Title: The National Minimum Wage (Amendment) Regulations 2022
IA No: BEIS046(F)-21-LM

RPC Reference No: RPC-BEIS-5141(1)

Lead department or agency: The Department for Business, Energy, and Industrial Strategy

Other departments or agencies: N/A

Impact Assessment (IA)

Date: 27/01/2022

Stage: Final

Source of intervention: Domestic

Type of measure: Secondary legislation

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Summary: Intervention and Options

RPC Opinion: Green

Cost of Preferred (or more likely) Option (in 2019 prices)			
Total Net Present Social Value	**Business Net Present Value**	**Net cost to business per year**	**Business Impact Target Status**
-3.2m	-1317.0m	258.2m	774.5

What is the problem under consideration? Why is government intervention necessary?

The National Minimum Wage (NMW) was introduced in 1999, with the aim of increasing the wages of the lowest paid without damaging their employment prospects. The National Living Wage (NLW) was introduced in 2016 and is centred on equity, primarily around reducing wage inequality, with an aim to reach two-thirds of median earnings by 2024. The Low Pay Commission (LPC) has made recommendations to Government on the NLW and NMW rates that should apply from April 2022.

What are the policy objectives and the intended effects?

The objective of the NMW is to maximise the wages of low paid workers under the age of 23 without damaging their employment prospects by setting it too high. The aim of the NLW, which applies to workers aged 23 and over, is to reach two-thirds of median earnings by 2024 subject to sustained economic growth. The NMW/NLW sets a wage floor below which pay cannot fall ensuring protection for low-paid workers, while also providing incentives to work.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

This impact assessment considers changes to the NLW and NMW that should apply from April 2022.
The independent LPC makes recommendations on the NMW/NLW to Government, consulting extensively and undertaking substantial analysis. Details are contained in the 2021 report.
The Government has considered two options this year:

0. Do nothing - maintain current NMW/NLW rates and system
1. Implement the LPC recommended rate increases (preferred option)

The Government's preferred option is to implement the LPC's recommended rate increases. This is to ensure that the NMW continues to achieve its objective of maximising the wages of the low paid younger workers without damaging their employment prospects, and the NLW achieves the target of two thirds of median earnings by 2024.

Will the policy be reviewed? The LPC review the policy annually **If applicable, set review date:** 10/2022

Does implementation go beyond minimum EU requirements?		N/A		
Is this measure likely to impact on trade and investment?		No		
Does this measure comply with our international trade and investment obligations, including those arising under WTO agreements, UK free trade agreements, and UK Investment Treaties?		N/A		
Are any of these organisations in scope?	**Micro**Yes	**Small** Yes	**Medium** Yes	**Large**Yes
What is the CO_2 equivalent change in greenhouse gas emissions? (Million tonnes CO_2 equivalent)		**Traded:** n/a	**Non-traded:** n/a	

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible Minister:
(Paul Scully MP)

Date: 27.01.2022

Summary: Analysis & Evidence

Policy Option 1

Description:

FULL ECONOMIC ASSESSMENT

Price Base	PV Base	Time Period	Net Benefit (Present Value (PV)) (£m)		
2021	2022	3 Years	**Low:** -3.7	**High:** -1.6	**Central Estimate:** -3.7

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	1.6	1	481.4	**1425.3**
High	3.7	1	694.9	**2057.5**
Best Estimate	3.7	1	529.3	**1568.8**

Description and scale of key monetised costs by 'main affected groups'

Our central estimate of the overall impacts of the LPC NMW/NLW rate recommendations is a total cost of £1,565 million. This includes transition costs (£3.7m) and an increased labour cost to employers of £1,588 million (not discounted costs of £899m direct impacts and £689m indirect impacts). This is a transfer with a largely neutral net economic impact. It is made up of £1,347m (not discounted) of increased wages for employees, and £241m (not discounted) of increased non-wage labour costs, which are mainly employer pensions and National Insurance contributions.

Other key non-monetised costs by 'main affected groups'

The evidence from the LPC report suggests that the NMW rates recommended by the LPC will not have any additional negative impact on employment prospects. The NLW may have macroeconomic impacts in the long run. These are not formally quantified here as they are highly uncertain but could include negative employment impacts (previous estimates by the OBR of fewer people in employment due to NLW never materialised).

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	0		481.4	**1423.7**
High	0		694.9	**2053.8**
Best Estimate	0		529.3	**1565.1**

Description and scale of key monetised benefits by 'main affected groups'

Our central estimate of the overall benefits is for a total benefit to employees and the Exchequer of £1,562m. This is a transfer from employers with a largely neutral net impact. Employees benefit from £1,347m (not discounted) of increased wages, while employees and the Exchequer benefit from £241m (not discounted) of non-wage labour benefits, predominantly consisting of pension and National Insurance contributions. Using HMT Green Book methodology for distributional analysis, the total benefit to workers could increase up to £2,270m.

Other key non-monetised benefits by 'main affected groups'

Employers who provide accommodation are expected to benefit from an increased amount that can be offset against NMW/NLW pay. Workers can also benefit as these are often mutually beneficial arrangements. Take up of this is likely to be low. As above, there could also be macroeconomic benefits in the long-run (e.g. improved productivity, increased consumption, multiplier effects or marginal propensity to consume).

Key assumptions/sensitivities/risks **Discount rate** 3.50%

The key assumption is on the counterfactual for how wages would change in the absence of minimum wage rises. We use a methodology recommended by independent experts (NIESR) and approved by labour market experts. For the value of the counterfactual, we believe that the academic literature's majority view of spillovers reaching the 25th percentile to be the most appropriate. This is the lowest point in the distribution where we find workers to no longer be impacted by the minimum wage (directly or indirectly).

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			Score for Business Impact Target (qualifying provisions only) £m:
Costs: 294.5	**Benefits:** 0	**Net:** 294.5	774.5

Contents

Impact Assessment Scope

1. The Low Pay Commission (LPC) has recommended increases in the National Living Wage (for those aged 23 and over), the National Minimum Wage rates (for those aged under 18, 18-20, 21-22, the Apprentice rate for those aged under 19 or in the first year of an apprenticeship) and the accommodation offset. The Government has accepted these recommendations[1] in full and they will come into force on 1st April 2022, subject to parliamentary approval.

2. Almost all workers in the UK are eligible to be paid at least the minimum wage. Eligibility for specific rates is determined by a worker's age and, if they are an apprentice, when they started their apprenticeship.

3. This Impact Assessment (IA) appraises the impacts of uprating the current National Living Wage (NLW) and National Minimum Wage (NMW) rates to the LPC's latest recommendations, as set out in their 2021 report[2]. This IA is a marginal appraisal, whereby we consider the impact of workers' wages increasing from the existing NMW/NLW to the proposed future NMW/NLW. This IA does not consider a scenario where the NMW/NLW is completely removed as, in the hypothetical absence of an NMW/NLW uprating, the current minimum wage rates would remain legally binding. Therefore, a counterfactual scenario where the wages of the lowest paid are reduced does not apply and is out of scope of this IA.

4. The Low Pay Commission continuously monitors and evaluates the impact of the NMW/NLW, as summarised in their annual reports. Their assessment of the impact of the rates, and the state of the wider economy, are factored into the rates that they then propose for the following year. This Impact Assessment utilises the findings from their latest report. The LPC will undertake an assessment of the impact of the proposed 2022 minimum wage rates in Autumn 2023, which we welcome as a key contribution to the evidence base, and we will consider any relevant findings from their assessment in future Impact Assessments.

Background to the Impact Assessment

Policy Context

5. The economic rationale for a statutory wage floor is to address the welfare loss caused by unequal bargaining power in the labour market. In a perfectly competitive labour market, equilibrium arises when the wage rate equates the demand for labour – based on the marginal revenue product of labour – with the supply of labour. However, when employers have market power, a socially sub-optimal market outcome can occur with lower wages and lower employment. Annex A further describes the theoretical rationale for intervention.

6. The National Living Wage was introduced in April 2016 and had a specific target to reach 60% of median earnings by 2020, subject to sustained economic growth. Meeting this target was subject to the annual upratings recommended to Government by the Low Pay Commission. The Government values the work of the Low Pay Commission in coming to their recommendations on the minimum wage rates, and it was by taking into consideration their advice (provided in October 2019), that the target for the NLW was achieved by the increase that took place in April 2020.

[1] https://www.gov.uk/government/consultations/low-pay-commission-consultation-2021

[2] https://www.gov.uk/government/publications/low-pay-commission-report-2021

7. The Government has now set new targets for the NLW to reach two-thirds of median earnings by 2024 (taking economic conditions into account) and for the NLW to apply to workers aged 21 and over by 2024. By doing this, the NLW seeks to ensure low paid workers aged over 21 are fairly rewarded for their contribution to the economy. Because the wage target is a proportion of median earnings rather than a pound value, there is flexibility as the target moves in line with the state of the economy, i.e. if forecast average earnings fall then so will the pound value of the NLW. Additionally, as set out in the LPC's remit, the Government asks the LPC to monitor the labour market, to advise on any emerging risks and – if the economic evidence warrants it – recommend that the Government reviews its target or timeframe.

8. The National Minimum Wage was introduced in 1999 to protect low-paid workers from 'extreme low pay'[3] whereby certain employers in the absence of government intervention may pay unacceptably low wages. Extreme low pay has now largely been stamped out, but the NMW continues to provide this protection for workers, and it also helps to provide a level playing field for firms, preventing them from undercutting competitors with exploitative levels of pay. When uprating the NMW, the LPC is asked to recommend the rates such that they do not damage the employment prospects of younger workers.

9. The youth labour market is much more sensitive to economic shocks and young people can be exposed to longer-term scarring effects[4] from prolonged spells of worklessness, as well as facing a comparative disadvantage when entering the labour market due to a lack of work experience and less knowledge. As raised in the LPC's Youth Rates report[5], 'young people enter the labour market with relatively limited experience and few skills, and so have lower productivity while they learn the job. In addition, employers may need to provide additional training. Any minimum wage structure needs to recognise the lower productivity and higher training costs of less experienced workers. Failure to do so could mean that some employers are unwilling to give young people those critical first opportunities.' Consequently, the Government asks the LPC to recommend separate NMW rates by age band (under 18, 18–20-year-olds, and 21–22-year-olds). In practice, as workers must be at least school leaving age to receive the NMW, the under 18 wage band applies primarily to 16–17-year-olds, although some school leavers will still be 15 when they start work.

10. The Apprentice National Minimum Wage (ANMW) was introduced in 2010 to ensure apprentices, previously exempt from the NMW, received the legal protection of the NMW. It applies to those apprentices who are aged under 19 or aged 19 or over and in the first year of their apprenticeship. The LPC recommends this rate so that the level of the ANMW provides a fair deal for apprentices, protecting them from exploitation whilst at the same time not deterring businesses from taking them on and providing good quality training.

11. The LPC also make a recommendation for the value of the accommodation offset. The accommodation offset was introduced in 1999 and provides a mechanism to offset the cost of providing accommodation for workers against the NMW/NLW. The offset is deducted from wages without reducing pay for NMW/NLW purposes. Accommodation is the only benefit-in-kind that can count towards either the NLW or NMW as there are scenarios when the provision of accommodation can be mutually beneficial for both employer and worker. The offset arrangement provides protection to workers and gives some recognition of the value of the benefit but is not intended to reflect the actual costs of provision.

[3] Prior to the introduction of the NMW in 1999, a third of low-paid workers were in extreme low pay: More than a Minimum (2014)

[4] Bell D & Blanchflower D, 2011, Young people and the great recession, Oxford Review of Economic Policy, 27 (2), pp. 241-267

[5] https://www.gov.uk/government/publications/a-review-of-the-youth-rates-of-the-national-minimum-wage

12. As the decision on the appropriate rates is both empirical and based on extensive stakeholder engagement, the LPC report contains a large body of evidence and analysis on the impact to date of the NMW and NLW. The LPC considers the prospects for the UK economy by considering the latest available forecasts for growth, average earnings, inflation, employment and unemployment from the Office for Budget Responsibility, Bank of England and HM Treasury's panel of independent forecasters. They also have an extensive consultation period to collect the views and analysis of a number of interested stakeholders. The LPC also commission external research to better inform them of the impacts of minimum wage policy. The evidence, research and data collected and produced by the LPC have been used to inform this IA.

Rationale for continued intervention

13. The labour market today is markedly different to that of the late 90s when the NMW was first introduced: it has a higher participation rate, higher employment rates, lower unionisation (from 30% of employees in unions in 1999 to 23.7% in 2020[6]); the demographics of workers have evolved with more diversity in the workplace (for example, employment rate for women and disabled people are at near record highs), and rates of '*extreme* low pay have essentially fallen to zero'[7]. Research by the Resolution Foundation shows that the number of people in low pay in the UK (defined as the number of people earning below two-thirds of median hourly pay) fell for the seventh consecutive year in 2020 – to 14%, the lowest rate since 1978[8]. These changes to the labour market have occurred in parallel with annual upratings of the NMW and the introduction of the NLW.

14. The economic rationale for continued intervention via the NMW is based on maintaining a wage rate for younger workers that is close to the competitive market equilibrium. The Government seeks to achieve this by giving the LPC a remit to recommend an NMW rate that does not damage the employment prospects of low paid workers.

15. The economic rationale for the NLW is broader, with its purpose centred on equity, primarily around reducing wage inequality and ensuring that low paid workers enjoy the benefits of economic growth. The two-thirds of the median target for the NLW for 2024 means that wages of the lowest paid will rise relative to the middle of the wage distribution. This will be the sixth annual uprating of the NLW.

16. The economic rationale for continued intervention for both the NLW and the NMW in the context of COVID-19 and the recovery from the economic crisis is complicated but the core reasoning still stands. In particular, the LPC highlight that the rise this year protects living standards against the anticipated increase in inflation, and those on the NLW should see their pay rise faster than average.

Policy Objective

17. The NMW and NLW set a legal minimum wage floor below which pay should not fall. This ensures protection for low-paid workers, whilst also providing incentives to work and reducing reliance on the State of topping up wages through the benefits system.

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[6] https://www.gov.uk/government/statistics/trade-union-statistics-2020

[7] Resolution Foundation's Low Pay Britain 2016 report (p16). As a result, the Resolution Foundation have stopped calculating this measure for their latest reports: http://www.resolutionfoundation.org/app/uploads/2016/10/Low-Pay-Britain-2016.pdf

[8] Resolution Foundation's Low Pay Britain 2021 report (p15). https://www.resolutionfoundation.org/app/uploads/2021/06/Low-Pay-Britain-2021.pdf

18. The objective of the NLW was to reach 60% of median earnings in 2020, subject to sustained economic growth. With this objective achieved, the Government has set new targets to reach two-thirds of median earnings by 2024, provided economic conditions allow, and to lower the age of eligibility for the NLW to 21 by 2024. Meanwhile the aim when setting the NMW rates for workers under 23 is to raise the wages of the lowest paid young workers as much as possible, without damaging their employment prospects by setting it too high.

19. Last year, the LPC took a different approach to the NLW. As noted in their rates recommendation letter, the considerable uncertainty in the labour market led them to recommend a rate for 2021 below the on-course rate needed to meet the 2024 target. Increases to the other rates were similarly modest.

20. This year the LPC deem the economic situation to have improved substantially and have recommended a NLW rate that keeps the government on track to reach two-thirds of median earnings by 2024. When choosing the other minimum wage rates, they have considered the strengths of the respective labour markets and chosen rates that achieve the aims set out above.

Consultation

21. The NLW and NMW rates are underpinned by extensive consultation, analysis, and evidence-gathering carried out by the LPC. On top of its own expertise and analysis, the LPC consults with a wide range of stakeholders from across civil society through its annual evidence programme. This year the LPC received 76 responses to their written consultation, with representatives from 32 various organisations attending their oral evidence sessions. Appendix 1 of their 2021 report provides a list of contributors to their consultation. The LPC makes recommendations on the future rates but the final decision on whether to accept them is made by the Government.

22. The LPC's work and the wider economic context, enable us to understand how the proposed rates may impact businesses and are summarised below:

- Many respondents commented on the economic and business conditions, with employees across several sectors reporting that they expected a multi-year recovery. Covid measures have increased costs across a range of businesses, including loans that are now beginning to be repaid. The closure of Coronavirus Job Retention Scheme was seen as the main employment risk on the horizon.

- Despite economic conditions, it was still rare for businesses to state that they reduced employment because of the NLW increasing, this is in accordance with what has been reported in previous years. There were more responses that employers were absorbing the costs than in previous years. This is in line with findings from employer surveys, and the latest econometric evidence that is further summarised in Annex C.

- Evidence from the CIPD 2021 survey suggests that 34% of employers have responded to the NLW by absorbing the cost; 24% raised productivity; and 21% raised prices. Only 11% of respondents reported reducing number of employees as response to the NMW

- The tightness of the labour market was a near-universal theme in this year's evidence, with several sectors reporting shortages of staff, and evidence in some sectors that this was driving up pay. There were several factors driving shortages, including a lack of EU workers and furloughed staff who had taken jobs elsewhere in the economy, hence not returning to

their previous jobs. Shortages have had a knock-on impact across the economy and employers were acutely aware of competition for staff within and between sectors.

- Lower profits and price rises were amongst the most common responses from employers to the NLW this year. However, businesses are reportedly finding it difficult to pass on costs through price rises; some mentioned competitive markets and international pressures as explanations for difficulty raising prices.

- Both the pandemic and NLW have had a mixed effect on productivity and investment. A consistent theme is that of work intensification; productivity has increased but the pandemic has forced employers to do more with less. Some employers noted that they were investing in automation in response to the NLW and other cost pressures.

- At the time of LPC's consultation, many employers argued for a 2022 increase at or close to inflation, citing more time needed for recovery from the pandemic and concerns that the recovery itself is fragile. Workers' unions however argued that the current pace of the economic recovery is evidence that returning to an on-course rate is a minimum acceptable step.

23. In response to previous IAs, the RPC has commented on the suitability of the counterfactual we have used to estimate the direct wage cost to business/benefit to workers as a result of NMW/NLW upratings. Detailed discussion of this can be found in 2017's IA[9], while Annex H outlines the extensive work that has been carried out in ensuring that the methodology used in this IA is fit for purpose, as identified by the RPC in their rating last year.

24. Where alternative proposals have been put forward, we have traditionally made efforts to consider this (see 2019, 2020 and 2021 IAs). We continue this in this IA, by revising how we estimate an alternative counterfactual (specifically a 'shadow wage distribution') – this is described in greater detail in Annex D. We continue to undertake an extensive exercise of sensitivity analysis to understand the impact of our assumptions, with this reflecting the uncertainties posed in this year's analysis.

25. Additionally, to ensure that our methodology remains appropriate following the impacts of the COVID-19 pandemic, we consulted leading labour market academics on the key assumptions. This, in addition to our own desk-based research and previous analysis (see Annex H), continues to lead us to conclude that our current approach is the most appropriate one. As always, we will continue to monitor this going forwards.

[9] Amendment to the NMW regulations 2017 Impact Assessment

Options Identification

26. This Impact Assessment considers two options which will be assessed against the policy objectives set out above:

    - Option 0) Do nothing – maintain the existing NLW and NMW rates
    - Option 1) Implement the LPC recommended rate recommendations for April 2022,

Option 0: Do nothing

27. If the LPC's rate recommendations are not implemented, then the status quo will prevail and the current NLW and NMW rates would continue to be the statutory pay floor that workers are legally entitled to.

28. The "do nothing" option would not achieve the policy objectives of the NMW and NLW rates (paragraph 18). We believe that many minimum wage workers would likely not see their pay increase substantially and consistently, relative to the middle of the pay distribution, although current tightness in the labour market may have implications for pay at the bottom of the distribution. Furthermore, the LPC have carefully considered the rates recommended to Government, such that they would have no significant effects on unemployment.

Option 1: Implement the LPC recommended rate recommendations

29. The LPC rate recommendations for April 2021, as outlined in their report, are as follows:

Table 1: Low Pay Commission NMW/NLW rate recommendations for April 2022

	LPC recommendation	Current rate	Annual percent increase
National Living Wage rate (23+)	£9.50	£8.91	6.6%
21-22-year-old rate	£9.18	£8.36	9.8%
18-20-year-old rate	£6.83	£6.56	4.1%
16-17-year-old rate	£4.81	£4.62	4.1%
Apprentice rate	£4.81	£4.30	11.9%
Accommodation offset (day rate)	£8.70	£8.36	4.1%

30. The LPC has extensively outlined in their 2021 report[10] the analysis, consultation and subsequent rationale behind its recommendations for the NLW and NMW rates which should apply from April 2022. The Government has considered this and subject to parliamentary approval will implement the LPC's recommendations in full. Below is a summary of the rationale for this. Further detail is available in the LPC's report. This IA appraises the impacts of the increase in the NLW and NMW from April 2022.

The economy in 2021

31. As the country has moved out lockdown, growth has returned to the UK economy. The October OBR forecast puts UK GDP growth at 6.5% for 2021 and GDP surpassed its pre-pandemic level in November 2021[11]. The recovery however has been multi-speed with some

[10] https://www.gov.uk/government/publications/low-pay-commission-report-2021

[11] https://www.ons.gov.uk/economy/grossdomesticproductgdp/bulletins/gdpmonthlyestimateuk/november2021

sectors left behind. Consumer-facing sectors which are still affected by restrictions, such as international transport, have struggled.

32. The strength of the rebound in demand in the UK and internationally has led it to bump up against supply constraints in several markets. When demand is strong, and supply is constrained it results in higher prices and increased inflation. According to the OBR, supply chain issues have been further exacerbated by changes in the migration and trading regimes following Brexit, as well as by rising energy prices. These can be expected to hold back output growth in the coming quarters and CPI is now expected to reach as high as 6% in 2022[12].

33. Beyond headline figures, business conditions are still challenging. Businesses took on debt to deal with the COVID-19 pandemic. For SME businesses with turnover below £25m, debt levels jumped by almost £50bn (25 per cent[13]). Debt levels increased by a similar amount for larger businesses, but subsequently declined rapidly. Businesses are currently confident that they will meet their debt obligations, but the LPC considered, when making their recommendations, that optimism may be driven by government policy that will slowly be withdrawn over the coming month (e.g. support with business rates and measures to prevent insolvency).

The labour market in 2021

34. The labour market in 2020 did not experience the substantial unemployment that would be expected with the severe recession the UK experience because of the pandemic. Headline unemployment peaked at 5.2% in Q4 2020 before starting to fall. The relatively low unemployment throughout the pandemic can be attributed to the furlough scheme which at its peak supported 8.9 million jobs.

35. ONS statistics for the three months to November 2021[14] show that the labour market has recovered strongly from the results of the COVID-19 pandemic: the employment rate is up, the unemployment rate is down, vacancies are at historic levels, and redundancies per thousand fell to a record low.

36. The improvement in the UK labour market has been driven by high levels of demand for workers. The number of job vacancies in June to August 2021 was 1,034,000, the first-time vacancies have risen over 1 million since records began[15]. Continued high level of vacancies may be expected to put upwards pressure on wages in the short term.

37. Alongside the recovery in jobs and recruitment, pay growth also returned. The headline measure of total weekly pay, average weekly earnings (AWE), grew at an annual rate of over 8 per cent for several months in the summer of 2021. However, these very high growth rates were in part the result of base and compositional effects. In the former, growth rates appear higher because pay levels are compared to the height of the pandemic, when pay levels fell sharply as many workers were furloughed. In the latter, the loss of low-paying jobs[16] causes the average level of pay to rise.

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[12] https://www.bankofengland.co.uk/knowledgebank/will-inflation-in-the-uk-keep-rising

[13] LPC short report

[14] https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/uklabourmarket/january2022

[15] https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/jobsandvacanciesintheuk/september2021

[16] We know that low paid workers were more likely to lose their jobs over the pandemic. For more information see: The heterogenous and regressive consequences of COVID-19: Evidence from high quality panel data. Oxford University. 01/2021: https://www.sciencedirect.com/science/article/pii/S0047272720301985?via%3Dihub

38. More recent wage figures show a sharp drop off in the annual growth rate by September and into late 2021. Alternative measures of annual pay growth suggest it is lower at around 3-4% with the OBR forecasting earnings growth of 5.0% for 2021. The ONS estimate that underlying annual wage growth in November 2021 was 4.2%[17]. The OBR have upgraded their near-term path for wages reflecting growing evidence of labour shortages in some places and occupations. Forecasts for selected variables from other sources can be seen in Table 2 below. In the medium term, higher inflation, less productivity scarring than expected, and employees returning to the labour market are also expected to increase wages.

39. As previously mentioned, the state of the economy plays an important role in the LPC's minimum wage rate recommendations, and the Government's decision to accept them.

Table 2: Forecasts of selected economic variables

	2021			2022		
	OBR	BoE	HMT average	OBR	BoE	HMT average
GDP	6.5%	6.7%	7.0%	6.0%	2.9%	4.5%
Unemployment rate	4.9%	4.5%	4.4%	4.8%	4.0%	4.2%
Average earnings	5.0%	-	5.6%	3.9%	1.3%	4.0%
Inflation (CPI)	2.3%	4.3%	4.7%	4.0%	3.4%	3.5%
Sources	*a: OBR EFO, 0ctober 2021* *b:Bank of England November 2020 Monetary Policy Report. Forecasts refer to Q4 of each year.* *c: HMT, Average of Independent Forecasts, January 2022 release*					

The National Living Wage

40. Influenced by the economic performance summarised above, the LPC has advised that the NLW should rise to £9.50, an increase of 6.6%. Following the lower than "on-path" estimate last year, the LPC believe this puts the NLW rate back on track to reach the target.

41. Due to the impacts of the pandemic, there are still some uncertainties around the shape of the path to the 2024 National Living Wage. The LPC's central prediction suggests the NLW would need to be £9.58 in 2022 and £10.70 in 2024 to reach two thirds of median wages. The LPC's recommendation this year is slightly less than their central path (£9.58). This is for several reasons, including that wage growth is likely to be overstated due to composition effects from low-paid jobs being lost during the pandemic (see paragraph 37).

