Title: Amendment to the National Minimum Wage regulations 2017 - increase in National Minimum Wage and National Living Wage rates **IA No:** BEIS002(F)-17-LM **RPC Reference No:** RPC-3588(1)-BEIS **Lead department or agency:** Department for Business, Energy and Industrial Strategy **Other departments or agencies:** None	**Impact Assessment (IA)** **Date:** 30/01/2017 **Stage:** Final **Source of intervention:** Domestic **Type of measure:** Secondary legislation **Contact for enquiries:** Labourmarket.analysis@bis.gsi.gov.uk

Summary: Intervention and Options

RPC Opinion: GREEN

Cost of Preferred (or more likely) Option				
Total Net Present Value	**Business Net Present Value**	**Net cost to business per year** (EANDCB in 2014 prices)	**One-In, Three-Out**	**Business Impact Target Status**
-£7.3	-£281.3	£131.6	Not in scope	Non qualifying provision

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

The National Minimum Wage (NMW) was introduced in 1999 to protect workers from exploitative wages due to unequal bargaining power, 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 to improve work incentives and ensure that low wage workers are fairly rewarded for their contribution to the UK economy. The aim for the NLW is to reach 60% of median earnings by 2020, subject to sustained economic growth. The Low Pay Commission (LPC) has made recommendations to Government on the NLW and NMW rates that should apply from April 2017.

What are the policy objectives and the intended effects?

The objective of the NMW is to maximise the wages of the low paid without damaging their employment prospects by setting it too high, whilst the aim of the NLW is to reach 60% of median earnings by 2020 subject to sustained economic growth. The NMW and NLW rates set 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 2017. The independent LPC was set up in 1997 to make recommendations on the NMW to Government. In making its recommendations to Government, the LPC has consulted extensively and undertaken substantial analysis. Details are contained in its autumn 2016 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

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 without damaging their employment prospects. The recommendation on the NLW is on track to reach 60% of median earnings by 2020. Option 0 would not achieve these objectives.

Will the policy be reviewed? It will be reviewed. **If applicable, set review date: LPC reports from 2017**

Does implementation go beyond minimum EU requirements?		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:**	**Non-traded:**	

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: Margot James Date: 26 January 17

Summary: Analysis & Evidence

Description: Option 1 - implement the LPC recommended NMW rate increases

FULL ECONOMIC ASSESSMENT

Price Base Year 2016	PV Base Year 2017	Time Period Years 2	Net Benefit (Present Value (PV)) (£m)		
			Low: -£7.0m	**High:** -£7.6	**Best Estimate:** -£7.3

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	7.0	1	267.5	**539.0**
High	7.6		369.7	**743.8**
Best Estimate	7.3		318.6	**641.4**

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

Our best estimate of the overall impacts of the LPC NMW/NLW rate recommendations is for a total increased labour cost to employers of £637m: £306m direct impacts and £331m indirect impacts). This is a transfer with a neutral net economic impact. It is made up of £530m of increased wages for employees, and £107m of increased non-wage labour costs, which are mainly employer pensions and national insurance contributions (the discrepancy in totals is due to rounding). Transition costs are estimated at £7.3m.

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 a negative impact on employment, with negligible impacts on hours worked and training. 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 (OBR previously estimated 60,000 fewer people in employment by 2020 due to the NLW).

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	0	N/A	267.5	**532.0**
High	0		369.7	**736.2**
Best Estimate	0		318.6	**634.1**

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

Our best estimate of the overall benefits of the LPC NMW rate recommendations is for a total benefit to employees and the Exchequer of £634m. This is a transfer from employers with a neutral net impact, apart from transition costs. Employees benefit from £530m of increased wages, while employees and the Exchequer benefit from £107m of non-wage labour benefits, made up of a number of benefits but predominantly consisting of pension and National Insurance contributions. (The discrepancy in totals is due to rounding).

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 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 or increased consumption).

Key assumptions/sensitivities/risks — **Discount rate (%)** 3.5%

The key assumption is on the counterfactual for how wages would change in the absence of minimum wage rises. This is uncertain, so we estimate 2 scenarios based on average earnings and inflation respectively. Our best estimate is the central estimates of the costs and benefits that these scenarios produce. A sensitivity is also conducted on the impact of a 0% wage growth. A spillover effect (indirect impact) is incorporated whereby wages for some workers are increased to maintain the pay differential with previously lower-paid workers. Impacts are a transfer from employers to employees and the Exchequer.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			Score for Business Impact Target (qualifying provisions only) £m:
Costs: 131.6	**Benefits:** 0	**Net:** -131.6	N/A

Contents

Impact Assessment scope

1. The Low Pay Commission (LPC) has recommended increases in the National Living Wage (NLW), 21-24 year old, 18-20 year old, 16-17 year old and apprentice National Minimum Wage (NMW) rates. The Government has accepted these recommendations and so subject to parliamentary approval these rates will come into force on 1st April 2017.

2. Almost all workers in the UK are eligible to be paid at least the National Living Wage or National Minimum Wage. Eligibility for specific rates is determined by a worker's age and, if they are an apprentice, when they started their Apprenticeship. All workers aged 25 and over who are not in the first year of an apprenticeship are eligible for the National Living Wage. The reasons for this differentiation according to age were set out extensively in the IA for the introduction of the National Living Wage and remain relevant to this IA. The Apprentice NMW (ANMW) was introduced in 2010 to extend the same protections to apprentices as other low paid workers.

3. This Impact Assessment (IA) appraises the impacts of uprating the current NMW and NLW rates to the LPCs latest recommendations. Since this IA does not consider a scenario where the NMW/NLW is completely removed, in the hypothetical absence of an NMW/NLW uprating, the current NMW/NLW 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. This IA does not explore in detail the impacts of implementing the NLW or NMW, or the costs and benefits of the annual upratings prior to this year. These detailed impacts have been captured in IAs produced in previous years. However, we have produced estimates of the regulatory costs and benefits of the NMW/NLW upratings since the start of the current Parliament as an addendum to this IA. These estimates use the methodology employed in this IA, which has been reviewed and revised this year. This is for the purposes of consistency and accurate Business Impact Target (BIT) scoring. The upratings considered in this addendum are:

    - The October 2015 upratings of the NMW rates
    - The April 2015 introduction of the NLW
    - The October 2016 upratings of the NMW rates

Options identification

5. Following careful consideration of the LPC's Autumn 2016 report, the Chancellor announced at Autumn Statement 2016 that the Government will accept the Low Pay Commission's recommendations for the NLW, NMW and Accommodation Offset.

6. This IA considers two options:

    Option 0) Do nothing – maintain current NMW/NLW rates and system

    Option 1) Implement LPC recommended rate increases

These will be assessed against the policy objectives set out above.

Background to the Impact Assessment

Policy Context and Rationale for Intervention: Rationale for the Introduction of the National Minimum Wage and National Living Wage

7. The National Minimum Wage and National Living Wage were introduced for different reasons and are uprated annually based on recommendations made by the LPC.

8. In the 1990's, a third of low paid workers were "in extreme low pay"[1]. In the Low Pay Commission's first ever report on recommending NMW rates to the Government, during their visits to identify cases of exploitative pay, they were told of cases of extremely low rates of pay in some industries. For example, the manager of Ragworth Regeneration cited a post as a security officer which paid £2 per hour and the post-holder had to supply his own dog. Another security post was advertised in May 1997 paying £1.25 per hour, and the job-holder had to pay for the uniform.[2]

9. The National Minimum Wage (NMW) was introduced to provide protection to low-paid workers by avoiding potential exploitation by employers who, in the absence of government intervention may pay unacceptably low wages. The NMW came into force in April 1999 and since then the NMW rates have been reviewed annually by the Low Pay Commission (LPC). The current aim when setting the rates is to increase the wages of the lowest paid as much as possible, while making sure that their employment prospects are not damaged by setting it too high. This is effectively targeting the market clearing wage rate at the conceptual equilibrium in a perfectly competitive market; where supply meets demand.

10. The National Living Wage (NLW) was implemented in April 2016. The objective for the NLW goes further than that for the NMW. The Government wants to build an economy that works for everyone, where low wage workers are fairly rewarded for their contribution to the economy. The introduction of the NLW in April 2016 marked an important step towards this goal. – it ensures work pays and reduces reliance on the State topping up wages through the benefits system. The NLW is also important for reasons of fairness and equity - the 2020 target for the NLW – that it should reach 60% of median earnings subject to sustained economic growth – explicitly ensures that the wages for low paid workers aged 25 and over increase relative to the middle of the distribution.

11. The NLW is now the statutory pay floor for workers aged 25 and over, whilst the NMW rates are the statutory pay floors for those aged 16-24.

12. The Government commissions an independent body, the LPC, to recommend the appropriate NMW and NLW rates. The final decision on whether to accept the LPC's recommendations is made by the Government. As the decision on the appropriate NMW and NLW rates is an empirical one, the LPC's 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 and the median of the HM Treasury panel of independent forecasters. They conduct detailed analysis on the impacts of previous upratings and use this evidence to inform their

[1] More than a Minimum (2014)

[2] Low Pay Commission visit to Stockton-on-Tees (page 47)

recommended rates. For their latest recommendations, they have used a counterfactual of average earnings growth to model the implications of their proposed rates. They also have an extensive consultation period to include the views and analysis of a number of interested stakeholders.

13. The Government also conducts its own analysis to inform the decision making process as well as providing evidence on the labour market and policy developments for the LPC[3]. The evidence and data collected and produced by the LPC have been used to inform this IA.

14. As labour market conditions vary for different age groups, the LPC recommends separate NMW rates by age band (16-17, 18-20 year olds, and 21-24 year olds). This primarily reflects the position of younger workers who tend to have less work experience, less knowledge of where to look for work and fewer in-work contacts. A higher minimum wage could in theory have more potential for negative employment effects for young people.

15. 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 level of the ANMW should provide a fair deal for Apprentices, protecting them from exploitation whilst at the same time not deterring businesses from taking them on and providing quality training.

16. The LPC also makes recommendations 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, up to a daily maximum limit. Accommodation is the only benefit-in-kind that can count towards the NMW as there are scenarios when the provision of accommodation can be mutually beneficial for both employer and worker. The offset arrangements provide protection to workers and give some recognition of the value of the benefit, but are not intended to reflect the actual costs of provision. At its optimal level the offset will balance the benefits of employer-provided accommodation for worker and employer, and will support the provision of accommodation where that is mutually beneficial. The LPC reviewed the accommodation offset in their 2013 report and concluded that accommodation should remain the only permitted benefit-in-kind that can count towards payment of the National Minimum Wage

Policy Objectives: rationale for continued intervention

17. The economy and labour market today are markedly different to that of the 90's when the NMW was first introduced. It has a higher participation rate, higher employment rates; the demographics of workers have evolved with more diversity in the workplace (for example, employment rate for women and disabled people are at record highs), lower unionisation (from 30% to of employees in unions in 1999 to 25% in 2015) and little to no evidence of extreme low pay[4]. The NMW was introduced to remove the exploitative pay which existed in the 90's. As set out in the LPC's remit, it has subsequently been uprated to ensure the lowest paid receive the highest wages without impacting their employment prospects and to maintain a level playing field for businesses. The rates set by the Government considers the

[3] BIS - Final Evidence to the LPC - Autumn 2016

[4] Low Pay Britain 2016 - Resolution Foundation

ever changing external economic environment and issues faced by employers and the different NMW/NLW recipients alongside Government objectives.

