
Wales	4.9%	10.6%
Scotland	7.1%	8.2%
N Ireland	2.4%	8.8%
Total	100.0%	9.9%

Source: as Table E.1

Housing tenure

Table E.13 presents a breakdown of NMW/NLW employees according to housing tenure category. 56% of NMW/NLW workers are in owner-occupier households (including those buying with a mortgage, part own/part-rent and those who own outright). 26.5% are in private rented households and around 15.5% in social rented households. Among each tenure category, those who live rent-free are most likely to be NMW/NLW earners (just under 20 per cent, although this is a very small sample and the results for this category should be treated with caution). Just under 15 per cent of employees living in social rented accommodation are paid at NMW/NLW levels.

Table E.13. Breakdown of NLW/NMW workers by housing tenure

Breakdown by housing tenure	Percentage of all NMW/NLW employees	Minimum wage employees as percentage of all employees
Social rent	15.3%	14.5%
Private rent	26.3%	12.3%
Owner occupiers	56.8%	8.4%
Rent free	1.6%	19.9%
Total	100.0%	9.9%

Source: as Table E.1

E.5 Two-way breakdowns

This section presents a range of two-way breakdowns of the characteristics of minimum wage workers and the percentage of employees paid at NMW/NLW. Because of the large number of different breakdown variables in the earlier sections of this chapter, we do not show a full set of two-way tabulations here, but instead focus on some of the most interesting combinations. All the results in this section use the 2-year pooled FRS sample (comprising 2022/23 and 2023/24 waves of data) to provide an increased sample size for the two-way tabulations.

Income decile and sex

Table E.14 shows a breakdown of NMW/NLW employees according to household income decile and sex. The deciles use the AHC definition of income and are restricted to working households only.

Table E.14 shows that men on NMW/NLW are more likely than women to be located in the bottom decile of AHC income among working households. However, women are more likely than men to be located in deciles 2 through 6. At the top of the income distribution, men are slightly more likely than women to be located in deciles 7 through 10.

Table E.14. Income decile breakdown of employees paid at NMW/NLW, by sex

Decile (AHC, working households only)	Men	Women	Total
1st (poorest)	22.7%	14.4%	18.0%
2nd	16.9%	17.2%	17.1%
3rd	12.6%	16.3%	14.7%
4th	10.1%	13.5%	12.0%
5th	9.1%	10.8%	10.1%
6th	7.5%	8.8%	8.2%
7th	6.5%	6.4%	6.4%
8th	6.1%	5.8%	6.0%
9th	4.0%	3.6%	3.7%
10th (richest)	4.5%	3.4%	3.9%
Total	100.0%	100.0%	100.0%

Source: author's analysis of pooled FRS 2022/23 and 2023/24 dataset (with earnings data adjusted using 2024 ASHE and uprated to 2025/26 levels)

Table E.15 shows minimum wage employees as a percentage of all employees for each combination of income decile and sex. The totals in the right hand column show the overall percentage of minimum wage employees in each decile, while the totals on the bottom row show the overall percentage of minimum wage employees by sex and (in the bottom left cell of the table) in the overall sample. Table 5.18 shows that men in the lowest AHC income decile for working households are more likely to be paid at NMW/NLW than women in the lowest decile. In the other 9 deciles the converse is the case – women are more likely to be paid at minimum wage than men.

Table E.15. Proportion of employees paid at minimum wage by income decile and sex

Decile (AHC, working households only)	Men	Women	Total
1st (poorest)	30.0%	25.6%	27.8%
2nd	17.6%	23.3%	20.5%
3rd	12.8%	20.2%	16.7%
4th	8.4%	15.4%	11.9%
5th	7.2%	11.6%	9.4%
6th	5.6%	9.0%	7.3%
7th	4.7%	6.6%	5.6%
8th	4.3%	5.7%	5.0%
9th	2.9%	3.9%	3.3%
10th (richest)	3.5%	4.2%	3.8%
Total	8.3%	11.7%	9.9%

Source: as Table E.14

Age group and sex

Table E.16 shows a breakdown of minimum wage employees by age group and sex. Men paid at NMW/NLW are slightly more likely than women to be in the three youngest age groups (16-17, 18-20 and 21-29) and also more likely to be in the two oldest age groups (50-59 and 60 or older). Women are more likely to be in the 30-39 and 40-49 age groups.

Table E.16. Age group breakdown of NMW/NLW employees, by sex

Age group	Men	Women	Total
16-17	3.5%	3.3%	3.2%
18-20	7.3%	6.3%	6.7%
21-29	21.4%	18.6%	19.8%
30-39	19.5%	23.1%	21.5%
40-49	17.8%	19.3%	18.6%
50-59	20.7%	19.6%	20.1%
60+	10.3%	9.9%	10.1%
Total	100.0%	100.0%	100.0%

Source: as Table E.14

Table E.17 shows minimum wage employees as a proportion of employees for each combination of age and sex. Women are more likely than men to be paid at minimum wage across all age groups, with the largest difference for 16-17 year olds (33.5% of female employees in this age group are paid at minimum wage compared to 24% of men). The smallest difference between the proportions of men and women paid at NMW/NLW is for 18-20 year-olds and 50-59 year-olds.

Table E.17. Proportion of employees paid at minimum wage by age group and sex

Age group	Men	Women	Total
16-17	24.1%	33.5%	28.9%
18-20	19.6%	21.7%	20.7%
21-29	9.3%	12.3%	10.7%
30-39	6.7%	11.7%	9.1%
40-49	7.1%	10.5%	8.7%
50-59	8.5%	10.6%	9.5%
60+	9.2%	12.1%	10.7%
Total	8.4%	11.6%	9.9%

Source: as Table E.14

Disability and sex

Table E.18 shows a breakdown of minimum wage employees by disability (using the FRS core definition) and sex. The proportion of female minimum wage employees who are disabled is just over 22%, which is much higher than the equivalent proportion for men (just under 15 per cent).

Table E.18. Disability status breakdown of NMW/NLW employees, by sex

Disability status (FRS core definition)	Men	Women	Total
Disabled	14.8%	22.1%	19.0%
Non disabled	85.2%	77.9%	81.0%
Total	100.0%	100.0%	100.0%

Source: as Table E.14

Table E.19 shows the proportion of disabled and non-disabled minimum wage employees by sex who are paid at NMW/NLW. For both men and women, disabled employees are slightly more likely to be paid at minimum wage than non-disabled employees.

Table E.19. Proportion of employees paid at minimum wage by disability status and sex

Disability status (FRS core definition)	Men	Women	Total
Disabled	9.6%	13.2%	11.7%
Non disabled	8.2%	11.3%	9.6%
Total	8.4%	11.7%	10.0%

Source: as Table E.14

Hours of work and sex

Table E.20 shows a breakdown of minimum wage employees by hours of work and sex. The proportion of women minimum wage employees who work part-time is much higher than for men (just under 45 per cent compared to just under 27 per cent).

Table E.20. Full-time/part-time breakdown of NMW/NLW employees, by sex

	Men	Women	Total
Part-time	26.8%	44.6%	37.0%
Full-time	73.2%	55.4%	63.0%
Total	100.0%	100.0%	100.0%

Source: as Table E.14

Table E.21 shows the proportion of part-time and full-time employees by sex who are paid at NMW/NLW. Interestingly the proportion of NMW/NLW employees is higher for men who work part-time (22.5%) than for women who work part-time (just under 18 per cent), whereas for full-timers the converse is true (just over 9 per cent of full-time women employees are paid at NMW/NLW compared to just under 7 per cent of full-time men).

Table E.21. Proportion of employees paid at minimum wage by hours of work and sex

	Men	Women	Total
Part-time	22.5%	17.8%	19.0%
Full-time	6.8%	9.2%	7.9%
Total	8.4%	11.7%	10.0%

Source: as Table E.14

Income decile and earner type

Table E.22 shows a breakdown of employees paid at NMW/NLW by income decile (using the AHC income definition and restricting the deciles to households with at least one adult in work) and the “earner type” variable shown in Table 5.8 above. Because of low sample sizes (even in the two-year pooled FRS dataset), a simplified version of the earner type variable is used here, which combines the four “other earner” categories (children, parents, other relatives and non-relatives of the main benefit unit) into one.

Table E.22 shows that primary earners are most likely to be located in the bottom three deciles (69 per cent across the three deciles, with over 30 percent in the bottom decile). Secondary earners are most likely to be located in deciles 2 through 6 (67.5 per cent). “Other earners” (employees who are children of the adults in the main benefit unit, or who are in other benefit units) are located predominantly in deciles 1 to 6 but there are more of them in deciles 7 and 8 than for the other earner types.

Table E.22. Income decile breakdown of NMW/NLW employees by earner type

Decile (AHC, working households only)	Primary earner	Secondary earner	Other earner	Total
1	30.3%	7.5%	12.0%	18.0%
2	22.2%	14.8%	11.5%	17.1%
3	16.5%	13.6%	13.3%	14.7%
4	8.7%	14.5%	14.1%	12.0%
5	5.9%	12.9%	13.1%	10.1%
6	3.9%	11.7%	10.5%	8.2%
7	4.2%	7.2%	9.0%	6.4%
8	3.2%	7.2%	9.0%	6.0%
9	2.5%	5.5%	3.3%	3.7%
10	2.7%	4.9%	4.4%	3.9%
total	100.0%	100.0%	100.0%	100.0%

Source: as Table E.14

Table E.23 shows the proportion of employees paid at minimum wage by each combination of income decile and earner type. The proportion of secondary earners in decile 1 paid at minimum wage (47.5%) is higher than for other earners (37 per cent) or primary earners (28%). The proportion of secondary earners paid at NMW/NLW is also higher than primary earners all the way up the income distribution. But in deciles 7 through 10, other earners have the highest proportion of employees on minimum wage.

Table E.23. Proportion of employees paid at minimum wage by income decile and earner type

Decile (AHC, working households only)	Primary earner	Secondary earner	Other earner	Total
1	28.2%	47.5%	37.3%	27.8%
2	16.2%	40.2%	26.2%	20.5%
3	12.1%	29.4%	23.2%	16.7%
4	6.2%	23.2%	17.3%	11.9%
5	4.0%	16.5%	17.0%	9.4%
6	2.7%	12.7%	13.1%	7.3%
7	2.9%	7.9%	10.7%	5.6%
8	2.1%	7.0%	10.4%	5.0%
9	1.7%	5.3%	5.9%	3.3%
10	1.9%	5.6%	10.2%	3.8%
Total	7.1%	14.0%	15.6%	10.0%

Source: as Table E.14

Universal credit and benefit unit type

Finally in this section, Table E.24 shows a breakdown of the proportion of minimum wage employees who claim Universal Credit (UC) by benefit unit type. Note that this table excludes pensioner benefit units as they are not eligible for UC. The Table shows that just under 23% of minimum wage employees who are couples with children are claiming UC, compared to just under 5% of couples without children, 10% of single adults without children but over 79% of lone parents. In other words, lone parents on NMW/NLW are far more likely to be claiming UC than any other type of benefit unit.

Table E.24. Universal Credit claimant/non-claimant breakdown of employees on NMW/NLW by benefit unit type (below state pension age only)

Benefit unit type	Not claiming UC	Claiming UC	Total
Couple with children	77.4%	22.6%	100.0%
Couple without children	95.3%	4.7%	100.0%
Lone parent	20.8%	79.2%	100.0%
Single without children	90.0%	10.0%	100.0%
Total	81.4%	18.6%	100.0%

Source: as Table E.14

Table E.25 shows that the proportion of employees claiming UC who are paid at minimum wage is lowest for couples with children (20.5%). For the other groups this proportion is between 23 and 24%.

Table E.25. Proportion of employees paid at minimum wage by Universal Credit claimant status and benefit unit type (below state pension age only)

	Not claiming UC	Claiming UC	Total
Couple with children	8.7%	20.5%	10.0%
Couple without children	7.4%	23.0%	7.6%
Lone parent	10.8%	23.1%	18.7%
Single without children	10.2%	24.3%	10.9%
Total	8.9%	22.1%	10.0%

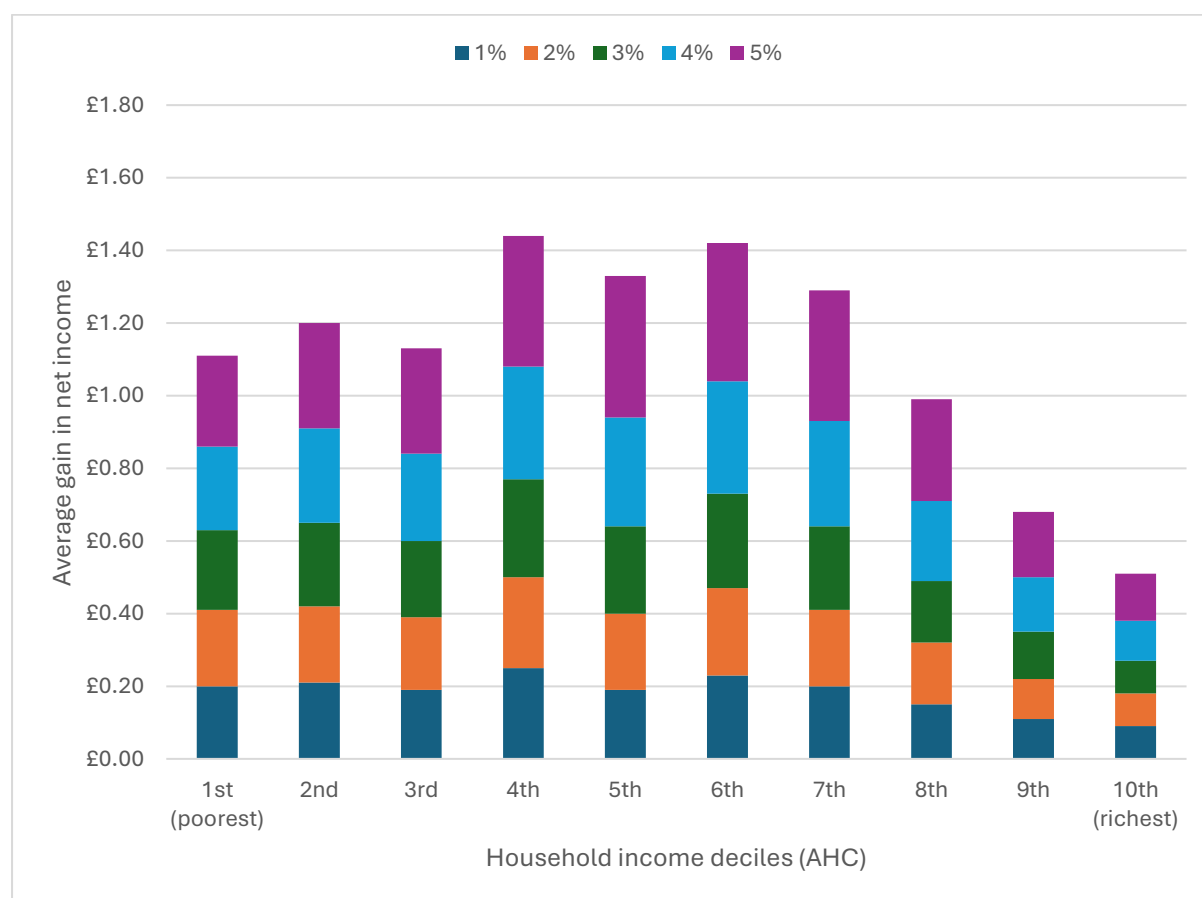
Source: as Table E.14

Appendix F: additional analysis of impacts of minimum wage increases from 1% to 20% by income decile

F.1. AHC income deciles, including all households

Figure F.1 shows the same changes in income for the FRS as Figure 7.1, but using the After Housing Costs definition of income rather than Before Housing Costs. The pattern of distributional results looks somewhat different using AHC income deciles compared to BHC income deciles. Here, the increase in net income are largest in deciles 4 through 7, followed by the three poorest deciles. The average cash impacts for the top two deciles are much smaller than for the rest of the income of the distribution. Therefore, in cash terms the distributional impacts of minimum wage increases in the 1% to 5% range look somewhat more progressive using AHC income deciles than BHC income deciles.