42. The significance of the NLW for low paid workers in recent years is evident. Prior to the economic crisis, the NLW increased pay at the lower end of the labour market without harming employment. The increase in the NLW directly raised pay for around 2.0 million workers in 2019 and 1.7 million workers in 2021[18] Since 2015, the NLW has had a clear impact on pay and earnings, with hourly pay for the lowest paid growing significantly faster than for other workers (Figure 1).

43. The ongoing economic crisis could mean that employers are in a weaker position to respond to the NLW increase without impacts on employment. On the other hand, the LPC

[17] https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/averageweeklyearningsingreatbritain/latest

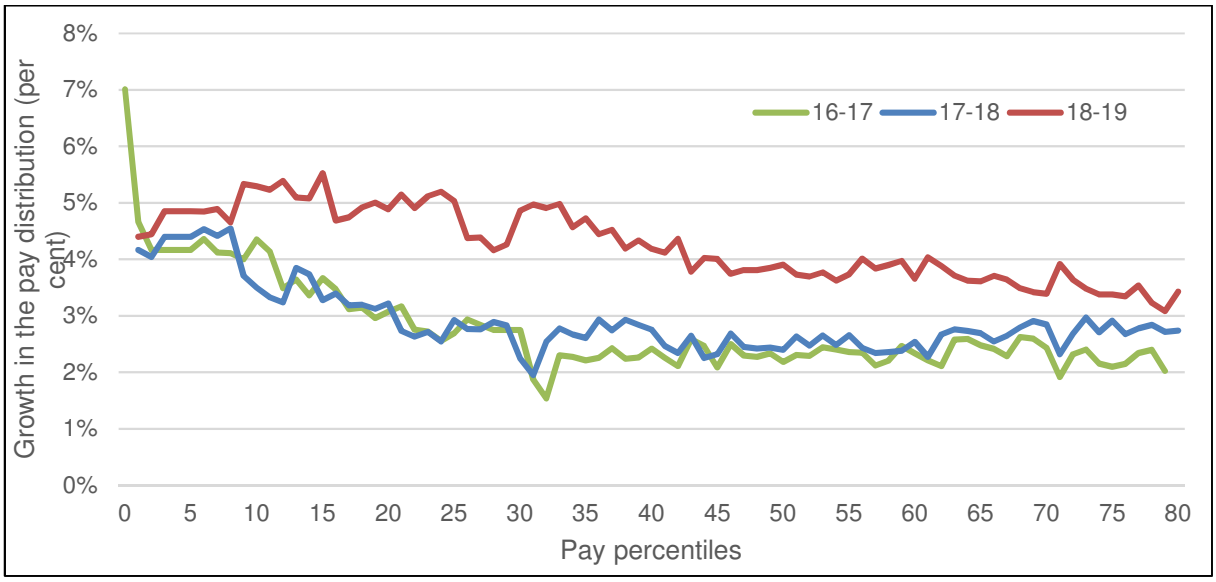
[18] Due to significant uncertainty with ASHE 2021 (see Data section) it is not possible to tell how many employees were covered by the 2020 uplift. The range given by the LPC is between 1.8 and 3.0 million

acknowledge evidence that the economic and labour market recovery has been better than anticipated and therefore justifies an increase in line with the target.

44. The LPC continue to use stakeholder evidence to inform their decisions and this stakeholder evidence has been summarised above. This year, stakeholders noted difficulty in assessing the impacts of the 2021 rates due to a substantial number of workers being placed on furlough. In general, employers thought the rates were about right and the CIPD survey found that the uprating only had a limited effect on pay and employment. Worker representatives were more critical of the lower increase.

45. This year was also the first year that 23- and 24-year-olds became eligible for the NLW. This appears to have gone smoothly so far. The LPC find they are increasingly paid the NLW without a spike in underpayment and their employment has not been negatively affected.

Figure 1: Percentage growth in the hourly wage distribution for workers aged 23 and over, UK, 2016-2019



Source: BEIS analysis of ASHE data, 2016-2019

Standard weights used in year 2016-2019. This analysis has not been updated since 2019 due to problems with the ASHE dataset as a result of the pandemic. For more information, please see the data quality section below.

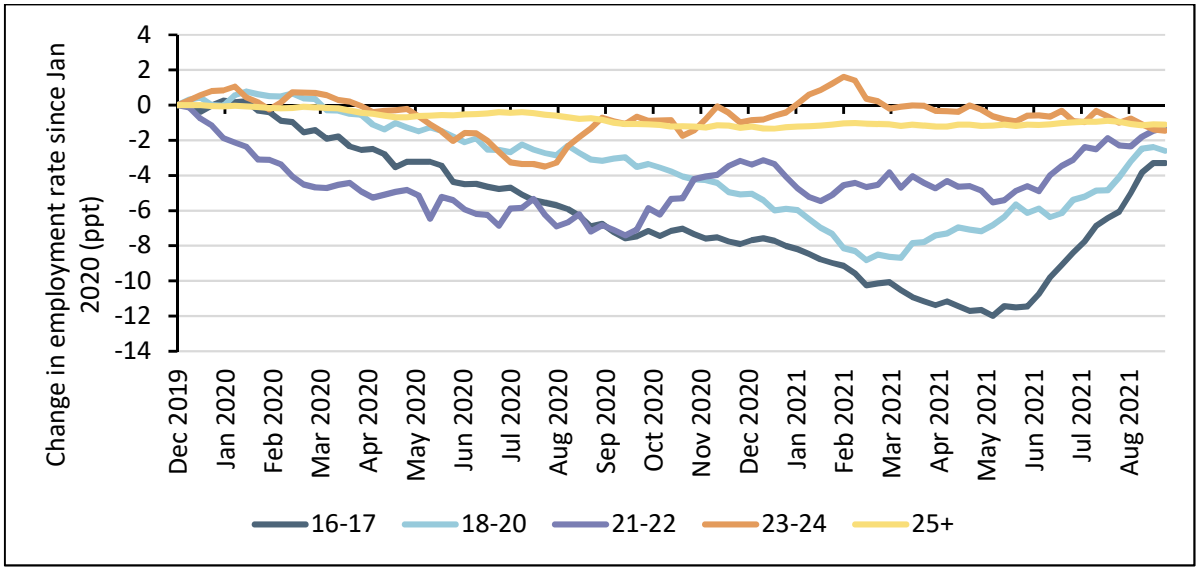
National Minimum Wage (s)

46. Last year the picture for young workers was bleak. They overwhelmingly worked in shut-down sectors, were more likely to be furloughed, and lost pay as a result. This year the situation is very different.

47. Younger workers were the fastest to move off the CJRS despite being the most likely furloughed workers last summer. Since then, employment rates and RTI payrolled employment recovered quickly and are now close to their pre-pandemic levels, suggesting young workers have either gone back to their old jobs or found new ones after leaving the CJRS.

48. This is shown in Figure 2, the unemployment rates increased over the course of the COVID-19 pandemic. Overall, those aged 21 and over have employment rates just below their pre-pandemic levels, but those aged 16-20 have further ground to catch up.

Figure 2: Change in employment rates of young people by age since January 2020, weekly data, UK



49. The intention for 21- and 22-year-olds is to move them onto the NLW by 2024 and the majority of LPC stakeholders continue to agree this is the right move. To avoid a large step change in the year they become eligible, and factoring in the improved situation facing younger workers, the LPC deem it sensible to reduce the gap between the 21–22-year-old rate and the NLW next year. This has resulted in a relatively large increase in the 21-22 rate of 9.8% (or 82 pence) to £9.18, which the Government intends to implement.

50. For those aged 20 and below there has been an increase in the use of the minimum wage rates; this is usually a sign of pressure. While their employment rates are recovering, they fell by more during the pandemic and have more ground to make up than the older age groups. For this reason, for both 18-20-year-olds and 16–17-year-olds, a 4.1% increase is proposed, taking them to £6.83 and £4.81 respectively. The LPC view was that, at the time of the recommendation, these rates balance the aim to stay in line with underlying wage growth and ahead of inflation whilst recognising the higher risk of unemployment for this group.

The Apprentice NMW

51. Following the review of the apprentice rate in the LPC 2020 report, the LPC concluded by proposing to align the rate the youth rate by 2022. Both employer and worker stakeholders supported this change and continue to tell the LPC it is the right thing to do and would be manageable for businesses. In April 2022 the Government will therefore align the apprentice rate with the youth rate, increasing the apprentice rate by 11.9% to £4.81. The larger percentage increase reflects both the lower base of the rate and the conclusion from the LPC review.

52. The two rates will not be merged to grant the flexibility to change both rates independently should the situation require them to diverge in the future.

53. The picture of minimum wage coverage among apprentices has not changed substantially in recent years; just under 30 percent of 16–18-year-old apprentices are paid the apprentice rate with slightly more than 30% paid less than the 16-17 rate but above the apprentice rate. It is this group that will benefit most from the change; far fewer older apprentices are affected. Apprentice starts have continued to be subdued over the past year with the pandemic having a substantial impact. Vacancies, however, have picked up in recent months.

Accommodation offset

54. There continues to be limited data available on how many employers use the accommodation offset and therefore both we and the LPC use stakeholder engagement to understand the impact of recent increases. The sectors most likely to use it are agriculture and horticulture, and to a lesser degree, the hotel sector, particularly in rural locations.

55. The rationale for recent increases in the rate has been to encourage the provision of higher-quality accommodation, and the National Farmers Union (NFU) restated their support for increases in the offset 'in step with increases to NMW and NLW'. Concerns to business of the offset tend to be its perceived complexity and the Association of Labour Providers (ALP) have requested that the LPC review the offset.[19]

56. The long-term goal for the accommodation offset has been to align it with first the 21-24 rate and then the 21-22 rate (after the 21-24 rate was changed last year). As the 21-22 rate is being phased out, this year the LPC have judged it best to increase the Accommodation Offset rate in line with their best estimate of underlying wage growth – increasing the offset by 4.1% to £8.70.

[19] LPC Report 2021 – p. 190

Approach to the Appraisal: Wage Bill Impacts

Counterfactual

Finding the counterfactual

57. The core assumption in our analysis is the counterfactual: the profile of the counterfactual is both a function of i) the wage level low paid workers would receive in the absence of the policy; and ii) the wage growth they would have experienced over the course of the minimum wage uprating. The true counterfactual is unobservable and given the NLW and NMW are universally applicable across the UK, there is no pure control group to compare the policy intervention against.

58. In the US, academic studies benefit from natural control groups that arise from the presence of states with their own minimum wage, compared to states that rely solely on the federal minimum wage. Following the Dube Review, which summarises the literature on US minimum wages, we have also observed the US to identify what had happened to wage growth if a minimum wage rise had not increased (as has been seen in the federal minimum wage), to identify any trends that could be applied to our own counterfactual – see Box 1. This crude exercise indicated that counterfactual wage growth of 0% was unlikely in the US over the past decade, but that the counterfactual wage growth is indeed likely to be lower than increases seen in the minimum wage.

Box 1: The USA as a comparative example

The United States is an example of a rich and industrialised nation covered by a variety of minimum wage regulations. The Federal minimum wage rate has been $7.25 an hour since 2010, with no increases seen since. Twenty U.S. states, representing 131 million Americans, have chosen to use this Federal minimum wage while the other thirty U.S. states, representing 198 million Americans, have chosen to implement their own minimum wages, with various increases in these rates having been experienced over the past decade. The median annual growth rate of the minimum wage among these thirty States is 3.8%.

Individuals in the bottom quartile (e.g., 25th percentile) of earnings in states reliant solely on the Federal minimum wage (i.e., which did not experience a minimum wage increase) saw average annual wage increases of 2.9%. The bottom quartile of earners in states which did raise their minimum wage experienced average annual wage growth of 3.7%.

While this exercise crudely identifies correlation (without specific controls for causation), it does suggest that, if the minimum wage did not increase, the bottom quartile of workers would not experience no wage growth. However, they would experience less wage growth than in the scenario where minimum wages did rise.

59. There are always constraints in applying findings across countries, however there are also strong similarities between the US and UK labour markets in the period 2010-2019. Both countries experienced strong labour market recoveries post financial crises, with unemployment rates falling below pre-recession levels by 2019. Furthermore, both countries' wage growth has been relatively weak over this period and both nations are considered to have relatively 'liberal' labour market policy regimes compared to other developed economies.

60. Conversely, there are relevant differences between the two countries, the UK has higher overall labour participation rates and higher trade union density, which have not been controlled for and likely affect wage growth.

61. Nevertheless, there are sufficient similarities between these two economies to support the basic finding that incomes among the bottom quartile of workers experience some wage growth in the absence of rising minimum wages, but less than would be expected if an ambitious minimum wage policy is in effect.

62. Multiple approaches have previously been considered to estimate the counterfactual – see Annex H for a list of previous work done on this subject. Due to its unobservable nature, none can be proven, i.e., we rely on making normative economic statements. Moreover, the actual cost to business/benefit to workers can vary between zero and infinity depending on the wage growth assumption. If the NMW/NLW grows at an equal rate to the size of the uprating this results in no cost, if workers affected experience zero wage growth forever then the cost would also be infinite.

63. As previously found by NIESR, it is not possible to prove or disprove the choice of counterfactual, as no new information could ever become available on the counterfactual, unless the Government were to not increase the minimum wage. For this reason, a judgement is required on what is the most suitable counterfactual based on the available evidence. Our choice of this varied in previous years and the RPC has often commented on the evidence to support our chosen method, although the most recent approach, as suggested by NIESR's research, has now received four 'green' fit-for-purpose ratings by the RPC and we continue to check its validity each year with leading labour market academics.

Counterfactual for this IA

64. We continue to use our core NIESR-suggested methodology[20], with changes in assumptions made in line with their recommendations. One aspect of this methodology is to use the latest ASHE wage distribution as the starting point for the counterfactual, as further validated by academics in our 2018 and 2021 questionnaires. As set out in the Data Quality section of this IA, ASHE 2021 posed challenges this year. Nevertheless, data collected by the ONS enables us to obtain a central estimate for the wage distribution, and we have undertaken subsequent sensitivity analysis to create a high and low 2021 wage distribution (please see the Data Quality section for further discussion on the 2021 ASHE dataset).

Table 3: Options for quarterly nominal wage growth assumptions

Period covered in Labour Force Survey (or OBR)	*Quarterly growth rate at the 25th percentile*	*Annualised growth rate at the 25th percentile*
2001-2019 (Long term average)	0.85%	3.44%
2016-2018 (Short-term average)	1.23%	5.01%
2008-2010 (Great Recession period)	0.48%	1.92%
2021-2024 (OBR Oct median forecast)	0.78%[21]	3.16%

[20] https://www.niesr.ac.uk/sites/default/files/publications/national-minimum-wage-counterfactual-research.pdf

[21] In our counterfactual, the growth rate varies over time in accordance with the OBR forecast. It is presented here as a quarterly average for ease of comparison.

65. The most suitable growth rate to use depends on how the economy is expected to perform over the appraisal period. The Government can use the OBR and other independent forecasts as a gauge for future years, albeit there are difficulties in practically predicting this. NIESR's 2017 report state that 'this choice will inevitably involve judgement on the current state of the business cycle, informed by independent forecasts of key institutions'[22].

66. Last year's IA used a comparatively low counterfactual growth rate of 0.48%, this was the historic short term (2008-2010) growth rate at the 25th percentile, following the financial crisis. This reflected the economic conditions and forecasts of the time where economy growth was highly conditional on the development of the coronavirus pandemic. They also provided sensitivities looking at the long-term average growth rate 0.78% (2001-2018) and a higher sensitivity of 1.09% which was a short-term average (2016-2018), all at the 25th percentile.

67. In practice wage growth has been substantially higher than the 2008-2010 average used in last year's IA. The COVID-19 pandemic and the measures put in place to protect jobs have had a substantial impact on wage growth. As discussed in paragraph 37, base and composition effects have meant that earnings growth has been inflated. Nevertheless, as these effects have faded, wage growth has fallen but remained relatively strong, reaching 4.2% in November[23] - substantially higher than the wage growth assumption from last year's IA.

68. The current economic circumstances mean that we believe that the growth forecast that best replicates the business cycle of the UK is the median forecast provided by the OBR at the October 2021 budget. The unique situation that the UK finds itself in is not well represented by using an average of a period of wage growth throughout the last 20 years. The OBR estimate that supply bottlenecks are likely to lead to upward pressure on wages in the short term but also higher inflation. In the OBR forecast the combined effect of these and other forces then leads to more subdued wage growth over 2022-2024 with an average of 0.78%. It is important to note that we apply the profile of the forecast rather than an average; the uneven nature of this forecast has implications for our model as it means costs are weighted towards the earlier years.

69. In the past we have used historical growth rates at the 25th percentile to estimate the wage growth of the lowest paid workers and this is the approach recommended by NIESR. We recognise that using the median OBR forecast is likely to be a conservative estimate as growth for lower paid workers has outpaced that of the median in recent years (see Figure 1). On evaluation, we do not think that any period of the last twenty years would be a better estimation of wage growth, especially given the current unprecedented situation. We tested this assumption with leading academics and labour market experts who agreed with our approach.

70. While we judge that the OBR forecast provides the best available forecast, we do undertake a sensitivity analysis using different historical growth rates at the 25th percentile to provide alternative costings. We use a low growth estimate of 0.48% (2008-2010) as a comparator to the wage growth seen in the period following the financial crisis; this was also the wage growth estimate used in the 2021 uplift IA. We use a long run average of 0.85% (2001-2019) which is similar to the OBR growth rate of 0.78%. Finally, we provide a high growth estimate of 1.23% (2016-2019), which is a short run pre-pandemic growth rate, and considers a situation

[22] https://www.niesr.ac.uk/publications/national-minimum-wage-and-national-living-wage-impact-assessment-counterfactual P74

[23] https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours

that the economy rebounds stronger than expected and/or inflation puts upward pressure on wages.

71. Using higher growth rates results in lower overall costs and using lower growth rates results in higher overall costs. This is because the higher the growth rate, the quicker counterfactual wage rates would match the increased NMW/NLW rates, and vice versa for slower growth rates. Once counterfactual wages catch up to the NMW/NLW rates there is no further additional cost to business.

72. Using the long run counterfactual wage growth of 0.85%, the total cost falls to £1,460m, while using the even higher pre-pandemic growth rate of 1.23% it falls to £860m. Assuming the low wage growth of 0.48% causes the cost to increase dramatically to £3,180m. As will be shown, these are compared to our central estimate, where we assume the OBR growth rate which averages 0.78% and results in costs of £1,590m.

73. Following extensive work done internally within BEIS and engagement with academics, we do not consider the scenario in which there is zero wage growth in 2022 for low-paid workers to be likely. Analysis of the wage growth forecasts mentioned above, in addition to increasing tightness in the labour market, suggests fairly robust wage growth throughout 2022.

74. There is mixed evidence on the relative ease for low-paid workers to switch between sectors, with some evidence suggesting it is easier to switch between roles in low-paid sectors. This means the differential in wages between low-paid sectors cannot be too high if firms wish to still attract workers.

75. The approach taken in this IA was agreed to be 'simple and transparent' by some respondents to our questionnaire in 2018. NIESR also specifically tested whether wages in low wage occupations which were affected by the NLW's introduction had been growing historically at a slower rate. If this were the case, then applying the average growth of the counterfactual for these groups would result in the counterfactual adjusting to minimum wage upratings too quickly potentially underestimating costs. Their modelling led them to conclude that using an average uniform growth rate is suitable because there was 'no significant evidence for differential growth in the data'[24] across occupations and time. Consequently, we have applied growth rates uniformly to all percentiles across the wage distribution, and these growth rates are shown in Table 3.

76. Furthermore, NIESR argue that because of forecasting inaccuracies and bias due to asymmetries arising from forecast errors, they recommend we continue to apply the counterfactual growth rate to the current wage distribution (i.e., the existing minimum wage analogous to what has been done in previous IAs), and that this will result in an unbiased estimator of the cost to business/benefit to workers. This method has since been further validated during our academic engagement.

77. Finally, NIESR recommended that BEIS continue to use its current method of re-setting the counterfactual, so as to take the current level of the minimum wage as the starting point for the counterfactual analysis[25]. We therefore maintain this method, applying the counterfactual growth rate uniformly to the existing wage distribution. Using past counterfactuals and old data/forecasts will result in forecast accuracy issues (as associated with longer-term forecasts) and potential bias due to asymmetries arising from forecast errors. Pages 50-54 of the NIESR report explains these issues in further detail.

[24] https://www.niesr.ac.uk/publications/national-minimum-wage-and-national-living-wage-impact-assessment-counterfactual p. 79

[25] Ibid. p. 55

78. To implement NIESR's recommendation we estimate the cost to business/benefit to worker by calculating how long it takes for the counterfactual growth trajectory to 'catch up' with the proposed NMW and NLW rates. Further detail of the arithmetic calculations on how the 'catch up' is estimated can be found in 2017's IA.

79. In Annex D, we also consider a sensitivity where we explore what would have happened in the absence of minimum wage policy by applying an average annual growth rate to the 1999 wage distribution to create a shadow wage curve for 2021. We then evaluate the cost to business that would accrue for this shadow wage curve to 'catch up' with the NLW rate. Due to the accuracy issues associated with using 1999 data for 2022 impacts we do not consider this a robust counterfactual – a view confirmed by NIESR in their report on the counterfactual. Nevertheless, these estimates are provided as a sensitivity.

Non-wage labour costs

80. The second source of direct cost associated with the NMW/NLW upratings is associated with non-wage labour costs, such as pensions and employer National Insurance contributions. Therefore, we have uprated the employer wage bill impacts by 17.9.% to account for these additional costs. This figure comes from ONS analysis for 2019-2020[26]. This is different than previous IAs where a Eurostat figure of 21.8% was used. The ONS figure is used as, since exiting the European Union, Eurostat no longer publish this value for the UK. As the ONS figure is lower than Eurostat figure, costs will therefore also be lower; we nevertheless include the Eurostat figure as a sensitivity. Using the Eurostat figure, costs increase to £1640m.

81. In line with lowering the non-wage cost assumption, NIESR have previously voiced concerns that the Eurostat (and therefore the ONS) figure 'is likely to be an overestimate because it does not account for the fact that some workers do not meet the National Insurance contribution (NIC) threshold'[27]. Moreover, recent evidence from the LPC suggests that nearly a third of minimum wage workers do not meet the NI or income tax threshold[28]. Conversely, they do note that future auto-enrolment of pensions won't be included in this uplift. We continue to use the full 17.9% uplift here, as we conservatively assume that any overestimates are likely to be balanced against potential underestimates.

82. One factor that may have an impact on this assumption is the recently announced increase in new Health and Social Care levy. This will increase the amount of National Insurance contributions paid by workers and employers by 1.25% each. This will cost businesses an estimated £16.5bn in 2022-23[29]. We are not including this extra increase in the uprating for non-wage costs. This is because our estimate is already likely to be a significant overestimate and it is not proportionate to establish by how much the NICs increase would increase non-wage costs. In future IAs, the ONS published non-wage costs will incorporate this increase.

Summary

83. The counterfactual is, by its very nature, unobservable. Previous findings from NIESR, where they have deployed advanced econometric techniques to attempt to estimate the counterfactual growth rate, found these models to have low predictive power. Since we are in a world of normative economics rather than positive economics, NIESR made a judgement of

[26] https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/bulletins/indexoflabourcostsperhourilch/julytoseptember2020

[27] https://www.niesr.ac.uk/publications/national-minimum-wage-and-national-living-wage-impact-assessment-counterfactual p. 50

[28] LPC Report 2021. This figure is for the £8.91 NLW so may decrease once the NLW increases to £9.50. Conversely, the ASHE data for 2021 is distorted so proportions may change in 2022 due to furlough effects, this bias is likely to be in the opposite direction.

[29] Paragraph A.13, OBR Fiscal Outlook October 2021

what the available evidence dictates is the most suitable counterfactual, and it is one that we have continued to follow here.

84. Of the growth rates presented in Table 3, we have used the median OBR forecast growth rate as our best-case estimate as this best represented a non-uniform rate of growth that we expect to see in a turbulent economic setting. We nevertheless provide sensitivities to evaluate the impact of alternative counterfactual growth rates.

85. Based on the available evidence, NIESR believe this approach of utilising a uniform growth rate is unbiased and representative of the typical minimum wage worker. There is no positive evidence that the counterfactual wage level is different to the existing minimum wage, nor is it falsifiable. Similarly, evidence does not necessarily support a shadow wage curve argument that previous increases in the minimum wage will have had a base-raising effect on the wage distribution (see Annex D for a fuller description), although as above this cannot be proven or rejected.

86. Annex H lists all the previous work we have done on the counterfactual and as was done last year, we have implemented the recommendations of independent experts, due to the possible contentious nature of this counterfactual. We acknowledge that alternative approaches may exist (for example, the LPC use median earnings for their counterfactual when estimating future coverage, and RPC's proposed shadow wage curve). Indeed, previous NMW IAs have used slight variations in the counterfactual, but all of these will be beset with similar issues previously outlined; and none have been shown to be more appropriate than the approach used in this impact assessment.

Appraisal period

87. The length of our appraisal period is how long it takes the counterfactual, on average, to catch up with the LPC rate recommendations. As we have a uniform counterfactual growth rate for all rates, which is what NIESR recommend in their report, and the percentage increase in the rates varies across the age bands, the appraisal period differs for each of the NLW and NMW rates.

88. We estimate that it will take the NLW rate 10 quarters for our counterfactual to 'catch up' with the NLW increase. Given the larger increases in the 21-22-year-old and Apprentice rates, it will take them 14 and 16 quarters respectively to catch up to the corresponding minimum wage rates. The relatively smaller increases in the 16-17 and 18-20 rates mean that it will take 7 quarters for wage growth to catch up to both rates.

Spillovers

89. As conjectured in previous IAs, we make an assumption that the increase in the minimum wage has an impact on other parts of the wage distribution, not directly impacted by the increase in the NLW and NMW. The rationale for this is that, as a higher wage floor is implemented, some employers will choose to either i) give pay rises to those paid above but near the new minimum wage; and/or ii) increase the pay of some workers previously paid below the new minimum to a greater level than just bringing pay into line with the new statutory minimum. Employers do this out of a desire to maintain wage differentials between their employees to recognise different roles and responsibilities, maintaining a high employee morale.