18. This will be the first annual uprating for the NLW with the aim of reaching 60% of median earnings by 2020 subject to sustained economic growth. The LPC will continue to advise Government on the path of the NLW to 2020.

Consultation

19. The NMW and NLW rates are underpinned by extensive consultation, analysis, and evidence-gathering. On top of its own expertise and analysis – in part informed by the Government's evidence submissions[5] - the LPC consults with a wide range of stakeholders from across civil society. The LPC recommendations take into consideration the views of businesses and employee representatives.

20. This year, the LPC received over 80 responses to their consultation, with 15 organisations and 35 representatives from various organisations presenting at regular Commission meetings and providing evidence at oral evidence sessions. The LPC secretariat had more than 25 meetings with stakeholders across the country and visited employers, workers and others affected by the NMW/NLW. Appendix 1 in the latest LPC report has details of who they spoke to.

21. Detailed summaries of the LPC's consultation findings can be found throughout their report[6], and extracts are used below to inform our assessment.

22. The Government also regularly engages with stakeholders on the NLW/NMW, and for this IA in particular we held discussions with labour market experts to inform our counterfactual approach. This was also discussed with key business stakeholders. These discussions are summarised in Annex B.

23. Discussions with labour market experts and stakeholders were conducted on an informal and iterative basis. However, insights have been included throughout this IA from different experts and summarised in full in Annex B. The department is currently scoping options for more formal research in this area to inform future IAs.

[5] BIS (2016), Final government evidence to the Low Pay Commission's 2016 Report

[6] Low Pay Commission Report Autumn 2016

Option 1: implement LPC recommended rate increases

24. The remit of the LPC for their Autumn 2016 report was to recommend the appropriate levels for the National Living Wage, 21-24 year old, development (18-20), youth (16-17) and apprentice rates. The remit for the NLW was to recommend a rate for April 2017, with the aim of reaching 60% of median earnings by 2020 subject to sustained economic growth. For the other NMW rates, the LPC's remit asks them to recommend rates that help as many low-paid workers as possible without damaging their employment prospects. The remit underpinning these rate recommendations is presented in Annex D.

25. The LPC rate recommendations are as follows:

Figure 1: Low Pay Commission NMW rate recommendations for October 2016

	Current rate	LPC recommendation	Percentage increase	Annual increase
National Living Wage (25+)	£7.20	£7.50	4.2%	4.2%
Adult rate (21-24 year olds)	£6.95	£7.05	1.4%	3.2%
Development rate (18-20 year olds)	£5.55	£5.60	0.9%	3.1%
Youth rate (16-17 year olds)	£4.00	£4.05	1.3%	2.8%
Apprentice rate	£3.40	£3.50	2.9%	4.5%

26. These rates will apply for 1 year from April 2017 to April 2018. From April 2017 onwards, the NLW and NMW rates will be aligned and uprated at the same time each year, moving the NMW uprating from October to April.

27. This IA appraises the impacts of the increase in the NLW and NMW from April 2017. The rationale for the LPC's recommendations are summarised here but a more extensive discussion can be found in the LPC's Autumn 2016 report.

28. Overall, the labour market conditions for workers have continued to improve, showing evidence of the continued strength of the UK labour market and the resilience of several economic indicators going into the EU referendum and in the subsequent months.

29. For workers aged 25 and over, the LPC's recommendation is for the NLW to increase by 4.2%. This has been considered in the light of a 3.1% increase in median pay growth between April 2015 and April 2016. The LPC judge that there is limited evidence at this early stage to justify departing from the straight-line path to 60% of median earnings by 2020. In coming to this decision they considered the balance between protecting low-paid workers from potential higher inflation, which is forecast to rise above 2% in early 2017 and adjusting down to reflect weaker actual and forecast pay growth.

30. The Government last increased the other NMW rates in October 2016. From 2017, they will be increased each April, in line with the NLW uprating. As a result the LPC's recommendations for this year reflect a shorter, 6 month, time period since the last increase. The LPC have reported an equivalent percentage increase on an annual basis which we have provided for each rate below

31. The LPC recommendation for the 21 to 24 year old rate is for it to increase by 1.4% (annual increase of 3.2%[7]). This increase is above inflation of 0.9% in the year to October but below forecast inflation which is predicted to rise above 2% in early 2017. The labour market conditions for 21 to 24 year olds are markedly different from older workers. For example, pay growth at the median has increased by 5.3% between 2015 and 2016 (a faster rate than for workers aged 25 and over) but the unemployment rate is twice as high as those aged 25 to 30. The employment rate for 21 to 24 year olds grew by 2.1 percentage points to its highest level in over two decades, but there was a recent slowdown in the improvement of the unemployment rate, which has fallen by 1.6 percentage points over 2016; less than preceding years.

32. The LPC recommend an increase of 0.9% to the 18 to 20 rate (annual increase of 3.1%). The labour market conditions for 18 to 20 year olds have significantly improved, including substantial median pay growth of 5.9%, sharply falling unemployment by 2.6 percentage points to 17.2% and rising employment which rose by 1.4 percentage points to 67.6% in the third quarter of 2016.

33. The LPC recommend an increase of 1.3% (annual increase of 2.8%) to the 16 to 17 rate. The improvement in the position of 16 to 17 year olds has been more limited and pay growth at the median is below that of 18 to 20 year olds at 3.7%. The employment and unemployment trends have remained broadly flat over the year; the unemployment rate rose slightly by 0.4 percentage points to 46.7% and the unemployment rate remained at 32% in the third quarter of 2016. The LPC recommended a more modest increase in the youth rates, to safeguard the position of the youth in the labour market, with signs of performance slowing further.

34. The LPC recommend a 2.9% increase in the Apprentice Rate (annual increase of 4.5%). New evidence from the Apprenticeship Pay Survey shows strong pay growth with no (conclusive) negative effects on apprenticeships. The LPC highlight that recent indicators – both apprenticeship starts and earnings measured by ASHE – show a positive picture, especially data covering the period after the significant 21% increase in the apprentice rate in October 2015. However, there is some uncertainty because of the increasingly high levels of non-compliance observed and the changes planned to the apprenticeship policy landscape.

35. The LPC recommends a 40p (6.7%) increase in the daily accommodation offset from £6.00 to £6.40. This is in-line with the recommendation from its 2013 report that the accommodation offset should be increased in stages toward the value of the 21-24 year old rate.

36. The Government agrees with this assessment, some of which was outlined in its published written evidence to the LPC.

[7] The current NMW rates will only apply for six months, so we have also included an annual percentage increase.

Approach to the appraisal

Counterfactual

37. The NMW/NLW is a universally applicable legislation within the UK labour market and therefore the true counterfactual is unobservable as no pure comparison groups exist. It is not possible to determine a 'clean' counterfactual based on historical data as the NMW has been in effect since 1999, and therefore will exist within this and recent data. Therefore, whilst the 'correct' counterfactual can never be verified, in order to assess the direct and indirect impacts of an increase to the NMW/NLW, we must make assumptions, based on economic theory and empirical evidence, about what would happen on average, to the wages of the lowest paid if the NMW/NLW rates did not increase in one year.

38. In order to determine an appropriate counterfactual, we need to understand, among other things, the following:

    A. What is the structure of the labour market for the lowest paid?
    B. What factors determine wage growth?
    C. How are these factors relevant in the low paid sectors?
    D. What would wages in the low paid sector be in the absence of any intervention?

39. Once an appropriate counterfactual is established, we can assess the impacts fully. In order to quantify these impacts, we calculate the difference between the proposed rates and our counterfactual wage rates, over the amount of time it takes for our counterfactual wage to catch up to the proposed rate of pay (based on our assumed growth rate).

40. Since the counterfactual wage rate is unobservable, we have explored a number of factors from different sources of evidence, to inform our assumptions.

41. The Regulatory Policy Committee (RPC) provides the government with external, independent scrutiny of new regulatory and deregulatory proposals. In the past, we have made a number of different assumptions on what the wage growth assumptions in the counterfactual for NMW / NLW beneficiaries; the RPC has requested that the department provide further evidence within this impact assessment to justify the assumptions that have been used. Annex A provides further details on this, but in short, we have conducted a thorough literature review, engaged with labour market experts from 9 organisations[8], including academics and independent governmental and non-governmental bodies; and with business stakeholders[9] to develop and test our assumptions in the counterfactual – including testing whether a zero wage growth scenario would be appropriate.

42. From the evidence we have gathered and discussions with labour market experts, (details of which can be found in Annex B.1) we have concluded that the most appropriate counterfactual for the average low paid worker would be somewhere between inflation (as a higher bound cost estimate) and average earnings (as a lower bound cost estimate). As it is not possible to pin-point the exact level which would be the best estimate between the two,

[8] Office of Manpower Economics, Bank of England, XpertHR, Dr Alan Manning (LSE), Dr Steve Machin (UCL), Dr Sarah Brown (Sheffield University), Low Pay Commission, Income Data Research and RPC.

[9] Federation for Small Businesses, Confederation of British Industry and CIPD.

we have used the mid-point of costs as our best estimate. We have also included a sensitivity analysis of a zero wage growth counterfactual.

Methodology

Overview

43. This IA appraises the impact of the NMW rate increases for the whole economy and then investigates the following:

- Variations in impact by:
  - Business size
  - Region
  - Sector
- Equality impacts
- Family Test

44. We use the Annual Survey of Hours and Earnings 2016 to conduct wage distribution analysis for the NLW and each NMW rate.

45. A number of options were considered for the methodology for the analysis[10]. The approach we concluded on is discussed below.

Assumptions and Approach

Starting point

46. Since this IA is only concerned with the impact of uprating the current NMW/NLW rates to the proposed rates, we assess the marginal impacts taking the current legal position as given (e.g. the current NMW/NLW rate is the starting point). In order to use the latest available data and forecasts, for every subsequent IA produced beyond this year for future upratings, we will reset the starting point to the prevailing NMW/NLW rate at the time the appraisal is conducted. This ensures that the full costs related to each uprating are captured in each appraisal. In conjunction with an appropriate choice of appraisal period, this means that the lifetime effects of an uprating is captured at the point of introduction.