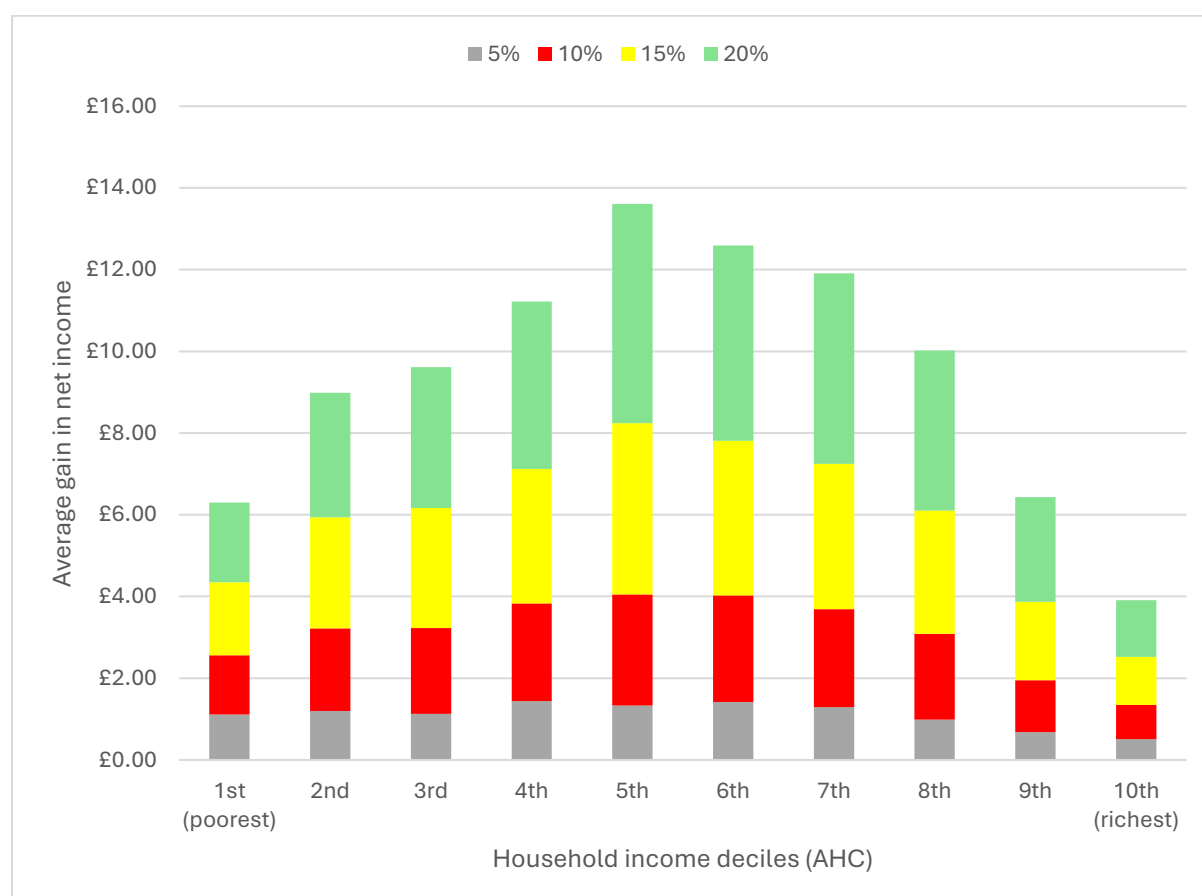
Figure F.1. Distributional impact of 1% through 5% increases in NMW/NLW rates, cash terms: AHC income deciles, all households



Source: Source: author's analysis of FRS 2023/24 dataset (with earnings data adjusted using 2024 ASHE and uprated to 2025/26 levels)

Figure F.2 shows the distributional impact of larger increases in the NMW/NLW using the AHC income definition. Here, the largest cash impact is in decile 5, followed by deciles 4, 6 and 7. The cash impact of NMW/NLW increases is smallest in the top AHC decile, with the next lowest impacts in the 9th decile and the poorest decile.

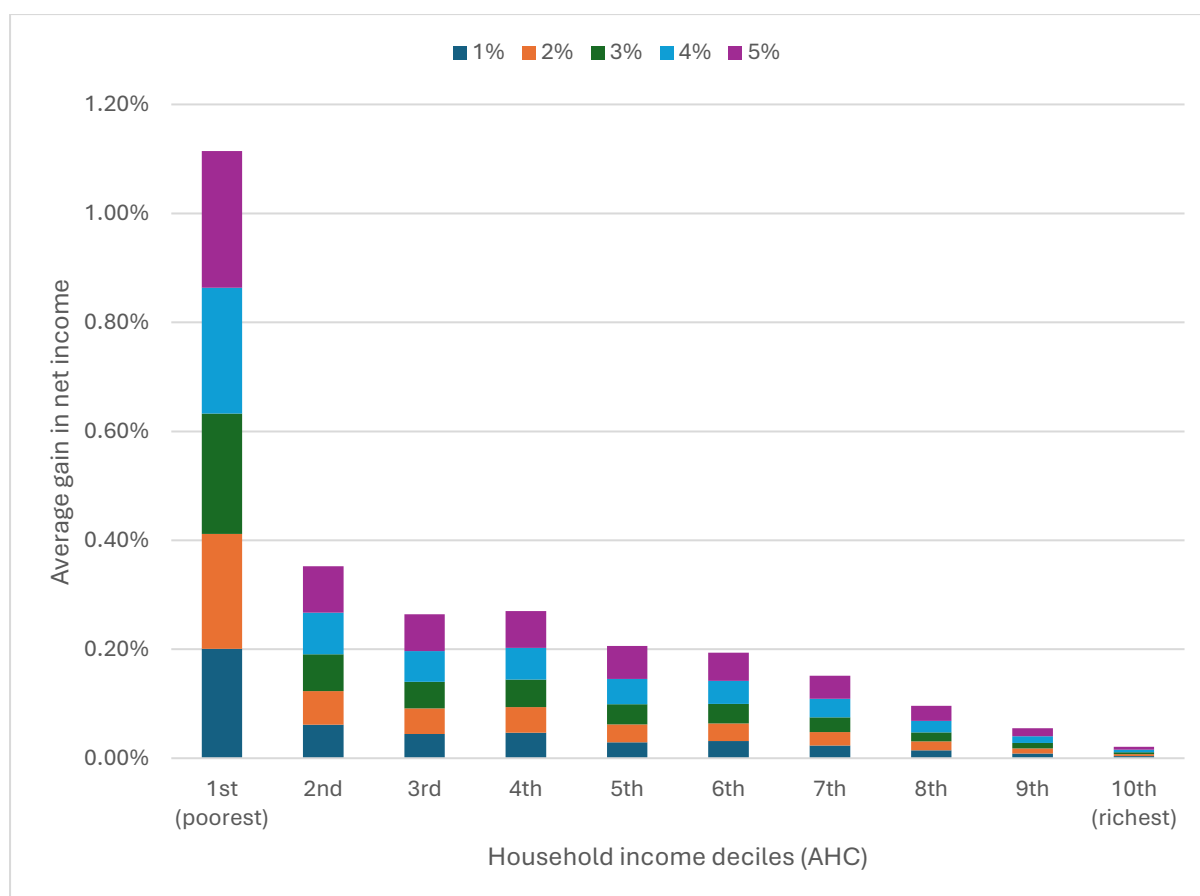
Figure F.2. Distributional impact of 5% through 20% increases in NMW/NLW rates, cash terms: AHC income deciles, all households



Source: as for Figure F.1

Table F.3 shows the equivalent percentage figures to Figure 8.5 but as a percentage of AHC net incomes. The vertical scale of this Figure is much larger than Figure 8.5 because otherwise the bar for the poorest decile would not fit on the graph; a 5% increase in the NMW/NLW increases average net incomes by more than 1.1% in decile 1. To a large extent this is because average AHC household net income in the bottom decile is much lower than average BHC net income (around £100 AHC compared to £209 BHC). The rest of Figure F.3 shows a progressive impact of the NMW/NLW increases, with larger impacts in the lower deciles, but the size of the impacts for the poorest deciles dwarfs the other nine deciles.

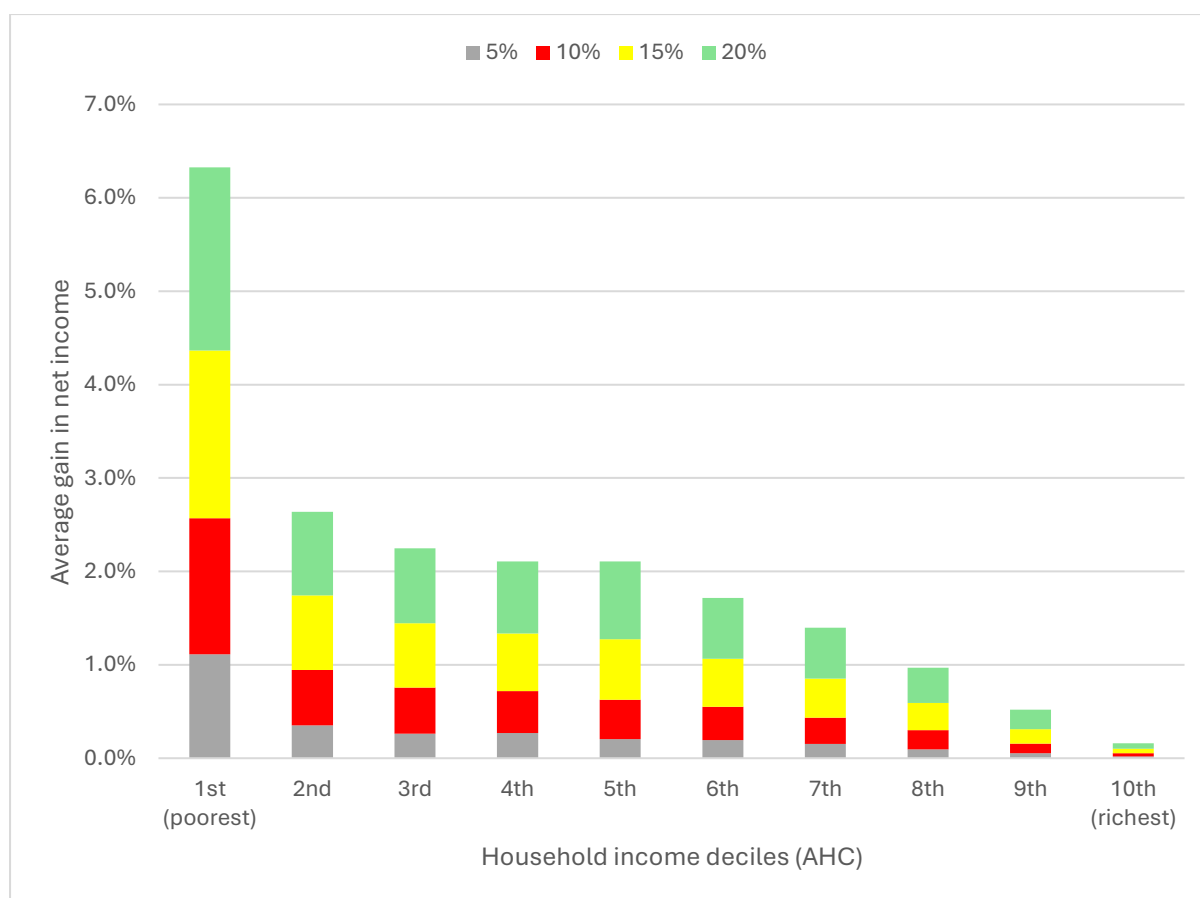
Figure F.3. Distributional impact of 1% through 5% increases in NMW/NLW rates as a percentage of AHC net income, deciles including all households



Source: as for Figure F.1

Figure F.4 shows impacts of the larger NMW/NLW increases as proportions of AHC net income. Once again the vertical scale of Figure 8.8 is much larger than Figure F.3 because the average percentage increase in AHC net incomes is so large – more than 6 per cent for a 20 per cent increase in the NMW/NLW. The effects are fairly progressive across the rest of the AHC income distribution, but much smaller in percentage terms (e.g. an average increase of just over 2 per cent in net incomes in deciles 4 and 5).

Figure F.4. Distributional impact of 5% through 20% increases in NMW/NLW rates as a percentage of AHC net income, deciles including all households



Source: as for Figure F.1

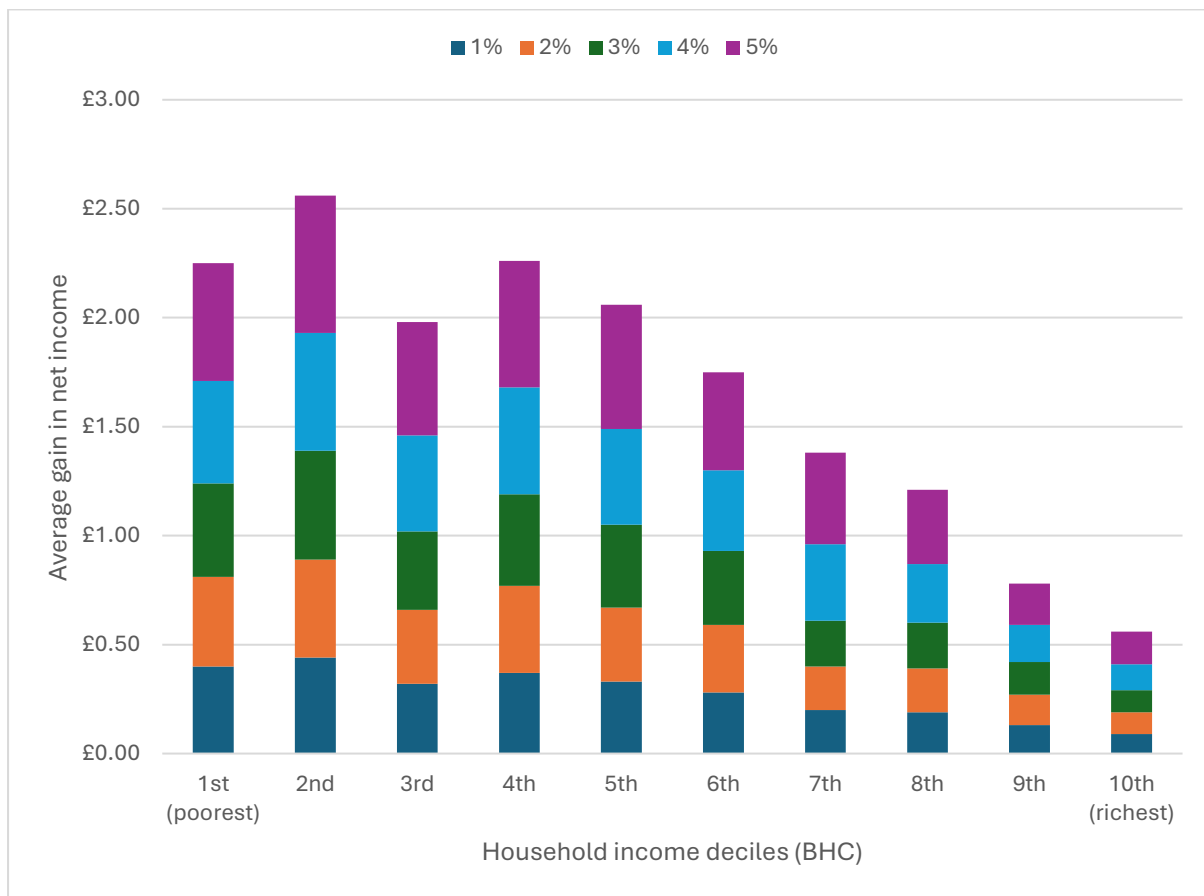
F.2 Deciles including only households with at least one working adult

Results in weekly cash terms

The rest of the results in this chapter show the distributional impacts of increases in the NMW and NLW using household income deciles restricted to households with at least one working adult (so, excluding “workless” households). The results in Chapter 5 shows that using this definition of deciles means that minimum wage earners are more likely to be found lower down the distribution than when an all-households decile definition is used.