90. In the past we have used evidence from NIESR and LPC to assume that spillovers last between the 20th and the 30th percentile of the earnings distribution, with the effect dissipating towards the upper end of that range.

91. There has been considerable research in this area, including Avram and Harkness (2019) and Georgiadis & Manning (2020), examining the effects of previous NLW increases on wage spillovers. The authors find significant spillovers up to the 30th percentile and 25th percentile respectively. Overall, these findings are encouraging as they are consistent with the assumptions made in our previous IAs.

92. However, theoretically, we would expect discretionary pay increases to be lower during periods of economic difficulty, as businesses are more constrained in their ability to increase pay. Current high levels of business debt could further constrain business ability to maintain pay differentials. This aligns with the theoretical underpinning used in deciding our counterfactual growth rate. Feedback received during our consultation was that spillovers continued to persist beyond the NMW rate. Using job ad data, Papps and Delaney (2021) find significant spillovers at £10.50 and £11 due to the number of employers paying at exactly these numbers; these correlate to around the 25th percentile of the wage distribution.

93. Additionally, LPC stakeholder engagement confirmed that some employers were reducing pay differentials as a result of the minimum wage. Some companies were changing pay structures or removing some differentials/roles. The combination of NMW/NLW pressures and challenging economic circumstances mean that it can be expected that differentials will continue to be squeezed this year.

94. Due to the uncertainty in finding the point in the wage distribution where spillovers end, we have decided to use a mixture of theoretical understanding, quantitative data and academic engagement to estimate that the spillovers from the 2022 NMW/NLW increases will extend to the 25th percentile, but no further. This is in keeping with the approach that was agreed by the RPC last year. As a sensitivity, we examine the effects to the total cost figure by amending this spillover assumption. In the event that spillovers only reach the 20th percentile, we find that the total cost would decrease to £1,330 million. Conversely, if spillovers were assumed to reach the 30th percentile, the total cost would increase to £1,850 million.

Direct and indirect effects

95. We appraise the direct impact of the NMW/NLW rates as the cost of increasing wages to the new statutory minimum (with the associated non-wage labour costs). We have classified the increase in labour costs caused by the spillover effect up the earnings distribution as an indirect impact. This distinction is appropriate because the only regulatory requirement on employers is to meet the new pay floor. The decision to raise wages of those earning above the new rates in order to maintain pay differentials is at the discretion of employers and not required by the regulation – in fact, some employers may choose to use the squeeze in wage differentials as a way of mitigating the overall labour cost impact of an increase in the NMW/NLW.

96. The RPC have commented in the past that our classification did not capture the possibility that some of the ripple effect may be non-discretionary because pay differentials are written into contracts. As argued in previous IAs, evidence from XpertHR and the LPC found that while the minimum wage has an impact on wider wage-setting behaviour, employers tend not to set wages at *X*% above the rates, indicating that increases in pay differentials between employees is an indirect business response to the change in legislation. This is supported by

qualitative evidence gathered by NIESR in 2017 which found that the overall wage budget in large firms is often set at senior/board level, which includes considerations about percentage increases in the NMW/NLW. Decisions about allocation to groups of employees and individuals are then made after this. This was further corroborated in conversations with payroll experts this year.

Data Quality

The dataset

97. Our estimates of the impact of rate increases are always based on the Annual Survey of Hours and Earnings (ASHE). ASHE is the official source of low pay data and, as an employer-based survey, produces our most robust earnings data. The survey covers data for April of each year.

98. As with last year's survey, this year the furlough scheme has distorted ASHE data. In April 2021, there were around 4 million people furloughed, predominantly in low-paying sectors. Therefore, many people who were furloughed and receiving e.g., 80% of their normal pay (for hours not worked) may be classified as earning below the NMW/NLW, when in fact their normal pay (i.e. 100% of their wage) is above the NLW. This year pay data was further complicated by the introduction of flexi-furlough, whereby workers could work some of their hours being paid normally by their employer and then receive furlough pay for their remaining unworked hours. Therefore, applying different survey weights and adjustments to the data reflecting different assumptions about furloughed workers and their pay, yields different wage distributions.

99. In last year's IA, we weighted pay data in two different ways: either including or removing furloughed workers with loss of pay from the distribution. The weighting on the survey was such that the sample equalled roughly the same population under either configuration of weights. In practice, this meant that one weight produced a wage distribution with a disproportionate number of higher-paid jobs (as workers who have lost pay due to furlough are excluded from the sample), while the other produces a wage distribution with a disproportionate number of lower-paid jobs (as workers at e.g. 80% of their normal pay are included in the sample). This led to a large range between our high and low estimates, from which we took the midpoint to be our central estimate. Further discussion of this approach and its limitations can be found in the 2021 IA.

100. This year the ONS provided us with additional variables in the ASHE 2021 dataset that enable us to better identify whether furloughed workers' pay was 'topped up' (i.e. to above 80%) by their employer. This helps us better evaluate the underlying wage distribution for low paid workers. That said, this data was not provided by every furloughed worker, and therefore we take more than one approach to adjusting the data to reflect the uncertainty that remains in the data. Namely, we produce three wage distributions which in turn represent our central, low and high impact estimates. They are:

    a. **Central** – We include all furloughed workers in the pay distribution and uplift the pay of furloughed workers who had seen their pay reduced under the scheme. This relies on data on the percentage of normal pay furloughed workers were actually receiving and the

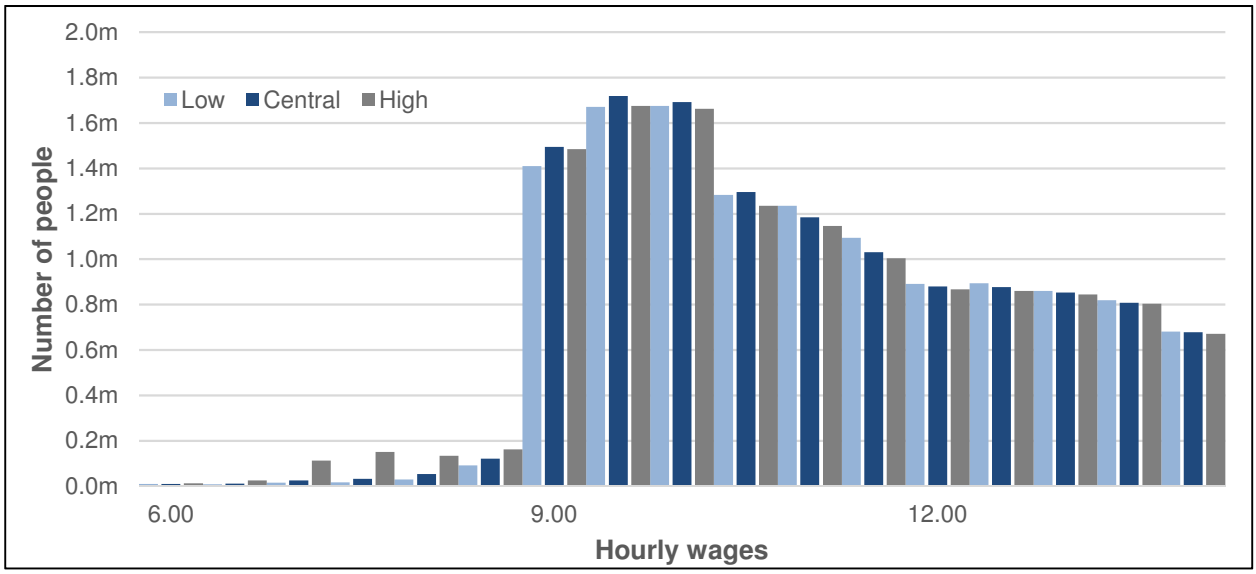
numbers of hours they worked under flexi-furlough[30]. In theory, this should produce an accurate wage distribution and therefore is used in our best estimate of the impact of the increase in NMW/NLW. However, as noted above, this data was not provided by every worker so must be extrapolated across missing values. Given these data quality issues[31], we also use two alternative wage distributions which give high and low cost estimates.

b. **High** – We include furloughed workers with loss of pay in the pay distribution but do not adjust their wages upwards. As furloughed workers were more likely to be low paid, this creates a wage distribution with a disproportionate number of low-paid jobs, meaning that an increase in the NMW/NLW has a greater cost to business than (a). This is analogous to the approach used in the high costs estimate in the 2021 IA.

c. **Low** – We include all furloughed workers in the pay distribution and adjust the pay of furloughed workers with reduced pay by 25% (i.e. up from 80% of normal pay back to 100%). This creates a top-end estimate of the underlying wage distribution as we know that furloughed workers could not be paid less than 80% of normal pay. In reality, many of these workers would have had their pay topped up to above 80% and therefore is likely to overestimate wages for some low-paid workers. This means that our impact estimates for the increase in the NMW/NLW will have lower costs to business than either approach (a) or (b).

101. Figure 3 shows each of these wage distributions side-by-side. As would be expected, the low and high distributions are skewed to either side of our central estimate, which is especially clear at the lower part of the wage distribution where furloughed workers are concentrated. Note also that we do not produce a wage distribution equivalent to the low impact estimates from the 2021 IA (i.e. where furloughed workers with loss of pay are removed completely). We have explored this approach, but it produced a wage distribution significantly higher than our option (c), which we know by definition to be a top-end estimate, and therefore we discarded this as a credible estimate for this IA.

Figure 3: ASHE 2021 NLW Wage Distributions



[30] The two variables used were 'payperc', which provided the amount of pay furloughed workers were receiving, and 'acthours', which provided hours actually worked if less than normal basic contracted hours. Where this data was available for a given furloughed worker with loss of pay, we adjust pay directly back to 100% of their normal pay. For missing data, we apply the average uplift for the relevant NMW/NLW band.

[31] As well as missing values, the ONS advised that some responses to 'payperc' and 'acthours' were inconsistent with other variables (e.g. acthours > than basic usual hours or payperc> 100%). Where possible, BEIS analysis has tried to clean these variables to remove inconsistencies.

102. We explored the potential of using ASHE 2019 data as our starting point i.e., the latest data unaffected by the pandemic and furlough; and uprating it to produce a "2022" dataset. However, as we noted in last year's IA that uprating the 2019 data to 2021 created an overestimate of costs due to uncertainty in wage growth; therefore, projecting this data forward yet another year only exacerbates the issue and the results we obtained using this approach were not credible.

103. Using the three wage distributions explained in paragraph 100 to create a central estimate and a range of uncertainty around that is consistent with the approach taken by the LPC in their own low-pay analysis for the 2022 rate recommendations. We believe that there is still higher uncertainty in our estimates than prior to the pandemic due to the issues with ASHE, but that this year's approach is nevertheless more robust than the approach used last year and is sensible for the purpose of this IA.

Factoring in potential unemployment

104. Theoretically, the employment rate has an impact on the costs of the NMW/NLW uplift. If the unemployment rate is lower, then there are more workers who benefit from uplift and the cost of the policy is higher. Conversely, if the unemployment rate is higher there are less workers and therefore lower costs.

105. In previous years we have utilised the OBR's Economic and Fiscal Outlook (EFO) data for employment forecasts as part of our modelling. In this IA we continue to use that approach. We use the unemployment rate from the OBR October 2021 Forecast which sees unemployment peak at 5.2% in the fourth quarter of 2021 before falling to 4.8% in Q2 2022 and 4.2% in Q3 2023.

106. The unemployment rate in 2021 has been far lower than forecast in 2020 when unemployment was predicted to rise to as high as 7.75%[32]. This is indicative of the uncertainty inherent in employment forecasts at this time and in response to this we use a range of sensitivities to assess the impact of the uprating.

107. The first scenario is using the unemployment forecast in the OBR's March Fiscal Outlook. This forecast sees unemployment peak at 6.5% in Q4 2021 before falling to 6.0% in Q2 2021 and 5.0% in Q3 2023. The higher unemployment forecast marginally decreases the cost of the policy by £14m. The second scenario is assuming unemployment does not change from Q2 2022 and remains at 4.8% (consistent with the OBR October forecast for Q2 2022). This results in another marginal decrease of the cost policy by £4m. These small changes in total cost reflect the relatively minor impact that changing the employment forecast has on our monetised costs.[33]

108. This adjustment may be considered crude, as the employment rate forecast is economy-wide and not specific to low-paid sectors. In absence of detailed employment forecasts by low-paying sectors, in addition to the uncertainty about the nature of the economic recovery (including the level of the peak unemployment rate, and indeed when that materialises), we believe that our simplifying assumption is suitable for this analysis, with any further adjustments likely to lead to spurious accuracy. In the instance that job losses are concentrated in low-paid sectors, our cost figures will likely be over-estimates.

[32] https://www.bankofengland.co.uk/monetary-policy-report/2020/november-2020

[33] We have considered using employment numbers from 2019 as a pre-crisis sensitivity. However lower unemployment in 2019 is in part due to a higher participation rate rather than more people in employment so the effect is very small.

Apprentices

109. With regards to appraising the Apprentice NMW, ASHE data includes information on apprentices specifically (around 2,000 apprentices surveyed per year). Previously we have also used an alternative data source, the Apprentice Pay Survey (APS), which has a larger sample of 10,000 apprentices and has more detailed pay information. This pay information is broken down by bonuses, accommodation offset etc. However, the last version of the APS was published in 2018 so is not suitable for use appraising the 2022 rates. In 2021, the Department for Education also commissioned the Apprentice Evaluation Survey (AEvS), which included questions on apprentice pay. Whilst we have used the AEvS to sense check results from ASHE and have used the APS previously, the information from AEvS is (a) reported by apprentices themselves, and (b) not directly comparable with ASHE findings used for other employee job groups. Therefore, consistent with previous years, we use ASHE for our cost estimates for the apprentice rate. This is also in line with the LPC's approach to estimating coverage and bite of the NMW/NLW rates.

Use of the Labour Force Survey

110. To calculate the quarterly counterfactual growth rate at the 20th percentile, NIESR used the LFS which is a quarterly household survey. ASHE provides superior earnings data as it is employer reported rather than household. However, NIESR's preference was LFS as it provides more observations to calculate the mean growth rate. We continue to use the LFS for the specific analysis on the counterfactual growth rate, with some mitigation of this risk provided by using the 'hrrate' variable rather than 'hourpay'[34] - the latter is a derived variable and is considered less reliable. We believe that any error associated with using the LFS is likely to be minimal, especially when noting the close corroboration in our proposed counterfactual rate and the projections for future wage growth from the OBR.

[34] 'Hourpay' is derived from the individual's reported weekly/monthly hours and earnings for all employees, whereas hrrate is a stated pay variable (i.e. a direct response from workers on their hourly wage). 'Hourpay' is considered to be less reliable than 'hrrate', due to greater measurement error in the derived variable. For more discussion, see *Skinner et. al, (2002),"The Measurement of Low Pay in the UK Labour Force Survey", Oxford Bulletin of Economics and Statistics.*

Transition costs

111. The concept of annual minimum wage increases is fully embedded in the UK labour market; they have occurred regularly for the last 20 years. Employers, especially those in low paid sectors, will generally expect the minimum wage to increase[35]. This awareness is, in part, thanks to extensive information on the Gov.uk webpages, targeted HMRC 'Promote' awareness-raising activity, and a communications campaign in the lead up to past NMW/NLW upratings, which will run again for the April 2022's rates.

112. Businesses may need to take some time to familiarise themselves with the new rates to ensure they are compliant with this incoming legislation. Therefore, we estimate the opportunity cost of businesses familiarising themselves with the legislation in paragraphs 136-141.

Non-compliance

113. In line with previous Better Regulation guidance[36], 100% compliance with the policy is assumed unless there is evidence to the contrary. Consequently, we assume full compliance of the NLW and NMW because we do not have a reliable basis on which to make a robust estimate of the true level of non-compliance for future upratings.

114. ASHE data is able to estimate the number of jobs paid on hourly pay rates below the age applicable NMW and NLW. However, both the ONS and BEIS make clear that this should not be considered as a direct measure of NMW/NLW non-compliance as there are legitimate reasons for a job to be paid below the NMW (e.g., a deduction can be made for accommodation).

115. As part of the publication of ASHE 2021, the ONS provided analysis on non-compliance. In this commentary, they noted that 1,084,000 (3.8%) jobs were paid below the level of the NMW/NLW, compared to 2,043,000 (7.4%) in 2020. However, these figures include all furloughed workers, even those that had their pay reduced under the scheme (e.g. to 80% of normal pay). The ONS acknowledged conclusions should be made with caution as both the 2020 and 2021 2020 figures are naturally higher due to the volume of furloughed employees.

116. Given most furloughed workers were not working under CJRS and therefore not legally entitled to the minimum wage, BEIS' own analysis of underpayment in ASHE 2021 instead excludes all furloughed workers. This gives an estimate of around 230,000 workers being underpaid in April 2021. We acknowledge this method is not perfect (e.g. it would exclude workers who were underpaid whilst flexi-furloughed), but it is more representative than alternative approaches of (1) the state of the economy in April 2021 when many low-paid jobs were still furloughed and (2) of the interaction between CJRS and non-compliance with minimum wage regulations. Further information on this approach and underpayment will be published in our upcoming NMW 20/21 Enforcement and Compliance report.

117. Irrespective of the presence of furloughed workers in our pay data, the pre-existing issues in measuring non-compliance via underpayment data lead to considerable uncertainty. We subsequently assume full compliance with the NMW and NLW. This is a conservative

[35] https://www.gov.uk/government/publications/low-pay-commission-2020-summary-of-findings

[36] https://www.gov.uk/government/publications/better-regulation-framework

approach, because including cases of potential non-compliance in our cost estimate will increase the total estimated direct cost to business as we assume non-compliant employers will increase wages in line with the new rates to comply with the law.

Appraisal of Impacts: Monetised Impacts

Coverage

118. Coverage of the incoming rates is sensitive to when in the year it is measured and to the forecasted counterfactual. We have ASHE earnings data from April 2021, and we apply our counterfactual growth rate to forecast coverage in April 2022 when the rates will be introduced. The nature of our appraisal methodology means that coverage of the rates falls over the course of the appraisal period. This year, as discussed above, we have a central estimate for the coverage of NMW/NLW rates. We will continue to provide a range of estimates to reflect the uncertainty around the underlying ASHE distribution.

119. We estimate that 2.3-2.9 million workers will be covered by the incoming NMW/NLW rates. This includes private and voluntary sector workers and public sector workers. Table 4 contains our estimates of coverage for estimates that either include or exclude workers who have experienced a loss of pay because of furlough.

120. The wide range between our estimates emphasises the uncertainty associated with projecting coverage of the minimum wage, particularly this year, and therefore these figures are only indicative of what true coverage will be.

Table 4: Breakdown of coverage[37] across different NMW/NLW rates, April 2022

	Proposed rate	***Low estimate projected coverage (% of labour force)***	***High estimate projected coverage (% of labour force)***	***Central estimate projected coverage (% of labour force)***
NLW (23+)	£9.50	1,960,000	2,470,000	2,140,000
		(7.4%)	(9.4%)	(8.1%)
21-22 NMW	£9.18	130,000	180,000	150,000
		(15.7%)	(21.8%)	(17.9%)
18-20 NMW	£6.83	110,000	160,000	120,000
		(12.9%)	(19.1%)	(14.3%)
16-17 NMW	£4.81	20,000	40,000	30,000
		(12.1%)	(17.8%)	(13.7%)
Apprentice NMW		30,000	30,000	30,000
	£4.81	(20.1%)	(23.0%)	(21.5%)
Total		2,258,000	2,886,000	2,470,000
		(7.9%)	(10.2%)	(8.7%)

[37] Estimates the number of people who are directly likely to benefit.

Central estimate: labour costs

121. As discussed previously, the challenges with the data quality make assessing an appropriate counterfactual challenging. This year we have adjusted the ASHE wage distribution using new information from the ONS to produce a central estimate. This estimate adjusts the wages of furloughed workers to reflect what they would have earned had they not been furloughed. As discussed in the counterfactual section above, this scenario assumes that the employment growth experienced by workers is the median OBR quarterly growth rate forecast which averages 0.78%.

122. Our central cost estimate of total labour costs is **£1,590 million** (undiscounted). This is split into wage bill impacts of £1,350 million and non-wage impacts of £240 million (numbers may not sum due to rounding). Tables 5, 6 and 7 provide a further breakdown, in constant prices.

123. The economic crisis has had a more severe effect on certain sectors, like hospitality and retail, than others. Covid measures have left these sectors the most exposed to adverse business impacts leading to greater losses of employment and hours worked. Our modelling is undertaken uniformly across all sectors to calculate costs which would not consider the likely distributional effects that may occur. Workers in retail and hospitality account for some of the highest levels of coverage of the NLW at 17% and 16% respectively (see Annex F for a detailed breakdown). These sectors are potentially the most exposed to the risks associated with the NLW and hence, we will continue to closely monitor these particular sectors next year to evaluate the impacts.

Table 5: Total labour costs in the central-cost estimate: £1590m

	Year 1			Year 2			Year 3		
	Wage and Non-wage Impacts (£m)			Wage and Non-wage Impacts (£m)			Wage and Non-wage Impacts (£m)		
	Wage Costs	Non-wage Labour Costs	Total	Wage Costs	Non-wage Labour Costs	Total	Wage Costs	Non-wage Labour Costs	Total
NLW (23+)	£765	£137	£902	£346	£62	£407	£65	£12	£76
Main (21 - 22)	£75	£13	£89	£39	£7	£46	£21	£4	£24
Development (18 - 20)	£9	£2	£11	£1	£0	£1	-	-	-
Youth (16 - 17)	£1	£0	£1	£0	£0	£0	-	-	-
Apprentice	£13	£2	£15	£8	£1	£9	£5	£1	£5
Total	£863	£154	£1,017	£394	£70	£464	£90	£16	£106

Table 6: Direct labour costs in the central-cost estimate: £690m

	Year 1			Year 2			Year 3		
	Wage and Non-wage Impacts (£m)			Wage and Non-wage Impacts (£m)			Wage and Non-wage Impacts (£m)		
	Wage Costs	Non-wage Labour Costs	Total	Wage Costs	Non-wage Labour Costs	Total	Wage Costs	Non-wage Labour Costs	Total
NLW (23+)	£467	£84	£550	£120	£21	£142	£20	£4	£24
Main (21 - 22)	£74	£13	£87	£36	£7	£43	£16	£3	£18
Development (18 - 20)	£6	£1	£7	£1	£0	£1	-	-	-
Youth (16 - 17)	£0	£0	£0	£0	£0	£0	-	-	-
Apprentice	£12	£2	£15	£7	£1	£8	£3	£1	£4
Total	£559	£100	£659	£164	£29	£194	£39	£7	£46

Table 7: Indirect labour costs in the central-cost estimate: £900m

	Year 1			Year 2			Year 3		
	Wage and Non-wage Impacts (£m)			Wage and Non-wage Impacts (£m)			Wage and Non-wage Impacts (£m)		
	Wage Costs	Non-wage Labour Costs	Total	Wage Costs	Non-wage Labour Costs	Total	Wage Costs	Non-wage Labour Costs	Total
NLW (23+)	£298	£53	£352	£225	£40	£266	£45	£8	£53
Main (21 - 22)	£2	£0	£2	£3	£0	£3	£5	£1	£6
Development (18 - 20)	£3	£1	£4	£1	£0	£1	-	-	-
Youth (16 - 17)	£0	£0	£0	£0	£0	£0	-	-	-
Apprentice	£0	£0	£1	£1	£0	£1	£1	£0	£1
Total	£304	£54	£358	£229	£41	£271	£51	£9	£60

Low estimate: labour costs

124. As discussed previously, our low-cost estimate is based on a quarterly counterfactual growth rate of 0.78% and uses a version of the ASHE 2021 that includes workers that have lost their pay due to being furloughed but increases their pay by 25% to represent the 20% they lost due to furlough – as mentioned previously, this effectively predicts a labour market with fewer low-paid jobs and more high-paid jobs.

125. In this scenario the total cost to employers from implementing the LPC rate recommendations, and thus complying with the incoming legislation, is **£1,440 million**. It is made up of **£1,220 million** in increased wages and **£220 million** in additional employer non-wage costs. Tables 8,9 and 10 provide a further breakdown, in constant prices.

Table 8: Total labour costs in the low-cost estimate: £1,440m

	Year 1			Year 2			Year 3		
	Wage and Non-wage Impacts (£m)			Wage and Non-wage Impacts (£m)			Wage and Non-wage Impacts (£m)		
	Wage Costs	Non-wage Labour Costs	Total	Wage Costs	Non-wage Labour Costs	Total	Wage Costs	Non-wage Labour Costs	Total
NLW (23+)	£705	£126	£832	£321	£57	£378	£60	£11	£71
Main (21 - 22)	£61	£11	£72	£30	£5	£35	£14	£3	£17
Development (18 - 20)	£8	£1	£9	£1	£0	£1	-	-	-
Youth (16 - 17)	£1	£0	£1	£0	£0	£0	-	-	-
Apprentice	£12	£2	£14	£7	£1	£9	£4	£1	£5
Total	£787	£141	£928	£359	£64	£423	£79	£14	£93

Table 9: Direct labour costs in the low-cost estimate: £720m

	Year 1			Year 2			Year 3		
	Wage and Non-wage Impacts (£m)			Wage and Non-wage Impacts (£m)			Wage and Non-wage Impacts (£m)		
	Wage Costs	Non-wage Labour Costs	Total	Wage Costs	Non-wage Labour Costs	Total	Wage Costs	Non-wage Labour Costs	Total
NLW (23+)	£387	£69	£456	£87	£16	£102	£15	£3	£17
Main (21 - 22)	£59	£11	£69	£27	£5	£31	£10	£2	£12
Development (18 - 20)	£5	£1	£6	£1	£0	£1	-	-	-
Youth (16 - 17)	£0	£0	£0	£0	£0	£0	-	-	-
Apprentice	£12	£2	£14	£7	£1	£8	£3	£1	£4
Total	£462	£83	£545	£121	£22	£142	£28	£5	£32

Table 10: Indirect labour costs in the low-cost estimate: £720m

	Year 1			Year 2			Year 3		
	Wage and Non-wage Impacts (£m)			Wage and Non-wage Impacts (£m)			Wage and Non-wage Impacts (£m)		
	Wage Costs	Non-wage Labour Costs	Total	Wage Costs	Non-wage Labour Costs	Total	Wage Costs	Non-wage Labour Costs	Total
NLW (23+)	£319	£57	£376	£234	£42	£276	£46	£8	£54
Main (21 - 22)	£2	£0	£3	£3	£1	£4	£5	£1	£5
Development (18 - 20)	£3	£1	£4	£1	£0	£1	-	-	-
Youth (16 - 17)	£0	£0	£0	£0	£0	£0	-	-	-
Apprentice	£0	£0	£1	£1	£0	£1	£1	£0	£1
Total	£325	£58	£383	£238	£43	£281	£52	£9	£61

High estimate: Labour costs

126. We reproduce the analysis using the same counterfactual growth rate for our high-cost scenario (see data quality section). In this scenario we use a version of ASHE 2021 that includes workers that have lost their pay due to being furloughed, resulting in more workers being "covered" by the NMW/NLW, as currently their pay has been reduced due to the CJRS. The cost to business and benefit to workers is inevitably higher than our low estimate above.