Approach to modelling and Appraisal Period

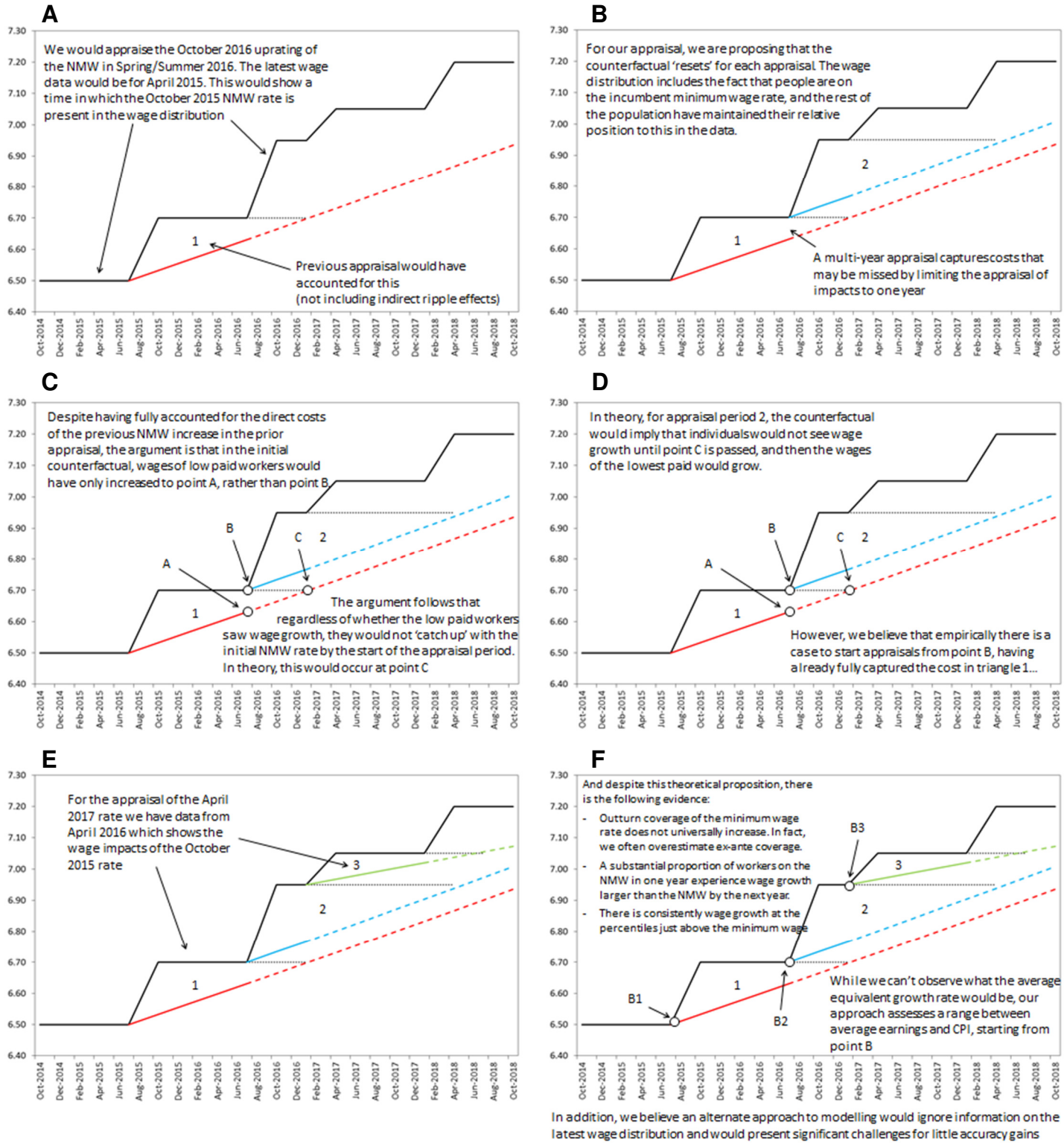
47. The NMW and NLW rates will apply between April 2017 and the end of March 2018. Figures 2A – 2F provide a general breakdown of the conceptual approach to how we intend to appraise costs, in the context of the framework discussed in the previous section of this IA. The black line in the following diagrams represent the minimum wage and the coloured lines represent the counterfactual wage growth assumption for the average low-paid worker.

48. In summary, this shows how our conceptual approach captures the cost between the counterfactual and the minimum wage uprating for the period until that counterfactual assumption 'catches up' with the minimum wage uprating. Given that we appraise individual annual upratings separately, the diagram below explains how these appraisals and their

[10] Detailed discussions of some of these options can be found in Annex D.

counterfactuals interact in theory over time, and briefly summarises the evidence supporting our approach.

Figure 2 A – F: Conceptual approach to appraisal



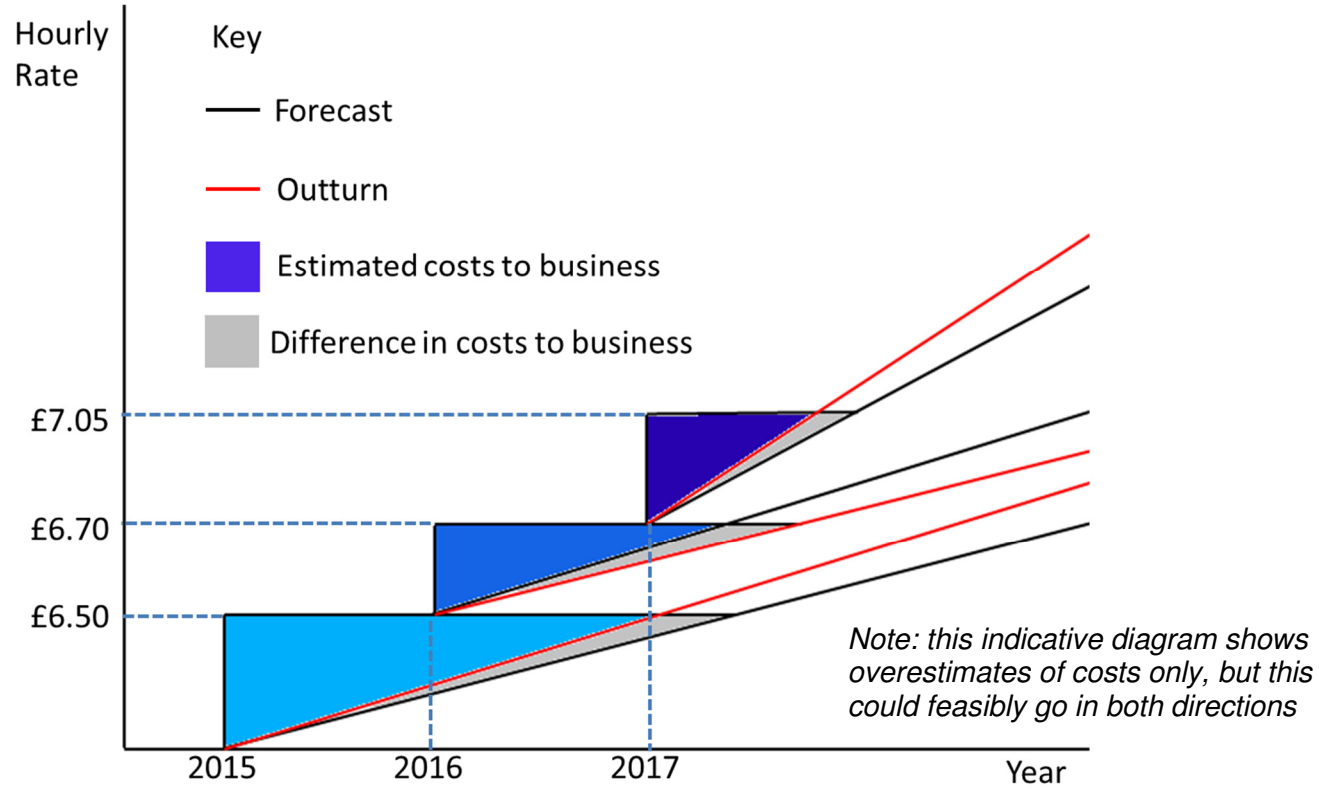
49. The evidence for the growth rate employed in the counterfactual (the angle of the coloured lines) is explored elsewhere in this IA, in particular, Annex A. This evidence also contributes towards the rationale for in effect 'resetting' the counterfactual for each new appraisal. However, in particular, Annex A shows that there is evidence of significant proportions of workers on the minimum wage in one year experiencing pay increases larger than increases to the minimum wage – even from the starting point of the minimum wage. Crucially, as highlighted above, the counterfactual assumption is designed to capture the picture for low paid workers on average.

50. Finally, there are modelling and data factors which lead us towards this approach. For example, from one year to the next, we receive new data which gives us a more up-to-date picture of what has actually happened to the distribution (this data naturally includes the minimum wage rates applicable at the time). We believe it is more appropriate to use the most up-to-date data rather than adjusting data from before the introduction of the minimum wage, or from before the start of the parliament as a baseline.

Forecasting inaccuracies

51. Figure 3 below (for illustrative purposes only and not drawn to scale) elaborates on figure 2F. As outlined above, we use a multi-year appraisal period, and this appraisal period will vary depending on the latest OBR forecasts for our chosen counterfactual each year.

Figure 3: Using forecasts for ex-ante appraisal of the NMW/NLW uprating



52. We will model the costs as the difference between what businesses would have been paying (the current NMW/NLW rates and the rate at which these would naturally be growing) and what the businesses will have to pay in wages (the proposed NMW/NLW rates). This cost is represented by the blue areas in Figure 3.

53. Naturally, as appraisals are carried out ex-ante and necessarily rely on forecasts, there is a likelihood that outturn costs differ from predicted. This is also shown in figure 4. As an example of this we have also looked at outturn data showing coverage of the NMW and compared this to the ex-ante estimates that our model would have produced. For example, ex-ante estimates of the coverage of the introductory NLW rate suggested that over 1.7m employees aged 25 and over would be paid at or below this rate[11]. Both of these estimates relied on assuming a counterfactual of average earnings growth – not having assumed this would have led to much higher ex-ante estimates of coverage. When ASHE 2016 was released, this showed that just under 1.6m workers were paid at or below this rate in April 2016, suggesting that underlying wage growth of low paid workers may have been faster than forecast average earnings growth used to make the ex-ante predictions, and that cost estimates may have been an overestimate (to note, this is also evidence against a 0% wage growth counterfactual in these current economic conditions). We will continue to monitor these potential differences to help inform future appraisals.