Figure F.5 shows the distributional impact of relatively small increases in the NMW/NLW (1% through 5%) in weekly cash terms using BHC income deciles. The results show a much more progressive impact in cash terms than the all-household decile results in Figure 7.1. Here, the largest cash impacts are in the bottom half of the income distribution, especially decile 2.

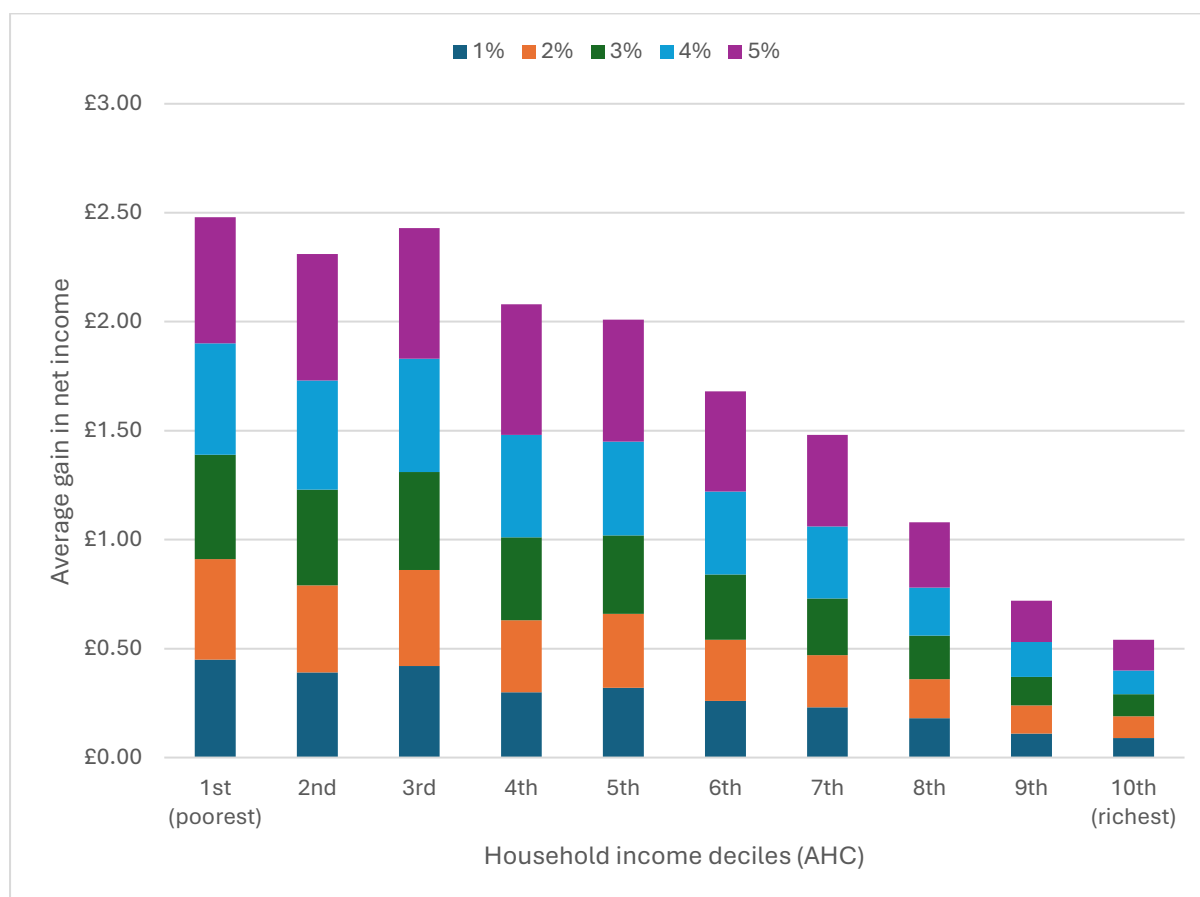
Figure F.5. Distributional impact of 1% through 5% increases in NMW/NLW rates, cash terms: BHC income deciles, households with at least one working adult



Source: author's analysis of FRS 2023/24 dataset uprated to 2025/26 levels using Landman Economics Tax-Transfer Model to estimate changes in household net incomes

Figure F.6 shows the weekly cash impacts of increases in minimum wage rates of 1% through 5% using AHC income deciles. These results are still more progressive in cash terms than the BHC results, with the largest average cash impacts (of between £2.30 and £2.50 a week for a 5% increase) in the poorest three deciles.

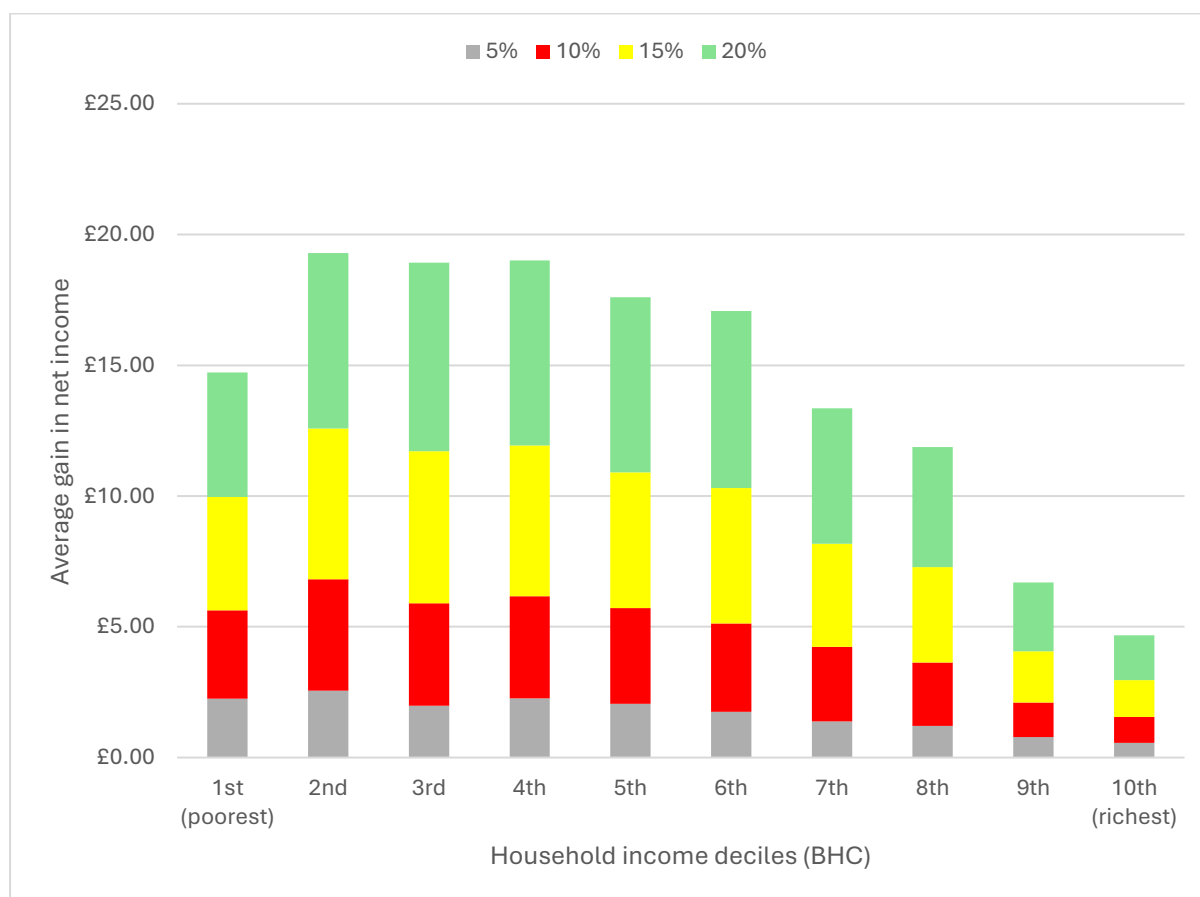
Figure F.6. Distributional impact of 1% through 5% increases in NMW/NLW rates, cash terms: AHC income deciles, households with at least one working adult



Source: as Figure F.5

Figure F.7 shows the weekly cash impacts of larger minimum wage increases using BHC income deciles for households with at least one working adult. The largest cash impacts of these larger minimum wage increases are in deciles 2 to 4 of the income distribution, followed by deciles 5 and 6. For 15% and 20% increases in the minimum wage, the average increase for households in the poorest decile of the income distribution is lower than for the rest of the bottom 60% of the income distribution, although it is higher than for the top four deciles. As with Figure 7.2 and Figure F.2 earlier, analysis of these larger minimum wage increases shows the general distributional pattern shifting slightly to the right of the chart compared to smaller increases, as coverage of the minimum wage expands to include additional employees (mainly located further up the income distribution).

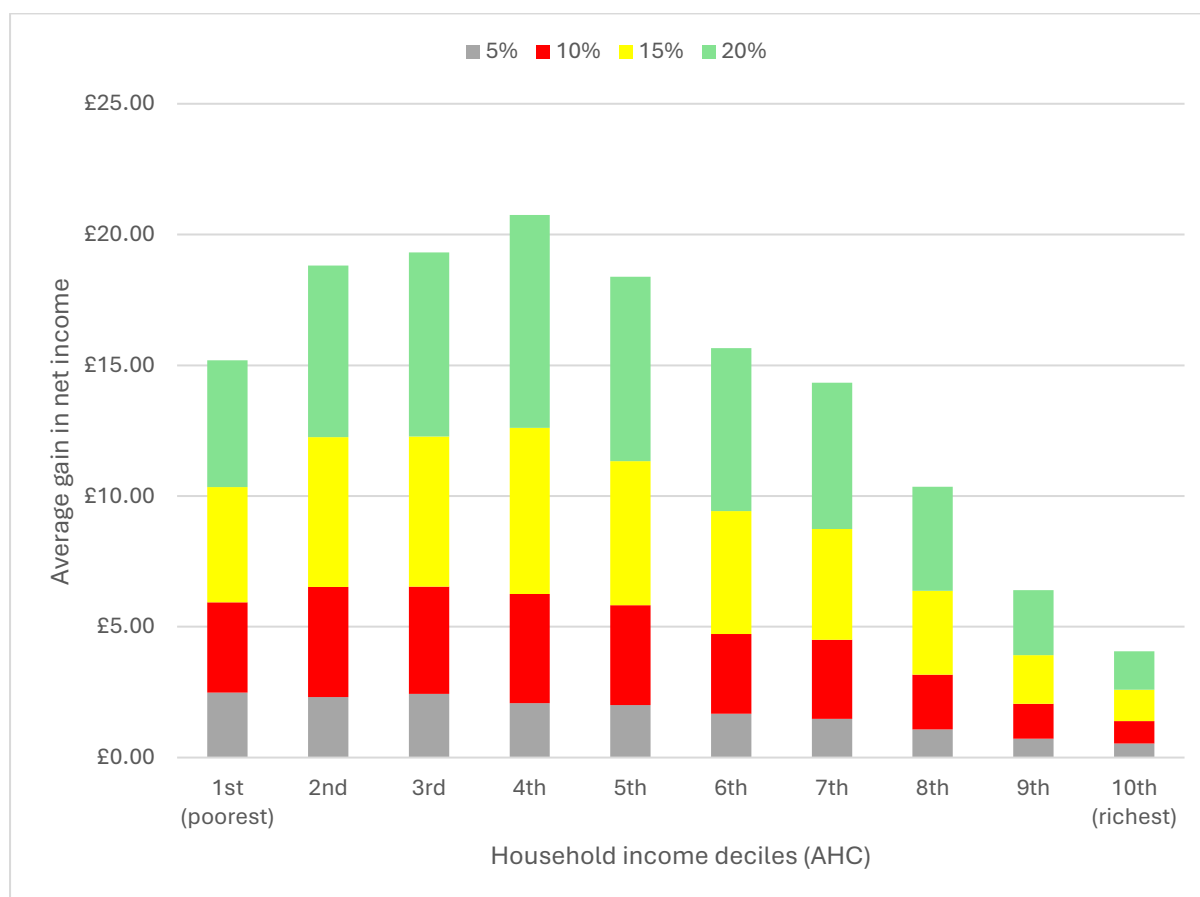
Figure F.7. Distributional impact of 5% through 20% increases in NMW/NLW rates, cash terms: BHC income deciles, households with at least one working adult



Source: as Figure F.5

Figure F.8 shows the weekly cash impacts of larger minimum wage increases using AHC income deciles. For 5% and 10% increases in the NMW and NLW, the largest cash impacts are in the 2nd and 3rd deciles, but for 15% and 20% increases the largest impacts are in decile 4. The average cash increases in the top three deciles are relatively small for minimum wage increases of this magnitude, compared to the bottom seven deciles.

Figure F.8. Distributional impact of 5% through 20% increases in NMW/NLW rates, cash terms: AHC income deciles, households with at least one working adult

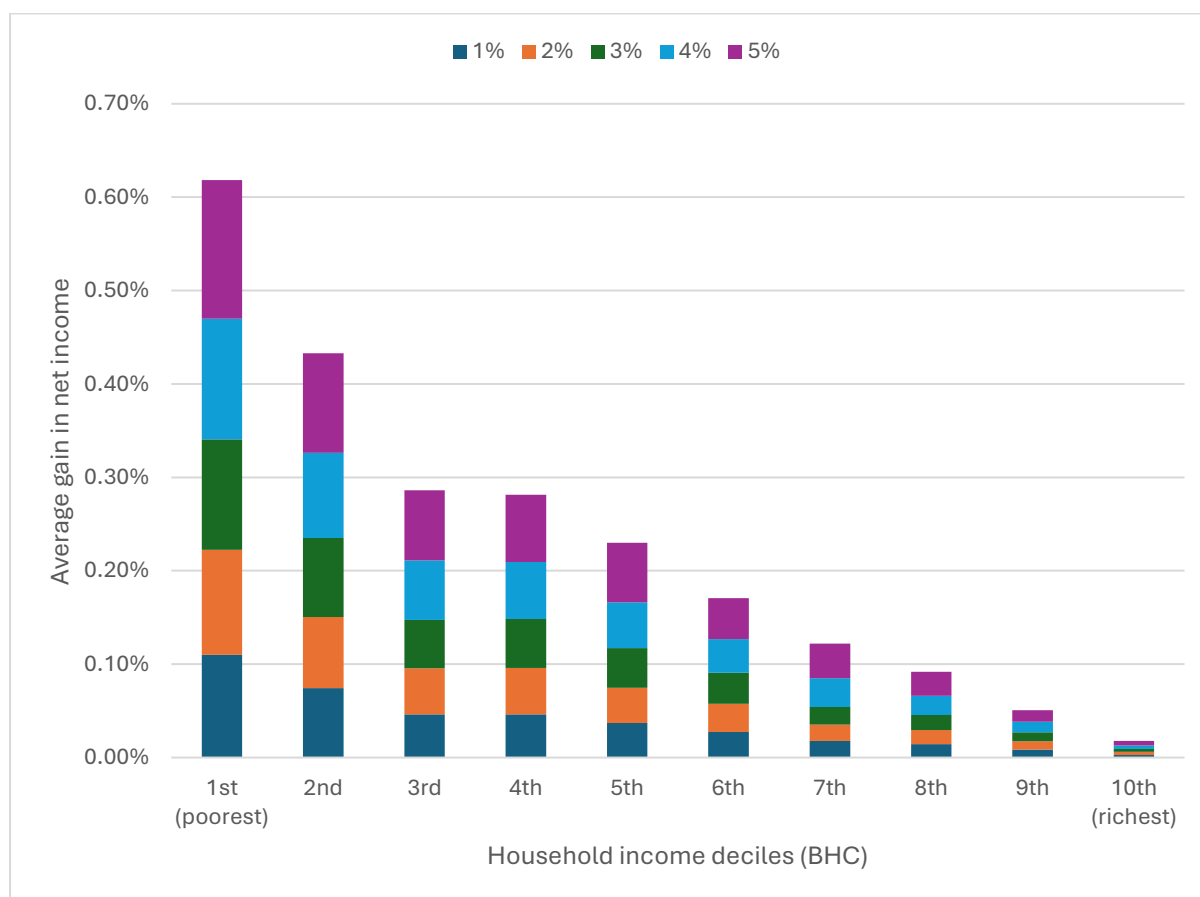


Source: as Figure F.5

Impacts in percentage terms

Figure F.9 shows the distributional impacts of minimum wage increases up to 5% as a percentage of net income using BHC income deciles for households with at least one working adult. As for the analysis using BHC income deciles for all households in Figure 7.3, the impact of NMW/NLW increases are progressive with respect to net incomes, but the impacts are larger in percentage terms (because the analysis excludes households with no-one in work, which reduce the average impacts in Figure F.9). For the poorest decile of working households, the average impact of a 5% increase in the minimum wage is just over 0.6% using the BHC income definition. At the 5th decile the average impact of a 5% increase is just over 0.2%.