127. Overall, our high-cost estimate of the total labour costs is **£2,080 million**. This is split into wage bill impacts of **£1,770 million** and non-wage impacts of **£320 million** (numbers may not sum due to rounding). Tables 11,12 and 13 provide a further breakdown, in constant prices.

Table 11: Total labour costs in the high-cost estimate: £2,080m

	Year 1			Year 2			Year 3		
	Wage and Non-wage Impacts (£m)			Wage and Non-wage Impacts (£m)			Wage and Non-wage Impacts (£m)		
	Wage Costs	Non-wage Labour Costs	Total	Wage Costs	Non-wage Labour Costs	Total	Wage Costs	Non-wage Labour Costs	Total
NLW (23+)	£979	£175	£1,155	£454	£81	£535	£42	£7	£49
Main (21 - 22)	£106	£19	£125	£60	£11	£71	£4	£1	£5
Development (18 - 20)	£15	£3	£17	£2	£0	£2	-	-	-
Youth (16 - 17)	£1	£0	£1	£0	£0	£0	-	-	-
Apprentice	£15	£3	£17	£9	£2	£11	£1	£0	£1
Total	£1,116	£200	£1,316	£525	£94	£619	£47	£8	£55

Table 12: Direct labour costs in the high-cost estimate: £1,450m

	Year 1			Year 2			Year 3		
	Wage and Non-wage Impacts (£m)			Wage and Non-wage Impacts (£m)			Wage and Non-wage Impacts (£m)		
	Wage Costs	Non-wage Labour Costs	Total	Wage Costs	Non-wage Labour Costs	Total	Wage Costs	Non-wage Labour Costs	Total
NLW (23+)	£706	£126	£832	£243	£43	£286	£44	£8	£52
Main (21 - 22)	£106	£19	£125	£59	£11	£69	£31	£6	£37
Development (18 - 20)	£13	£2	£15	£2	£0	£2	-	-	-
Youth (16 - 17)	£1	£0	£1	£0	£0	£0	-	-	-
Apprentice	£15	£3	£17	£9	£2	£10	£5	£1	£6
Total	£840	£150	£990	£312	£56	£368	£80	£14	£94

Table 13: Indirect labour costs in the high-cost estimate: £630m

	Year 1			Year 2			Year 3		
	Wage and Non-wage Impacts (£m)			Wage and Non-wage Impacts (£m)			Wage and Non-wage Impacts (£m)		
	Wage Costs	Non-wage Labour Costs	Total	Wage Costs	Non-wage Labour Costs	Total	Wage Costs	Non-wage Labour Costs	Total
NLW (23+)	£273	£49	£322	£211	£38	£249	£42	£7	£49
Main (21 - 22)	£1	£0	£1	£2	£0	£2	£4	£1	£5
Development (18 - 20)	£2	£0	£2	£0	£0	£0	-	-	-
Youth (16 - 17)	£0	£0	£0	£0	£0	£0	-	-	-
Apprentice	£0	£0	£0	£0	£0	£0	£1	£0	£1
Total	£276	£49	£326	£213	£38	£251	£47	£8	£55

Difference in estimates compared to the 2021 Uprating

128. This year the central estimate of costs for the NMW/NLW (£1,590m) uplift is substantially higher than the costs of the last uplift (£420m). This substantial increase in costs is driven by two things.

I. The first is that last year's increase was relatively much smaller than previous years and, for the NLW rate, only represented an increase of 2.2%. This was due to the turbulent economic circumstances present because of the pandemic. Instead of continuing towards the 2/3 of median wage target, the LPC instead prioritised the protecting employment element of their remit and thus recommended a smaller increase. This is documented in the 2021 IA. As was the ambition, the smaller increase resulted in a far smaller cost to business and is the driving force behind the great difference between the two measures.

II. To a lesser extent, the employment forecast also meant that the cost to business was lower. The forecast last year was that unemployment would peak at 7.75%. Higher unemployment means fewer workers benefitting from the uplift and thus reduces the costs of the policy. Nevertheless, as explained in paragraph 107 changing employment has a relatively minor effect on costs

129. Counterbalancing this decrease in costs are two factors. The first is that the counterfactual wage growth rate was much lower last year at 0.48% relative to 0.79% this year. A slower growth rate means it takes longer for the counterfactual rate to catch up to the new NMW/NLW rate and thus increases the costs of the policy. Secondly, the non-wage cost factor has decreased this year. As discussed in paragraph 80, it has gone from 21.8% to 17.9% this will have the effect of decreasing the costs of the policy.

130. Nevertheless, despite these factors, the increase in the costs of the policy is substantial. This serves to illustrate how important the change in rate is for determining the costs of the policy.

Sensitivity analyses

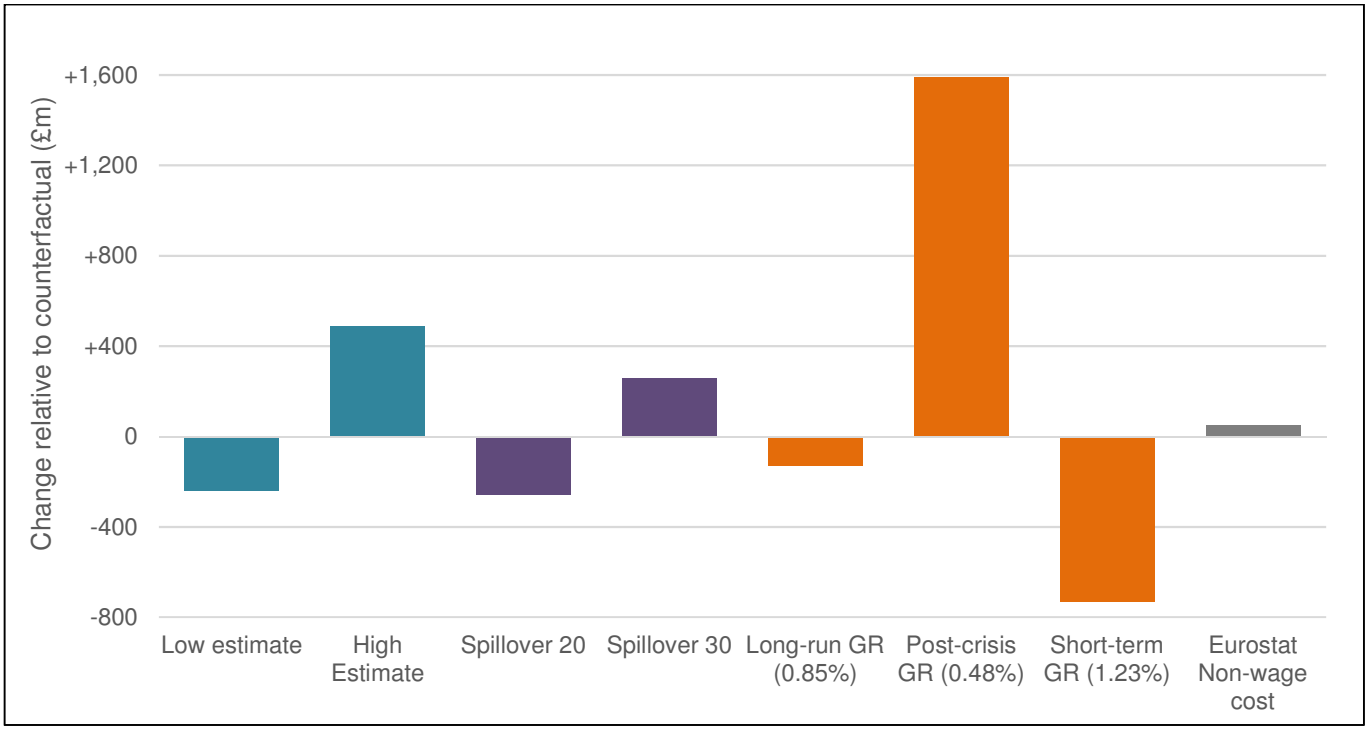
131. Due to uncertainty around a number of key variables involved in our analysis, we have performed extensive sensitivity analyses to try and isolate the impact of each assumption. These sensitivities are discussed at length in each relevant section but for ease of comparison, we have presented our full list of sensitivities and key results in Table 14 below.

132. The table below shows that both cost and coverage are most sensitive to the wage growth assumption. In particular, the low wage growth assumption of 0.48% shows costs increasing to £3,180m. Spillover threshold and furloughed workers adjustment also has a significant impact on the costs. Unemployment and the non-wage cost assumption used are shown to have relatively minimal impacts on cost and coverage impacts.

Table 14: Sensitivity analyses used within this IA

Cost/Wage Distribution Scenario	Spillover Percentile	Counterfactual Wage Growth	Unemp. Forecast	Non-wage cost	Total Cost (£millions)	Total Coverage (millions)
Central	25	0.78% (OBR 2021-2024)	OBR 2021 October	17.9% (ONS)	1,590	2.5
Low	25	0.78% (OBR 2021-2024)	OBR 2021 October	17.9% (ONS)	1,440	2.3
High	25	0.78% (OBR 2021-2024)	OBR 2021 October	17.9% (ONS)	2,080	2.9
Central	20	0.78% (OBR 2021-2024)	OBR 2021 October	17.9% (ONS)	1,330	2.5
Central	30	0.78% (OBR 2021-2024)	OBR 2021 October	17.9% (ONS)	1,850	2.5
Central	25	0.85% (2001-19)	OBR 2021 October	17.9% (ONS)	1,460	2.6
Central	25	0.48% (2008-10)	OBR 2021 October	17.9% (ONS)	3,180	3.3
Central	25	1.23% (2016-19)	OBR 2021 October	17.9% (ONS)	860	2.1
Central	25	0.78% (OBR 2021-2024)	OBR 2021 October – Flat from 2022 Q2	17.9% (ONS)	1,580	2.5
Central	25	0.78% (OBR 2021-2024)	OBR 2021 March	17.9% (ONS)	1,570	2.5
Central	25	0.78% (OBR 2021-2024)	OBR 2021 October	21.8% (Eurostat)	1,640	2.5

Figure 4: How costs change relative to the central scenario as assumptions change [38]



Transition costs

133. There are no official statistics that provide estimates of the number of businesses which are covered by the NMW and NLW increases examined in this IA. However, a number of surveys run by stakeholders provide some evidence. A CIPD survey of its members found that 53% are affected by the NMW/NLW. This is similar to that found by the Federation of Small Businesses, who found that half of micro businesses and all small and medium-sized businesses had been affected by what it classed as 'social policy-related costs', which include the NMW/NLW. Moreover, BEIS' Small Business Survey 2016[39] found that 54% of SME employers to be unaffected by the NLW, meaning 46% are affected (=100% minus 54%).

134. Naturally coverage will vary across sectors, and some representative organisations representing employers in specific low paid sectors found higher proportions. Other recent surveys are in line with estimates used in last year's IA (46% - 52%).

135. Consequently, in this IA we take a range between 46% and 53% of employers who are affected by the proposed increase in the NMW/NLW. Using the 2021 Business Population Estimates (BPE)[40], we estimate that between 1,120,000 and 1,315,000 employers will be affected by the changes to the minimum wage.

Familiarisation costs

136. As the IA is assessing only the marginal costs of implementing new NLW and NMW rates, it is relatively straightforward for an employer to familiarise themselves with this change. It will involve either checking Gov.uk or calling the Acas helpline – traffic through these routes tend

[38] Unemployment sensitivities not included due to low impact

[39] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/624580/small-business-survey-2016-sme-employers.pdf – p. 105

[40] https://www.gov.uk/government/statistics/business-population-estimates-2021

to increase around the implementation of new rates, as supported by evidence in the 2017 IA. Additionally, employers may also hear about the rates via official Government communications or through third party channels, such as the news. After the Government's communications campaign for the introduction of the NLW, 48% of those aware of the NLW reported that the source of their awareness was a TV programme or news, 22% cited TV advertising, 13% mentioned their accountant and 13% mentioned national newspaper advertisements.

137. We have previously assumed it will take employers 5 minutes to establish what the new rates are – which includes some time finding the right place to look for information. This assumption is based on the average duration of visits to the National Minimum Wage landing page on Gov.uk (~ 4 minutes) and the length of calls that Acas received regarding NMW/NLW issues (~ 5 minutes).

138. However, following engagement with the payroll industry it was highlighted that companies who already have employees on the NMW are more likely to respond to surveys on the matter. In this instance, the views of companies who may newly be affected by the NMW are not collated. It is possible that it would take these companies longer than 5 minutes to establish what the new rates are as they may previously be unfamiliar with the process.

139. The Government has responded to numerous correspondence cases on the matter and aimed to keep businesses sighted of developments as much as possible. Comprehensive guidance on the minimum wage is available to businesses on Gov.uk to help them check they are paying their workers correctly. The Government also recently undertook a comprehensive review of minimum wage guidance, drawing on the expertise of a readership panel comprising employer and worker representatives, as well as technical and legal experts. The guidance was published on 1 March 2021. This year we will further be undertaking an extensive communications campaign to ensure businesses are appropriately ready for the April 2022 upratings.

140. Despite this activity, we have taken a conservative approach and increased the familiarisation time in our best and high-cost estimates (doubling the time taken to 10 minutes). We continue to use 5 minutes in our low-cost estimate. This increase in the length of familiarisation time aims to capture instances where employers are affected by the changes in NMW/NLW for the first time and would spend more time establishing the appropriate rates consequently

141. To calculate the burden, we estimate the opportunity cost of a HR Manager/Director's[41] time by using the median hourly pay from ASHE 2021 of £24.33, uplifted for non-wage labour costs of 17.9%. Applying this to our estimate of businesses affected equates to a one-off familiarisation cost of between £1.6m and £3.7m. The former is our low-cost estimate, whilst the latter is our conservative best estimate. This estimate has not been adjusted to take into account the familiarisation cost to the public sector, which would be negligible considering that there are only 12,365 enterprises in this sector in the UK (according to the latest update of the BPE), and it constitutes a small proportion of total costs incurred by businesses.

Implementation costs

142. The NMW and NLW continue to follow the same cycle as last year. Using qualitative evidence from NIESR's 2017 report, we found that 'adjustments to comply with these rates had minimal implications for administrative resources because pay was adjusted annually in

[41] https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/datasets/occupation4digitsoc2010ashetable14 (Table 14.5a)

any case' (p. 37). Consequently, we believe that there is a negligible, if any, additional burden as a result of the changes to this legislation.

143. We also engaged with payroll representatives on the possible costs of changing employee contracts or tax codes but were again informed that these costs were likely to be minimal or negligible. Employee contracts often have NMW/NLW clauses embedded into them which would not be affected by an uprating. Changing of tax codes is also unlikely to be a significant cost as most employees affected by an uprating would not be earning enough to warrant a change in tax codes.

144. In light of this evidence, we do not monetise implementation costs as a result of uprating the NMW/NLW as we expect them to be either equal to or near zero for businesses.

Net cost to business

145. We separate the impact on the private, public and voluntary sectors in order to calculate the EANDCB for our central estimate. We do this by calculating what proportion of workers eligible for each rate are in the private and voluntary sectors, and then we multiply this by the overall cost and coverage estimates above. A full breakdown is provided in Annex E.

146. Using the IA Calculator, we estimate that the equivalent annual net direct cost to business is £294.5 million (over maximum appraisal period of three years). These are based on our central case scenario. Spillover costs are not included in this calculation as they are an indirect cost to business.

Monetised benefits to workers

147. The monetised benefits of the NMW/NLW increase are higher wages and non-wage benefits (e.g. employers' pension contributions) received by workers. In our central scenario, the additional wage benefits to workers are estimated at £1,350m across three years, covering both the direct increase in minimum wage and spillover effects. In this way the NMW/NLW increases represent a transfer from employers to low-paid workers.

148. In addition, workers benefit from the non-wage impacts, which are also a transfer from business. These are estimated to be £240m in our central scenario; however, this includes both benefits to workers (e.g. higher employer pension other employee benefit contributions) and benefits to the exchequer (e.g. National Insurance contributions). As is not possible to determine the split of employee benefits vs taxation, we cannot calculate the total benefit to workers. However, we know that total benefits to workers and the Exchequer are £1,590m.

149. Given that these benefits predominately accrue to the lowest-paid workers, we can undertake equality weighting to illustrate the social benefit from the NMW/NLW increases. The HMT Green Book states that 'when assessing costs and benefits of different options, it may be necessary or desirable to "weight" these costs and benefits, depending on which groups in society they fall on'. This is based on the principle of the diminishing marginal utility of income, whereby the value on an additional pound of income is higher for a low-income recipient and lower for a high-income recipient.

150. The method included in the Green Book is to use an estimate of the elasticity of the marginal utility of income to calculate the redistributive effect of the policy[42]; in the Green Book this value is 1.3. To calculate the distributive effect, you divide the point on the distribution of the

[42] HMT Green Book 2020 – P97

earner that you are taking the money from by the point on the distribution of the earner that you are, and raise it to the power of the elasticity of the marginal utility of income. In this way, someone at the median (i.e. 50) values an extra pound 2.45[43] times more than someone at the 100th percentile. The formula therefore weights the benefit more the lower down the income distribution the worker is.

151. For our analysis we assume that workers covered by the NMW/NLW are at 62% of the median wage (i.e. the 'bite')[44]. Using the method from paragraph 150, this means that they value the direct additional wages at 1.8 times[45] more than those at the median. The total direct wage transfer of £760m therefore gives an equity-weighted benefit to the recipients of £1,410m.

152. Throughout the IA, we have assumed that indirect (spillover) benefits accrue up to the 25th percentile of the wage distribution, which is equivalent to 74% of the median wage. Following the same calculation as above, the indirect wage transfer of £580m gives an equity-weighted benefit to workers of £860m. The total benefit due to distributive effects of the wage transfer is therefore £2,270m.

153. This approach is only indicative for three reasons. The first is that we are proxying an individual's position on the income distribution by their wage rate. These two measures may not align because total income is determined by working hours as well as hourly wage(i.e. you could have a high paid individual not working many hours). Furthermore, a worker's position on the wage distribution does not necessarily reflect their position on the household income distribution. It is plausible that an individual could be working a minimum wage job whilst their household income is relatively high, due to the contributions of other earners to the household (e.g., young workers living with their parents). In line with this, the IFS found that only 22% of minimum wage earners are in the lowest fifth of working households[46].

154. Secondly, we assume that the NMW/NLW represents a transfer from those at the median to those on low pay. However, who ultimately pays for the increases in the NMW/NLW is not always clear. For example, it is frequently reported that costs associated with increases to the minimum wage are absorbed by companies through reduced profits, implying costs are borne by shareholders who are likely to be beyond the median income. This would suggest our approach for distributional effects produces an underestimate because costs imposed on individuals beyond the median should be equity-weighted downwards. However, some businesses also suggest that they pass NMW/NLW increase onto consumers in the form of higher prices. Again, consumers will be spread amongst the income distribution rather than exactly at the median, which would change our equity-weighting.

155. Finally, we cannot equity weight the indirect benefits as some of these accrue to the Exchequer and it would not be right to equity weight the benefits to Government. Nevertheless, we include the distributive analysis to indicate that, with equity weighting, the Net Present Value (NPV) of the uprating would be significantly positive.

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[43] $\left(\frac{100}{50}\right)^{1.3}$

[44] The is calculated as 2022 NLW rate divided by the median wage in our central wage distribution. In practise, workers on the other NMW rates would be further down the wage distribution, meaning this is a conservative approach.

[45] $\left(\frac{100}{62}\right)^{1.3}$

[46] https://www.ifs.org.uk/uploads/BN260-the-future-path-of-minimum-wages.pdf

Net Present Value

156. As the wage costs of the policy represent a transfer to workers, and the non-wage costs of the policy are largely a transfer to either workers (sick leave, pensions, etc.) or the Government (NICs), in net, unequity-weighted terms, these cancel out. As a result, the NPV of the policy is almost neutral (i.e. close to zero). The costs of the policy that are not a transfer are the transition costs associated with the policy as detailed in the section above. The NPV of the policy is therefore a, relatively small, negative £3.7m.

Appraisal of Impacts: Non-monetised Impacts

157. Thus far we have monetised the direct and indirect impacts caused by an increase in the NMW/NLW. These have been a cost to business/benefit to workers as a result of an increase in employers wage bill. However, there are non-monetised impacts that may arise as a result of accepting the LPC rate recommendations, such as broader impacts on the macroeconomy and potential fiscal implications.

Macroeconomic Impacts

158. As part of their evaluation of the impact of the NMW/NLW, the LPC evaluate the impact of the previous upratings to the NMW/NLW (primarily chapter 5)[47]. Below we summarise this and the supporting evidence which identifies any broader second/third-order impacts that the proposed 2022 uprating may have. We have also summarised the most recent academic literature on possible impacts of the minimum wages in Annex C.

Employment

159. Economic theory predicts mixed effects on employment. One theory suggests that the most prominent macroeconomic impact resulting from an increase in the minimum wage is higher unemployment if the minimum wage rate is set above the competitive market equilibrium. On the other hand, the Dube review[48] suggests that a higher minimum wage could actually reduce vacancies and employee turnover in an imperfectly competitive labour market.

160. Due to the LPC's remit, we do not expect there to be any significant adverse employment effects as a result of the proposed NMW increases that are the purpose of this IA. They fulfil this remit by consulting broadly and analysing a thorough body of evidence. Moreover, LPC evaluations on the impact of the NMW (and it is one of the most evaluated policy interventions) have found no evidence that it has led to significant impacts on employment. Therefore, we believe our assumption here is justified. The LPC itself is made up of representations from employer and worker organisations too who have contributed to the recommendation of a rate that does not harm employment aspects.

161. The LPC once again found in their stakeholder engagement that it was still rare for stakeholders to say they have reduced employment in response to the NLW, despite the very challenging circumstances borne from the pandemic. The CIPD survey found that the 2021 uprating had a limited effect on pay and employment. In general employers tend to absorb the costs (34%) rather than reducing the number of employees (11%). In response to the LPC consultation, the Trades Union Congress (TUC) made the point that lockdowns and COVID-19 have caused job loss, not the NMW/NLW.

162. The CIPD noted that hospitality was the sector most affected by NLW increases but the employment impact looked greater in retail: there, the most common responses were "taking lower profits/absorbing the cost (33%), improving productivity levels (26%), raising prices (19%), employing fewer workers (19%)." In hospitality, just six per cent of employers say that they have made job cuts in response to the NMW.

163. The OBR have previously suggested that an increase in the NLW to the Government's target of two-thirds of median earnings by 2024 may lead to an increase in the unemployment rate. The OBR have previously used a Minimum Wage Employment Elasticity of -0.4 which,

[47] https://www.gov.uk/government/publications/low-pay-commission-report-2021

[48] https://www.gov.uk/government/publications/impacts-of-minimum-wages-review-of-the-international-evidence

according to the 2019 Dube review, is considerably higher than most other elasticity figures used in academia. The Dube review considers 439 estimated elasticates of employment or hours for various low-wage groups with respect to the minimum wage. The vast majority of these estimates are centred around zero with a median of -0.05. The OBR having a stronger than expected elasticity means the potential negative effects of a rise in minimum wages may be overstated in their modelling. The Dube review mentions "the authors conclude that it was unlikely that the minimum wage increases under study led to statistically or economically meaningful job losses". This, along with various other updated pieces of academic literature, of which more detail can be found in Annex C, continues to suggest that employment effects of the minimum wages are essentially negligible.

164. The OBR have since revised their elasticity down to -0.3 (equating to the NLW resulting in increased unemployment of 50,000 by 2024). However, they continue to note that this is higher than that suggested in the literature. They argue that this reflects the fact that the higher NLW will increasingly apply in sectors subject to conventional market pressures. As the NLW increases more substantially relative to average earnings, we will continue to monitor this potential effect in future years.

165. It has previously been proposed by the RPC that reduced pay differentials as a result of the minimum wage could result in decreased churn/turnover in the labour market. The increase in pay is no longer worth the increase in responsibility so staff no longer look to progress to more senior positions. In the LPC consultation, industry bodies have noted the difficulties in maintaining differentials, with those that have chosen not to maintain differentials reporting increased worker dissatisfaction and anecdotal reports of difficulty encouraging career progression. For example, in the FSB survey[49], although the majority of businesses (55%) had maintained differentials, a quarter of affected business said changes to differentials created dissatisfaction among non-NLW staff.

166. This aligns with recent survey evidence commissioned by BEIS which found that for companies affected by NLW increases, 25% reported difficulties filling vacancies due to reduced pay differentials. This rose to 33% for hospitality firms, and 38% for wholesale, real estate, and retail.

167. Despite concerns that the erosion of pay differentials are reducing incentives for workers to move into higher pay scales, beyond survey evidence there is limited support for the claim that NLW increases are negatively impacting the probability of workers moving out of minimum wage employment. A study by Avram and Harkness (2019)[50] found that around half of minimum wage workers transition into employment paying above the minimum within a year.