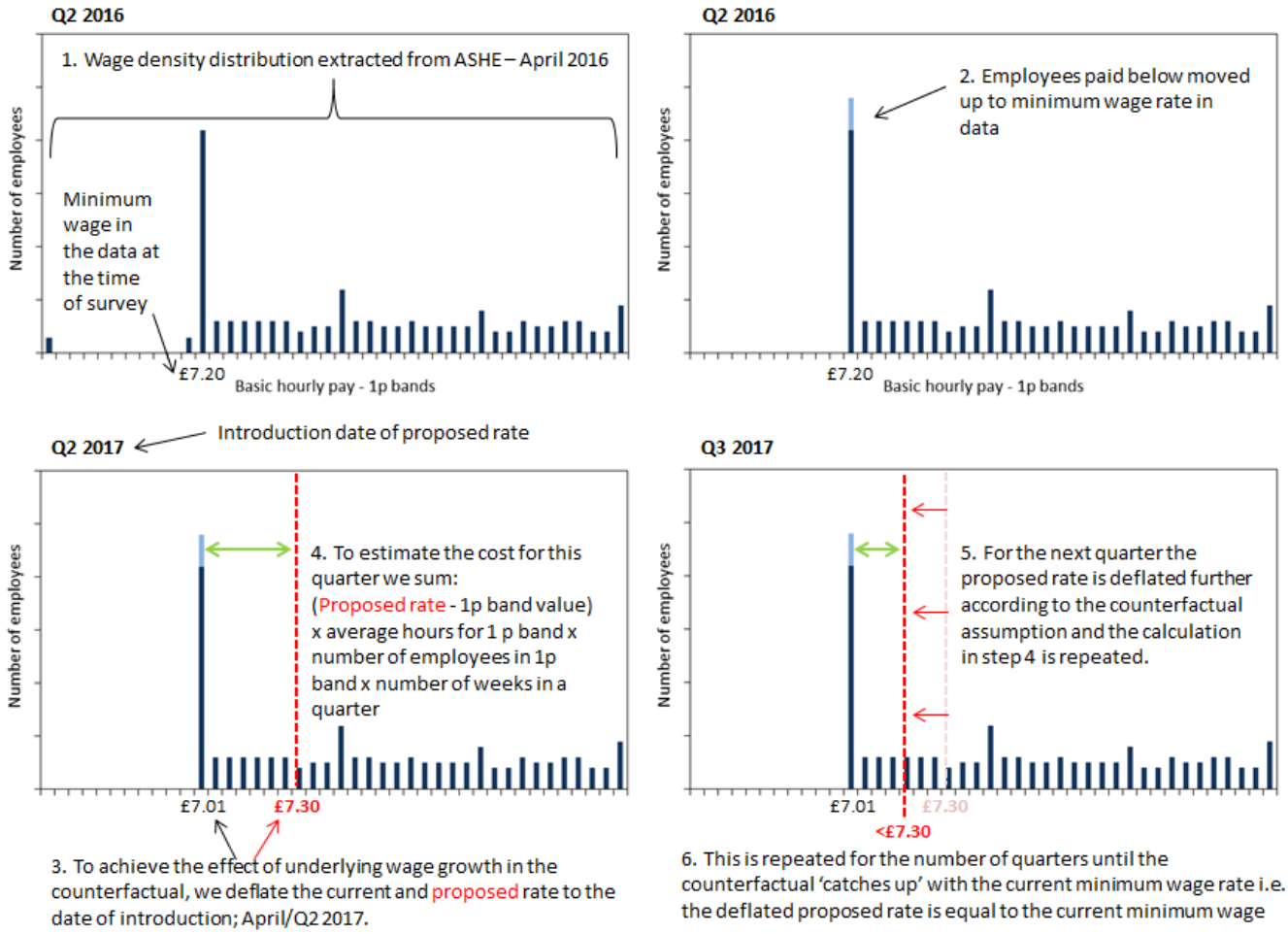
Practically implementing our approach

54. We have revised our modelling to use the latest earnings data and to better reflect the fact that underlying earnings change over time. Where previously we took a spot estimate of the weekly cost of the upratings at the mid-point of the appraisal period and scaled this up using the number of weeks in the appraisal period[12], we now take several spot estimates across the appraisal period. This approach is expected to have a neutral effect on cost estimates when compared to our previous approach, however it will yield more accurate results. The approach is outlined below in Figure 4.

[11] Low Pay Commission National Minimum Wage Report Spring 2016 – p85, and Government Impact Assessment on the Introduction of the National Living Wage – p20

[12] This was deemed appropriate because the gap between the NMW rates and the counterfactual earnings distributions will be biggest at the start of the period and smallest at the end as the counterfactual distribution increases with average earnings. Taking a snapshot at an earlier stage would systematically overestimate the impact, while a snapshot later would systematically underestimate it.

Figure 4: Practical application of our appraisal approach



55. Figure 4 shows that to calculate the increase in the annual wage bill, for each quarter, we take each penny increment of the estimated wage distribution and multiply the increase in hourly wage above the counterfactual by the number of people at that rate, by the average hours worked by low paid workers per week, and by the number of weeks in a quarter (12 weeks). We add the costs incurred in each quarter over the total appraisal period to calculate the total cost.

56. We model the earnings distributions from ASHE according to the counterfactuals mentioned above (average earnings and CPI growth). Practically speaking we deflate the current and proposed minimum wage rates, rather than inflating the wage distribution because it is simpler to model but achieves the same conceptual and numerical outcome. ASHE 2016 is sampled from April 2016, so includes the NLW but does not include the October 2016 NMW increases. We adjust for this by assuming everyone gets paid at least the new October 2016 rates. Further information on this assumption around compliance is discussed in the section below.

57. By appraising basing total cost estimates on a reading in each quarter, our estimates are more sensitive to the evolution of the counterfactual over time. In addition, we avoid overestimating coverage by using a point estimate at the start of the appraisal or underestimating if we used a point estimate at the end of the appraisal period.

58. The better regulation framework requires policies to be appraised over discrete years. This revised modelling approach is more appropriate to meet this requirement.

59. The appraisal period is determined by the growth of wages in the counterfactual relative to the growth of the NMW/NLW uprating. For illustrative purposes, if we assume wages will grow at the same rate as forecast average earnings and the NLW is proposed to increase from £7.20 to £7.50, it will take 6 quarters for the current NLW rate to reach the proposed rate from April 2017, and so the appraisal period will be 6 quarters. Where quarters do not total to a full year, the costs in these quarters will be assumed to be the cost for that year. For example, if the counterfactual wage rate catches up to the proposed NMW/NLW rate in 2018 Q4, the first year costs will be the sum of costs in 2017 Q2, Q3, Q4 and 2018 Q1, and the second year costs will be the sum of costs in 2018 Q3 and 2018 Q4, with zero costs in the remaining two quarters making up the year. This will satisfy the requirements of the IA calculator and EANDCB calculations.

Points to note/reiterate

60. Figure 4 above uses illustrative data. However, it is true that there is always a 'spike' in the real data around the minimum wage. This is one, but not the only indicator of impact that the minimum wage is having on the real economy in a given year. Whilst the wage density being peaked at the NMW levels could be indicative of a number of people tracking the minimum wage, and therefore potentially not experiencing wage growth any greater than the minimum wage in the counterfactual (and potentially zero for some), in reality this group of workers is not the same from year to year. This is explained later in this IA and in particular, we expect more people to experience wage growth than not.

61. At the start of each appraisal, the NMW/NLW rate prevailing at the time of the appraisal will be the lowest wage an employee can earn and so this will be the counterfactual wage in the absence of an NMW/NLW uprating.

62. We assume all the costs will have been captured for each uprating in its corresponding IA and so we will draw a line under the previous uprating and model the impacts of the latest proposed rates using new forecasts, starting point and growth rates (if these have changed over time).

63. However, as mentioned previously, we will produce legacy costings to cover the upratings since the start of the current Parliament for the purposes of the BIT score, using the prevailing NMW rate as the starting point at the start of each appraisal. This will begin with the October 2015 upratings.

Spillover

64. In line with our methodology for appraising the introduction of the National Living Wage and previous NMW upratings, we assume that increases to the NMW rates have spillover effects (indirect impacts). This models that, as a higher wage floor is implemented, some employers will choose to give pay rises to those paid above but near the new minimum, and choose to

increase the pay of some workers previously paid below the new minimum to a greater level. This is out of a desire to maintain wage differentials between their employees. The effect dissipates, reducing in magnitude up to the 25th percentile of the income distribution.

65. We model our spillover effect at a maximum impact of 20% of the wage floor increase, with the effect tapering linearly down to nothing at the 25th percentile of the wage distribution. Using 20% captures the assumption that only some employers will maintain differentials in this way. These assumptions were used in the modelling by ex-BIS and the OBR for appraising the impacts of the NLW and were accepted by the RPC. We previously outlined to the RPC that we would review the scale and extent of the ripple effect - the LPC's autumn 2016 report provides strong evidence in support of the approach previously used:

"On top of average wage growth, wages across the bottom quarter of the distribution increase, on average, by an extra 20 per cent of the additional hike in the minimum wage. Hourly wage growth between the 7th and 25th percentile was on average 4.9 per cent, close to 4.6 per cent, the rule of thumb that the previous research had suggested. The magnitude of the hourly wage growth is greater lower down the distribution, with average growth between the 7th and 19th percentile of 5.3 per cent, compared with 4 per cent between the 20th and 25th percentile."

66. This spillover effect – when applied to the counterfactual distribution – allows for an estimate of how many employees will be paid the new NLW/NMW rates. In reality, the coverage of the NMW rates is not just all those paid the new rates and under, in the counterfactual distribution; rather, there are workers who are paid below the new rates in the counterfactual distribution but would be paid over the rates when the rates are increased precisely because employers wish to maintain a differential between their pay and those who were previously paid lower.

67. Consequently, the spillover effect plays two roles: firstly, it impacts the coverage of the NLW/NMW rates and consequently the additional cost to employers of raising those workers' wages to the new statutory minimum; secondly, it causes a ripple effect up the earnings distribution where other workers that are not on the new NMW rates still receive a pay rise in order to maintain the earnings differential from lower-paid workers. This IA separates the impact on employment cost into the former, direct effect of raising wages to comply with the new NMW rates and the latter, indirect effects of a wage rise 'rippling' up the earnings distribution.

68. To assess the full labour cost to employers, we uprate all wage bill impacts by 20.2% to account for non-wage labour cost increases that depend upon wages, such as pensions contributions and employer national insurance contributions. This factor of 20.2% stems from Eurostat analysis on non-wage labour costs[13]. We expect this to be an overestimate because some NLW/NMW workers are likely to earn below the threshold for national insurance contributions.

69. The total direct cost to business is therefore the change in labour cost to business if the NMW rate increases are implemented – the labour cost with the new rates, minus the counterfactual labour cost, for each worker covered by the new rates.

[13] In 2015, average UK wage costs were €21.40 per hour relative to total hourly labour costs of €25.72. http://ec.europa.eu/eurostat/statistics-explained/index.php/Hourly_labour_costs

70. Outputs presented in this IA are expressed in terms of the price level in April 2016 – the time of sampling of ASHE. In keeping with Green Book guidance, no discount rate is applied in the first year of the appraisal, but for appraisal periods lasting for over a year, a 3.5% discount rate is applied to all subsequent years – using the impact assessment calculator.

71. In their Autumn 2016 Report, the LPC do not appraise the impacts of their rate recommendations. However, they do provide estimates of coverage of the new rates. These use a similar methodology to our low estimate and assume that wages would grow in line with average earnings if the NMW rates did not increase. The main difference is that we have used OBR average hourly earnings forecasts rather than the median of the HM Treasury Panel of Independent Forecasts as the November OBR forecasts were published after the LPC had produced their report.

Classification of direct and indirect effects

72. We have appraised the direct impact of the NMW 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 ripple 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.

73. In the LPC's latest report, they found that *"alongside ripples lifting pay rates for workers higher up the distribution, there has also been a squeezing of differentials between workers on the minimum wage and those above them. This is evident because only hourly pay rates below the 5th percentile increased by 10.8 per cent, with hourly rates above this increasing by less. Thus, the gap between minimum wage workers and slightly better-paid workers has narrowed."*

74. In its Initial Review Notice for the Introduction of the National Living Wage IA, the Regulatory Policy Committee commented that this classification did not capture the possibility that some of the ripple effect may be non-discretionary because pay differentials are written into contracts. We provided further evidence to support this distinction in the Amendment to the National Minimum Wage 2016 impact assessment. In summary, the evidence from XpertHR and the LPC found that while the NMW has an impact on wider wage setting behaviour, employers tend not to set wages at X% above the NMW rates, indicating that increases in pay differentials between employees is an indirect business response to the change in legislation. We expect the same argument to hold for the NLW.