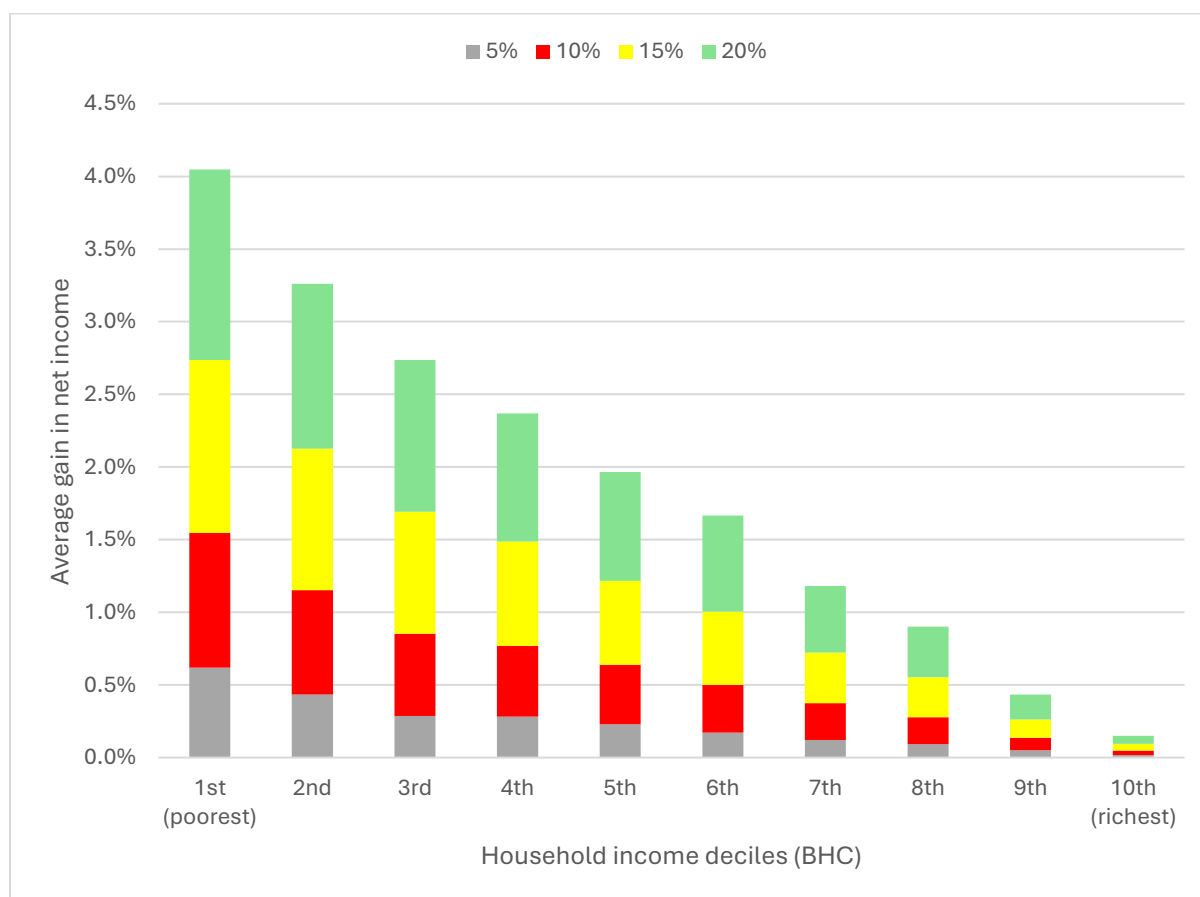
Figure F.9. Distributional impact of 1% through 5% increases in NMW/NLW rates, percentage terms: BHC income deciles, households with at least one working adult



Source: as Figure F.5

Figure F.10 shows the distributional impacts of larger minimum wage increases using the BHC income definition in percentage terms for households with at least one adult in work. Once again, the minimum wage increases have a progressive impact. A 20% increase in the NMW/NLW results in an average increase in BHC income of just over 4 per cent in the top decile, just under 2 per cent in the 5th decile and just under 0.5 per cent in the 9th decile, and 0.15 percent in the top decile.

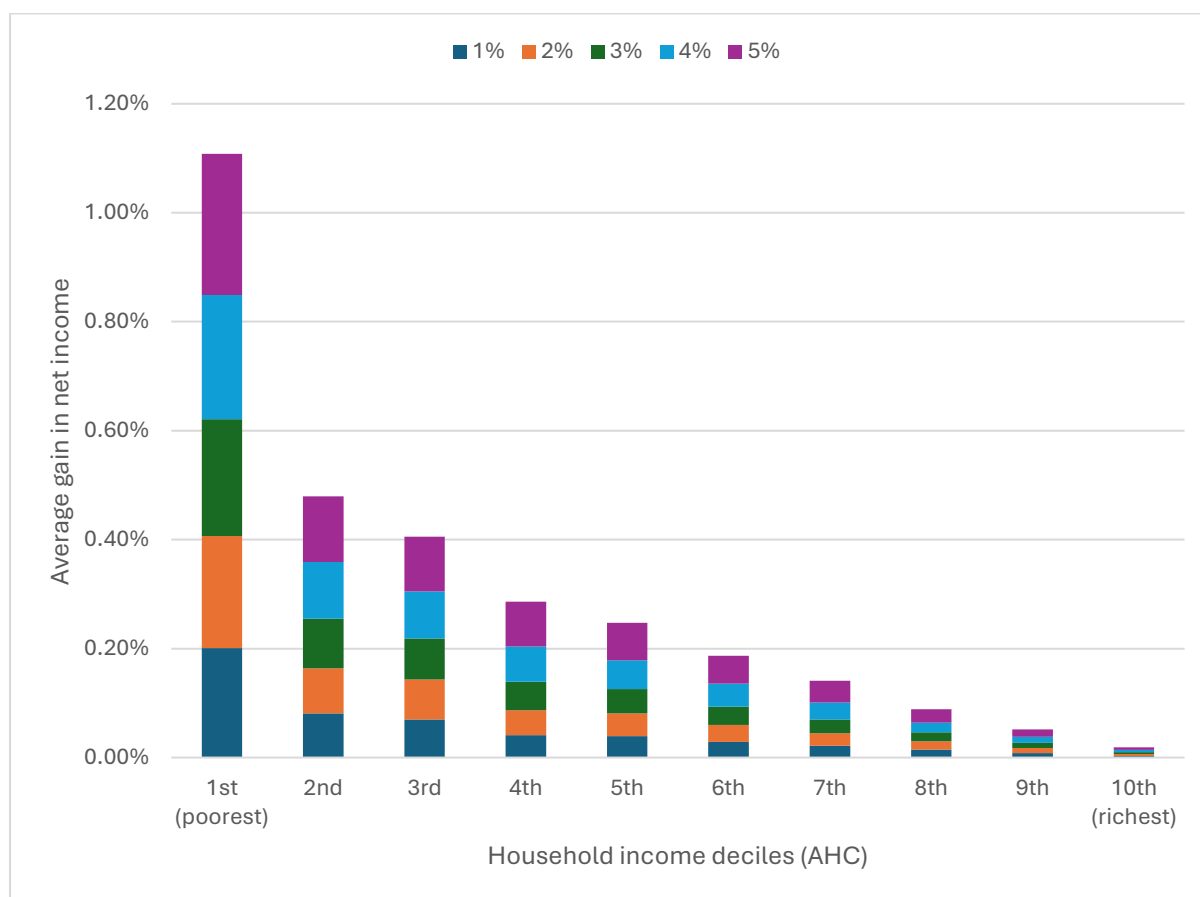
Figure F.10. Distributional impact of 5% through 20% increases in NMW/NLW rates, percentage terms: AHC income deciles, households with at least one working adult



Source: as Figure F.5

Figure F.11 shows the distributional impacts of minimum wage increases of up to 5% in percentage terms using the AHC income definition for working households. As with Figure F.3 above for the all-household deciles, the effect of minimum wage increases is progressive, with particularly large increases (averaging 1.1% for a 5 per cent NMW/NLW increase) in the poorest decile.

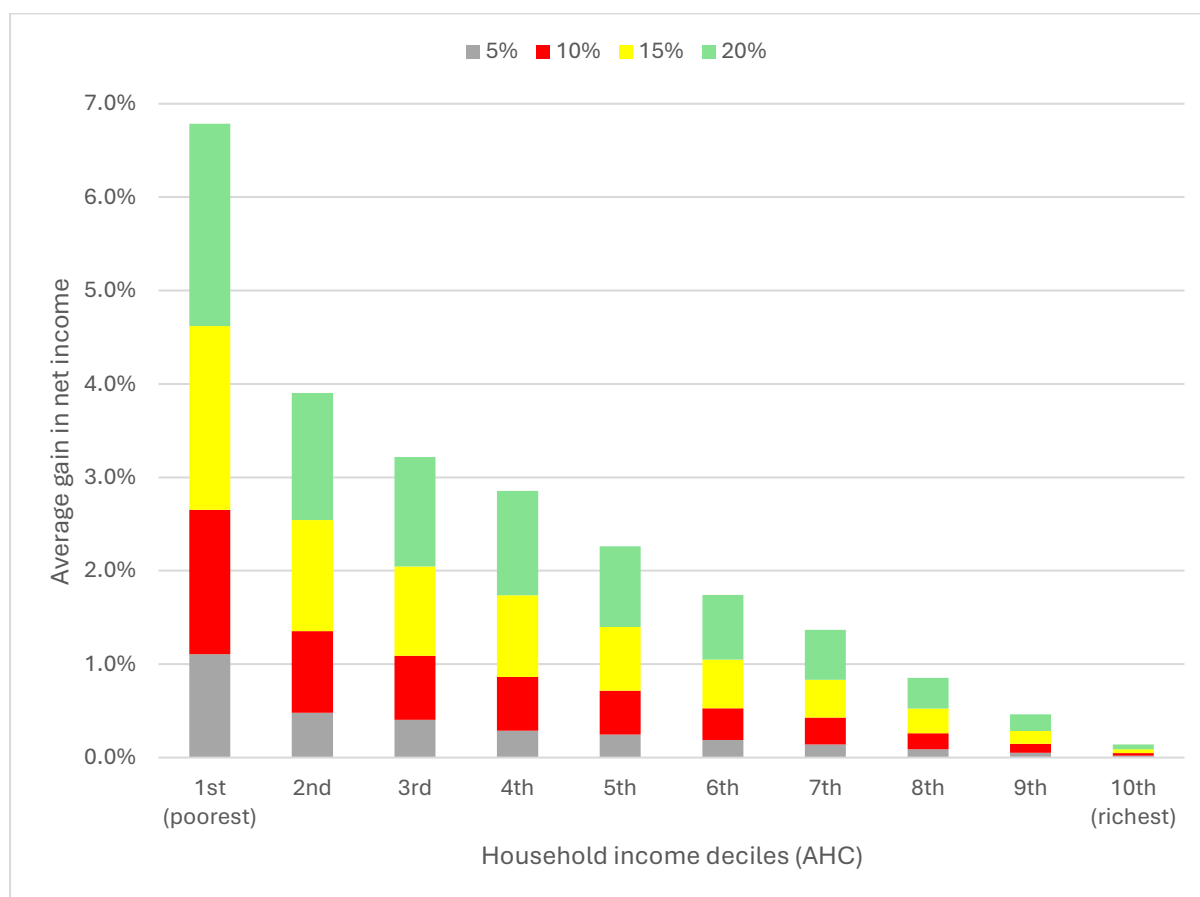
Figure F.11. Distributional impact of 1% through 5% increases in NMW/NLW rates, percentage terms: AHC income deciles, households with at least one working adult



Source: as Figure F.5

Finally in this appendix, Figure F.12 shows the percentage impact of larger increases in the minimum wage using the AHC income definition. The impacts are progressive, with a 20% increase in the minimum wage leading to an average increase in AHC income of almost 7% in the poorest decile, around 2.2% in the 5th decile and around 0.5% in the 9th decile, and around 0.15% for the top decile.

Figure F.12. Distributional impact of 1% through 5% increases in NMW/NLW rates, percentage terms: AHC income deciles, households with at least one working adult



Source: as Figure F.5

Appendix G: Distributional impact of increases from 1% to 20% in the NMW and NLW using other household breakdown variables

This chapter shows the distributional impact of increases in the NMW and NLW using other breakdown variables. Because the distributional analysis uses household measures of income, it is necessary to use household-level breakdown variables to analyse the distributional results. This chapter uses four different variables:

1. Average age of adults in the primary benefit unit in the household
2. Benefit unit type of primary benefit unit in the household
3. Region
4. Housing tenure.