168. More evidence is needed on the impact of reduced pay differentials on recruitment and staff turnover, but the claim that NLW increases have an overall negative impact on career progression is not currently supported by evidence.

169. There is further evidence on the impacts of the NMW/NLW increase on employment in our literature review. Butcher & Dickens (2020) found that increases in the NLW had a significantly positive impact on median earnings, and no significant negative impacts on employment or on hours worked from NLW increases. Georgiadis & Manning (2020) also found the impact of the NMW on employment to be indistinguishable from zero. However, Wilson & Bailey (2020)

[49] https://www.fsb.org.uk/static/6c26fc5e-ee4b-4b29-915c398c85f907d3/FSB-response-to-LPC-consultation-2021.pdf

[50] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/942609/Avram_Harkness_ISER_Essex_Bristol_Wage_progression_Dec_2020_FINAL.pdf

found that firms paying below the incoming minimum wage experience 2-3% lower employment growth. An IFS 2021 study used data from ASHE to find that the higher minimum wage has decreased the number of jobs just below the minimum wage, and increased the number at, and slightly above, the minimum wage. Overall, it found statistically insignificant effects on employment.

Prices

170. Evidence from stakeholders suggests their preferential mechanisms to cope with the increased wage bill are to raise prices or absorb the higher costs by lowering profits. The CIPD survey reports that 21% of firms increased prices in response to last year's uplift. This survey data does not, however, allow quantification of these impacts.

171. A paper by Frontier Economics, published in September 2020, does find a statistically significant link between increasing the NLW and price increases in exposed products (those that involve low paid workers to produce). They report an elasticity of prices with respect to the minimum wage of between 0.02 and 0.11. This means a 10% increase in the minimum wage would be expected to increase prices for those goods by 0.2% to 1.1%[51]. It is worth noting that this means the proposed uplift would cause, at most, a relatively small price increase, especially in the context of current more substantial inflationary pressures. The overall inflation rate (CPI) is even less likely to be affected by the upratings; the inflation rate refers to a wider subset of goods many of which will not be highly exposed to minimum wage labour.

172. In this year's stakeholder consultation, the LPC note price rises as a common way in which stakeholders respond to the NMW/NLW uplifts. However, in some sectors different competitive pressures can make price rises difficult. Sectors that are subject to international competition or with low market power are unable, or unwilling, to pass price rises onto consumers.

Productivity

173. The increase in the NMW/NLW is universal for all workers of the same age and workers cannot be paid below the pay floor that the NMW/NLW provides. It may be argued that it is unlikely that increases to the NLW would give rise to a widespread increase in labour productivity, as might be predicted by the efficiency wage theory at an individual firm level. Efficiency wage theory is the theory that increasing wages leads to higher efficiency and higher profits consequently, as workers are more motivated at higher wages.

174. Increasing productivity is possible with the NLW (and to an extent NMW) as employers seek to increase the marginal product of labour to offset the increased labour cost. Firms could do this by increasing capital investment which can often complement labour rather than substitute for it. Alternatively, firms could invest in human capital to raise worker's skills, which may also improve motivation and retention, both of which increase labour productivity.

175. Evidence from the CIPD's 2021 response to the LPC consultation[52] suggests that 21% of firms respond to the NLW by improving productivity (a decrease from the previous year's 24%). When looking at SMEs, however, this was marginally smaller at 17%, compared with 23% for large employers.

[51] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/942445/Frontier_Economics_-_Estimating_the_impact_of_minimum_wages_on_prices_-_FINAL.PDF

[52] https://www.cipd.co.uk/news-views/policy-engagement/consultations/low-pay-commission-consultation-2021-consultation

176. A trend, found in the LPC consultation, from the pandemic has been that of work intensification resulting in a de-facto improvement in productivity. This is likely a short-term phenomenon and has been generated by businesses maintaining output decline at a slower rate at which they are reducing staff. Productivity naturally increased with staff placed on furlough and the same work being done by less people due to job losses. There is, however, limited evidence, or suggestion, that this intensification is related to the minimum wage.

Box 2: Automation

In 2020, work undertaken by NIESR, for the LPC, found no detectable interaction between the automation of an industry and its exposure to the NLW. Since then, the global coronavirus pandemic has dramatically changed the economic conditions that inform employer's decisions on automation.

Surveys suggest that COVID-19 has significantly accelerated the adoption of technology as firms respond to the crisis. A CBI-CEP survey found that 60% of UK businesses adopted new digital technologies and management practices during March 2020 – July 2020.[53] The vast majority of respondents pointed to COVID-19 driving accelerated adoption of these technologies.

A similar picture can be found for adoption of automation and AI technologies. A McKinsey survey found that 68% of global firms had accelerated their adoption of automation and AI during COVID-19. Two thirds of respondents to a Deloitte survey had used automation as part of their COVID-19 response.[54]

These trends may persist if COVID-19 has caused firms to re-evaluate their business strategies in light of pandemic risks. More pertinently for the National Living Wage increase, high paying occupations are generally less exposed to automation, than lower paying ones. Raising national minimum wage rates may therefore serve to make adopting technologies which replace low skill / wage labour that much more attractive to firms.[55]

If the pandemic does bring in a surge in automation leading to the loss of some types of job its effects on employment are still relatively uncertain. Automation is not uncommon throughout human development and over time workers who lost jobs to automation find work in new or growing sectors. Such a shift would require significant investment in retraining and upskilling for workers to shift industries.

While it may appear like the pandemic is accelerating the pace of digitisation and automation, the full extent of the employment effects and the extent to which wage levels play a role in this has yet to be determined. Subsequently, we are unable to monetise any indirect effect that the NMW/NLW increases have on capital investment.

Other macroeconomic impacts

177. Other potential macroeconomic impacts include increased consumption due to low paid workers having higher levels of disposable income. This will depend on individual household preferences and their marginal propensity to save. In the short term, if consumption increases

[53] Riom & Valero (2020) The Business Response to Covid-19, The CEP-CBI Survey on Technology Adoption.

[54] Deloitte (2020) Automation with Intelligence.

[55] Lordan & Neumark (2018) People vs Machines, The Impact of Minimum Wages on Automatable Jobs.

it will lead to increased aggregate demand, whereas in the longer-term output may increase if individuals choose to save their increased income.

178. All of the macroeconomic impacts mentioned here would not be first round effects, in some cases they would be third or fourth round as a result of the direct impact from uprating the NMW/NLW. Therefore, we do not quantify or monetise these impacts in this impact assessment, although as mentioned above the OBR have in the past sought to model the impacts of the NLW on employment and productivity. Academic literature has also attempted to do this, which we summarise in Annex C.

179. Overall, LPC find the impact of the policy on macroeconomic factors such as employment to be benign in almost all cases. They found that some stakeholders mentioned several channels to dissipate the impacts of the policy such as raising prices and there is some economic evidence to support this claim. The impacts of the NMW/NLW increase on productivity and the prospects for automation are more uncertain and this uncertainty means we are unable to monetise the potential impacts from the policy.

Fiscal impacts

180. The OBR have since published new forecasts, in relation to the target for the NLW to reach two-thirds of median earnings by 2024, provided economic conditions allow. These findings, as taken from the OBR's March 2020 EFO, are presented in Table 15. The findings indicate the expected impacts of the NMW/NLW increases on government borrowing. For example, higher earnings increase tax revenue, reduce government welfare spending, and therefore net borrowing. Unemployment effects refer to increases in welfare payments, consistent with the OBR's assumption that the NLW will increase unemployment by 50,000 by 2024 (see paragraphs 163-164) for more discussion

Table 15: OBR estimates of the fiscal effects of increasing the NLW, March 2020

			£ billion	
			Forecast	
	2021-22	2022-23	2023-24	2024-25
Welfare spending	-0.1	-0.1	-0.1	0.0
Earnings effects	*-0.1*	*-0.3*	*-0.4*	*-0.5*
Uprating effects	*0.0*	*0.1*	*0.3*	*0.4*
Unemployment effects	*0.0*	*0.1*	*0.1*	*0.2*
Income tax and NICs receipts	-0.4	-0.8	-1.1	-1.5
Corporation tax receipts	0.1	0.1	0.2	0.2
Other receipts	0.0	0.0	0.0	-0.1
Debt interest	0.2	0.2	0.2	0.2
Total effect on net borrowing	**-0.3**	**-0.6**	**-0.9**	**-1.2**

Source: OBR Economic and Fiscal Outlook March 2020, table C (pp.49)[56]

181. The OBR forecast that the largest effect will be on income tax and NIC receipts, which increase by up to £1.5 billion a year by 2024/25. This is of course predicated by the OBR estimating a path for the NLW, which is inherently uncertain as the Government is advised by

[56] http://budgetresponsibility.org.uk/docs/dlm_uploads/July-2015-EFO-234224.pdf

the independent LPC (who are guided by our target in their remit) each year for the following year's rate. This is noted by the OBR in their EFO (page 47), and for the purposes of their forecasting, they assume that the NLW will rise smoothly to reach the desired level in 2024.

182. These estimates were published prior to the COVID-19 pandemic taking full effect on the UK and before there was any certainty on the impact of it on UK earnings and the economy. Moreover, the policy responses and policies enacted by the Government since the predictions will have caused substantial changes to the forecast:

- The first is the effect of the increase of NICs contributions (and then Health and Social Care levy) by 1.25 percentage points announced this year. This will substantially increase the income tax and NICs receipts forecast as a result of future uplifts, reducing net borrowing.

- The second is that the lower-than-expected increase in the NMW/NLW last year, due to the pandemic, will serve to redistribute when the impacts of the uplifts are felt. It will mean the impacts are weighted towards the end of the time period, as larger future rises are needed to reach the 2/3 median target to offset the smaller increase last year.

183. We will still expect to see a small decrease in corporation tax receipts (due to a squeeze on profit margins); and higher VAT/excise duty (due to higher consumer spending). Welfare spending will remain broadly unaffected as reduced means-tested benefits are likely to offset any potential increase in universal credit claims. This is even more likely to be the case now that the taper to universal credit claims was reduced at the October 2021 budget.

184. The OBR note significant modelling uncertainties regarding these estimates. In particular, a series of challenging assumptions were made over how workers and wages react to minimum wages, including judgements over the extent to which firms absorb the costs through changing employment, or prices and profits. As discussed in paragraphs 163-164, we consider the OBR to overestimate their minimum wage employment elasticity.

185. We have not estimated the net fiscal impacts in more detail than this because of the uncertainty associated with estimating the potential impacts listed above and stated in the OBR's report – some of which will be third or fourth round effects of the direct impact of the proposed increases in the NMW/NLW.

186. However, while our estimates of non-wage labour costs used in this IA (on both direct and indirect wage impacts) include a range of costs, they are largely made up of employer NICs, which will go to the Exchequer in the first instance. Indirectly these exchequer benefits are also for employees - a proportion of NIC receipts are paid into the National Insurance Fund and go towards the state pension.

187. Moreover, we have estimated the wage costs on public sector employers. A fuller depiction of this is provided in Annex E, but in summary 4% of the total cost in this IA is estimated to be borne by public sector employers; in present value terms, this is equivalent to £67m over the appraisal period in our central case scenario, however only £39m is a direct cost as a result of the proposed NMW/NLW rates. The remaining £28m is an indirect cost and will depend on behavioural responses of public sector employers. Increases to the NLW and NMW rates are expected to be met from within departments' existing budgets.

Enforcement

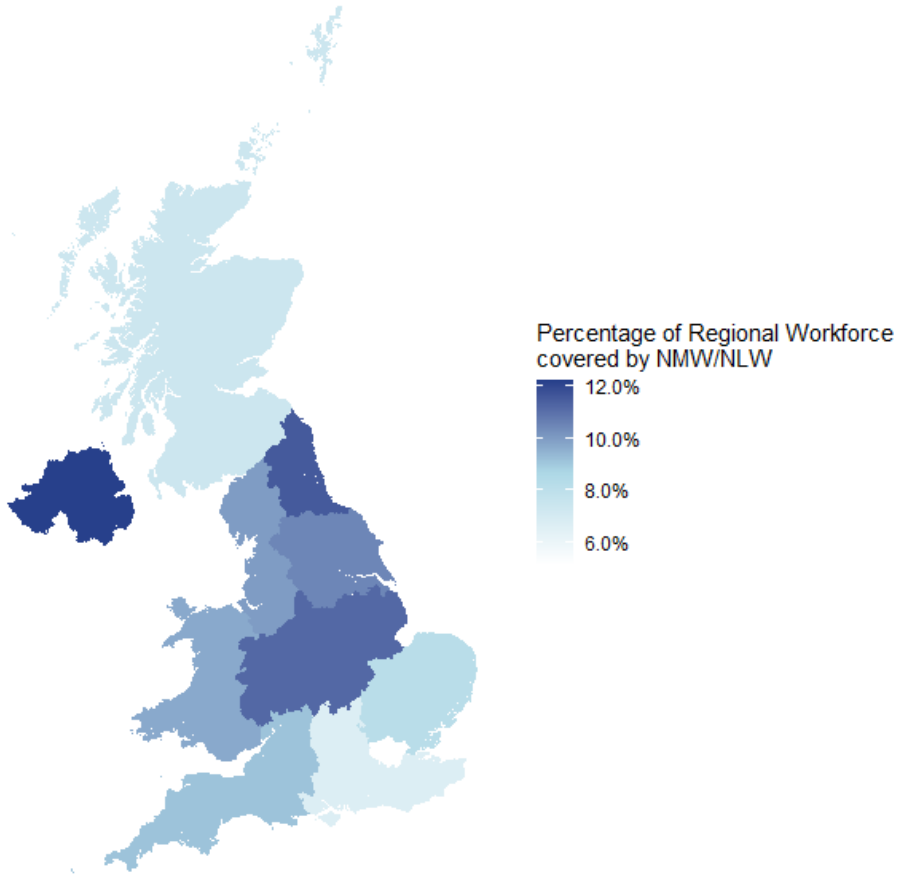
188. Her Majesty's Revenue and Customs (HMRC) enforce the NMW/NLW on behalf of the Government. HMRC responds to 100% of worker complaints and also conducts proactive,

targeted enforcement of at-risk employers. HMRC also carry out awareness-raising activity to prevent non-compliance in the first place and therefore reduce the need for enforcement action. If HMRC investigate an employer and find that is breaking the NMW law, it then issues a Notice of Underpayment (NoU) containing 1) details of the underpayments 2) the period to which they relate, and 3) the workers affected. Once issued with an NoU, the employer will have to pay back the arrears owed to workers, face a financial penalty, and can be publicly named and shamed under the NMW Naming scheme, unless they successfully appeal against the NoU. Generally, a broad base of analysis suggests that non-compliance is mostly through mistake, not malice. See paragraphs 113-117 for a discussion of non-compliance analysis.

189. BEIS have increased resources to enforce the minimum wage – almost doubling the budget from 2015/16 to 2020/21. There were solid enforcement results in 2020/21: £16.7m in arrears identified, benefitting over 155,000 workers as well as £14.1 million in penalties issued in 2020/21. In total since 2015, the Government has ordered employers to repay £100 million to over 1 million workers.

Regional Impacts

Figure 5: Percentage of regional jobs covered by the NMW/NLW



190. The coverage of the NMW/NLW rates as a percentage of the regional workforce varies from region to region. Proportionally more jobs outside of London and the Southeast are covered by the minimum wage. Therefore, proportionately more workers in these regions stand to benefit from the uplift. The regions with the highest coverage are Northern Ireland (12.1%), Northeast England (11.5%) and the East- and West-Midlands (both 11.1%).

The impact of NMW/NLW on international trade

191. The RPC have previously proposed that we undertake an assessment of the impact of the NMW/NLW uprating on international trade, with specific reference to the competitiveness of UK businesses ahead of trade negotiations with the EU.

192. The LPC have found that one of the most common responses to the NLW since 2016 has been raising prices. While it appears intuitive that price increases could have a negative effect on the UK's international competitiveness, to understand the impact of minimum wages on international trade it is instructive to look at economic theory.

193. The best-known model of the impact of minimum wages on international trade comes from Brecher (1974) and expanded by Schweinberger (1978) and Neary (1985). In this model the introduction or raising of a minimum wage floor has the effect of unevenly increasing costs, with more labour-intensive industries feeling more pressure than skills and capital-intensive industries. The long-term effect is to encourage specialisation in the production of skilled labour and capital-intensive exports at the expense of low-skilled labour-intensive exports.

194. Government research has shown that the UK's highly skilled labour force and sophisticated technology are major sources of the UK's competitive advantage[57]. Economic theory may then suggest that a minimum wage for a country such as the UK could further the specialisation in skills and capital-intensive exports without undermining overall export competitiveness. However, noting the limited empirical evidence and that macro effects such as trading terms, exchange rate, UK productivity are likely to have more substantive impacts on international trade, we believe it is proportionate to assess that the NMW/NLW will have a negligible impact on international trade.

Box 3: Impact of EU exit on the UK labour market.

Net migration of EU migrants to the UK peaked in 2015/16 at a level of around 200,0000. Since the 2016 EU exit referendum this net inflow of migrants from Europe has declined, and between March and June 2020 net migration of EU migrants turned into a net outflow of 78,000[58].

European Economic Area (EEA) nationals in the UK are more likely to work in lower paid occupations. Around 7% of workers in the UK are EEA nationals, but this group comprises 17% of those employed by households (cooks, gardeners, tutors, etc), 14% of accommodation and food workers, and 13% of transport and storage workers, they also are overrepresented in the social care and retail sectors[59].

The net outflow of EEA workers from the UK may cause recruitment problems for employers in sectors dependent on migrant workers. This may be contributing to labour shortages in particular sectors such as HGV drivers[60] and butchers, where temporary visa measures have been introduced to attract workers Theoretically, this may lead to an acceleration of

[57] Department for Business, Innovation and Skills- October 2012- "Benchmarking UK competitiveness in the global economy", BIS Economics Paper No.19

[58] https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/internationalmigration/articles/measuringmigrationthestorybehindtheheadlines/2021-09-17

[59] *MAC annual report - 2020, IPPR: Building a post-brexit immigration system for the economic recovery - 2020*

[60] For example, ONS estimates show that as of March 2021 the number of EU citizens working as lorry drivers in the UK had fallen by 14,000, or more than a third, since mid-2020. In total there were 229,000 lorry drivers working in the UK. For more information see https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/internationalmigration/articles/measuringmigrationthestorybehindtheheadlines/2021-09-17.

wage growth for low-paid workers, with anecdotal evidence of wage increases in certain sectors however this trend is not yet discernible in published wage statistics.

Small and Micro Business Assessment

Impact on small and micro businesses

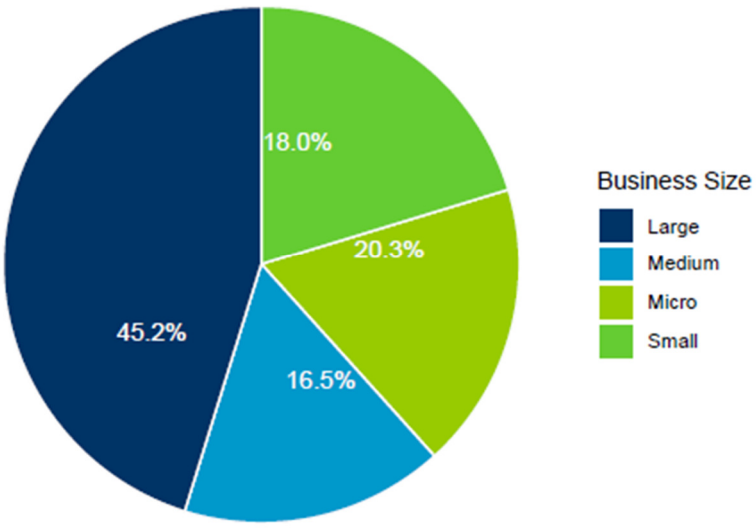
195. Table 16 contains our estimates of projected coverage of workers on the NMW/NLW at the start of our appraisal period (April 2022) and our central estimate of the total costs corresponding to each business size, over the course of the appraisal period.

Table 16: Coverage of NMW/NLW workers by business size, Q2 2022

Business size	Micro		Small		Medium		Large	
Rate	Coverage	Total Cost (£m)	Coverage	Total Cost (£m)	Coverage	Total Cost (£m)	Coverage	Total Cost (£m)
NLW (23+)	461,000	240	445,000	270	340,000	230	896,000	640
Main (21 - 22)	30,000	30	31,000	40	25,000	30	61,000	70
Others	40,000	10	58,000	20	24,000	10	57,000	10
Total	**531,000**	**280**	**534,000**	**320**	**389,000**	**260**	**1,014,000**	**720**

Source: BEIS calculations using ASHE 2021. Note: Coverage and cost estimates by business size may not match total costs and coverage exactly due to rounding and sampling error when data is disaggregated

Figure 6: % of total Cost by business size pie chart



196. As the pie chart above shows, we expect 38% of the costs of this policy to be borne by small and micro businesses. According to ASHE 2021, 27% of workers are employed in small and micro businesses. Therefore, relative to the UK average proportion of small and micro businesses, the burden is expected to fall more on small and micro businesses compared to larger firms. However, we do not expect them to be significantly disproportionately affected by the changes to this legislation. Paragraphs 197-200 explain why it is not feasible to exempt these businesses.

The possibility of exempting small and micro businesses

197. There are both equity and economic reasons why small and micro businesses are not exempt from the NMW/NLW. Firstly, an exemption would undermine the objectives of the policy because a significant proportion of NMW/NLW workers work in small and micro businesses and so an exemption would significantly undermine the ability of the minimum wage to address the possibility of employers exploiting the vulnerability of certain workers to pay them unacceptably low wages and undercut their competitors. Moreover, the cost imposed on small and micro businesses is equal to the benefits that the workers receive. Consequently, exempting small and micro firms would mean a significant proportion of the expected benefits from this proposal would not be realised.

198. There are also economic reasons against an exemption. Exempting small and micro businesses would enable them to avoid the increase in labour costs associated with raising the wages of the lowest paid. This would create economic inefficiencies through several effects. Firstly, it would create a distortion in the market by distorting cost-competitiveness at the expense of medium and large businesses, which would undermine competition. Secondly, it would create a disincentive for businesses to grow – if they were to expand sufficiently to be classified as a medium sized business, they would be obliged to raise wages for all their employees to meet the NMW/NLW rates, thereby introducing a significant cost of expansion at the threshold between small and medium sized businesses.

199. The annual NMW/NLW increases are fully embedded in the UK labour market with rate changes being made for over 20 years. The majority of employers are aware of the increasing minimum wage, in particular the NLW, with good knowledge among businesses that the rates had changed in April (the Government communication campaigns suggest that as many as 92% of employers were aware of the NLW). Given the success of previous communications campaigns, there will be employer targeted communications activity and guidance to ensure small and micro businesses are aware of the NMW/NLW changes. Moreover, rates are announced before the legislation has gone through Parliament to maximise adjustment time for businesses. This year rates were announced at the Autumn Budget, over 5 months before the rates come into effect. This, combined with the communications campaigns, will seek to mitigate the burden placed on small and micro businesses. Government has also put in additional measures, such as reducing business rates with reforms announced since 2016, which help to further mitigate these costs to small and micro businesses. Additionally, small and micro businesses will benefit from being exempt from the Apprentice Levy, as only firms with a pay bill over £3 million each year need to pay it, which amounts to under 2% of all businesses in the UK.

200. Government has more recently announced further measures to support businesses. The Government is reducing the burden of business rates by over £7 billion over the next five years, including by freezing the business rates multiplier for a further year and providing almost £1.7 billion in further business rates relief for eligible retail, hospitality, and leisure businesses in England for 2022-23. Together with Small Business Rates Relief, this means over 90% of retail, hospitality and leisure businesses will receive at least 50% off their business rates bills in 2022-23.

Box 4: Case study of a medium sized employer[61]

[61] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/942440/IDR_Study_of_impact_of_future_targets_for_the_NLW_FINAL_8_Dec_20.pdf - page 62

A social care charity employs 433 staff supporting children and young people, partially through the provision of residential care. The charity pays the then statutory minimum rate of £8.72 for some of its staff, including cleaners, cooks, housekeepers and some retail workers in charity shops.

One impact of the NLW is to squeeze differentials between staff. As the Deputy CEO explains: "it has meant that we have had to increase other rates to keep manager rates suitably distanced from the assistants." This also demonstrates how increasing the NLW results in 'spill-over' effects for workers earning above the statutory minimum.

The Deputy CEO explained that the charity agrees with the NLW as a policy, but the financial pressure created by lockdown restrictions made adhering to the policy more difficult: "We want to continue to keep our staff pay competitive and we do value the principle of the NLW but the reality is if the NLW goes up by another 5 or 6% next April that is going to put us under intense pressure." Out of a consideration of the pressures on businesses during lockdown, the LPC recommended a relatively modest increase in the NLW in April 2021.

The NLW also has the effect of forcing organisations to raise productivity. As the Deputy CEO puts it: "Because of the NLW I guess we are looking to add value into roles. There was an admin grade role which we are effectively gradually fading out because we are trying to enhance the roles and pay accordingly."

Like many other organisations the charity does not operate age-related pay for its main workforce. As the Deputy CEO explains "We tend to think that if someone is doing a job then they get paid the rate for the job and that pay should not be related to age." The fact that many employers do not make use of the age rates was instrumental in the LPC's decision to expand NLW eligibility to 23-24 year olds from April 2021.

Specific Impact Tests

Equalities impact and Family Test

201. Section 149 of the Equality Act 2010 requires BEIS to have due regard to promoting equality of opportunity, eliminating discrimination, and fostering good relations between groups. The impact of the NLW and NMW increases on equalities considerations is considered in full in Annex G. In summary, the evidence suggests that there will be disproportionate positive wage impacts on protected groups as a result of the proposed increase in NMW/NLW, and we have found no evidence of the potential for any negative impacts. Moreover, there is emerging evidence that increases in the minimum wage do not have negative effects for younger workers, with the CPB Discussion Paper (2021) finding that the 2017 increase in the Dutch youth minimum wage increased workers' average wages by 4%, without adverse effects on employment or hours worked.