Non-compliance

75. The Better Regulation Framework Manual (March 2015, 2.3.47-9) recommends that 100% compliance is assumed unless there is evidence to the contrary. Full compliance with the NMW has been assumed for the core analysis. This is because we do not have a reliable basis on which to make a robust estimate of the true level of non-compliance for future NMW rates.

76. ASHE is a survey of employees completed by employers which can be used to identify jobs paid below the NMW rate. However, it is does not offer a direct measure of non-compliance in the population as there are legitimate reasons for a job to be paid below the NMW which are not measured by the survey, for example where accommodation is provided by the employer. ASHE is based on a sample of employee jobs in Pay-As-You-Earn income tax schemes and is considered the official measure of pay information in the formal economy; however an evidence gap remains in reliable earnings data in the grey economy. BIS has commissioned a feasibility study into measurement of underpayment of the NMW in the informal economy. This should help to inform methods of measuring the true extent of non-compliance in future. According to ASHE 2016, 362,000 employee jobs were paid less than the NMW and NLW in April 2016 – 1.3% of all 16+ employee jobs.

77. Additionally, most employee jobs that are measured as being paid below the NMW/NLW rates in ASHE are paid less than 10p below the relevant rate[14]. This may indicate errors in pay setting or data entry rather than wilful underpayment.

78. In light of this uncertainty, we assume full compliance with the NMW/NLW. This could be a cautious approach because including cases of potential non-compliance in our cost estimate will increase the total estimated cost to businesses (assuming non-compliant businesses become compliant).

Data quality

79. Our estimates of the impact of rate increases are based on the Annual Survey of Hours and Earnings (ASHE). ASHE is the official source of low pay data.

80. For the purposes of appraising the Apprentice NMW - this data includes information on apprentices specifically (around 2,000 apprentices surveyed per year). The Apprentice Pay Survey has a larger sample of 10,000 apprentices and has more detailed pay information, broken down by bonuses, accommodation offset etc. The Apprenticeship Pay Survey is available for 2016 but (a) the information is reported by apprentices themselves, (b) the survey is not annual and (c) is not directly comparable with ASHE findings used for other employee job groups therefore has not been used here. This is in line with the LPC' when estimating coverage and bite of the NMW/NLW rates.

81. However, apprenticeship pay estimates need to be treated with particular caution for the following reasons:

- The ASHE 2016 reference data was 13 April 2016. The NMW (for those aged under 25) was uprated in October 2015 and October 2016, and the NLW was introduced on the 1st April 2016. In the Impact Assessment we assume everyone gets paid at least the minimum wage. However, the October 2015 apprentice NMW increased to £3.30 (21% increase) - higher than the LPC's recommendations. This has had a more (positive) significant impact on the apprentice earnings distribution.
- ASHE 2016 may be affected by possible compositional changes in apprentice sampling between 2015 and 2016. The number of apprentices survey in ASHE is relatively small (compared to the Apprenticeship Pay Survey) so caution is advised in identifying

[14] BIS (2016), Final government evidence to the Low Pay Commission's 2016 Report.

apprenticeship trends in ASHE. For example some trends may be the result of compositional changes in apprentice sampling between years.

- As identified by the LPC in making their recommendations for the apprentice rate, the wider policy landscape around apprentices is undergoing sizeable change, for example with the introduction of the apprenticeship levy. These effects have not necessarily been captured in the data available.

Appraisal of impacts – Quantified Impacts

82. As explained previously, we have appraised a high cost scenario in which counterfactual wages grow at the same rate as inflation, and a low cost scenario in which counterfactual wages grow at average earnings. These assumptions follow the literature reviews and discussions with labour market experts on the most appropriate counterfactual detailed in Annex A. The advice received was that it is most likely the counterfactual growth rate will be either, or lie somewhere in between, average earnings growth and inflation.

83. The proposal for the best estimate was to use the wage growth observed around the 25th percentile of the wage distribution as a proxy indicator of how the wages of the lowest paid would grow – empirical evidence suggests this is the point up to which the 'ripple' up effect of previous minimum wage increases have been felt. However, between 2015 and 2016, wage growth at this point in the distribution was higher than at the average.

84. As such, our best estimate is the mid-point of costs produced by our high cost and low cost scenarios.

Coverage

85. In each of our estimates (low and high scenarios), the coverage in the first quarter will be the same for each of the rates.

86. We estimate that 2.2million employees will be covered by the new rates. This estimate differs to the LPC's estimate (2.4million[15]) due to the methodological differences outlined on p.11 of the 2016 IA.

87. The breakdown of the coverage by rate can be seen in Figure 5 below. In our model, coverage will theoretically fall over the course of the appraisal period as the counterfactual catches up to the new minimum wage rates.

Figure 5: Breakdown of coverage across different NMW/NLW rates

	Proposed rate	Coverage - projected number of workers paid at or below in April 2017
NLW (25+)	£7.50	1,740,000
21-24 NMW	£7.05	209,000
18-20 NMW	£5.60	140,000
16-17 NMW	£4.05	27,000
Apprentice NMW	£3.50	29,000
Total		**2,145,000**

Notes: BEIS calculations based ASHE 2016 microdata adjusted using OBR average earnings forecasts

[15] Low Pay Commission Spring 2016 Report, Table 7.2

Central estimate: labour costs

88. Our central estimate of the overall labour cost impacts of the LPC NMW/NLW rate recommendations is for a total cost to employers of £637.2million. This is a transfer with a neutral net economic impact. It is made up of £530.1million in increased wages for employees, and £107.1million of increased employer pension and national insurance contributions. (Numbers may not sum due to rounding).

89. We have also conducted a sensitivity analysis (the details of which can be found on pages 29 – 30), of the impact of a 0% wage growth in the absence of a NMW/NLW uprating. The first and most comparable scenario in our sensitivity, Scenario A, has a total annual cost of £718.5m; £3,592.7m over 5 years. However, it is worth noting that we do not believe that a 5 year 0% wage growth scenario is realistic and is included for completeness only.

90. Figures 6 – 8 provide a detailed breakdown of these impacts for each individual rate in our central scenario.

Figure 6: Total labour costs in the central estimate:

Central	Year 1			Year 2			Total
	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	
NLW (25+)	£433.6	£87.6	£521.2	£75.3	£15.2	£90.5	**£611.7**
Main (21 - 24)	£13.0	£2.6	£15.7				**£15.7**
Development (18 - 20)	£2.6	£0.5	£3.2				**£3.2**
Youth (16 - 17)	£1.7	£0.4	£2.1				**£2.1**
Apprentice	£3.6	£0.7	£4.3	£0.2	£0.04	£0.3	**£4.6**
Total	£454.6	£91.8	£546.5	£75.5	£15.2	£90.7	**£637.2**

Figure 7: Direct labour costs in the central estimate:

Central	Year 1			Year 2			Total
	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	
NLW (25+)	£212.8	£43.0	£255.8	£22.8	£4.6	£27.4	**£283.2**
Main (21 - 24)	£11.5	£2.3	£13.8				**£13.8**
Development (18 - 20)	£2.4	£0.5	£2.9				**£2.9**
Youth (16 - 17)	£1.5	£0.3	£1.8				**£1.8**
Apprentice	£3.4	£0.7	£4.1	£0.2	£0.04	£0.2	**£4.3**
Total	£231.6	£46.8	£278.4	£23.0	£4.6	£27.6	**£306.0**

Figure 8: Ripple costs in the central estimate:

Central	Year 1			Year 2			Total
	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	
NLW (25+)	£220.8	£44.6	£265.4	£52.5	£10.6	£63.0	**£328.5**
Main (21 - 24)	£1.6	£0.3	£1.9				**£1.9**
Development (18 - 20)	£0.2	£0.0	£0.2				**£0.2**
Youth (16 - 17)	£0.3	£0.1	£0.3				**£0.3**
Apprentice	£0.2	£0.0	£0.2	£0.012	£0.003	£0.015	**£0.2**
Total	£223.0	£45.1	£268.1	£52.5	£10.6	£63.1	**£331.2**

91. Figures 6-8 show that between 1 April 2017 and 31 March 2018, increasing the NLW rate from £7.20 to £7.50 is estimated to cost £454.6m in wage costs. This is made up of £231.6m of wage costs as a direct result of increasing the rate, £46.8m of non-wage labour costs associated with these wages, £223.0m of wage costs due to the indirect ripple effect further up the wage distribution as firms seek to maintain pay differentials, and £45.1m of non-wage labour costs associated with this wage cost. Figure 6 shows that in year 2, there are further wage and non-wage costs associated with the NLW uprating as the counterfactual continues to 'catch-up' with the previous increase – this is despite the fact that the NLW may have been further increased in April 2018. These costs are estimated to be £90.7m in year 2.

92. These costs have a net neutral economic impact as they are a transfer from employers to workers and the exchequer. For example in year 1, the total benefits associated with the increase in the NLW are estimated to be £546.5m in our central scenario – the same value as the total labour costs.

High cost scenario estimate: labour costs

93. Our high scenario estimate of the overall labour cost impacts of the LPC NMW rate recommendations is for a total cost to employers of £739.4 million. This is a transfer with a neutral net impact. It is made up of £615.1 million of increased wages for employees, and £124.3 million of increased employer pension and national insurance contributions. This is based on the assumption that wages would increase in line with CPI in the absence of an increase in the NMW/NLW rates.

94. Tables 9 – 11 provide a detailed breakdown of these impacts for each individual rate.

Figure 9: Total labour costs in the high estimate

Inflation	Year 1			Year 2			Total
	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	
NLW (25+)	£515.9	£104.2	£620.1	£77.6	£15.7	£93.3	**£713.4**
Main (21 - 24)	£13.5	£2.7	£16.2				**£16.2**
Development (18 - 20)	£2.7	£0.5	£3.2				**£3.2**
Youth (16 - 17)	£1.7	£0.3	£2.1				**£2.1**
Apprentice	£3.6	£0.7	£4.3	£0.2	£0.04	£0.2	**£4.6**
Total	£537.4	£108.5	£645.9	£77.8	£15.7	£93.5	**£739.4**

Figure 10: Direct labour costs in the high estimate

Inflation	Year 1			Year 2			Total
	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	
NLW (25+)	£293.5	£59.3	£352.8	£24.9	£5.0	£29.9	**£382.7**
Main (21 - 24)	£12.0	£2.4	£14.4				**£14.4**
Development (18 - 20)	£2.5	£0.5	£3.0				**£3.0**
Youth (16 - 17)	£1.5	£0.3	£1.8				**£1.8**
Apprentice	£3.5	£0.7	£4.2	£0.2	£0.04	£0.2	**£4.5**
Total	£312.9	£63.2	£376.2	£25.1	£5.1	£30.2	**£406.3**

Figure 11: Indirect costs in the high estimate

Inflation	Year 1			Year 2			Total
	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	
NLW (25+)	£222.4	£44.9	£267.3	£52.7	£10.6	£63.3	**£330.6**
Main (21 - 24)	£1.5	£0.3	£1.8				**£1.8**
Development (18 - 20)	£0.2	£0.0	£0.2				**£0.2**
Youth (16 - 17)	£0.3	£0.1	£0.3				**£0.3**
Apprentice	£0.1	£0.0	£0.1	£0.01	£0.002	£0.01	**£0.1**
Total	£224.4	£45.3	£269.8	£52.7	£10.6	£63.3	**£333.1**

Low cost scenario estimate: labour costs

95. Our low scenario estimate of the overall labour cost impacts of the LPC NMW rate recommendations is for a total cost to employers of £535.0 million. This is a transfer with a neutral net impact. It is made up of £445.1 million of increased wages for employees, and £89.9 million of increased employer pension and national insurance contributions. This is based on the assumption that wages would increase in line with average earnings in the absence of an increase in the NMW rates.