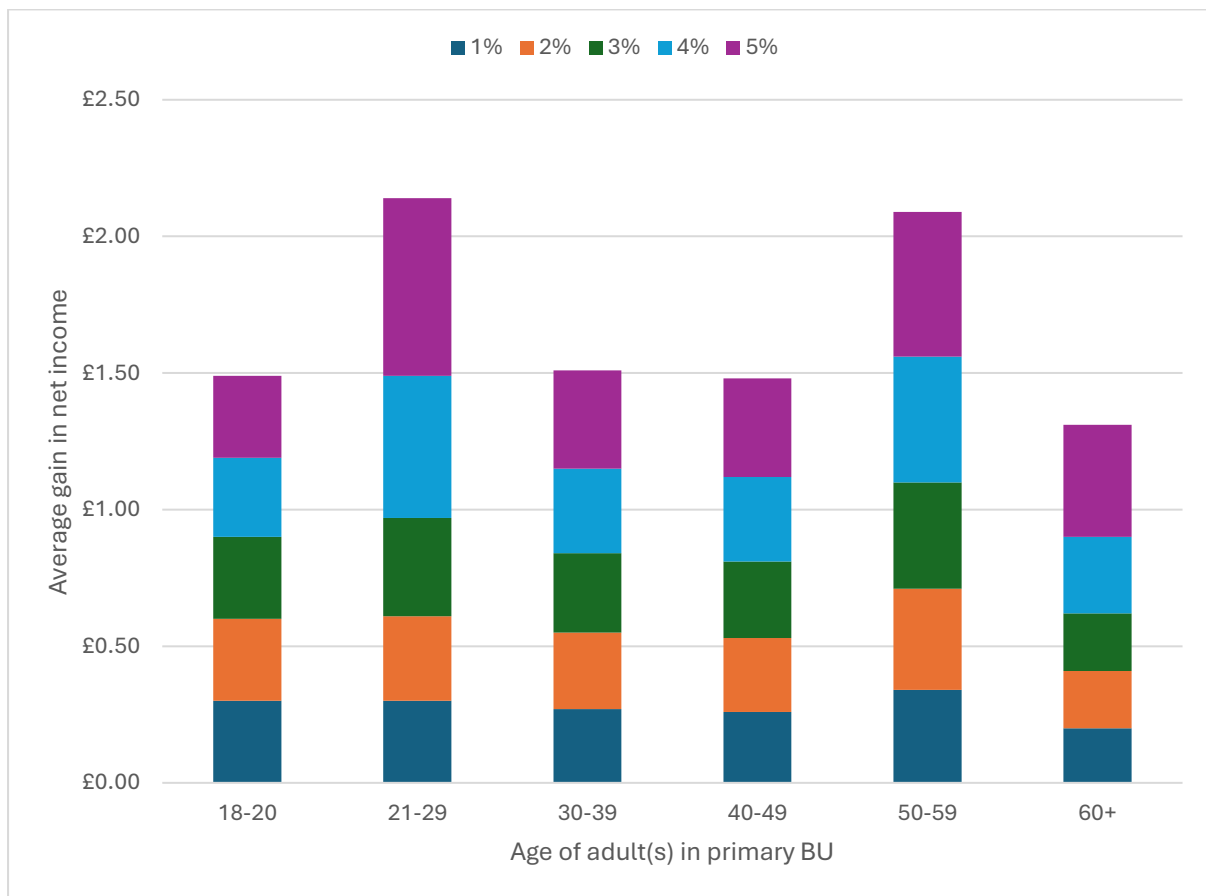
Note that households without anyone in work are removed from this analysis – so all of the distributional results in this appendix are for working households only.

G.1 Average age of adults in primary benefit unit

Figure G.1 shows the average weekly cash impacts of NMW/NLW increases of between 1% and 5% by the average age of adults in the primary benefit unit, while Figure 10.2 shows average cash impacts for larger minimum wage increases of between 5% and 20%. The largest cash impacts for households with average age 21-29 and 50-59, averaging just over £2 per week. The average impacts for average age 18-20³¹, 30-39 and 40-49 are around £1.50 per week, while the average impacts for age 60+ are around £1.80 per week.

³¹ Note that because this is the average age of adults in the *main* benefit unit, all the under-18s earning NMW are either children in the main BU or in secondary BUs. Hence the charts in this section do not include a category for 16-17 year olds.

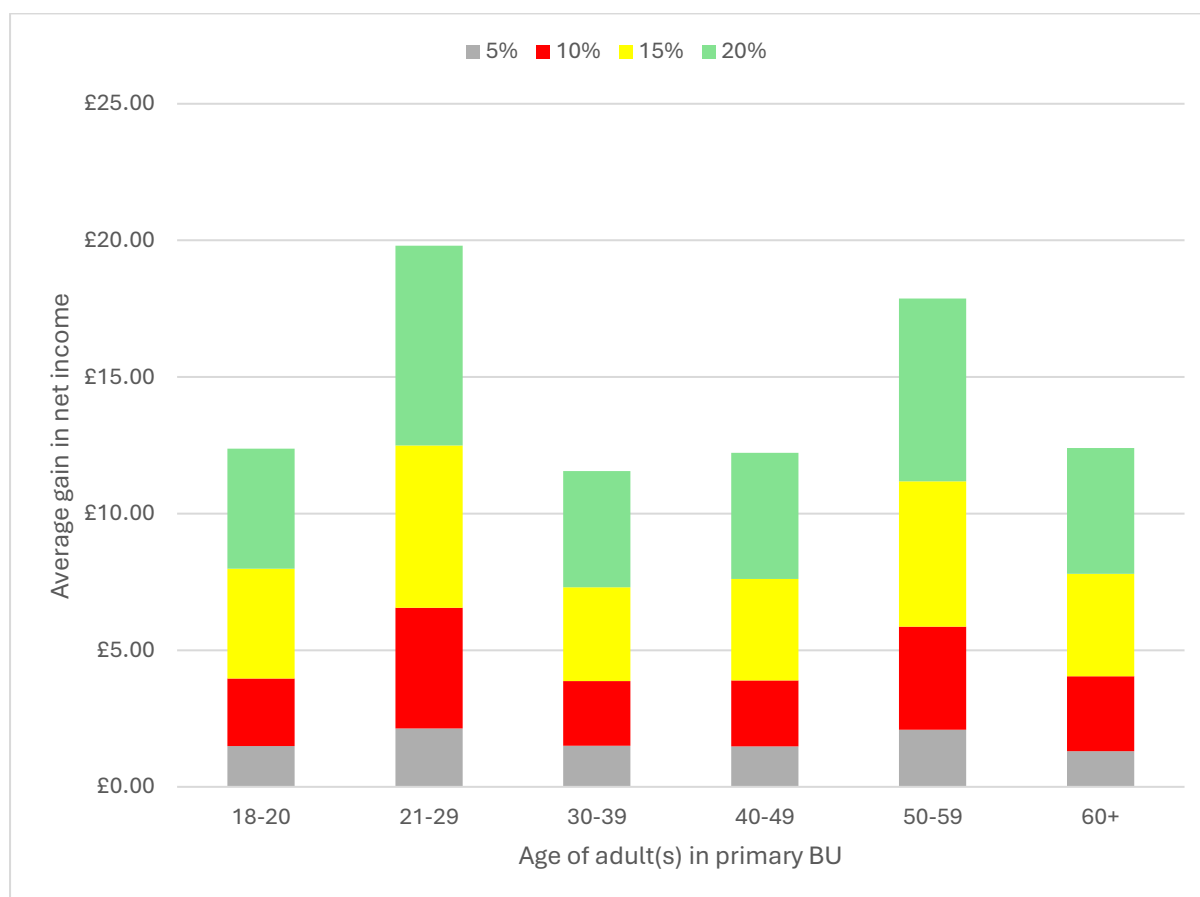
Figure G.1. Distributional impact of 1% through 5% increases in NMW/NLW rates, cash terms by average age of adults in main benefit unit, working households only



Source: author's analysis of FRS 2023/24 dataset uprated to 2025/26 levels using Landman Economics Tax-Transfer Model to estimate changes in household net incomes

For the larger minimum wage increases shown in Figure G.2, the impacts for 21-29 year olds are the largest (average gains of almost £20 per week for a 20% increase in the NLW). Impacts for 50-59 year olds are the second largest. With these larger increases, the average impacts for 60+ year olds are very similar to 21-29 year olds and 40-49 year olds, with the impacts for 30-39 year olds slightly smaller than this.

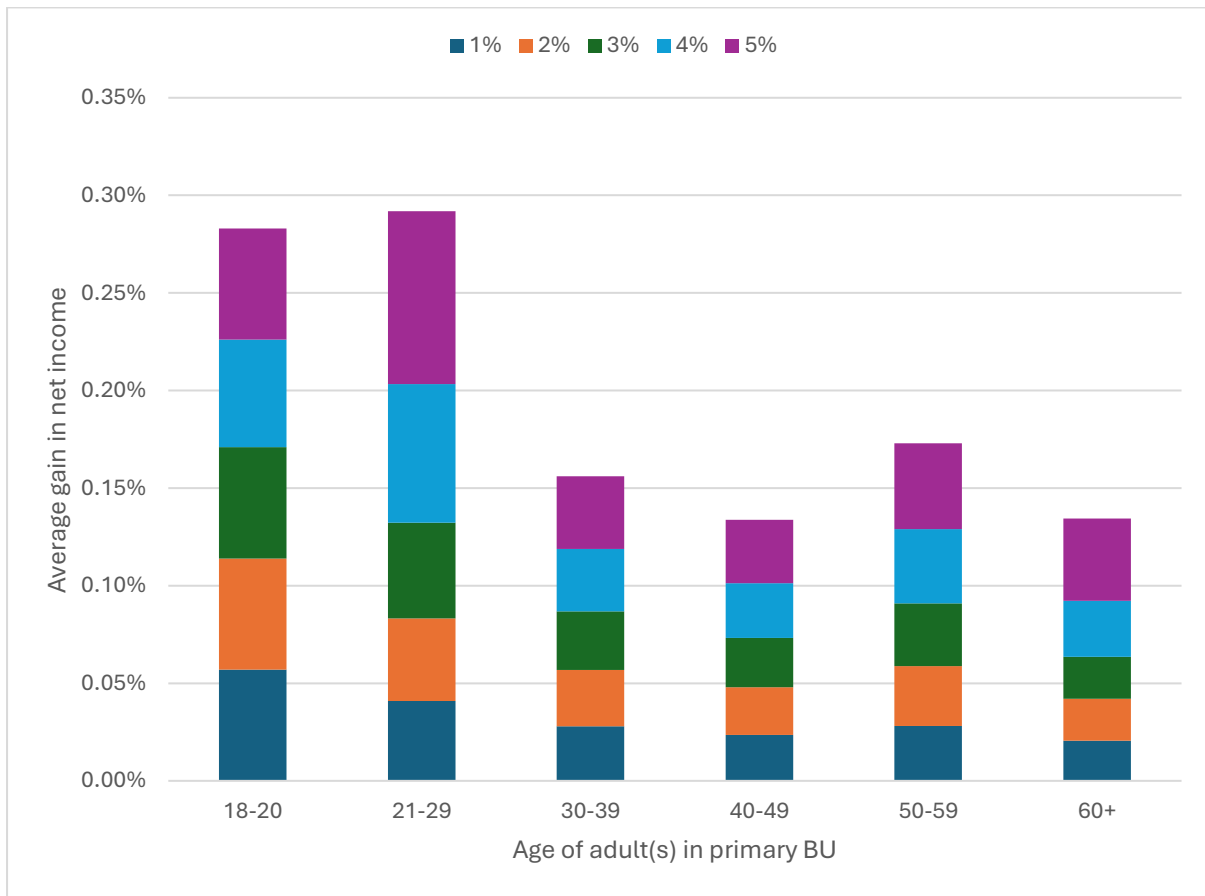
Figure G.2. Distributional impact of 5% through 20% increases in NMW/NLW rates, cash terms by average age of adults in main benefit unit, working households only



Source: as Figure G.1

Figure G.3 shows the impacts of minimum wage increases from 1% to 5% as a percentage of net income. In percentage terms the impacts for 18-20 year-olds and 21-29 year-olds are largest, at around 0.3% of net income for a 5% increase. The impacts for 40-49 year olds and people aged 60 or over are smallest. For the larger impacts in Figure G.4 this is also the case.

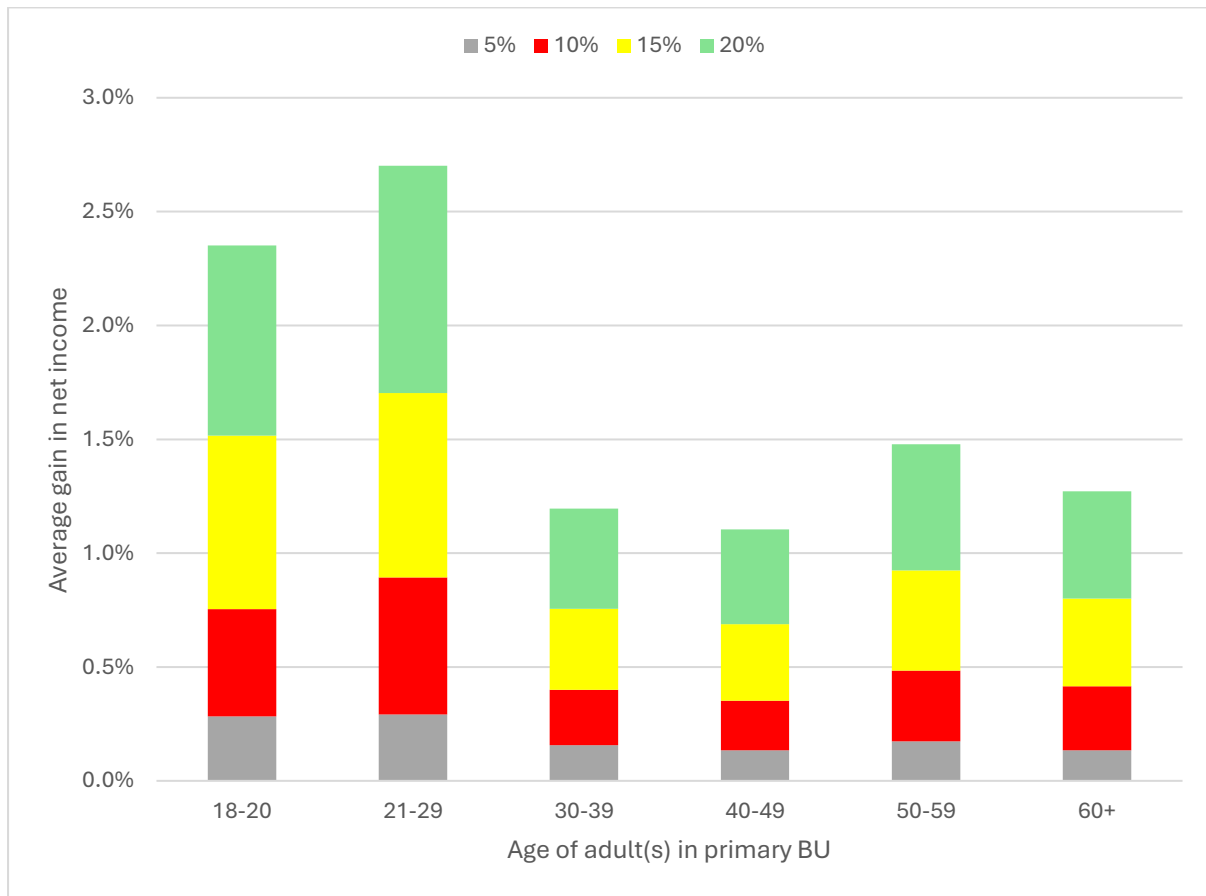
Figure G.3. Distributional impact of 1% through 5% increases in NMW/NLW rates, percentage terms by average age of adults in main benefit unit, working households only



Source: as Figure G.1

Figure G.4 shows the impact of larger minimum wage increases as a percentage of net income. For minimum wage increases of 10% and above, the distributional impacts are largest for households where the adults have an average age of 21-29, and smallest for household where the adults have an average age of 40-49.