Sector impact

202. Low-pay sectors will be impacted disproportionately by the NMW/NLW rate increases. Annex F provides a detailed estimate of the coverage of the NLW and NMW rates for a range of low-pay sectors, as defined by the LPC, such as social care, retail, and hospitality. A sector breakdown for some individual rates is not provided because of sample size issues.

Implementation

203. The changes to the NMW and NLW regulations will be made through secondary legislation and will come into force on 1st April 2022.

Monitoring and evaluation

204. The remit for the LPC will continue to include the requirement to monitor, evaluate and review the levels of the different minimum wage rates. Historically, the LPC's report has included extensive discussion of the impacts of the NMW rates on a range of considerations, and this year's report builds upon the evidence base on the impact of the introduction of the NLW. In making future recommendations for NMW rate increases, the LPC will carry out extensive monitoring and evaluation of the current rates.

205. The Government has pledged for the NLW to reach two-thirds of median earnings by 2024, provided economic conditions allow. There is an additional target for the NLW age eligibility to be lowered to 21 by 2024. Further details on this and the consequent monitoring and evaluation steps for the LPC will be provided in the LPC's remit for 2022/2023.

Annex A: Theoretical Rationale for Intervention

206. This section describes what market failure the minimum wage addresses and how the rationale of this policy can be illustrated by economic theory. In the standard model of a 'perfectly competitive' market, wages and employment are determined by the interaction of supply and demand. This model predicts that competition between employers for employees should drive wages up to be equal with the 'marginal revenue product of labour', so that labour is paid in perfect proportion to its contribution to production. Any deviation from this wage would lead to an extension or contraction of market demand which would lead back to the market equilibrium. According to this model, government-interventions to increase the minimum wage would push the cost of labour above what it is worth to employers, leading to a contraction of demand and the creation of unemployment.

207. However, if the market is not 'perfectly competitive' and firms have market power, then wages are not determined solely by the forces of supply and demand. In such a scenario there is no guarantee that wages will be equal to the value of labour's contribution to production, meaning that some workers may be paid an exploitatively low wage.

208. This is illustrated in Figure 7which details the case of a labour market monopsony, where a one single employer and many actors wishing to sell their labour. The monopsonist will try to entice additional employees by paying higher wages, but it must pay this new higher wage to all its current employees as well (if it cannot discriminate between the different workers). Consequently, the marginal cost of labour is greater than the average cost, as captured by the gap between the MCL curve and the ACL curve.

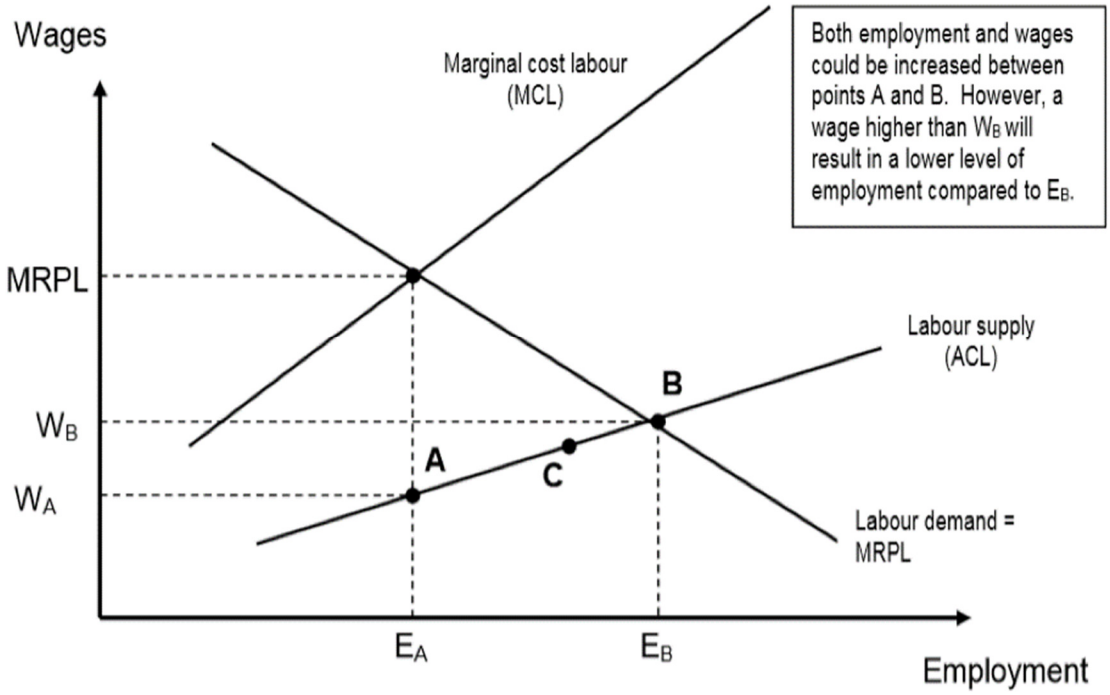
209. The employer will maximise profits when the marginal cost of labour equals the marginal revenue product. This is illustrated by point A in the diagram below: This equilibrium has lower wages and lower employment than the perfectly competitive equilibrium at point B. A statutory wage floor of between W_A and W_B can address this market power and bring the market equilibrium closer to the efficient, perfectly competitive outcome – such as point C. A minimum wage of W_B is the point where the highest amount of labour can be employed with the highest wages. Any wage higher than this would reduce the amount of labour and any lower amount would mean a lower wage. Theoretically, attempting to set a minimum wage more than W_B should result in unemployment. However, as detailed in Annex C, the empirical evidence suggests that there is no evidence that the NMW/NLW rates are close to this theoretical limit.

210. In practice, evidence suggested to the LPC and evidence found by NIESR indicated that it is unlikely that this stylised pure market structure is representative of competition in low paying sectors today. However, even in the absence of pure examples of monopsony, econometric studies such as Abel et al (2018)[62] have established that higher measures of market concentration in certain industries are correlated with lower pay for workers in that industry. Even in relatively competitive industries, an overabundance of workers lacking bargaining power, or the existence of search frictions[63] which prevent employees from moving to higher paying jobs can enhance the market power of employers and thereby depress wages. Asymmetries in bargaining power between employers and employees result in socially sub-optimal outcomes, a trend seen in the US. This concept of monopsony power is the rationale for the NMW/NLW; the policy seeks to correct the market failure and ensure that weak bargaining power does not lead to exploitatively low wages.

[62] Abel, W., Tenreyo, S., Thwaites, G. 2018- *Monopsony in the UK*: *A Review.* CFM Discussion Paper Series- Centre for Macroeconomics, London, UK

[63] Manning, A. 2003. 'Monopsony in Motion'

Figure 7: A labour market characterised by market power for low paid workers



Annex B: Previous cost estimates from minimum wage upratings

211. This Impact Assessment once more appraises the impact of uprating the National Minimum Wage rates and amending the NMW Act 1998 (via secondary legislation). As set out in paragraphs 3 and 4 of this document, this IA considers the impact of moving away from the current legally binding minimum wage rate.

212. The table below summarises the costs to business that each of our Impact Assessments have estimated over the course of the past six years since the introduction of the National Living Wage, in the form of the EANDCB.

213. Alongside this, we present the appraisal period of each annual cost figure and the methodology used in those respective IAs. Following the feedback, we have received both from the RPC and the wider academic community, we have continuously refined the methodology used to estimate business impacts. This does mean that the EANDCBs listed below may not be comparable year-on-year.

214. It should also be noted that the uprating in the NMW/NLW was previously exempt from the Business Impact Target prior to 2019. Subsequently BIT scores have not been provided for the years preceding 2019.

Table 17: Previous cost estimates from minimum wage upratings and the methodology used (2016-2021)

Year	EANDCB	Business Impact Target	Appraisal Period	Methodology
2016	£820.97m	Not in scope	1 year	Single year appraisal period is used intentionally. The counterfactual wage growth is in line with OBR average earnings projections. Spillovers taper down by the 25th percentile, in line with the OBR methodology.
2017	£131.6m	Not in scope	2 years	Counterfactual wage growth is taken as a midpoint of the inflation rate and average earnings. Spillovers taper down by the 25th percentile, in line with the OBR methodology.
2018	£76.6m	Not in scope	3 years	After taking on board NIESR's research, the counterfactual wage growth is obtained by taking historic wage growth at the first point in the wage distribution which is not affected by the minimum wage. With the help of independent forecasts, we judge where the UK lies on the business cycle to inform over what period we should consider when taking that historic wage growth. The wage growth is the same across all groups. We use NIESR's estimate of spillovers to stop by the 20th percentile.

2019	£151.8m	£303.6m	2 years	The counterfactual wage growth is obtained by taking historic wage growth at the first point in the wage distribution which is not affected by the minimum wage. With the help of independent forecasts, we judge where the UK lies on the business cycle to inform over what period we should consider when taking that historic wage growth. The wage growth is the same across all groups. We estimate spillovers to end by the 20th percentile, which is consistent with the LPC.
2020	£205.6m	£616.7m	3 years	The counterfactual wage growth is obtained by taking historic wage growth at the first point in the wage distribution which is not affected by the minimum wage. With the help of independent forecasts, we judge where the UK lies on the business cycle to inform over what period we should consider when taking that historic wage growth. The wage growth is the same across all groups. We use the LPC's estimate for spillovers to end by the 30th percentile.
2021	£217.9m	£438.5m	2 years	The counterfactual wage growth is obtained by taking historic wage growth at the first point in the wage distribution which is not affected by the minimum wage. With the help of independent forecasts, we judge where the UK lies on the business cycle to inform over what period we should consider when taking that historic wage growth. The wage growth is the same across all groups. In light of challenging economic circumstances, we estimate for spillovers to end by the 25th percentile.
2022	£294.5m	£774.5m	3 years	The counterfactual wage growth is obtained from the median OBR growth forecast. This is considered the best estimate of wage growth due to the unprecedented circumstances caused by the pandemic. The wage growth is the same across all groups. In light of challenging economic circumstances, we estimate for spillovers to end by the 25th percentile.

Note:In 2017, BEIS commissioned NIESR to research the most appropriate counterfactual for us to employ in this and future impact assessments. The methodology therefore changed significantly in the 2018 IA and has remained consistent since.

Annex C: Recent Literature

215. In 2019, Professor Arindrajit Dube published a government commissioned report into the international evidence base on the impact of minimum wage regulation on employment and wages. The report reviewed more than 50 empirical studies on the impacts of minimum wage and found that there is little evidence that minimum wage increases reduce overall employment by a significant extent. This annex summarises some of the recent studies commissioned by the LPC since the Dube review, as well as studies produced by academia.

216. While some conclusions vary from study to study, the vast majority find negligible impacts on employment or hours worked. However, concerns about pay differentials were uncovered, suggesting that the feasibility of spillover effects increasing seem unlikely:

Butcher, Dickens & Manning (2012)

217. This study used the Annual Survey of Hours and Earnings (ASHE) and its predecessor dataset, to explore the impact of the introduction of the NMW in 1999. The study found evidence for spillover effects onto higher wage groups up to the 25th percentile of the wage distribution. This finding is considered within NIESR's work on the counterfactual that informs this approach.

Georgiadis & Manning (2020)

218. This study uses the UK's Monthly Wages and Salaries Survey high-frequency monthly data to investigate the impact of national minimum wage changes on wages and employment.

219. One finding of the study is that a rise in the NMW leads to a rise in average earnings. It was also determined that past the 25th percentile of earners the spill-over effect of a rise in the NMW is not significantly different from zero. The impact of the NMW on employment was also found to be indistinguishable from zero.

Butcher & Dickens (2020)

220. This study took a difference-in-difference approach to estimate the effect of the minimum wage on employment. It did so by comparing outcomes across different sections of the UK labour market, divided up by age, gender and geography, to compare the employment outcomes of those affected by a change in minimum wages. This study relied on ASHE for hourly earnings and LFS data to define employment outcomes of the groups.

221. The study found that increases in the NLW had a significantly positive impact on median earnings. The study found no significant negative impacts on employment or on hours worked from NLW increases, nor were any significant impacts found with respect to self-employment or zero-hour contracts. The study did find that NLW increases boosted labour market participation by reducing economic inactivity, but without increasing unemployment.

Wilson & Bailey (2020)

222. Frontier Economics researchers Wilson and Bailey used a difference-in-difference approach drawing on a combination of data from ASHE and the Business Structure Database. Firms are either assigned to 'treatment' and 'control' groups depending on the extent to which they were exposed to the minimum wage, and according to the proportion of labour costs as

part of total costs. Firms that pay below the incoming minimum wage are assigned to the treatment group, allowing researchers to compare the effect of minimum wage increases against the control group of firms.

223. The study found that firms in the treatment group experienced 2-3% lower employment growth, after controlling for firm and worker characteristics using regression analysis. The effects are concentrated in the retail and food-service sectors and in smaller workplaces. With regards to the impact of NLW increases on consumer prices of exposed goods, the authors found that inflation is higher in months when the NMW is uplifted, but that this effect is relatively muted and adds just 0.1-0.6 percentage points to the normal inflation rate of 2.7% per year.

Income Data Research (2021)

224. Through the use of semi-structured telephone interviews with employers, Income Data Research undertook a study into future National Living Wage targets. They found that pay differentials/wage compression were already an issue before the latest NLW increase, and this year's 'lower-than-forecast' increase in the NLW to £8.91 enabled three employers to create or reinstate differentials with the statutory minimum. On average and at the upper quartile, the differential with the NLW is greater than last year with a larger gap between those on the NLW and others on higher pay.

225. Employers remain concerned about the potential for wage compression because of pay freezes or lower awards.

Georgiadis and Gavonal (2021)

226. The aim of this report is to assess independent and synergistic impacts of NLW increases, the COVID-19 pandemic, and BREXIT in the adult social care in England using difference-in-difference analysis.

227. It finds that NLW increases between 2020 and 2021 led to significantly higher wage growth among care homes with, relatively, lower initial wages, but had no significant effects on employment.

Cribb et al (2021)

228. This report estimates the effect of the introduction of the UK's National Living Wage in 2016, and increases in it up to 2019, using an empirical method. It refines the regional-variation approach pioneered by Card (1992) by tracing out employment changes throughout the whole frequency distribution of wages as in Harasztosi and Lindner (2019) and Cengiz et al. (2019).

229. Using data from the Annual Survey of Hours and Earnings, this study finds that the higher minimum wage decreased the number of jobs just below the minimum wage, and increased the number at, and slightly above, the minimum wage. Overall, it finds very small negative, and statistically insignificant effect on employment.

Delaney and Papps (2021)

230. The project has analysed the effects of the UK National Minimum Wage (NMW) on firms' hiring behaviour, drawing on data scraped weekly from two online job ad services. The main finding is that the increase in the National Living Wage in 2021 substantially raised the number of general jobs that were advertised.

231. The analysis also estimates that the minimum wage increase in April 2021 is associated with an increase in the wages offered for jobs that are higher up the wage distribution which is indicative of firms attempting to preserve inherent wage structures.

232. The results show that a 10-percentage point increase in the proportion of ads that specified the minimum wage for a given job title is associated with a 0.4% increase in the wages offered for that job title after April 1st. The analysis also suggests that a 10-percentage point increase in the proportion of ads that specified the minimum wage, led to all other jobs ads from a firm also increasing wage offered (albeit a small increase of 0.5%). This suggests that spillover effects exist and that firms offer higher wages to jobs that pay above the minimum wage in response to a minimum wage hike.

Dustman and Linder et al (2021)

233. This report investigates the wage, employment, and reallocation effects from the introduction of a nationwide minimum wage in Germany that affected 15% of all employees.

234. Findings include that the minimum wage raised wages but did not lower employment. It also led to the reallocation of low-wage workers from smaller to larger, from lower- to higher-paying, and from less to more productive establishments. This worker upgrading accounts for up to 17% of the wage increase induced by the minimum wage.

CPB Discussion Paper (2021)

235. This paper examines the impact of the 2017 increase in the Dutch youth minimum wage on labour market outcomes for low-paid young workers. Key findings are a rise in workers' average wage by 4%, without adverse effects on employment or hours worked.

236. The Dutch minimum wage increase has also boosted incomes of low-paid young workers earning more than the minimum: these so-called spillovers account for 75% of the total wage increase. Further, labour market outcomes have improved most strongly for low-paid young full-time workers who are not enrolled in education: this is important as these workers are less likely to be transient occupants of low-paid jobs.

Clark and Nolan (2021)

237. This paper decomposes the ethnic pay gap in Great Britain across the distribution of hourly wages, yielding a detailed insight into differences between groups and how these vary by pay percentile and through time.

238. While some groups experience reductions in the pay gap consistent with lower discrimination (including relatively well-paid Indian workers and relatively poorly paid Bangladeshis), others - specifically Black groups - face an apparent glass ceiling barring access to well paid jobs. The introduction and uprating of the National Minimum/Living Wage has contributed to improvements at the lower end of pay differentials, narrowing the ethnic wage gap slightly.

National Bureau of Economic Research Paper 26101 (2019)

239. This paper provides empirical support for the monopsony explanation by studying a key low-wage retail sector and using data on labour market concentration in the US.

240. It finds that more concentrated labour markets, where wages are more likely to be below marginal productivity, experience significantly more positive employment effects from the minimum wage. While increases in the minimum wage are found to significantly decrease

employment of workers in low concentration markets (where wages are likely to be above marginal productivity), minimum wage-induced employment changes become less negative as labour concentration increases, and are even estimated to be positive in the most highly concentrated markets.

Derenoncourt, Noelke and Weil (2021)

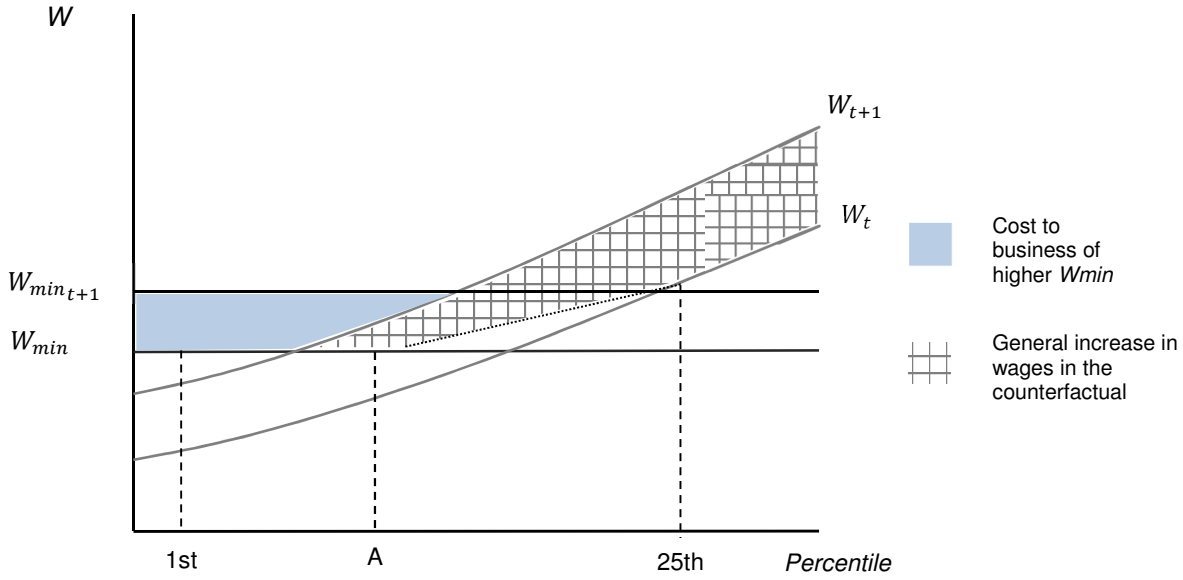
241. This paper studies recent US minimum wages by Amazon, Walmart, Target, and Costco using data from millions of online job ads and employee surveys.

242. It finds that these policies induced wage increases at low-wage jobs at other employers. Using the CPS, it estimates wage increases in exposed jobs in line with the magnitudes in our employee surveys and finds that major employer minimum wage policies led to small but precisely estimated declines in employment.

Annex D: Shadow wage curve as an alternative counterfactual

243. The RPC have previously proposed a framework whereby a significant proportion of workers at the very bottom of the wage distribution would likely experience zero wage growth in the counterfactual in the absence of an NMW/NLW uprating. This could be due to the cumulative effects of minimum wage increases over time pushing wages above what firms would otherwise pay these workers.

Figure 8: Costs to business using a 'shadow wage curve' counterfactual as suggested by the RPC



244. Figure 8 shows the people earning the current minimum wage, W_{min}. The 'shadow wage curve', W_t, shows what people would have been earning in the absence of the NMW policy and that there would be some workers earning less than the minimum wage (along W_t beneath W_{min}). The following year, the NMW increases to $W_{min\ (t+1)}$, and the whole distribution also experiences wage growth to the new theoretical shadow wage curve W_{t+1}.

245. Under this wage growth assumption (roughly uniform across the shadow distribution in the diagram above), it is suggested that some workers earning the NMW would have counterfactual wage growth of zero (e.g., those at the 1st percentile) in the absence of an uprating, before later catching up with the new rate. This is because W_{min} still lies above the shadow wage curve, W_{t+1}, at this point. However, people at point A for instance, who were previously on W_{min} will see an increase in their wages from W_{min} to W_{t+1}. This increase will be less than for the distribution to the right of point A, but more than for those who remain on W_{min}.

246. In summary, the framework postulates that if the minimum wage had never been implemented, the wage distribution in present time would extend below the current value of the minimum wage (i.e., some workers would be earning less than the minimum wage) – referred to as the 'shadow wage curve/distribution'.

247. This cannot be observed because compliance with minimum wage legislation is high. The existence of a shadow wage curve extending below the current minimum wage level cannot be falsified because the counterfactual is unobservable. However, NIESR have previously concluded in their report that the counterfactual may not extend below the current minimum wage and that 'resetting' the counterfactual is the most suitable method to appraise the impacts of NMW/NLW upratings.

248. As noted in previous IAs, the majority of academics we have questioned, have disagreed with the premise that 'in the absence of a minimum wage uprating, wage growth at the bottom of the pay distribution would be at, or close to zero'. We tested this assumption with labour market experts again this year given the unique economic circumstance from the COVID-19 pandemic. None of the responses suggested there would be zero wage growth for the lowest paid in the absence of the minimum wage increase. Furthermore, we have not seen any empirical evidence that would suggest zero wage growth (see Box 2, page 71 of NIESR's report).

249. We acknowledge the impact that COVID-19 has had on the labour market, and the considerable uncertainty the pandemic poses on the future labour market and wages. However, the current combination of labour shortages and high labour demand in some low-paying sectors would suggest wage growth for low paid workers is likely to be relatively strong. Anecdotal evidence received through BEIS stakeholder engagement on pay settlements suggests that some firms are using pay rises to attract workers to vacancies. This tallies with various forecasters best estimates of underlying pay growth (e.g. the OBR forecast pay growth in 2022 will be around 4%) and evidence from pay awards data for 2021 and 2022, where the most common estimate provided for the private sector is 2% to 3%.

250. This wage data a) is not specific to employers of minimum wage workers; b) is an average across the entire of firms, masking considerable variability within sectors, but does give some indication of likely pay growth across the distribution. Nevertheless, we use this to inform the sensitivity analysis set out in this section.

Approach

251. Below we undertake calculations to suggest the order of magnitude of costs and benefits if an approach to model a shadow wage distribution was based on pre-minimum wage data.

252. Last year, we adjusted our methodology, noting feedback from the Regulatory Policy Committee that a clearer explanation was needed. This year we have made additional changes to simplify the approach further. Namely, we construct shadow wage curve and approximate the costs in each time period as per Figure 8 until the shadow wage curve catches up with the 2022 NLW rate. This allows us to follow the graphical representation set out by the RPC and produce a cost figure in one discrete step rather than two separate steps as in last year's IA.

Constructing a 'shadow wage distribution'

253. Given that the minimum wage has been in force since 1999 we cannot observe the shadow wage distribution. We would expect that all points on the shadow wage distribution would see some change over time, reflecting underlying trends in wage inequality which in turn would be driven by labour market and exogenous factors (for example technological progress and underlying labour market trends). The profile of the counterfactual will be a function of the shape of the shadow wage distribution and the wage growth that would happen at each point of its distribution.

254. Under this framework, for jobs on the shadow wage distribution hypothetically paid below the current minimum wage rate, the current rate is theoretically still 'binding' on these jobs. As long as the current rate remains binding, the additional wage costs/benefits would be counted as *direct* costs/benefits under the better regulation framework. With respect to a minimum wage uprating, all else equal (specifically wage growth), jobs on the shadow wage distribution

below the current minimum wage will take more time to grow sufficiently to equal the incoming rate and therefore for these jobs the costs and benefits will endure for a longer period of time.