96. Figures 12 – 14 provide a detailed breakdown of these impacts for each individual rate.

Figure 12: Total labour costs in the low estimate

Average Earnings	Year 1			Year 2			Total
	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	
NLW (25+)	£351.4	£71.0	£422.3	£72.9	£14.7	£87.7	**£510.0**
Main (21 - 24)	£12.6	£2.6	£15.2				**£15.2**
Development (18 - 20)	£2.6	£0.5	£3.1				**£3.1**
Youth (16 - 17)	£1.8	£0.4	£2.1				**£2.1**
Apprentice	£3.6	£0.7	£4.3	£0.2	£0.05	£0.3	**£4.6**
Total	£371.9	£75.1	£447.0	£73.1	£14.8	£87.9	**£535.0**

Figure 13: Direct labour costs in the low estimate

Average Earnings	Year 1			Year 2			Total
	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	
NLW (25+)	£132.1	£26.7	£158.8	£20.7	£4.2	£24.9	**£183.7**
Main (21 - 24)	£10.9	£2.2	£13.1				**£13.1**
Development (18 - 20)	£2.4	£0.5	£2.9				**£2.9**
Youth (16 - 17)	£1.5	£0.3	£1.8				**£1.8**
Apprentice	£3.3	£0.7	£4.0	£0.2	£0.04	£0.3	**£4.2**
Total	£150.2	£30.3	£180.6	£20.9	£4.2	£25.1	**£205.7**

Figure14: Indirect costs in the low estimate

Average Earnings	Year 1			Year 2			Total
	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	
NLW (25+)	£219.3	£44.3	£263.6	£52.2	£10.6	£62.8	**£326.3**
Main (21 - 24)	£1.7	£0.3	£2.0				**£2.0**
Development (18 - 20)	£0.2	£0.0	£0.2				**£0.2**
Youth (16 - 17)	£0.3	£0.1	£0.3				**£0.3**
Apprentice	£0.2	£0.0	£0.3	£0.02	£0.003	£0.02	**£0.3**
Total	£221.7	£44.8	£266.4	£52.2	£10.6	£62.8	**£329.2**

Zero growth sensitivity: labour costs

97. We have included a sensitivity analysis around what the costs could be under a 0% growth rate counterfactual. The framework for analysis presented by the RPC in their note (see annex B) describes a scenario in which the minimum wage is already set above the market clearing rate and as such, growth in the underlying wage distribution may not have pushed low-paid workers above the prevailing minimum wage before the rate is uprated the next time. Given that the minimum wage has been in force, and has been uprated for a number of years – the RPC suggest that this would imply a counterfactual of zero wage growth. In reality, whether this were the case would depend on the level and growth rate of the market clearing wage of low paid workers, which is unobservable.

98. As discussed in Annex A, this is a scenario unlikely to prevail indefinitely. In particular, there is empirical evidence that suggests the contrary – labour market experts we consulted with also agreed with this view.

99. In terms of modelling this scenario, in reality, this would materialise itself as a period of zero wage growth among low paid workers, followed by a period of growth after the underlying wage level of these workers reached, and then overtook the minimum wage rate in place at the start of the appraisal period. Modelling this would require additional assumptions about the effective length of time that zero wage growth should be modelled, as well as the market clearing wage level of low paid workers in the absence of the minimum wage. There may be practical difficulties with modelling this.

100. In this sensitivity analysis, we have capped the appraisal period at 5 years, but it is unlikely that all those covered by the NMW/NLW rates in 2017 Q2 will remain on these rates for 5 years, so these costs are likely to be an overestimate.

101. Given that the underlying data in our estimates is from April 2016, it is necessary to make assumptions about what will happen to the wages of low-paid workers between then and April 2017 when the appraisal period begins – i.e. the wage level from which we start the appraisal. As such, within this zero wage growth sensitivity we have assessed three additional scenarios: one in which the wage distribution grows by average earnings between April 2016 and April 2017 (A), one in which we assume that the wage distribution remains unchanged from April 2016 (B), and one in which we use the wage distribution from April 2015 and assume that it remains unchanged (C).

102. Appraising the impacts of the LPC NLW/NMW rate recommendations against counterfactual ‘A’ produces a total cost to employers of £718.5m in any given year. This is a transfer with a neutral net impact. It is made up of £597.8m of increased wages for employees, and £120.8 million of increased employer pension and national insurance contributions. As it is unlikely that all low paid workers would experience zero wage growth indefinitely, we have capped the appraisal period for this at 5 years, therefore total costs would be £3.6billion over 5 years.

103. The costs for scenarios ‘B’ and ‘C’ are outlined in the tables below. ‘C’ in particular is less likely to be an appropriate assessment. For example, if we were to have estimated the coverage of the introductory rate of the NLW using data from 2015 with no assumed wage growth, we would have estimated around 3m workers would be on the rate in April 2016.

Actual data from April 2016 showed that closer to 1.5m workers were paid at or below £7.20 – a large proportion of low paid workers' wages grew between these two dates.

104. Figures 15 – 17 provide a detailed breakdown of these impacts for each individual rate.

Figure 15: Total costs in scenario A: zero wage growth assumed from April 2017

	Any given year			**Total 5 year cost**
	Wage and Non-wage Impacts (£m)			
	Wage Costs	Non-wage Labour Costs	Total	
NLW (25+)	£584.9	£118.1	£703.0	£3,515.1
Main (21 - 24)	£7.1	£1.4	£8.5	£42.5
Development (18 - 20)	£1.9	£0.4	£2.3	£11.4
Youth (16 - 17)	£2.7	£0.5	£3.2	£16.1
Apprentice	£1.3	£0.3	£1.5	£7.7
Total	£597.8	£120.8	£718.5	£3,592.7

Notes: April 2016 wage distribution inflated to April 2017 using OBR's average earnings growth forecasts

Figure 16: Total costs in scenario B: zero wage growth assumed from April 2016

	Any given year			**Total 5 year cost**
	Wage and Non-wage Impacts (£m)			
	Wage Costs	Non-wage Labour Costs	Total	
NLW (25+)	£1,135.7	£229.4	£1,365.1	£6,825.7
Main (21 - 24)	£9.5	£1.9	£11.4	£57.0
Development (18 - 20)	£2.3	£0.5	£2.7	£13.7
Youth (16 - 17)	£1.7	£0.3	£2.0	£10.0
Apprentice	£1.3	£0.3	£1.5	£7.6
Total	£1,150.4	£232.4	£1,382.8	£6,914.0

Figure 17: Total costs in scenario C: zero wage growth assumed from April 2015

	Any given year			**Total 5 year cost**
	Wage and Non-wage Impacts (£m)			
	Wage Costs	Non-wage Labour Costs	Total	
NLW (25+)	£1,561.6	£315.4	£1,877.0	£9,385.0
Main (21 - 24)	£19.5	£3.9	£23.4	£117.2
Development (18 - 20)	£2.2	£0.4	£2.7	£13.3
Youth (16 - 17)	£1.4	£0.3	£1.7	£8.4
Apprentice	£0.3	£0.1	£0.4	£2.1
Total	£1,585.0	£320.2	£1,905.2	£9,526.0

Notes: 'ripple costs' are significantly lower in this scenario because we assume that the ripple effect extends up to the 25th percentile, which is much closer to the minimum wage rates (and for some rates below) if no wage growth were to occur among low paid workers between April 2015 and April 2017.

Familiarisation and implementation/processing costs

105. The scope of this impact assessment is to measure the marginal effects of implementing the new NLW/NMW rates and as such, we do not cover general compliance costs with broader elements of minimum wage legislation. However, it is important to note that larger increases in the wage floor made via the NLW could mean that more firms may be affected than before – for example, employers who pay just above statutory rates, as well as those who pay the minimum wage will need to keep records of employees' pay to satisfy themselves that they are compliance and provide evidence of this if challenged.

106. While National Minimum Wage legislation is universal and applies to all employers, in practice, some firms will pay all their staff well above the minimum statutory rates of pay and therefore will not be practically impacted by changes to the rates up to a certain level.

107. The concept of annual minimum wage increases are fully embedded in the UK labour market; they have occurred regularly for the last 17 years. Employers, in particular those in low paid sectors will generally expect the minimum wage to increase, following the trends of the last few years.

108. Previous NMW IAs did not estimate transition costs for this reason. However, recent structural changes to the minimum wage system may suggest that transitional costs are more likely initially. In particular, the NLW coming in to force in April 2016 introduced a new minimum wage age band, and from 2017, NMW rates will now be uprated in April, instead of October.

109. The IA for the introduction of the NLW considered the transition costs of introducing the NLW. The Government also undertook extensive communication activity around the introduction of the NLW to aid employers' understanding of the new rate. This included, TV advertising, radio, posters and stakeholder toolkits, among other activity to help employers comply with the new regulations. The communication campaign was successful in achieving its aims – for example, 70% of employers were aware that the NLW was going to be law, and 68% were aware of the date that it would come in to effect before the Government communication campaign, whereas these proportions increased to 92% and 89% respectively in our post-wave survey.

110. The Government will be undertaking a further extensive communications campaign, targeted at both workers and employers around the new rates, alerting employers to the new NMW cycle and helping them comply with the legislation.

Number of businesses covered:

111. 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 survey of 500 employers run by the Resolution Foundation[16] after the £7.20 NLW rate had come in to force found that 35% of employers said that the NLW had increased their wage bill – a similar proportion found in a survey of its members run by the British Chamber of Commerce. A CIPD survey of its members found that 46% had been affected by the introduction of the NLW[17]. Follow up

[16] http://www.resolutionfoundation.org/wp-content/uploads/2016/07/NLW-first-100-days.pdf

[17] See slide 48: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/573736/Launch_event_presentation.pdf

research by the Resolution Foundation which sampled 800 employers across low paid sectors only found that 47% of employers in low paid sectors had been affected, whereas a member survey by the Federation of Small Businesses found the proportion of its members to be 51%. Naturally coverage will vary across sectors, and some representative organisations representing employers in specific low paid sectors found higher proportions.

112. We have taken a range of between 35% and 51% of employers that we expect to be affected by the proposed increases to the NMW/NLW. Applying this to the 2016 Business Population Estimates[18], we estimate that between 460,000 and 675,000 will be covered.