Figure G.4. Distributional impact of 1% through 5% increases in NMW/NLW rates, percentage terms by average age of adults in main benefit unit, working households only



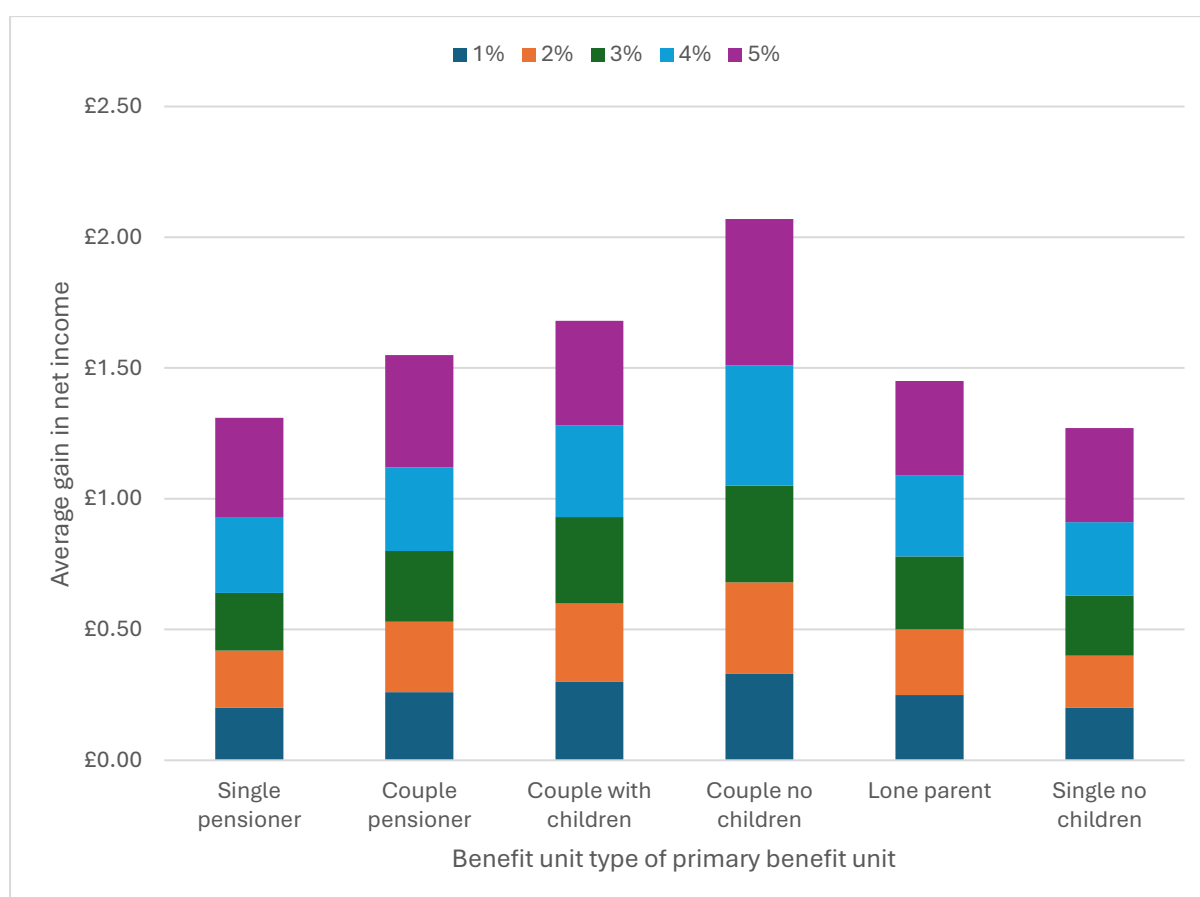
Source: as Figure G.1

G.2 Benefit unit type of primary benefit unit

This section presents distributional breakdowns using the benefit unit type of the primary benefit unit as the breakdown variable. Remember that as well as adults in the primary benefit unit, some households have minimum wage earners who are 16-18 year-old children in the primary benefit unit, or who are adults in secondary benefit units. It is also important to remember when analysing these results that the analysis excludes households with no-one in work.

Figure G.5 shows the distributional impact of minimum wage increases of 1% through 5% in weekly cash terms. Average gains are largest for couples with no children; a 5% increase in the NMW/NLW results in a gain of just over £2.00 for this group, compared to around £1.70 per week for couples with children, and just over £1.50 per week for couple pensioners. The average cash gains for the other three groups are below £1.50 per week.

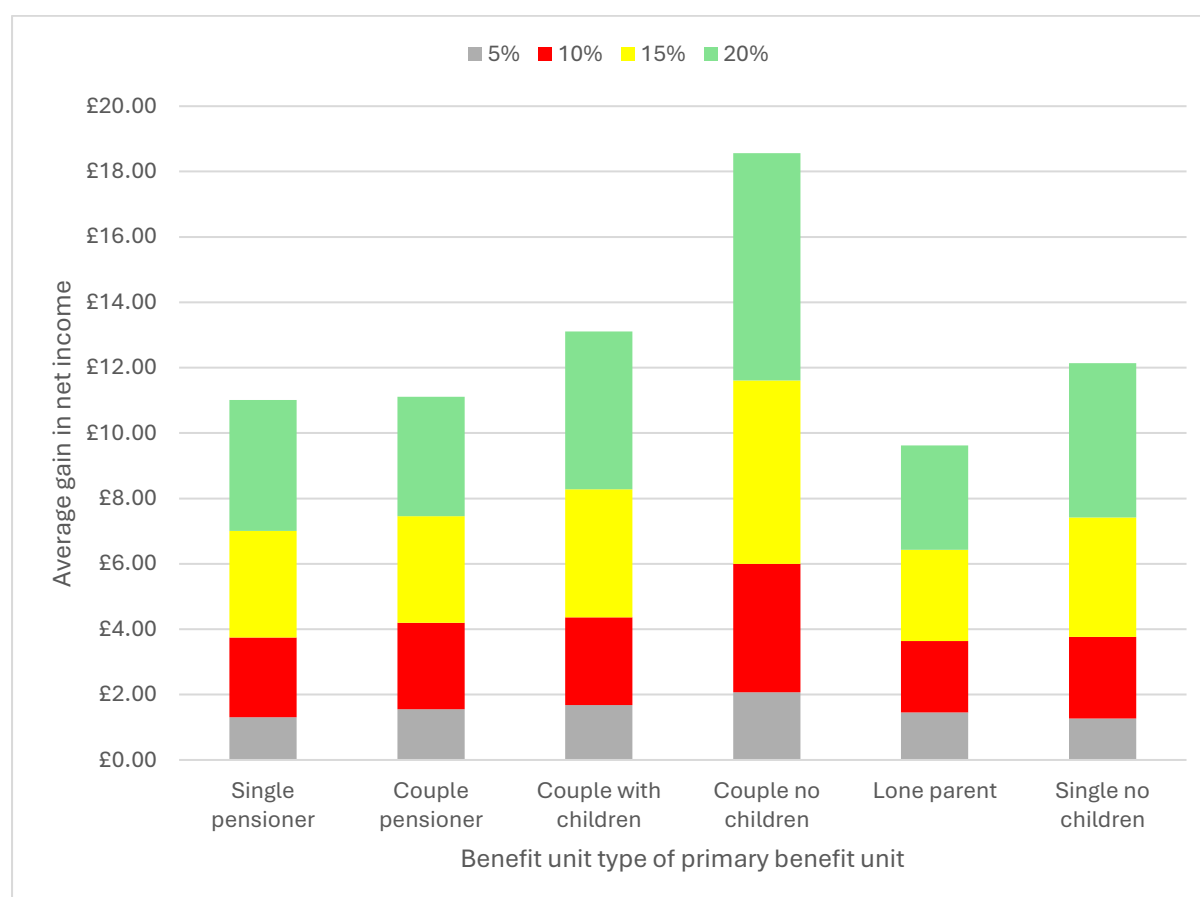
Figure G.5. Distributional impact of 1% through 5% increases in NMW/NLW rates, cash terms by benefit unit type of main benefit unit, working households only



Source: as Figure G.1

Figure G.6 shows average weekly cash gains for larger minimum wage increases. Once again, couples with no children have the largest average gain (around £18.50 per week from a 20% increase), followed by couples with children. Lone parents have the smallest increase (just under £10 per week from a 20% increase). The main reason that the average gains are larger for couples than lone parents is that a proportion of couples have two earners who may benefit from the minimum wage increase, whereas most lone parent households have only one adult (unless the lone parent has a dependent child who is also working, or if there is an adult minimum wage earner in a secondary benefit unit in the household).

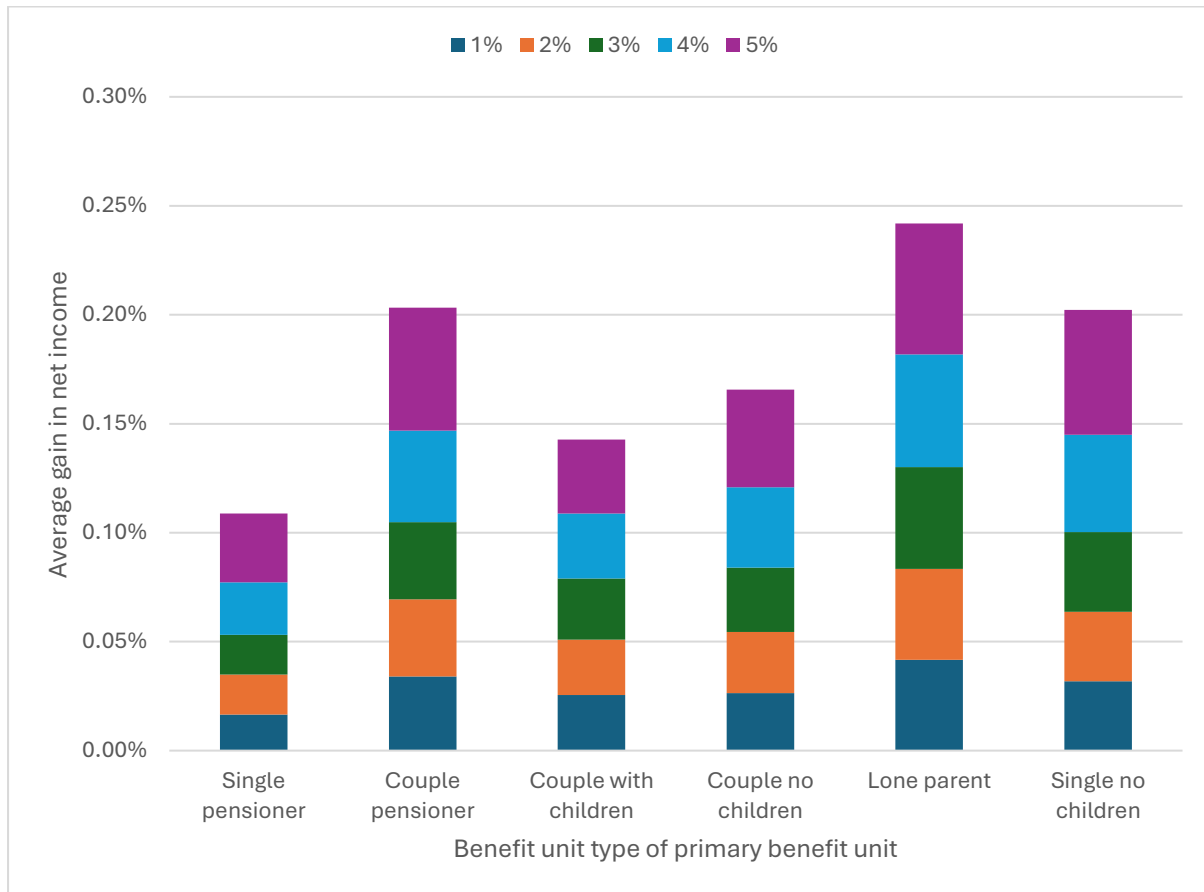
Figure G.6. Distributional impact of 5% through 20% increases in NMW/NLW rates, cash terms by benefit unit type of main benefit unit, working households only



Source: as Figure G.1

Figure G.7 shows average impacts of minimum wage increases up to 5% as a percentage of net incomes by benefit unit type of the main benefit unit in the household. The distributional pattern looks very different from the weekly cash gains in Figure G.5. Lone parents have the largest average gain as a percentage of net income, followed by single adults with no children and couple pensioners.

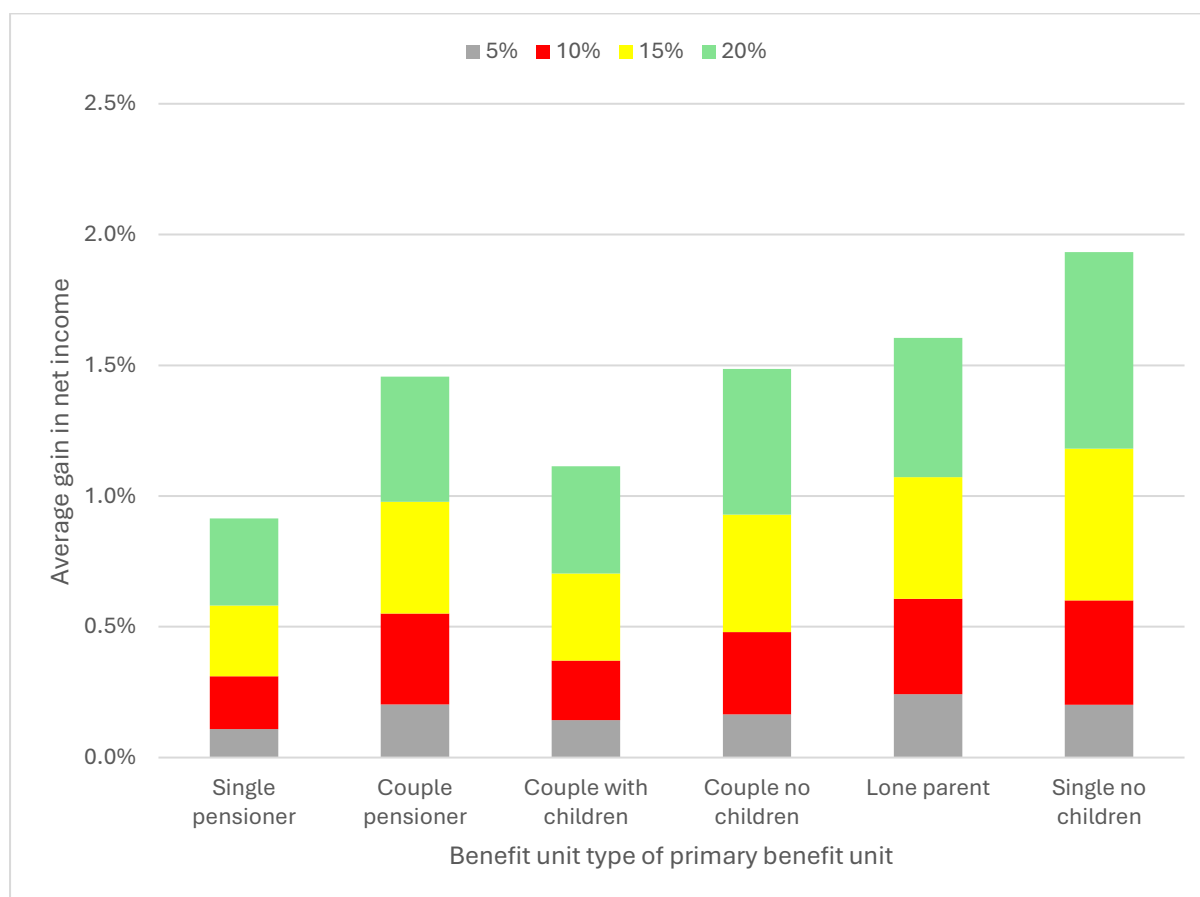
Figure G.7. Distributional impact of 1% through 5% increases in NMW/NLW rates, percentage terms by benefit unit type of main benefit unit, working households only



Source: as Figure G.1

Figure G.8 shows the impact of minimum wage increases between 5% and 20% as a percentage of net income using the benefit unit type breakdown for the main benefit unit in the household. For minimum wage increases of 15% or 20%, single adults with no children have the largest average gains (just under 2 per cent for a minimum wage rise of 20 per cent), followed by lone parents, couples with no children and couple pensioners. Single pensioners have the smallest average gains (around 0.9% of net income for a 20% increase in the minimum wage).