Challenges

255. Applying this framework means overcoming several significant analytical challenges, given that the shadow wage distribution can never be observed. To estimate a shadow wage distribution, a base wage distribution of some form must be used. Any effects from the minimum wage will be present in any wage distribution from 1999 onwards. One option is to use pre-minimum wage data. However, there are several reasons why this may not be appropriate. These are discussed in NIESR's counterfactual research report (p. 11). In summary:

- There is significant uncertainty over whether a wage distribution from 20 years ago is an appropriate input to a model seeking to estimate impacts for 2019 onwards.
- There are significant reasons to believe that the shape and evolution of the (shadow) wage distribution would have been considerably different to trends observed pre-1999. Specifically:
    - Considerable changes to the population and labour supply (number and composition).
    - Considerable changes to labour market institutions, including trends in unionisation and individual employment rights. Many of these would have impacted on participation and wage setting.
    - Wider structural economic changes, for example significant innovations (e.g., process automation) which would affect how labour and capital are substituted.
    - Societal changes, for example consumer transparency which would increase societal pressure to increase wages (the voluntary 'Living Wage' campaign for example).
- Projecting a wage distribution from 1998 would require forecasting over a long time-horizon. NIESR explain in their report (pp. 56-57) how the uncertainty associated with forecasting is magnified as the time horizon grows – over 20 years in this instance.
- Furthermore, NIESR find that the impact of forecast errors is asymmetric – estimates of counterfactual wage growth that are too low lead to larger overestimates of the costs to business than vice versa, as the period it would take for the counterfactual to catch up to incoming levels would be prolonged (the RPC's proposed method exacerbate the issue to a greater extent than if the counterfactual is reset each year)

Approach

256. Despite the limitations outlined above, we undertake the following steps to derive a distribution:

1. We first take the April 1998 distribution of hourly earnings excluding overtime for workers aged 25+ (Due to data constraints and simplifying modelling assumptions, this group includes apprentices, who would otherwise be eligible to a lower minimum wage).
2. We then project this distribution forward for the years through to 2021/22. To do this we use the annual wage growth at the 25th percentile (the percentile where we assume spillovers to go up to), in each year between 1998 and 2021.
3. Noting the challenges in the wage data, we have applied the annualised counterfactual wage growth rate used as our best estimate in this IA of 3.16% to uprate the shadow wage curve from 2021 to 2022 (and beyond) for consistency with our central scenario (see

paragraph 100). It is important to note that this growth rate is lower than that which NMW/NLW workers would actually experience due to the minimum wage uprating in 2022.

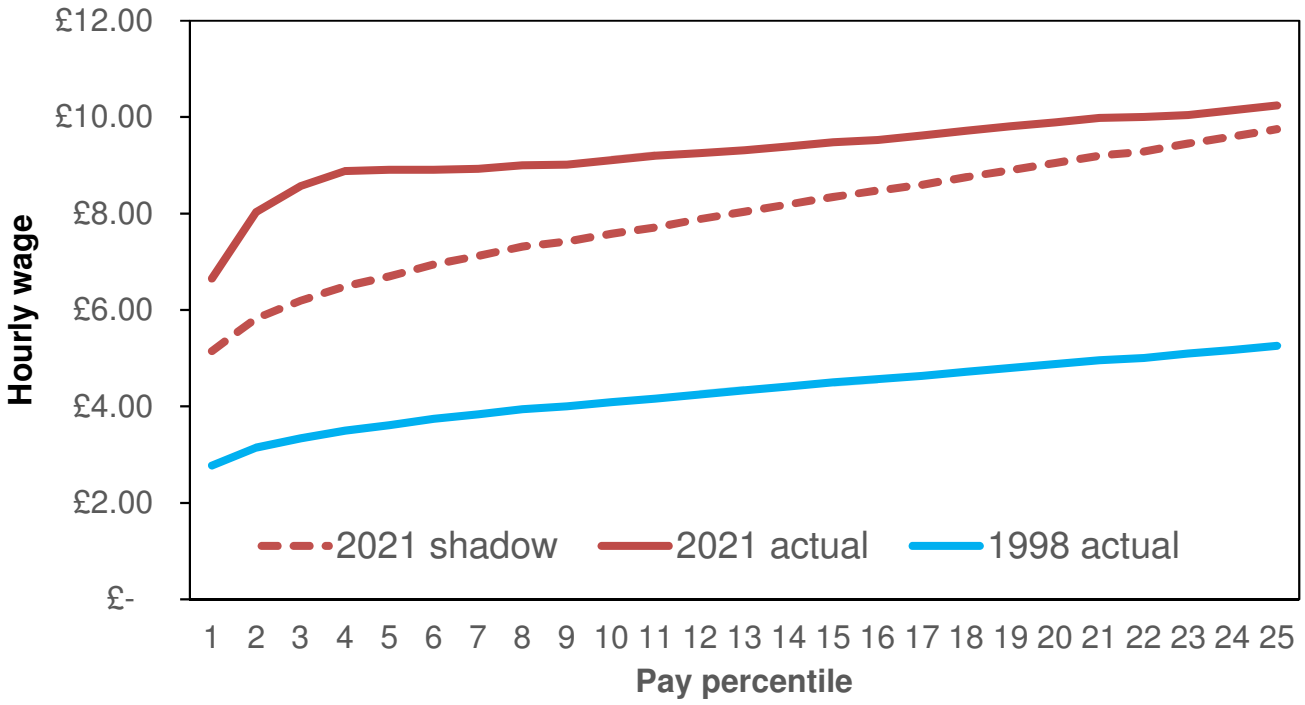
Box 5: Inputs and assumptions

- For the approach below we have used the 1998 wage distribution from NES (the predecessor to ASHE). This is the most recent year of data from before the introduction of the minimum wage in 1999. It is possible that employers may have sought to pre-empt the introduction of the minimum wage by increasing wages of the lowest paid in 1998. It is not possible to adjust for this potential anticipation effect.
- Our key assumption is that percentiles 1 to 24 of the wage distribution would grow at the same rate as the 25th percentile. We choose the 25th percentile as this is akin to the point where we assume spillover effects from the 2021 minimum wage increase went up to.
- In theory, we should estimate the point of the distribution at which the 'ripple effect' of the minimum wage stops for each year and use growth of the percentile just above. However, we do not have estimates of this for every minimum wage uprating**.**

Results

257. Figure 9 shows the outcome of the approach described above and compares the resulting shadow wage distribution with the original 1998 distribution and the actual 2021 distribution[64]. For reference, the 2020 £8.72 NLW rate cuts in around the 14th percentile of the 2020 shadow wage distribution. In the actual 2020 distribution the NLW hits at around the 6th percentile.

Figure 9: Distribution of hourly earnings (exc. overtime), UK, workers 23+; 1998, 2021 and estimated 'shadow wage distribution'



[64] As described in the main body of this IA, we have used a midpoint of two possible distributions available in the 2020 ASHE data, for our central estimate. We once more utilise this "midpoint" distribution in this Annex' analysis

Source: BEIS analysis of Annual Survey of Hours and Earnings and New Earnings Survey. Hourly earnings excluding over time (HEXO)

258. As outlined above and in previous IAs, in order for the above distribution to be an accurate reflection of the *true* shadow wage distribution there would have had to have been no significant changes to underlying wage inequality over the previous 23 years. This is unlikely given some of the significant shifts in the labour market in the last 23 years (two considerable recessions, population changes, automation, changes to employment law, improved transparency on business practices etc).

259. Projecting the shadow wage distribution forwards gives an indication of when, in the future, percentiles of the distribution below the current minimum wage level might 'catch-up' with that level based on our assumed growth rate under this framework.

260. Consistent with last year's approach, we then use our constructed shadow-wage distribution (i.e., a wage distribution for 2022 derived from the 1998, pre-NMW wage distribution) and estimate the cost that arises from moving from the 2021 NLW to the 2022 NLW.

261. In practice, we undertake the following calculations:

1. Estimate the percentile in the shadow wage distribution where the current NLW reaches (i.e. where SW_{22} is equal to NLW_{21} in Figure 10).

2. Estimate the percentile in the shadow wage distribution where the proposed 2022 NLW reaches (i.e. where SW_{22} is equal to NLW_{22} in Figure 10).

3. For each £-value in between these points, multiply the difference between NLW_{22} and that £-value, by the number of people at that £-value (area A in Figure 10). For this group, counterfactual annual wage growth approach is greater than zero but less than the increase in the NLW wage.

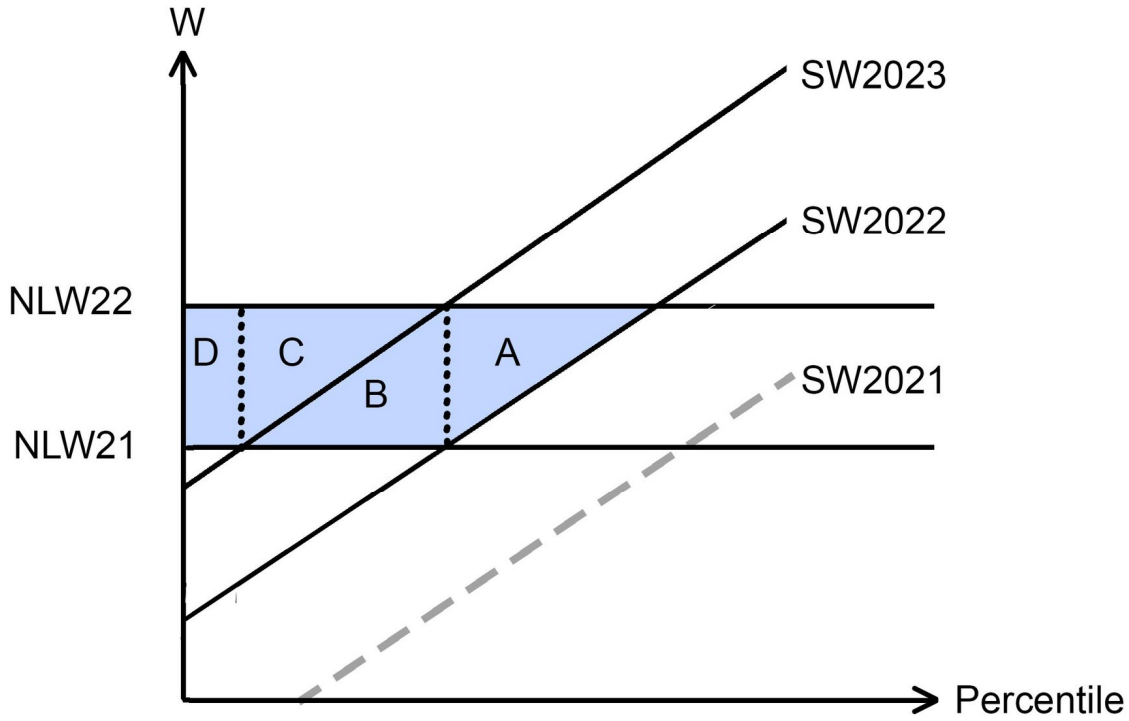
4. Multiple the full difference between NLW_{22} and NLW_{21} by the number of people up to who under this approach would receive zero counterfactual wage growth (i.e. areas B, C and D in Figure 10).

5. Sum these costs, thereby estimating the additional wage cost for 2022.

6. Uplift the shadow wage curve by counterfactual wage growth and then repeat steps 1 to 5 for each year until the shadow wage curve has caught up with the proposed 2022 NLW rate. For example, in Figure 10 the total wage costs for 2023 are given as areas C and D.

7. Sum total costs across years and uplift this cost by 17.9% to adjust for non-wage labour costs.

Figure 10: Stylised shadow wage distribution calculations



262. Under this stylised approach, the cost to business of the 2022 NLW increase is calculated to be £5.3 billion. This reflects the idea that the introduction of the NMW in 1999 has had a base-raising impact on today's wage distribution and low paid workers would receive zero pay growth for a period of time in the absence of the NLW increases. In total, it takes four years for the shadow wage curve to catch up with the 2022 NLW rate. Note that these estimates do not include spillover impacts.

263. However, as suggested above in paragraph 255, the calculation of our shadow wage distribution is inherently flawed. As such, it's important to stress that we do not believe this approach will accurately estimate the true cost to business/benefit to workers for the reasons outlined above and explained by NIESR in their report (Section 4.3) and boxes 1 and 2 in their report provide evidence why the shadow wage curve framework may not necessarily hold. Specifically, NIESR's research did not uncover positive evidence supporting this approach, and engagement with academics continues to support the approach we have taken in the main body of this IA, as both appropriate and unbiased.

264. Furthermore, the shadow wage curve constructed from 1998 data implies that in the absence of the NLW increase in 2022 then around 3.1 million low paid workers would see no pay growth in the next 12 months. We deem this to be exceedingly unlikely, illustrating both the difficulty in producing a credible estimate of the shadow wage curve and that wage setting behaviour for low-paid workers is unlikely to follow the predictions made by this theoretical approach.

265. As ever, we welcome the RPC's thoughts and feedback on this annex and the stylised analysis undertaken here. However, with the feedback received through our academic engagement over previous years providing little justification that this theoretical exercise will materialise in practice, in addition to the data challenges set out above, we continue to review the utility of replicating this analysis in any future iterations of the impact assessment

Annex E: Public/Private/Voluntary sector cost breakdown

266. This annex breaks down our best, highest and low-cost scenario estimates of costs by public, private and voluntary sectors. We have done this by estimating the proportion of public, private and voluntary sector workers who are projected to be affected by each of the rates in April 2022, using ASHE 2021, and then applied these proportions to the total costs estimated previously in the impact assessment.

267. When calculating the EANDCB we combine the private and voluntary sectors. The proportion of workers who we expect to be affected in these sectors for the NLW is 96%, whilst for the 21-22, 18-20, 16-17 and Apprentices NMW rates the proportions are 95%, 98%, 99% and 89% respectively. Please note that these values are presented in constant prices, with figures rounded to the nearest million.

Public sector (£m)

Average Earnings	Direct		Indirect		Total
	Wage Cost	Non-Wage Labour Costs	Wage Costs	Non-Wage Labour Costs	
NLW (23+)	£25	£4	£23	£4	£56
Main (21 - 22)	£6	£1	£0	£0	£8
Development (18 - 20)	£0	£0	£0	£0	£0
Youth (16 - 17)	£0	£0	£0	£0	£0
Apprentice	£2	£0	£0	£0	£3
Total	£33	£6	£24	£4	£67

Private Sector (£m)

Average Earnings	Direct		Indirect		Total
	Wage Cost	Non-Wage Labour Costs	Wage Costs	Non-Wage Labour Costs	
NLW (23+)	£535	£96	£501	£90	£1,222
Main (21 - 22)	£114	£20	£9	£2	£145
Development (18 - 20)	£7	£1	£4	£1	£12
Youth (16 - 17)	£0	£0	£0	£0	£1
Apprentice	£18	£3	£2	£0	£24
Total	£675	£121	£516	£92	£1,404

Voluntary sector (£m)

Average Earnings	Direct		Indirect		Total
	Wage Cost	Non-Wage Labour Costs	Wage Costs	Non-Wage Labour Costs	
NLW (23+)	£47	£8	£44	£8	£107
Main (21 - 22)	£5	£1	£0	£0	£6
Development (18 - 20)	£0	£0	£0	£0	£0
Youth (16 - 17)	£0	£0	£0	£0	£0
Apprentice	£2	£0	£0	£0	£3
Total	£54	£10	£45	£8	£117

Annex F: Coverage of the NMW/NLW (April 2022) by low paying sector and region

268. The tables below list coverage of the NLW and the NMW rates by region, area and low paying sector. The choice of counterfactual assumption is crucial for determining coverage in April 2022. The figures below are based on our central estimate scenario of 0.78% quarterly counterfactual wage growth. Values may not sum due to rounding.

Region	***Coverage of all NLW and NMW rates - projected number of workers paid at or below in April 2022***	
	NLW	**NMW rates**
North East	100,000	20,000
North West	260,000	40,000
Yorkshire & Humber	210,000	30,000
East Midlands	180,000	30,000
West Midlands	220,000	40,000
South West	190,000	30,000
East	180,000	30,000
London	200,000	20,000
South East	250,000	40,000
Wales	110,000	10,000
Scotland	150,000	30,000
Northern Ireland	110,000	30,000
Total	2,140,000	330,000

Area	***Coverage of all NLW and NMW rates - projected number of workers paid at or below in April 2022***	
	NLW	**NMW rates**
Northern Ireland	110,000	27,000
Tees Valley and Durham	45,000	7,000
Northumberland, and Tyne and Wear	54,000	10,000
Cumbria	17,000	3,000
Greater Manchester	105,000	12,000
Lancashire	54,000	11,000
Cheshire	31,000	5,000
Merseyside	47,000	7,000
East Yorkshire and Northern Lincolnshire	42,000	5,000
North Yorkshire	28,000	3,000
South Yorkshire	55,000	7,000
West Yorkshire	80,000	13,000
Derbyshire and Nottinghamshire	80,000	13,000
Leicestershire, Rutland and Northamptonshire	67,000	13,000
Lincolnshire	32,000	5,000
Herefordshire, Worcestershire and Warwickshire	52,000	7,000
Shropshire and Staffordshire	62,000	13,000
West Midlands	105,000	15,000
East Anglia	90,000	11,000
Bedfordshire and Hertfordshire	44,000	8,000

Essex	44,000	9,000
Inner London - West	14,000	2,000
Inner London - East	56,000	3,000
Outer London - East and North East	46,000	3,000
Outer London - South	25,000	4,000
Outer London - West and North West	46,000	4,000
Berkshire, Buckinghamshire and Oxfordshire	55,000	6,000
Surrey, East and West Sussex	67,000	12,000
Hampshire and Isle of Wight	51,000	12,000
Kent	57,000	7,000
Gloucestershire, Wiltshire and Bath/Bristol area	78,000	12,000
Dorset and Somerset	44,000	7,000
Cornwall and Isles of Scilly	22,000	3,000
Devon	45,000	8,000
West Wales and The Valleys	74,000	9,000
East Wales	38,000	4,000
North Eastern Scotland	13,000	1,000
Highlands and Islands	13,000	2,000
Eastern Scotland	55,000	11,000
West Central Scotland	38,000	6,000
Southern Scotland	26,000	4,000
Unknown	3,000	4,000
Total	2,140,000	330,000

Low paying sector	***Coverage of all NLW and NMW rates - projected number of workers paid at or below in April 2022***	
	NLW	**NMW rates**
Agriculture	25,000	3,000
Food processing	73,000	4,000
Textiles	13,000	500
Retail	351,000	71,000
Hospitality	301,000	96,000
Security and enforcement	16,000	200
Cleaning and maintenance	250,000	7,000
Social care	141,000	6,000
Childcare	72,000	11,000
Leisure	32,000	8,000
Hair & beauty	33,000	10,000
Office work	81,000	8,000
Non-food processing	63,000	8,000
Storage	86,000	8,000
Transport	84,000	7,000
Call centres	9,000	1,000
Non-low paying sectors	512,000	79,000
Total	2,140,000	33,0000

Annex G: Specific Impact tests

Equality Analysis

269. Under the Equality Act 2010 the Department for Business, Energy and Industrial Strategy, as a public authority, is legally obligated to have due regard to equality issues when making policy decisions. Specifically, the Public Sector Equality Duty (PSED) sets out:

- Eliminate unlawful discrimination, harassment and victimisation and other conduct prohibited by the Act;
- Advance equality of opportunity between people who share a protected characteristic and those who do not; and
- Foster good relations between people who share a protected characteristic and those who do not.

270. The protected characteristics consist of nine groups: age, race, gender, disability, religion or belief, sexual orientation, gender reassignment, pregnancy and maternity, marriage, and civil partnership. This Equality Analysis considers the potential equality impacts of the National Minimum Wage and National Living Wage uprating.

271. The increase in the NMW and NLW have universal coverage for workers aged 16 and over working in all sectors and regions of the United Kingdom. The policy aims to protect workers and all employers are legally obliged to pay at least the statutory minimum hourly rate.

Estimating pay rates by personal characteristics

272. Our statistical information is sourced from Annual Survey of Hours and Earnings (ASHE) and Labour Force Survey (LFS) data published by Office for National Statistics (ONS). There are two key challenges when analysing the effects of the rate increases on protected groups in the labour market.

- Firstly, ASHE does not include data that enables us to analyse earnings by ethnicity, religion, disability status, marital status, sexual orientation, gender reassignment pregnancy and maternity.
- Secondly as set out previously in this IA, pay variables in LFS are less robust than ASHE.

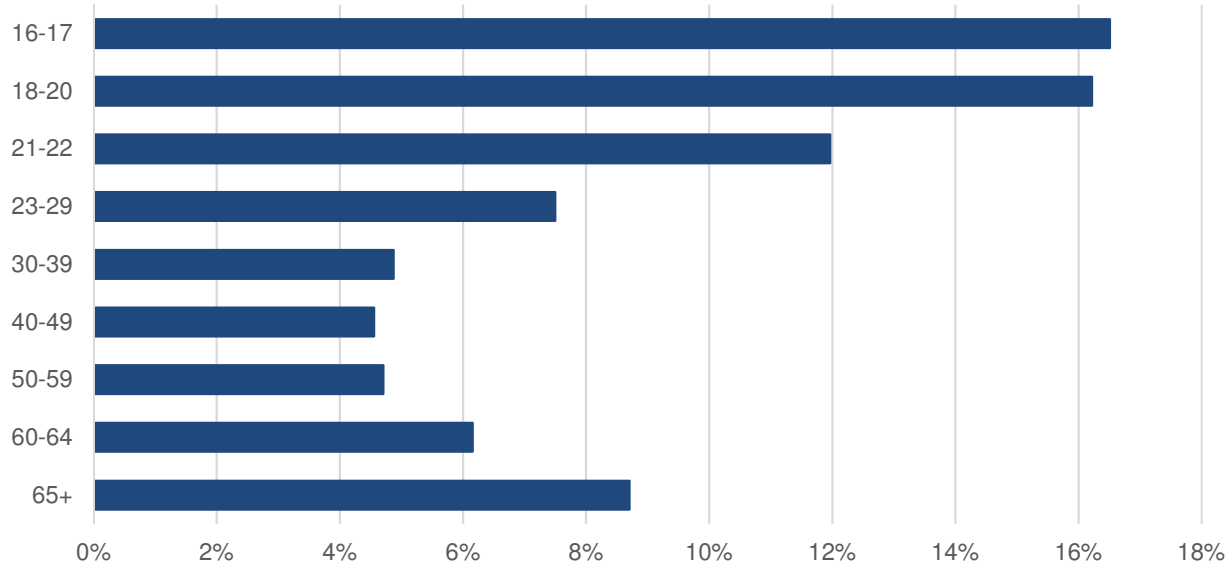
273. The Labour Force Survey does, however, provide information relating to ethnicity, nationality and disability status and earnings. Using an imputation method to boost responses, the ONS can more accurately report earnings data by personal characteristics. We have replicated their findings for the latest quarter of available data and present the findings below.

Age

274. Figure 11 shows estimated coverage of different age groups by the NMW/NLW in 2021. The bars represent coverage among the population including workers who have lost pay due to furlough.

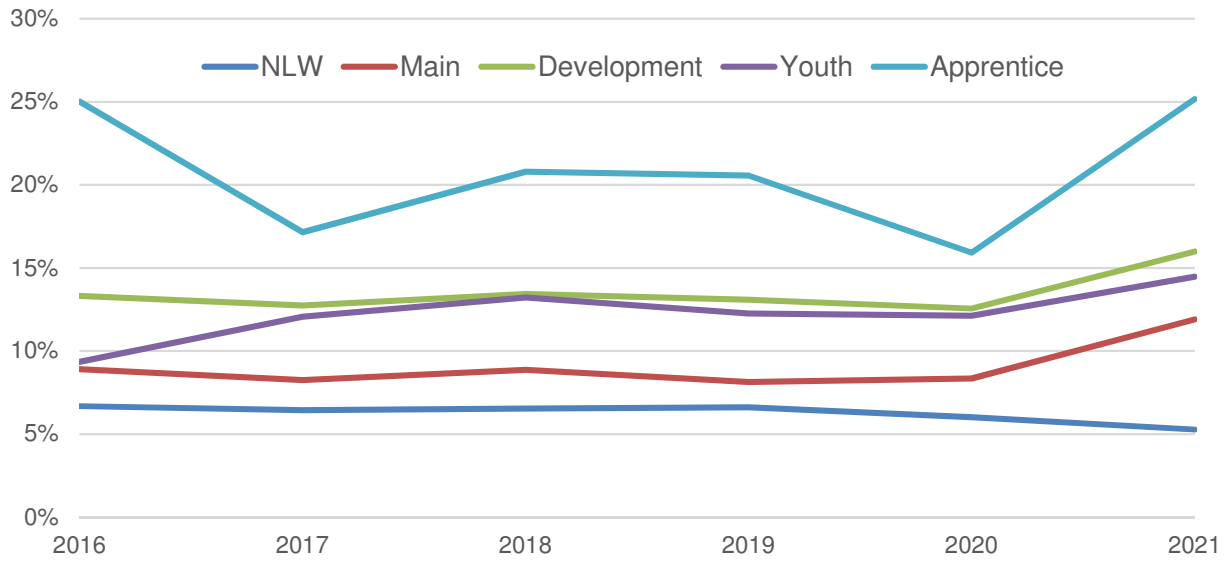
275. The coverage rate is highest for the youngest workers, with the section aged 16-22 having a particularly high coverage rate averaging 15%. The age group with the second highest level of coverage is the 65+ cohort with a coverage rate of 9% followed closely by the 23-29 year-old cohort at 8%. The group with the lowest share of workers covered by the NLW is the 40-49 cohort, at 5% coverage.

Figure 11: NLW/NMW coverage by age group, ASHE 2021



276. Figure 12 looks at NMW/NLW coverage by age bands over the past 5 years. Coverage for the NLW has decreased marginally by 1 percentage point between 2020 and 2021, though note that given the age eligibility was extended from 25+ to 23+ this still represents an increase in absolute terms. Coverage for the main, development, and youth rates have increased by 2-4% for each band. This is likely due to the combined effect of changes to the age brackets, and the impacts of the pandemic on younger workers.

Figure 12: NMW/NLW coverage by age group, ASHE 2016-2021



277. The youth labour market is much more sensitive to economic shocks and young people can be exposed to longer-term scarring effects from prolonged spells of worklessness. They also face a comparative disadvantage when entering the labour market due to a lack of work experience and less knowledge. As raised in the LPC Youth Rates report[65], 'young people enter the labour market with relatively limited experience and few skills, and so have lower

[65] LPC 2019 A review of the youth rates of the national minimum wage

productivity while they learn the job. In addition, employers may need to provide additional training for young workers, incurring further cost.

278. The LPC 2021 report[66] outlines that younger workers have been the fastest to move off the furlough scheme, and at the same time recovery in employment and hours has been strong, this suggests that young workers have been able to find job opportunities or return to their old jobs. However, although under 20's groups have rebounded the fastest, employment levels are still further away from pre-pandemic levels than for those aged 21 and over.