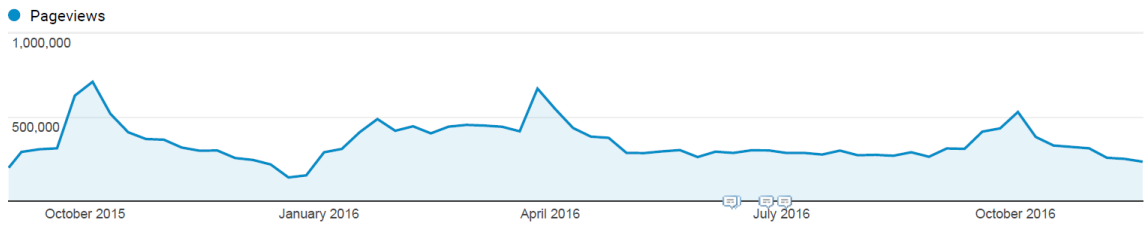
Familiarisation costs:

113. Given that this IA is assessing only the marginal costs of implementing new NLW and NMW rates, in principle it is relatively straightforward for an employer to familiarise themselves with this change. In practice, this will involve either checking on Gov.uk or calling the Acas helpline – traffic through these routes tend to increase around the implementation of new rates (Figure 18 below). As mentioned above, employers may also hear about the rates via official Government communications or through third party channels, such as the news.

114. We have assumed that on average 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 informed by the following:

- Between September 2015 and November 2016, the average duration of visits on to the minimum wage rate landing page[19] on Gov.uk was between 3 and 4 mins. Average durations were much lower for other pages of guidance.
- Acas call handlers advised us that calls from employers tended to last around 5 minutes.

Figure 18: Number of page views to main minimum wage pages on Gov.uk



Source: Web analytics of Gov.uk minimum wage pages

115. Based on the basic hourly wage of an HR Manager/Director[20], this would amount to a one-off cost of between £0.9m and £1.2m.

[18] https://www.gov.uk/government/statistics/business-population-estimates-2016

[19] https://www.gov.uk/national-minimum-wage-rates

[20] £28.50 for SOC code 1135, based on the Annual Survey of Hours and Earnings, 2016, including an uplift of 20.2% for non-wage labour costs.

Implementation/processing costs:

116. Evidence suggests that employers tend to review pay on a regular basis; the Bank of England Wage Dynamics Survey[21] shows that the median frequency at which firms change wages was once a year across firms of all sizes, although the distribution varied more across smaller firms (50% tend to change pay once a year vs 80% for larger businesses). And, according to the Workplace Employment Relation Study 2011[22], 91% of private sector workplaces conduct pay reviews for employees in their largest occupational group at least once a year. As such, we do not expect the practical implementation of the new rates i.e. the processing to be significant – in particular it should not differ significantly from business as usual activities.

117. We discussed the practical implications of processing an increase in the minimum wage with business, payroll and HR representative bodies. Implementing new rates would largely consist of checking the rates that workers are eligible for (based on age and Apprenticeship status) and updating their pay on the employer's payroll system, which will vary across employers.

118. Many employers contract out their payroll services and as such minimum wage upratings will typically be included in under the standard service provided. Implementation will vary from full automation, where the change is made at a central level and implemented as soon as dates practically allow, through to manual change to each pay record. Many payroll software programmes do build in automated prompts when birthdays take an employee in to another wage band.

119. For larger employers with in-house payroll and those with dedicated payroll software, this could involve implementing a one-off set of software rules which would automatically update the pay of workers. For these employers, the cost of processing the new rates is more likely to be a fixed cost per year, and is unlikely to vary significantly based on the number of workers within the firm implicated by the new NLW/NMW rates - although this may have increased compared with before the introduction of the NLW, given that this created a new minimum wage age band.

120. Smaller businesses without dedicated HR/payroll staff which do not contract out payroll services are more likely to incur variable processing costs dependent on the number of workers for whom they have to implement a change in pay.

121. As per the description above, we split employers in to two groups to make our estimates – those who implement rates relatively centrally, and those that will need to amend individual records. There is no data available on the number of employers who have dedicated in-house payroll, or who contract out payroll services. We have assumed that small and micro businesses will amend records individually, incurring a processing cost per worker, whereas businesses with 50+ employees incur a fixed cost of processing and implementing the new rates.

122. According to the 2016 Business Population Estimates there were 40,500 businesses with 50+ employees – as above, we have assumed that between 35% and 51% of these will be affected by the NLW/NMW increase in April 2017. HR and Payroll specialists suggested that

[21] http://www.bankofengland.co.uk/research/Documents/workingpapers/2015/swp568.pdf

[22] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/336651/bis-14-1008-WERS-first-findings-report-fourth-edition-july-2014.pdf

it might take a payroll professional between 30 minutes to an hour to process and implement the new rates using payroll software, with a central estimate of 45 minutes. For this group of businesses we assume that 'Book-keepers, payroll managers and wages clerks' will make these changes[23].

123. Our estimates for smaller businesses are based on evidence from the CEBR-Federation of Small Businesses Employment Costs Index (2015)[24] which estimate that the 'average' small business of six employees spends 0.5 days of an administrator's time per month processing payroll[25]. This equates to 40 minutes per employee. This includes other activities beyond adjusting pay such as updating personal information, adding new employees etc., so we revise down the time taken to update the payroll record to 30 minutes.

124. This IA estimates that around 830,000 employees working in businesses with fewer than 50 employees are set to benefit from the proposed NLW/NMW rates in April. As such we estimate that the total processing cost for businesses with fewer than 50 employees is £5.8m based on 30 minutes per employee and the basic hourly wage of payroll managers – as used above[26].

125. This is a highly cautious approach to estimating costs for smaller businesses as it does not account for any potential economies of scale, in particular where payroll software is used to implement the change for multiple employees at the same time rather than manually updating each. Therefore, our estimate is an upper bound because it is based on the payroll records of every single employee being updated manually. In reality, the implementation costs are likely to be significantly lower.

126. In summary we estimate the total costs of processing to be between £5.9m and £6.0m. Including familiarisation costs this is £7.0m - £7.6m.

Benefits of aligning the NMW and NLW cycles:

127. There will also benefits to employers from the fact that the National Living Wage and National Minimum wage will both be uprated in April, rather than separate cycles as occurred in 2016. In particular, the new aligned cycle is closer aligned to the tax year, which will facilitate business planning. In addition, April is typically the most popular month for pay reviews (Figure 22).

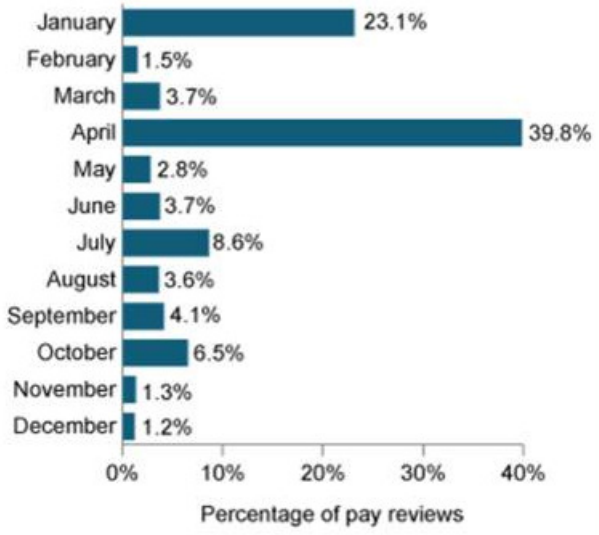
[23] £14.00 for SOC code 4122, based on the Annual Survey of Hours and Earnings, 2016, including an uplift of 20.2% for non-wage labour costs.

[24] http://www.fsb.org.uk/docs/default-source/fsb-org-uk/cebr-fsb-small-business-employment-costs-update-2015.pdf?sfvrsn=0

[25] This is based on survey data from the FSB's Voice of Small Business Index, June 2011 (p45)

[26] The assumptions used in to determine transition costs have been informed by discussions with CBI, FSB and CIPP and were broadly agreed with.

Figure 19: Effective date of pay reviews, 2014



n = 1,772 pay settlements.

Source: XpertHR

Net cost to business (best estimate)

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

129. Using the IA Calculator, we estimate that the equivalent annual direct impact on business is net -£131.6 million (over two years). This is based on our best estimate scenario. These costs are exempt from the Business Impact Target. The reason for this is explained on page 43 of this document.

Small and micro business assessment

Impact on small and micro businesses

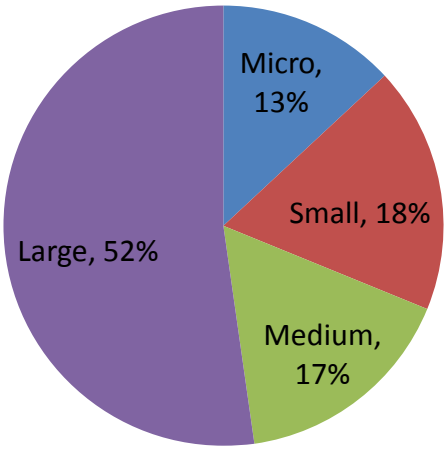
130. Figure 20 provides the coverage of workers on the NMW/NLW rates by business size at the start of the appraisal period (in Q2 2017) and our best estimate of the total costs which accrue throughout the full appraisal period. (Totals may not sum due to rounding and minor sampling errors).

Figure 20: Coverage of NMW/NLW workers by business size, Q2 2017

Business size:	Micro		Small		Medium		Large	
Rate	Coverage	Cost	Coverage	Cost	Coverage	Cost	Coverage	Cost
NLW (25+)	300,000	£79.2	335,000	£109.7	261,000	£102.7	843,000	£327.7
Main (21 - 24)	35,000	£2.4	46,000	£3.6	33,000	£2.8	95,000	£6.8
Others	38,000	£2.8	60,000	£3.6	30,000	£1.5	30,000	£2.5
Total	**373,000**	**£84.3**	**441,000**	**£116.9**	**324,000**	**£107.0**	**1,000,000**	**£337.0**

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 21: Pie chart of total costs of NMW/NLW uprating by business size



The possibility of exempting small and micro businesses

131. Small and micro businesses are not exempt from the NMW. This is appropriate for both equity and economic reasons.

132. An exemption would undermine the objectives of the policy. In particular, while the NLW/NMW imposes a cost on smaller businesses – it is also benefits workers to an equal extent. Given that a large proportion (almost half) of NMW/NLW workers work in small businesses, an exemption would significantly undermine the ability of the NMW/NLW to address the possibility of employers exploiting the vulnerability of certain workers to pay them unacceptably low wages and undercut their competitors.

133. 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 three effects. Firstly, it would create a distortion in the market by distorting cost-competitiveness at the expense of medium and large businesses. This 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 rates, thereby introducing a significant cost of expansion at the threshold between small and medium sized businesses. Thirdly, there would be labour supply effects, with workers (especially more productive ones) likely to favour working for larger businesses where there would be a guarantee of at least being paid the minimum wage.

Measures to mitigate the cost impact on business

134. The annual NMW/NLW increases are fully embedded in the UK labour market and has increased regularly for 17 years. The potential annual increase in the NMW rates is expected by businesses that employ workers on the NMW.

135. This Government understands that supporting smaller businesses is vital to helping the UK economy grow. At the start of 2016 there were a record 5.5 million small businesses in the UK which are responsible for 60% of private sector employment and contribute £1.8 trillion in turnover. The Government is backing small firms to succeed by creating an environment where they can thrive. For example the Government has:

- The increase in the Employer Allowance from £2000 to £3000 will benefit up to 500,000 employers and mean that a business will be able to employ up to four people full time on the current National Living Wage without paying National Insurance Contributions. This will also benefit businesses employing NMW workers.