Figure G.8. Distributional impact of 5% through 20% increases in NMW/NLW rates, percentage terms by benefit unit type of main benefit unit, working households only

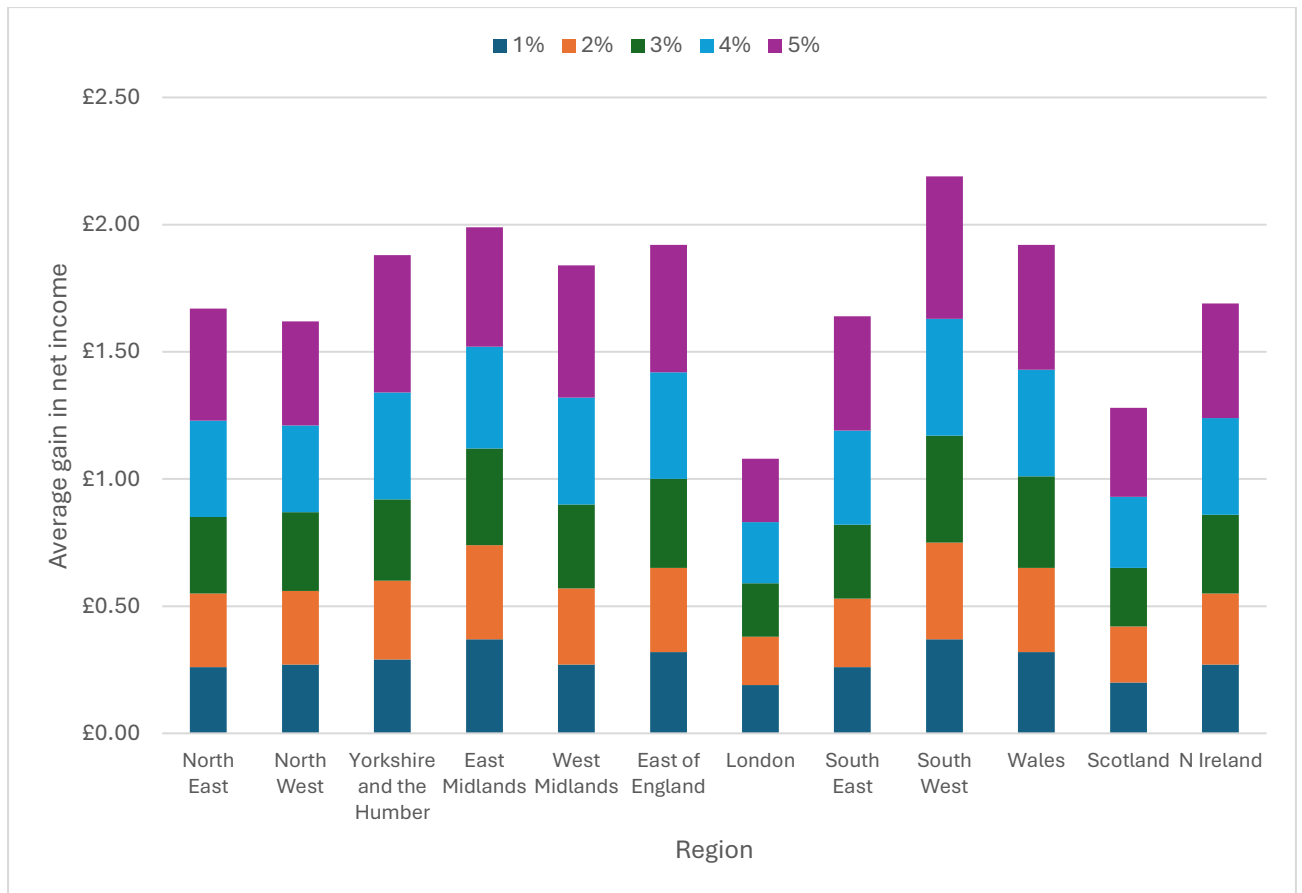


Source: as Figure G.1

G.3 Region

Figure G.9 shows the average weekly cash impacts of increases in the NMW/NLW of up to 5% by region. The largest average gains from minimum wage increases at this level are in the South West of England (average gains of around £2.20 per week from a 5% increase) followed by the East Midlands (average gains of just under £2 per week from a 5% increase). The smallest average gains are in London (around £1.10 per week from a 5% increase) and Scotland (around £1.30 per week from a 5% increase).

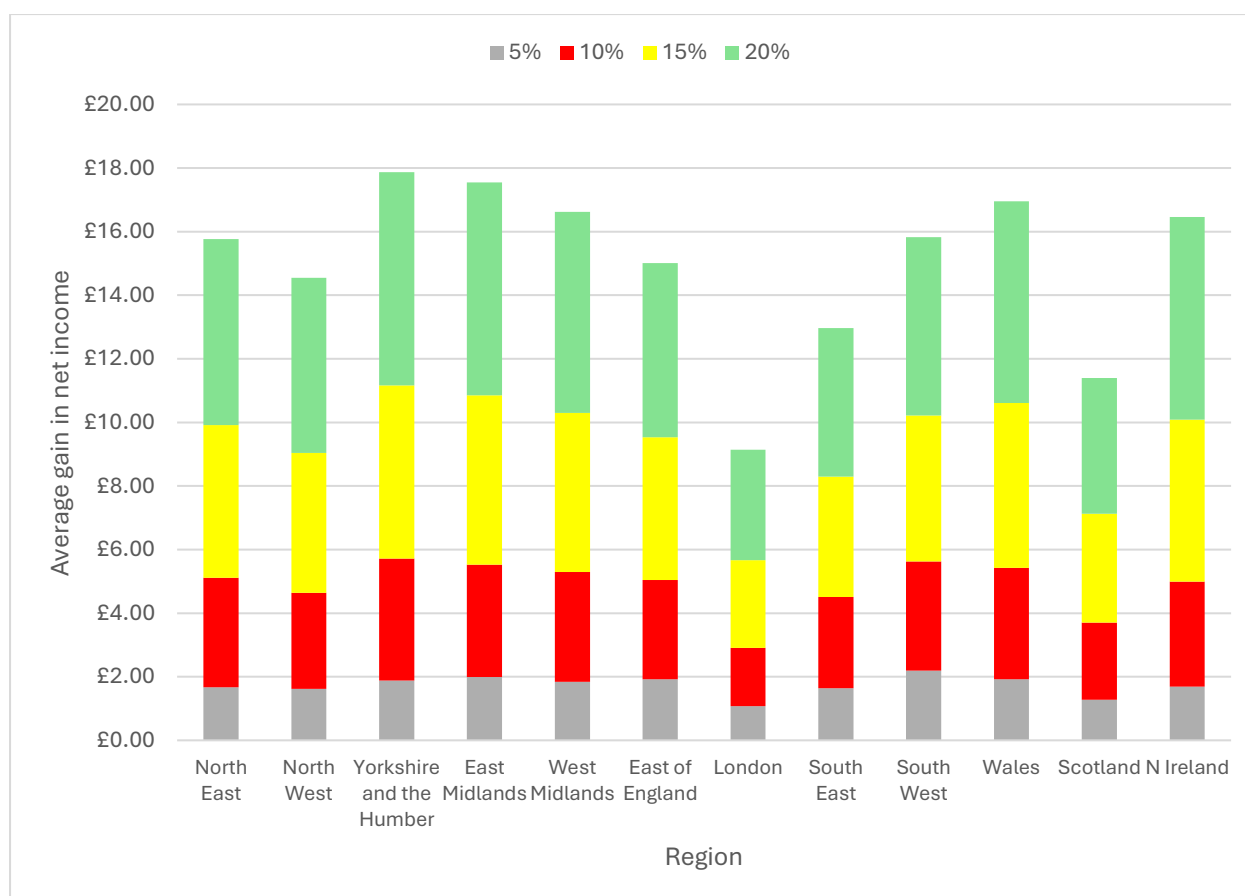
Figure G.9. Distributional impact of 1% through 5% increases in NMW/NLW rates, cash terms by region of residence, working households only



Source: as Figure G.1

Figure G.10 shows the weekly cash impacts of larger minimum wage increases by region. The distributional pattern for these larger increases is slightly different; the largest average gains are in Yorkshire and the Humber (average gains of just under £18 per week from a 20% increase in the minimum wage), the East Midlands (average gains of £17.55 per week from a 20% increase) and Wales (average gains of just under £17 per week from a 20% increase). The smallest gains are once again for London and Scotland.

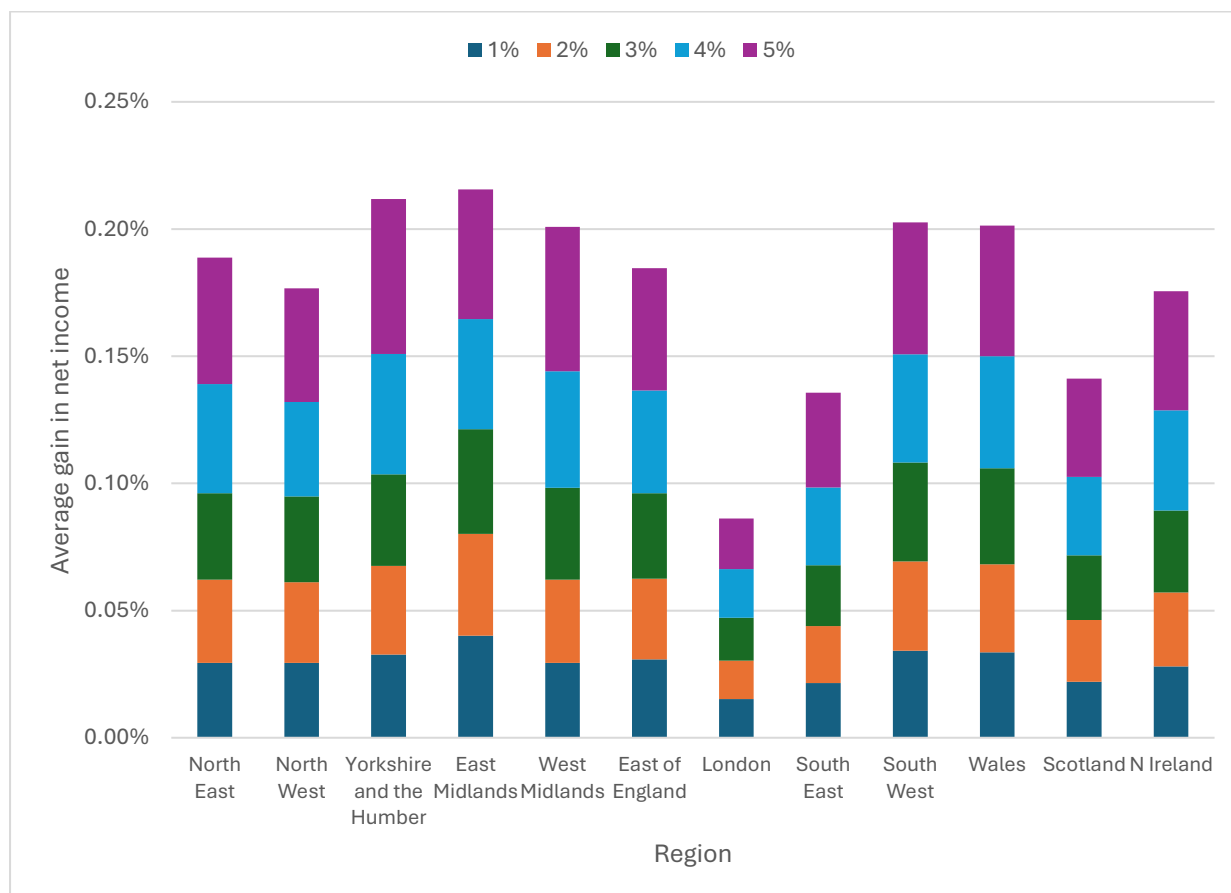
Figure G.10. Distributional impact of 1% through 5% increases in NMW/NLW rates, cash terms by region of residence, working households only



Source: as Figure G.1

Figure G.11 shows the average distributional impact of increases of up to 5% in the NMW/NLW as a percentage of net income by region. The largest increases as a percentage of net income are for the East Midlands, Yorkshire and the Humber, South West England and Wales. The smallest average percentage increases are for London, South East England and Scotland.

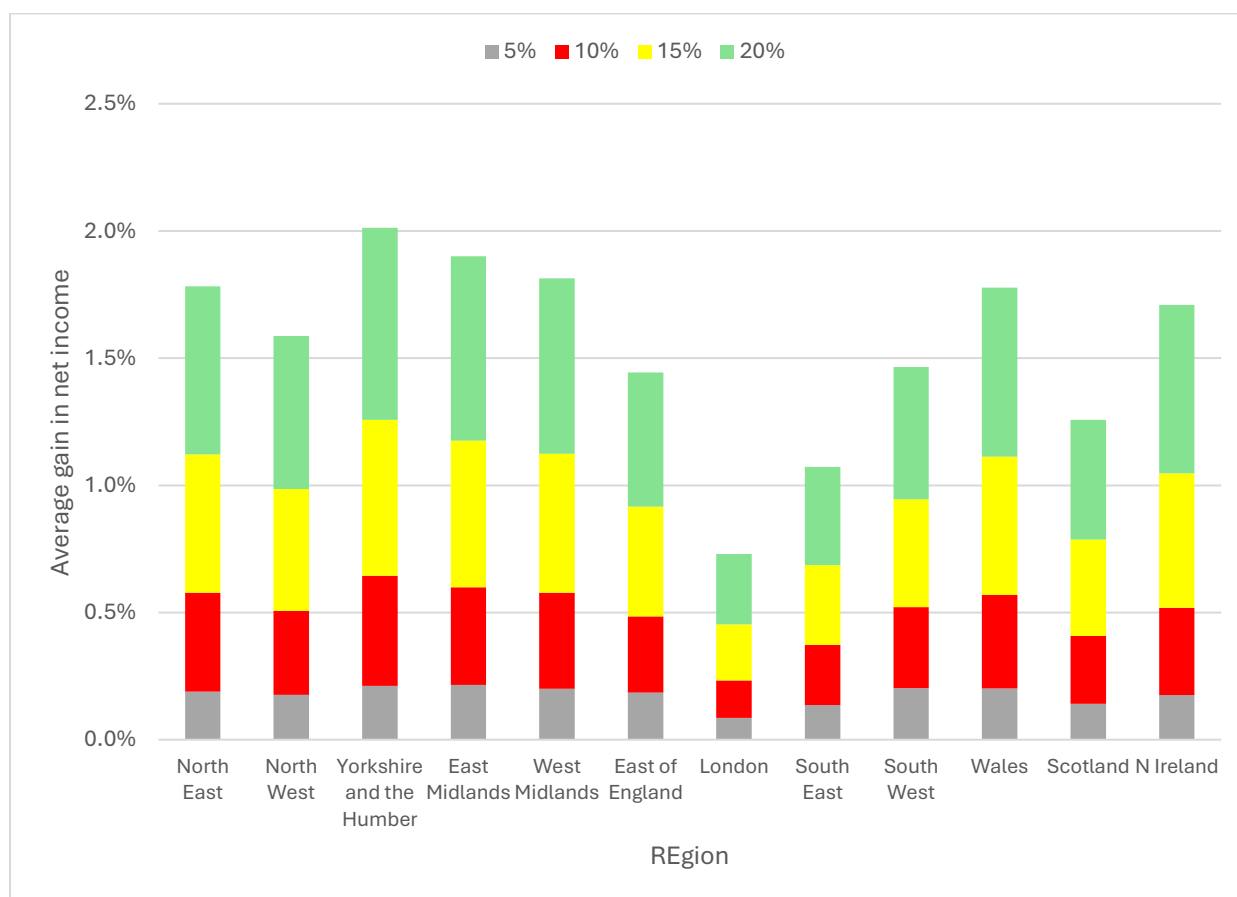
Figure G.11 Distributional impact of 1% through 5% increases in NMW/NLW rates as a percentage of net income by region of residence, working households only



Source: as Figure G.1

Figure G.12 shows the average distributional impact of larger increases in the minimum wage in percentage terms by region. For a 20% increase in the minimum wage, the largest percentage increases in income are for Yorkshire and the Humber, the East Midlands, West Midlands and Wales. The smallest increases (once again) are for London, South East England and Scotland.