279. Any minimum wage structure needs to recognise the lower productivity and higher training costs of less experienced workers. Failure to do so could mean that some employers are unwilling to give young people those critical first opportunities. Consequently, the Government asks the LPC to recommend separate NMW rates by age band (16-17, 18–20-year-olds, and 21–22-year-olds) to protect the employment prospects of younger workers and enable them to take that valuable first step into work.

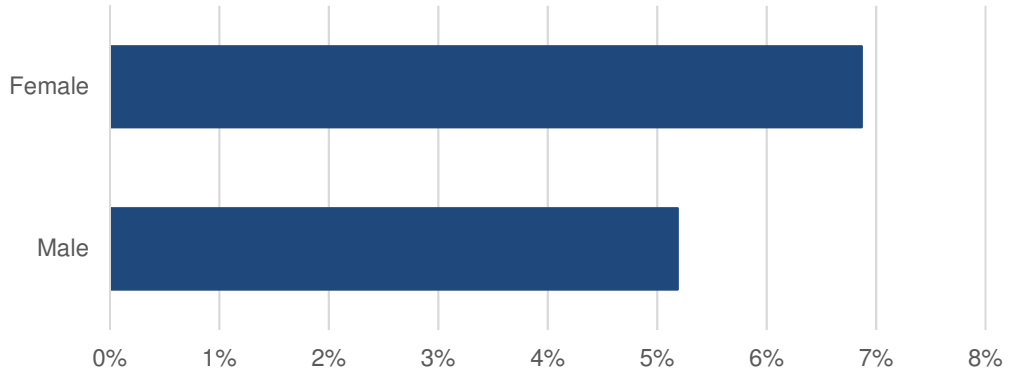
280. A CPB Discussion Paper (2021) examines the impact of the 2017 increase in the Dutch youth minimum wage on labour market outcomes for low-paid young workers. Key findings are a rise in workers' average wage by 4%, without adverse effects on employment or hours worked, and spillover effects accounting for 75% of the total wage increase for younger workers.

281. In summary, it is the youngest and the eldest workers who are more likely to be in a minimum wage job. This means that the increases to the NLW/NMW rates will disproportionately benefit these groups.

Gender

282. Figure 13 shows how NMW coverage rates vary by gender in the year 2021. Female workers continue to be disproportionately more likely to be on the NLW/NMW, with a coverage rate of 7%. The coverage rate for male workers is slightly lower, at 5%. Of those covered by the NLW/NMW rates in the population, 59% are female and 41% are male.

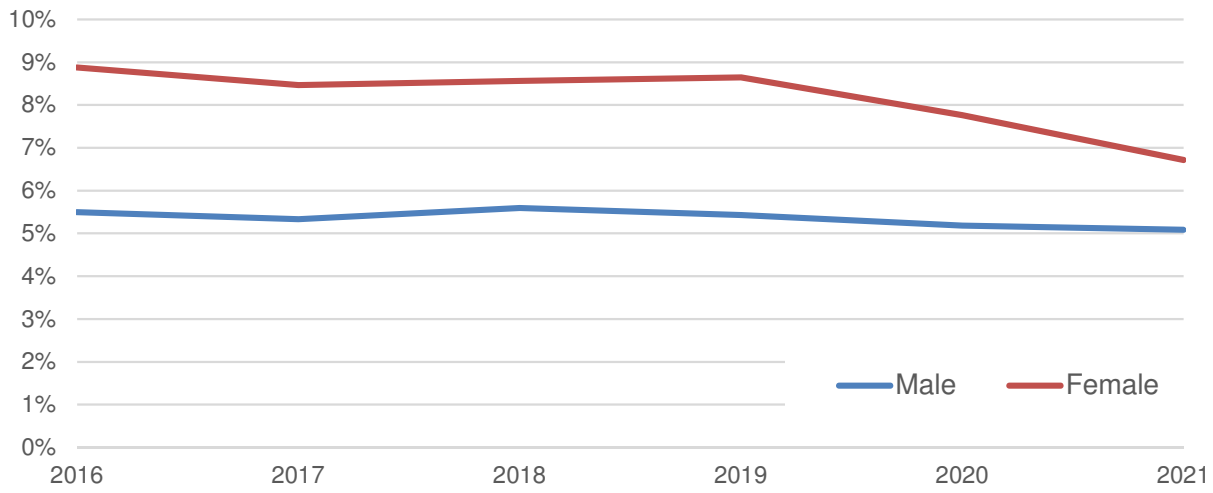
Figure 13: NLW/NMW coverage by gender, including workers who have lost pay due to furlough, ASHE 2021



[66] https://www.gov.uk/government/publications/low-pay-commission-report-2021

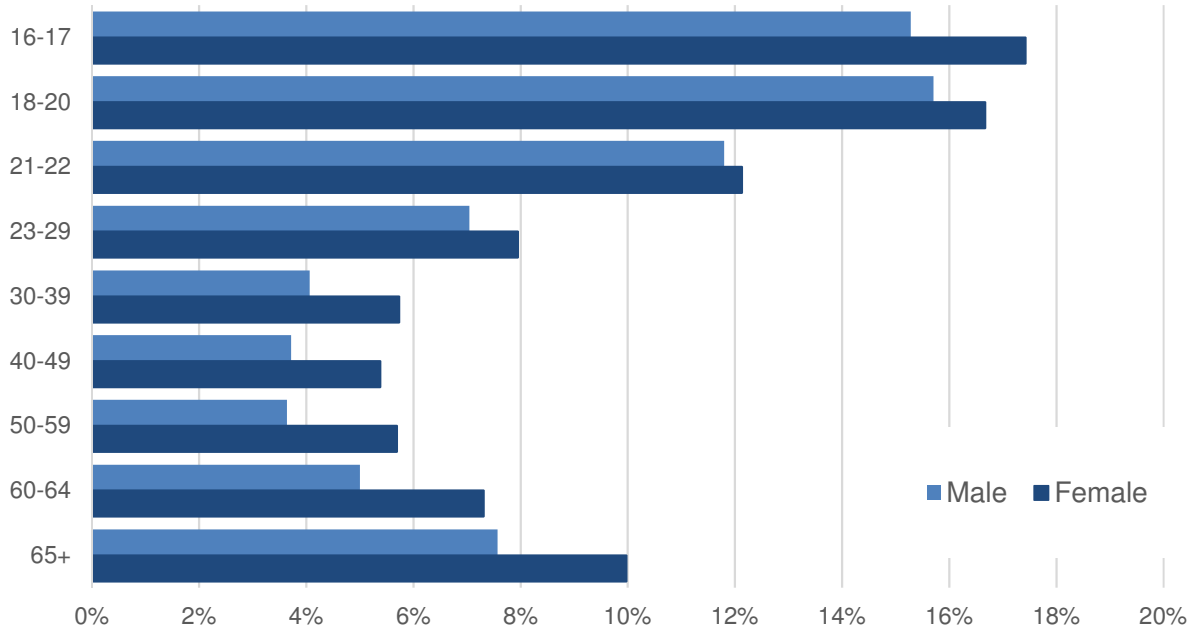
283. Figure 14 shows that, over time, NMW/NLW coverage for males has remained relatively steady with no changes higher than 0.5 percentage points. This was also the case for females until 2019, since then the coverage percentage has fallen slightly by 2 percentage points.

Figure 14: NMW/NLW coverage by gender, ASHE 2016-2021



284. Figure 15 breaks down NLW/NMW coverage by the sex and age of respondents in the ASHE dataset. The 16-17 and 65+ cohorts see the largest variance in NLW/NMW coverage by gender (2.4 percentage points higher among women for both age bands). The gender gap in coverage falls to 0.3% for the 21-22 age cohort and then rises in the 23-29 age cohort to 0.9%.

Figure 15: NLW/NMW coverage by age and gender, including workers who have lost pay due to furlough, ASHE 2021



285. The higher rate of coverage among women indicates that they would benefit disproportionately from future increases in the NMW/NLW. We have also found no evidence that increases in the NMW/NLW rates cause gendered impacts on employment, with

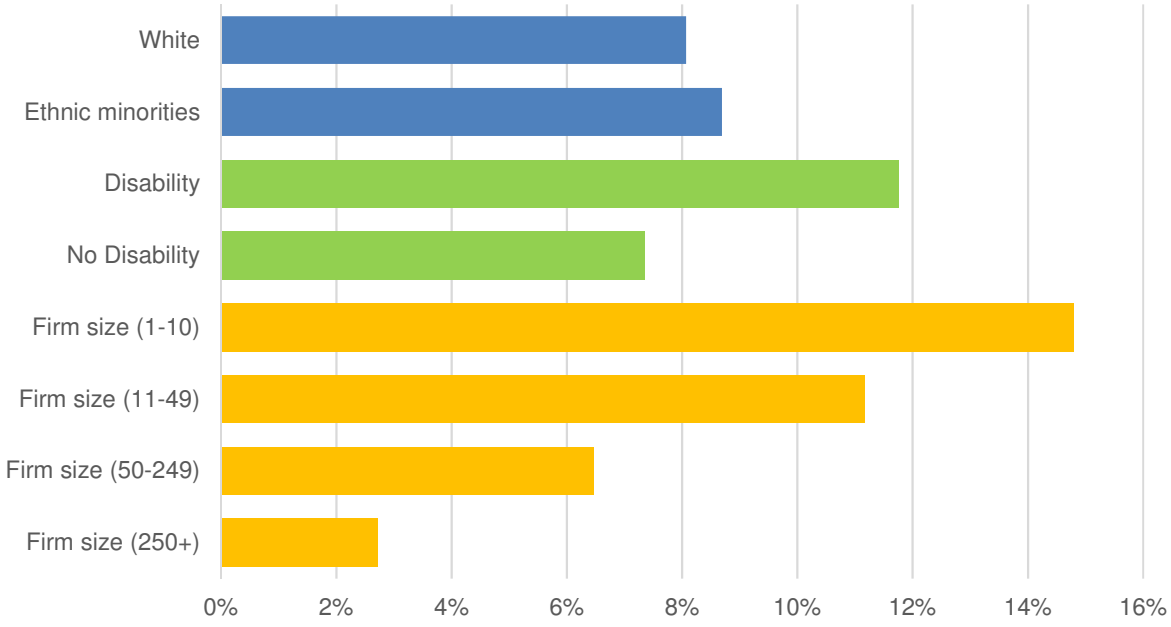
employment rates decreasing for women by 0.9 percentage points between Q1 2020 and Q1 2021, while employment rates fell by 2.4 percentage points for men over the same period.

286. Econometric studies have previously found that there is weak evidence that the introduction of the NLW did have small negative impacts on part-time women and their employment prospects (Capuano et al. 2019). However, the literature is not fully conclusive, with findings for 2018 then showing no negative retention effects by any group of employees considered. Other studies (Dickens and Lind, 2018) suggest negative impacts on part-time women were not seen in 2016 but were in 2017, and Dickens and Lind suggest that those who would have been in employment without the higher minimum wage are economically inactive instead. Capuano et al. also found a positive employment retention effect on, private sector, part-time women in 2018. While this paints a somewhat complex picture, we will continue to liaise with the LPC and academics to monitor whether any adverse impacts are observed on part-time women due to the latest upratings in 2020 and 2021.

Disability

287. Data from the Labour Force Survey shows that employees who have a disability have an NMW/NLW coverage rate 5 percentage points higher than employees without a disability. Note that whilst higher coverage for disabled workers is a common trend in the data, the difference may have been exaggerated by pandemic-related impacts, such as furlough. This is represented in Figure 16.

Figure 16: NLW coverage for workers, aged 25 and over, by worker characteristic and workplace size, Labour Force Survey Q2 2020 - Q1 2021

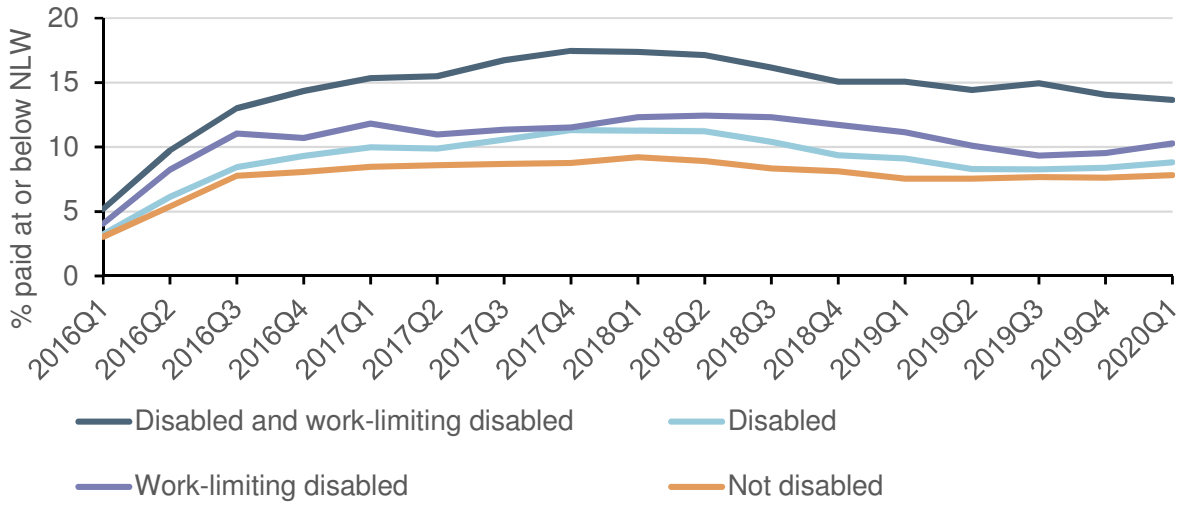


288. There again remains no evidence that increases in the NMW/NLW reduces employment disproportionality for disabled people. Between Q1 2020 and Q1 2021, following a significant rise in the NLW the employment rate for disabled workers decreased by 1.3 percentage points, while employment rates for non-disabled employees decreased by 1.4 percentage points over the same period. There are likely to be pandemic-related reasons for this fall in overall employment.

289. Figure 17 shows that NLW coverage over time has increased and decreased proportionality for all disabled and non-disabled workers. This indicates that no groups are likely to have

experienced a change in impact from NLW increases over the past 5 years, and we assume that this will continue.

Figure 17: NLW coverage for disabled workers, between 2016 and 2020, LPC analysis of LFS.

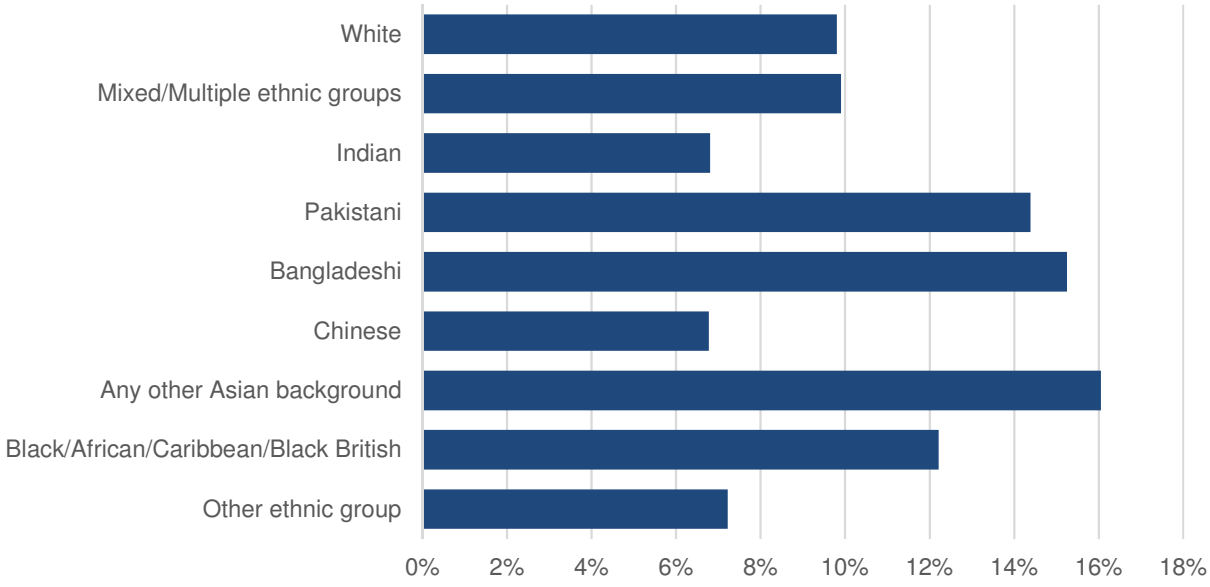


290. As this trend does not demonstrate any disproportionate impacts for disabled workers, we believe there are unlikely to have been large adverse effects of last year's increases on individuals with disabilities. If the proposed NMW/NLW rate increases are implemented, there are likely to be disproportionate positive impacts felt among employees with a disability.

Ethnicity

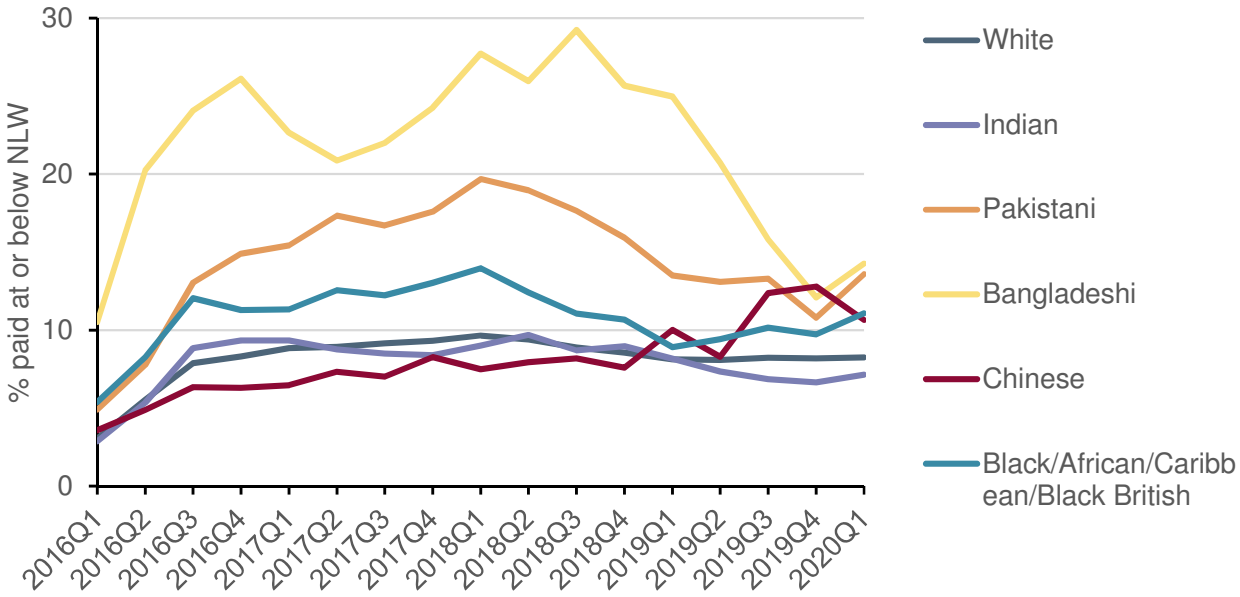
291. The coverage rate for ethnic minorities is 8.7%, 0.6 percentage points higher than the coverage rate for white worker as seen in Figure 18. This relatively small difference hides a more diverse picture. When looking at individual ethnic groups, there is greater variation in coverage with some markedly higher, such as Pakistani (12.3%) and Bangladeshi (13.3%), and some lower, such as Chinese (5.8%) than white workers.

Figure 18: NLW coverage for workers, aged 25 and over, by ethnicity, Labour Force Survey Q2 2020- Q1 2021



292. Figure 19 shows that coverage by ethnicity has fluctuated heavily for some ethnic minorities over the past several years. NLW coverage has drastically reduced for Pakistani and Bangladeshi workers since 2018, reaching approximately 10% from peaks of 30% and 25% respectively. Meanwhile, coverage rates for all other ethnic groups, including white workers, has remained relatively steady since 2016.

Figure 19: NLW/NMW coverage by ethnicity, between 2016 and 2020, LFS.



293. There is no evidence to suggest that the NLW rise in 2021 had any adverse effect on the employment prospects of ethnic minority workers. However, due to their higher rates of NLW coverage it is likely that they would experience disproportionate benefits from further rises in the NLW.

294. Clark and Nolan (2021) finds that while some groups experience reductions in the pay gap consistent with lower discrimination, including relatively well-paid Indian workers and relatively poorly paid Bangladeshis, others - specifically Black groups - face an apparent glass ceiling barring access to well paid jobs. The increasing educational attainment of Britain's ethnic groups provides some optimism around narrowing pay differentials, particularly at the top of the distribution, while the introduction and uprating of the National Minimum/Living Wage has contributed to improvements at the lower end.

Characteristics not covered by LFS

295. We do not have a comparable way to evaluate the NMW/NLW coverage for some protected characteristics, such as marriage, pregnancy, and religion, as they are not covered within the LFS or recent literature. Nevertheless, we do not expect the uplift to have a disproportionate negative impact on these groups. The NMW applies to all workers regardless of their characteristics with no evidenced impact on employment, and strong evidence showing a positive impact for workers in low-paid jobs.

Summary

296. In summary, the evidence suggests that there will be disproportionate positive wage impacts on some protected groups as a result of the proposed increase in NMW/NLW – including the youngest, and eldest workers, women, ethnic minorities. At the same time, we

have found little evidence of the potential for any negative impacts. Evidence of weak negative impacts on part-time women due to the introduction of the NLW in 2016 do not seem to have materialised in subsequent upratings.

297. The pandemic's economic effect on labour markets has been broad and varied, with impacts being felt differently across various protected groups. However, there is no evidence that the falls in employment experienced by some of these groups are in any way related to rises in the NMW/NLW, or that further raises in the NMW/NLW would increase the economic distress felt by these groups. However, we recognise that this is an important issue and will continue to monitor developments in the labour market outcomes of these groups.

Advancing the equality of opportunity

298. The Public Sector Equality Duty (PSED) requires the Department to have due regard to the need to advance equality of opportunity between people who share a protected characteristic and those who do not.

299. The NMW and NLW policy is designed to have a positive impact on all workers in low paid sectors regardless of their personal characteristics. While those under the age of 23 may be impacted by being covered by a lower minimum wage rate, this is balanced by (i) protecting the employment prospects of younger workers given their tougher labour market conditions and the importance of gaining skills and experience; and (ii) possibly improving the attractiveness of younger workers for employers.

Eliminating discrimination and other prohibited conduct

300. The PSED requires BEIS to have due regard to the need to eliminate unlawful discrimination, harassment and victimisation and other conduct prohibited by the Act. The design of the NMW reflects provisions in the Act which allow the minimum wage rates to vary depending on age up to age 23. Some firms do not use pay structures based on age-related rates, negating risks of increased discriminatory recruitment policies.

Fostering good relations

301. The PSED requires BEIS to have due regard to the need to foster good relations between people who share a protected characteristic and those who do not. The NMW/NLW has national coverage, paid to all workers of any social characteristic. This should retain the diversity in the workforce, from skills to ethnicity to social background. Workplace relations should remain positive with workers benefiting from a higher wage floor.

Family test

302. We consider the increase in the NMW/NLW rates will provide a net benefit to families, by making work pay. This policy results in a transfer from employers to employees, increasing the wage of the lowest paid.

303. Statistics produced by the ONS (2020) suggest that employment has grown more quickly for single parents and hence the effect of the proposed increases in the NMW/NLW rates is therefore likely to have a disproportionally positive effect on this group. We therefore believe that this policy will have a positive impact on families coping with couple separation.[67]

[67] https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/families/bulletins/familiesandhouseholds/2020

304. Additionally, analysis conducted by Brewer and De Agostini (2017) showed that forecast increases in the NMW and the NLW by 2020-21 would increase net real incomes of minimum wage families by, on average, about 1.5 per cent.[31]

305. Finally, the LPC have previously provided some analysis in Chapter 9 of their 2019 report, highlighting how a married couple household, with two children and only one working parent, would see their weekly income rise in cash terms by £10.73 due to the NLW (assumes 30 hours worked a week). We therefore believe that this policy will have a positive impact on family members' ability to play a full role in family life, as well as positively affecting families going through key transitions such as becoming parents.

Annex H: Past analysis on the counterfactual

306. The Department has undertaken a range of research and analysis to inform its judgement on the counterfactual and appraisal approach over the last few years. This is listed below and can be found in detail in previous impact assessments. The RPC has also fed in at various points including commenting on discussion materials and on the research specification:

- Engagement with labour market experts seeking views on how to model an appropriate counterfactual, including whether assumptions of zero wage growth were appropriate.
- Discussions with business representative organisation exploring how the wages of the lowest paid may develop in the absence of a minimum wage uprating.
- Analysis of economy, labour market and wage data to examine underlying trends.
- Descriptive analysis of ASHE microdata to explore different percentiles of the wage distribution as appropriate control groups.
- Longitudinal analysis of ASHE, supplemented by evidence from the Bank of England's Wage Dynamics Survey to explore the wage dynamics of low paid workers between years.
- Examined historic wage distributions to identify trends from before the NMW was introduced.
- Explored the literature, including previous LPC reports.
- Explored sensitivities, including CPI inflation and average earnings growth as a counterfactual, with zero wage growth scenarios considered as a single year.
- Made changes to the approach to determining the appraisal period and revisited previous appraisals to align our approach to this revised methodology.
- Commissioned NIESR to independently recommend an appropriate counterfactual (latest). This included an extensive literature review, consultation with labour market and regulatory experts and structured in-depth qualitative interviews with employers, employer trade bodies and trade union representatives. Their full report can be found at: https://www.gov.uk/government/publications/national-minimum-wage-evaluation-counterfactual-research
- Questionnaire to labour market academic experts on NIESR's findings – further details of this can be found in Annex B and throughout this IA.
- Held an academic roundtable attended by leading labour market specialists who offered their views on future wage growth in the context of the COVID-19 pandemic, and suitable counterfactuals for this Impact Assessment.
- Questionnaire to labour market academic experts on our approach to the counterfactual this year. Specifically asked for input on choice of growth rate and the spillover assumption.