Figure G.12. Distributional impact of 5% through 20% increases in NMW/NLW rates as a percentage of net income by region of residence, working households only

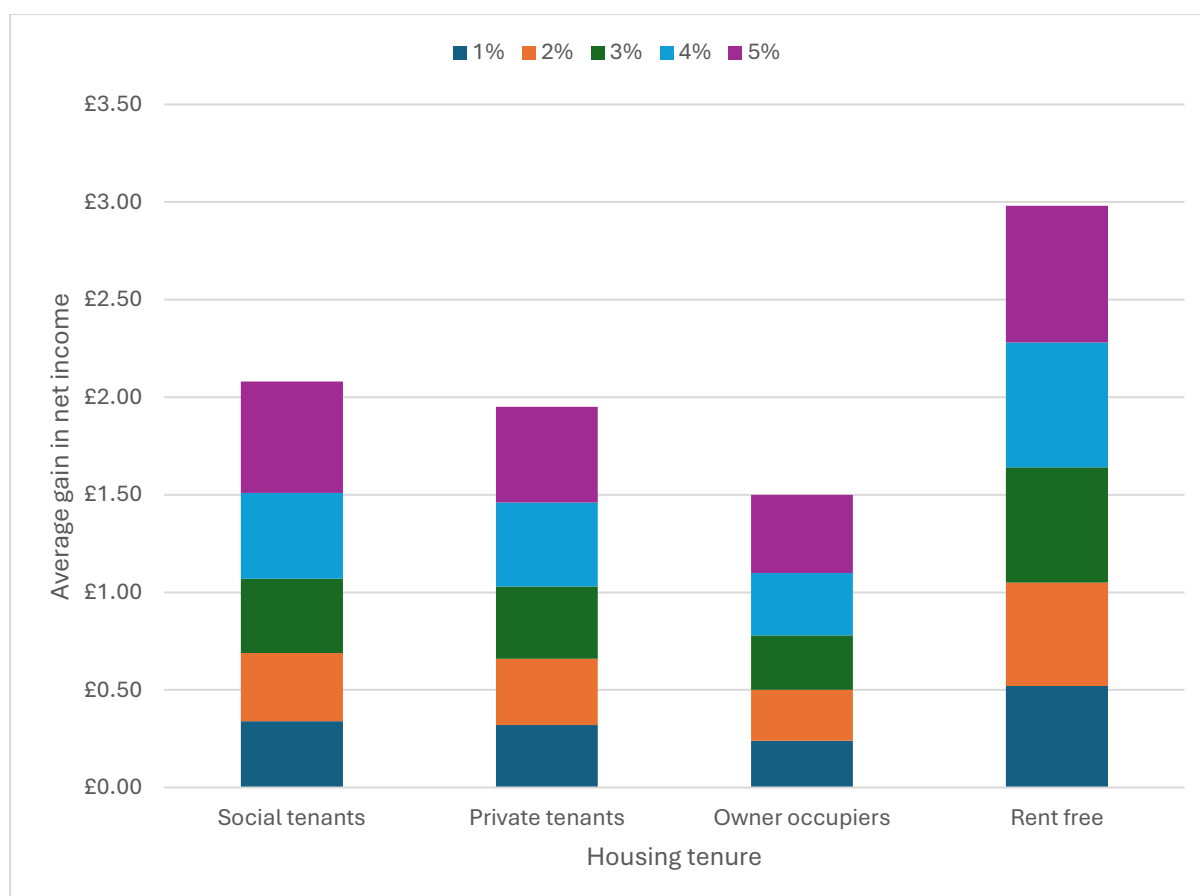


Source: as Figure G.1

G.4 Housing tenure

Finally in this appendix, Figure G.13 shows the average weekly cash gains from increases in the minimum wage of up to 5%, according to the tenure of the household. The largest average cash gains from small increases in the minimum wage are for rent-free households (an average gain of just over £1.00 from a 2% increase), followed by social tenants and private tenants (both groups have an average gain of around 70 pence from a 2% increase). The average gain for owner-occupier households (including households with a mortgage) is smallest, at around £1 per week for a 2% increase.

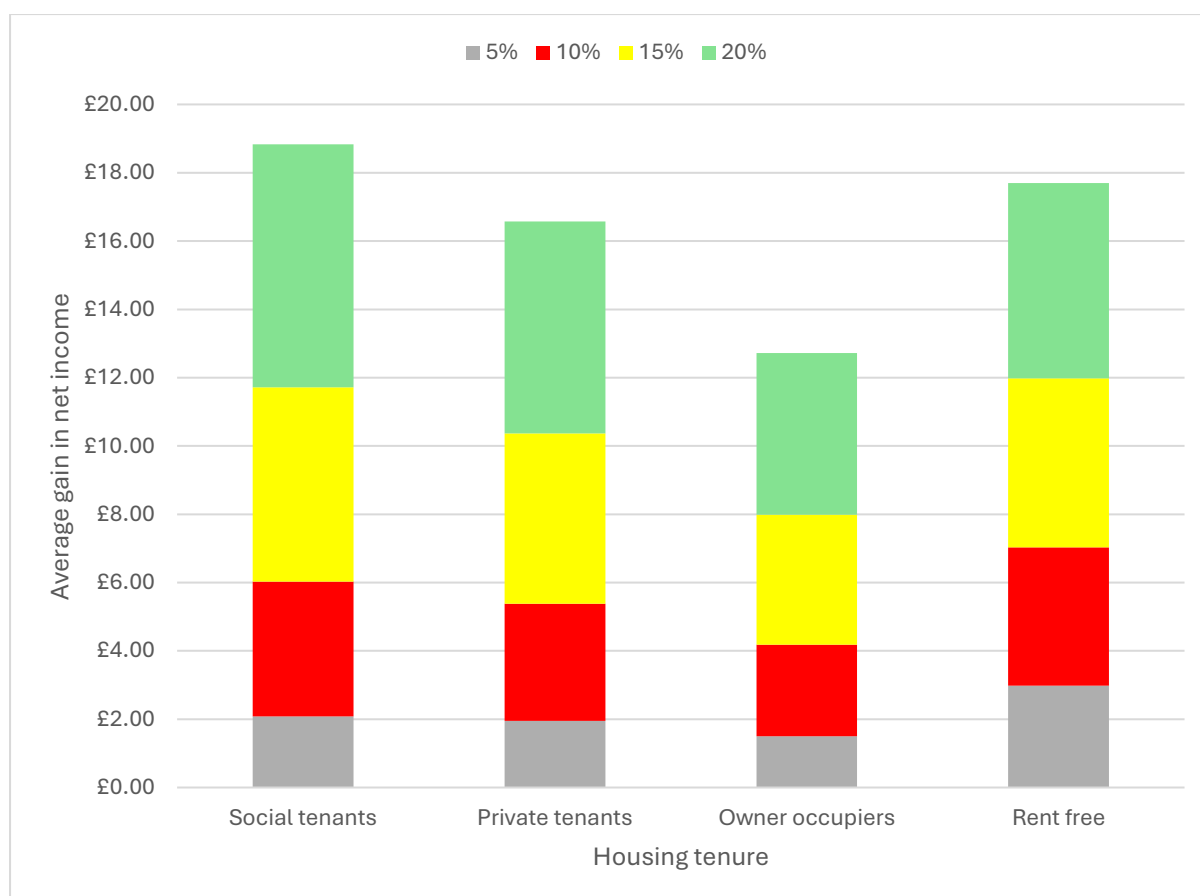
Figure G.13. Distributional impact of 1% through 5% increases in NMW/NLW rates, cash terms by housing tenure, working households only



Source: as Figure G.1

Figure G.14 shows the average weekly cash gains from larger increases in the minimum wage by housing tenure. For increases of 20% in the minimum wage, social tenant households have the highest average gain (around £19 per week), followed by rent-free households (just under £18 per week). Private tenant households gain an average of around £16.50 per week from a 20% increase in the minimum wage, with owner-occupier households again gaining least on average.

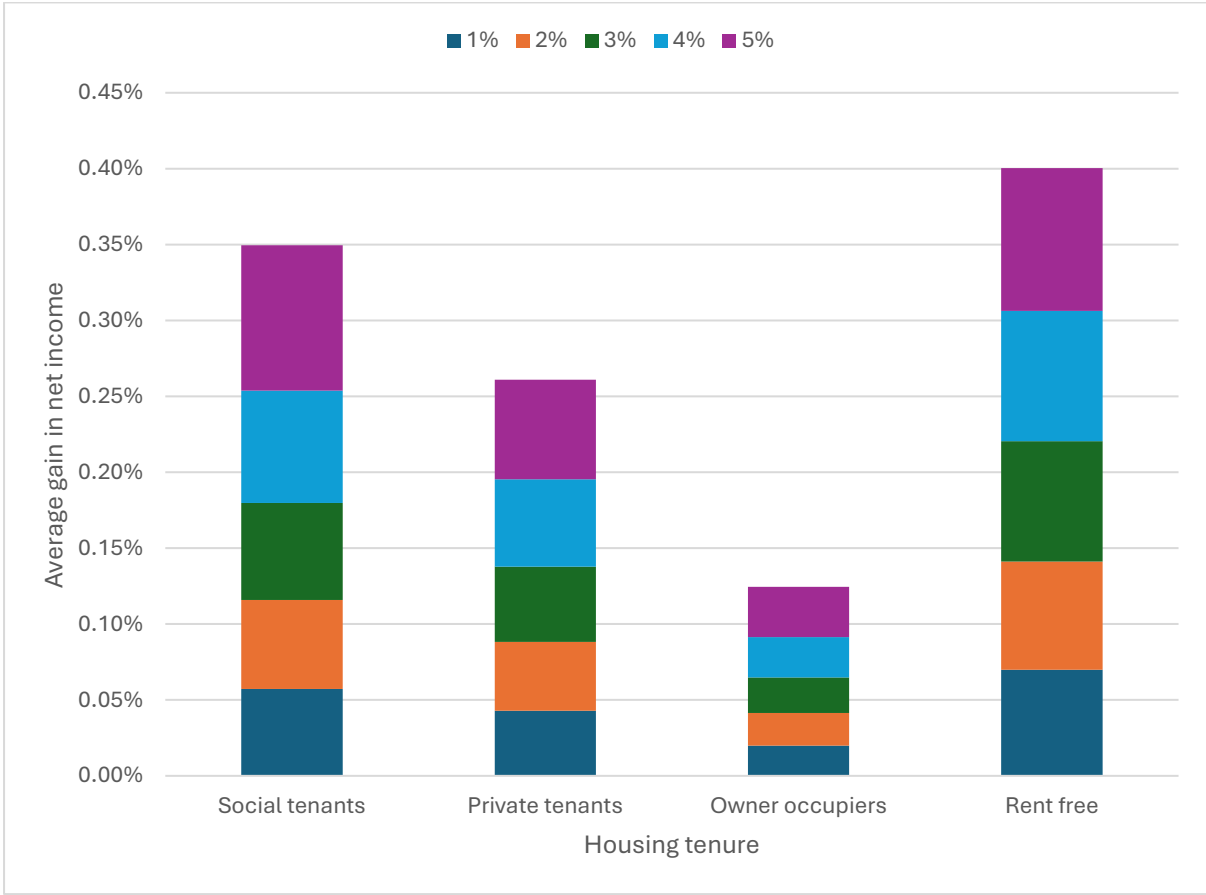
Figure G.14. Distributional impact of 5% through 20% increases in NMW/NLW rates, cash terms by housing tenure, working households only



Source: as Figure G.1

Figure G.15 shows the distributional impact of minimum wage increases of up to 5% by housing tenure. Rent-free households have the largest average gains from a 5% increase in the NMW (around 0.4% of net income) followed by social tenants (around a 0.35% average gain) and private tenants (average gains of around 0.26%). Owner-occupier households have the smallest average gain from a 5% minimum wage increase (around 0.13% of net income).

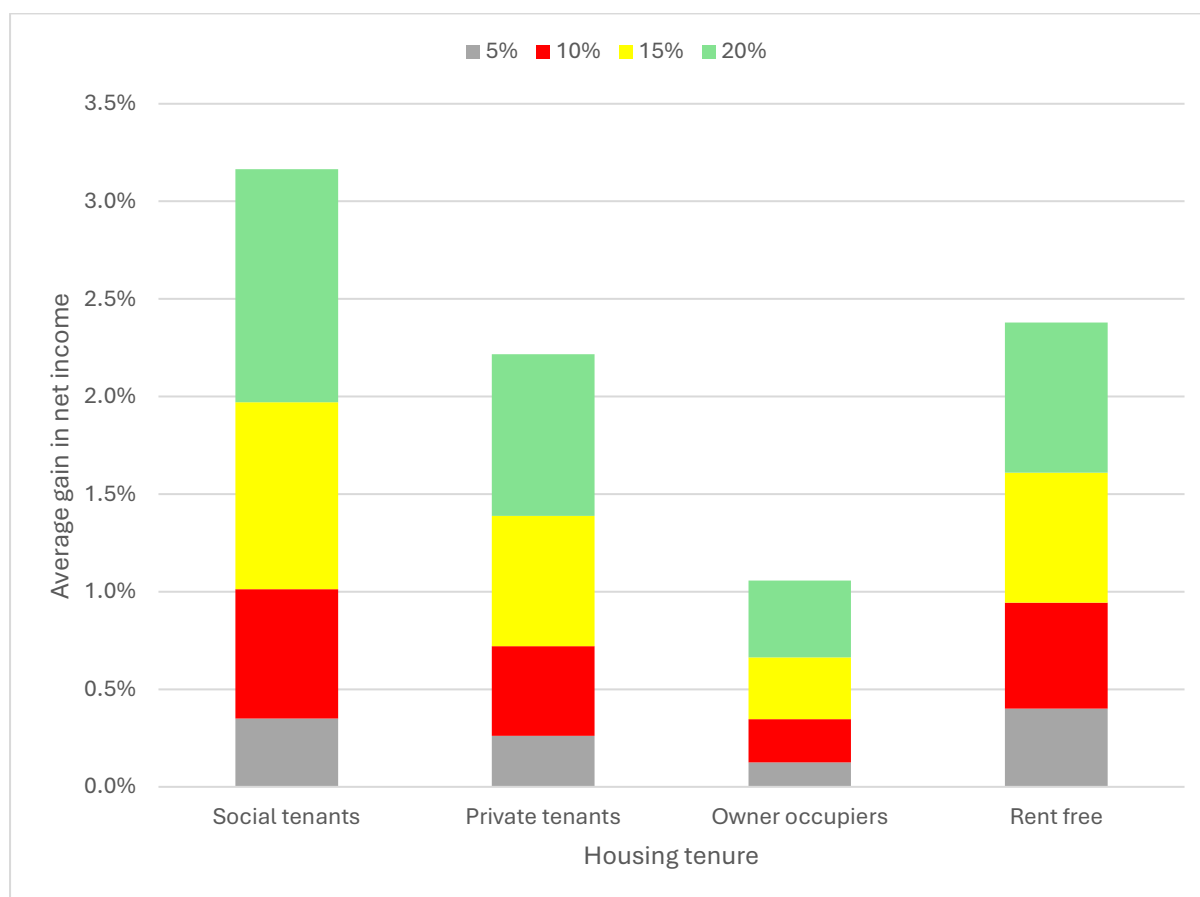
Figure G.15. Distributional impact of 1% through 5% increases in NMW/NLW rates as a percentage of net income by housing tenure, working households only



Source: as Figure G.1

Figure G.16 shows the average percentage increase in net income arising from larger increases in the NMW/NLW. For increases of 10% or more, social tenant households have the largest average gains – a 10% increase in the minimum wage leads to an average increase in net income of 1%. Owner-occupier households have the smallest gain – a 10% increase in the minimum wage leads to an average increase in net income of about 0.3%.

Figure G.16. Distributional impact of 5% through 20% increases in NMW/NLW rates as a percentage of net income by housing tenure, working households only



Source: as Figure G.1