- The cut in corporation tax from 20% to 17% by the end of the Parliament will benefit over a million firms of all sizes and give the UK the lowest rate of corporation tax in the G20.

- Budget 2016 cut the burden of business rates on ratepayers in England by £6.7bn over the next 5 years, cutting business rates for all ratepayers, and ensuring 600k small businesses, occupiers of a third of all properties, will pay no rates at all – a saving of up to £5,900 in 2017-18.

- Improved access to finance through programmes with the British Business Bank, and boosting the quality and quantity of apprenticeships

- The British Business Bank is supporting £3.2 billion of finance to over 51,000 smaller businesses. This includes support to over 41,900 entrepreneurs through the Start-Up Loans programme, facilitating over £253 million worth of lending.

- Frozen fuel duty for the seventh year in a row: The government has frozen fuel duty in every year from 2011 to lessen the impact of high fuel prices on business costs,

representing the longest fuel duty freeze for 40 years. Without this freeze, pump prices would have risen by 2p per litre.

- HMRC tax support: To help make dealing with tax quicker and easier for small businesses, the Government has also announced extensions to HMRC opening hours, improvements to online and telephone services and expansion of tailored support for businesses.

Appraisal of impacts – Unquantified Impacts

Macroeconomic impacts

NLW

136. Since the NLW has only been in effect since April 2016, it is difficult at this stage to determine what the impacts of this introduction have been. However, some of the potential impacts on employment, hours worked and productivity were forecast by the OBR in 2015 based on the profile of the NLW at the time and were detailed in the NLW IA[27]. Below are the key expectations from the OBR report.

137. As the NLW increases toward its 2020 target of 60% of median earnings, it is likely that the potential macroeconomic impacts will increase. The OBR has assessed the impact in 2020 of a NLW set at 60% of median earnings. The OBR estimates that:

- The average earnings growth forecast will be 0.4 percentage points higher.
- The forecast change in average hours worked will be 0.2 percentage points lower.
  The forecast structural unemployment rate will be 0.2 percentage points higher – equivalent to about 60,000 jobs.
- The forecast rate of inflation will be 0.1 percentage points higher.
- The hourly productivity forecast will be 0.3 percentage points higher.

138. There is uncertainty around the extent to which these will materialise, we also accept that there are likely to be longer term impacts beyond 2020 as a result of this structural change in the labour market, but whilst these will be difficult to monetise as "the consequences of this unemployment on social welfare are extremely uncertain and dependent on a significant number of unknowns"[28], the qualitative impacts should be considered when uprating the NLW.

Initial evidence on employers' reactions to the NLW

139. When faced with increased labour costs, businesses can react in a number of ways: by reducing profits to pay for the wages, by reducing the number of hours worked, by restructuring their workforce and pay structures, by potentially reducing jobs, by increasing prices and/or by increasing the productivity of their workers. In reality, businesses will probably adjust along all of the above margins to greater and lesser extents.

140. Since the introduction of the NLW, there have been a number of small scale surveys. These have primarily been undertaken by employer representatives, which have qualitatively explored how employers have responded to the introduction of the NLW. While these do not allow us to quantify the scale of impacts, these surveys are helpful in providing an indicative view of the trends.

[27] NLW IA - page 24

[28] NLW IA – Page 14

141. While the coverage, methodologies, sample frames and specific questions differ slightly between the surveys, broadly speaking, the most popular employer responses to managing the increased costs of the introduction of the NLW tended to be the reduction of profits and the increasing of prices, although there were some sectoral differences. The FSB, CIPD and BCC surveys all identified price and profit changes as the most common responses, with productivity improvements close behind[29].

142. While there have been anecdotal reports of some employers consolidating pay and benefits in the lead up to, and since the introduction of the NLW, the LPC's preliminary analysis finds no quantitative evidence that there has been a significant reduction in the use of shift premium, overtime and incentive payments[30].

143. The LPC's analysis also suggests that there has not yet been a clear impact of the introduction of the NLW on employment and hours – although impacts need to be assessed over a longer period before making firm conclusions.

144. These impacts will continue to be monitored over time.

NMW

145. We expect there to be no employment effects from the increases in the NMW. The LPC's remit is to recommend NMW rates such that the employment prospects of low-paid workers are not damaged and their recommendations are based on a thorough body of evidence. Therefore, we believe that making such an assumption is justified. If there were to be negative employment effects of uprating the NMW, the quantified impacts would be uncertain.

146. Furthermore, the LPC has evaluated the impact of the NMW extensively and on balance has found no evidence that it has led to significant impacts on employment.

Fiscal impacts

147. In its 2015 Economic and Fiscal Outlook[31] the Office for Budget Responsibility produced a forecast for the profile of the NLW up to 2020 and estimates of the impact of the NLW based on this profile, including modelling of the potential fiscal effects. The estimates for 2017-18 suggested a net impact on public sector borrowing of around £100m, although it acknowledged that these estimates are subject to significant uncertainty.

148. In particular, the OBR outline that potential fiscal impacts could include:

- Additional tax revenues (NICs through employers and income tax and NICs through workers). The OBR acknowledged that these impacts are likely to be small. For example, in 2017-18 the personal tax allowance will be £11,500, meaning that someone on the NLW can work 29 hours before paying any income tax.

[29] National Minimum Wage, Low Pay Commission Report Autumn 2016, p53. A further summary can be found on slide 48 here: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/573736/Launch_event_presentation.pdf

[30] National Minimum Wage , Low Pay Commission Report Autumn 2016, p77

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

- Costs to the public sector from paying the new rates to public sector workers – although these costs have been factored in to the 1% public sector pay award.
- If unemployment impacts materialise from the NLW, these could result in higher spending on jobseeker's allowance and associated housing benefit.
- Changes in consumption, profits and investment could impact on VAT and corporation tax receipts.

149. Given the uncertainty associated with estimating these potential specific impacts – some of which will be third or fourth round effects of the direct impact of increases to the NLW/NMW – we have not estimated net fiscal impacts in this impact assessment. However, our estimates of non-wage labour costs used in this IA (on both direct and indirect wage impacts) include a range of costs, but are largely made up by employer NICs and pension contributions – some of which will go to the exchequer in the first instance. Indirectly these exchequer benefits are also for employees – a proportion of NICs receipts are paid in to the National Insurance Fund and go towards the state pension

150. In addition, we have estimated the proportion of the total costs estimated in this IA which are focussed in public sector employers. For the NLW, this is approximately 10%. Further details are in Annex E. Public sector employers will fund this uplift within their existing 1% annual pay award, however, our modelling makes no assumption on how public sector employers will adjust to the direct impact of the NLW uprating

Equalities impact

151. Section 149 of the Equality Act 2010 requires BIS to have due regard to promoting equality of opportunity, eliminating discrimination, and fostering good relations between groups. The impact of the NMW increases on equalities considerations is considered in full in Annex F.

Sector impact

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

153. As outlined above, we expect there to be no employment effects from the increases in the NMW. The LPC's remit is to recommend NMW rates such that the employment prospects of low-paid workers are not damaged and their recommendations are based on a thorough body of evidence. Therefore, we believe that making such an assumption is justified. The LPC's analysis and evidence gathering focuses heavily on low pay sectors.

154. As discussed previously, the impacts of the NLW are yet to be seen and so any long term impacts on employment are currently unknown. Since the aim of the NLW is to reach 60% of median earnings, the impact on employment as a result of the growth path this will take is yet to be determined.

155. As outlined above, the Government is taking steps to mitigate the impact of NMW/NLW increases on business.

Enforcement

156. The NMW is enforced by HMRC on behalf of BIS. HMRC responds to all complaints made to the ACAS Helpline. In addition, HMRC conducts risk-based enforcement in sectors or areas where there is a higher risk of workers not getting paid the legal minimum age. If HMRC investigate an employer and find a worker(s) has been underpaid the NMW they will issue a Notice of Underpayment containing details of the underpayments, the period to which they relate and the workers affected, then the employer will have to pay back the arrears owed to workers, face a financial penalty, and can be publically named and shamed under the NMW Naming scheme, unless it successfully appeals against the Notice of Underpayment. For detailed information on NMW enforcement please see page 50 onwards of the Government Evidence to the Low Pay Commission.

157. From 1st April 2016, the Government doubled the penalties for underpayment from 100% of arrears to 200% of arrears.

158. We have assumed that there is no change in the cost to the Exchequer of enforcement due to the upratings of the various NMW rates. The Government has also increased the HMRC NMW enforcement budget – to £25.3 million in 2017/18 from £20 million in 2016/17 – as part of its commitment for all eligible workers to be paid at least the NMW/NLW and to fund HMRC to proactively investigate those employers most at risk of non-compliance; this is not linked to the individual NMW rate increases recommended by the LPC.

Accommodation offset rate

159. The proposed change to the accommodation offset from April 2017 is an increase from £6.00 to £6.40. This represents a 6.7% increase.

160. The impact of this increase has not been included in our model as there is not enough information to produce robust estimates. However, the 2013 LPC review of the accommodation offset found that the usage was low and restricted to a small number of sub-sectors. In any case, we expect it to be cost reducing and therefore represents a prudent assumption for the purpose of the IA.

Implementation

161. The changes to the NMW and NLW regulations will be made by secondary legislation and will come into force on 1 April 2017.

Monitoring and evaluation

162. The remit for the LPC will continue to include the requirement to "monitor, evaluate and review the levels of the different NMW rates" (see Annex D). Historically, the LPC's report has included extensive discussion of the impacts of the NMW rates on a range of considerations. In making future recommendations for NMW rate increases, the LPC will carry out extensive monitoring and evaluation of the current rates.

Business impact target

163. Implementing the LPC's recommended NLW and NMW rate increases is out of scope of the better regulation framework as set out in the Better Regulation Framework Manual (1.9.9.viii):

164. On the NMW - *"Operation of period adjustments to an existing regulation or regulatory regime that are intended to maintain the current level of regulation in the face of general wage and price inflation – the adjustment must be provided for in existing legislation, either direct or, for example, through the recommendations of the relevant independent statutory body as set out in that legislation, for instance the Low Pay Commission for the National Minimum Wage."*

165. On the NLW - *"Because National Insurance and tax changes cannot be counted towards the BIT, and it would not be right to count only part of this package of measures, the introduction of the NLW (and subsequent upratings in line with the LPC's recommendations) will not count towards the BIT. Otherwise Government would be constraining itself to reflect the NLW's costs to business twice: once through tax measures and once through the action of the BIT. However the BIT will include any future increase to the NLW above that recommended by the LPC."*[32]

[32] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/530683/bis-16-182-bit-annual-report.pdf

Annex A: Counterfactual Evidence

Background to RPC opinions in previous IAs

Previous RPC opinions have consistently commented on the Government's choice of counterfactual to assess the impacts of the NMW/NLW to the economy.

In their most recent opinion on the IA for the October 2016 uprating, they stated that *"The IA now provides scenario analysis where the central estimate uses a counterfactual in which the pay of employees at the NMW level increases at half the rate of the average earnings forecasts. The RPC is not confident that this is a robust estimate, given that there is more likely to be zero wage growth in the counterfactual for wages at the very bottom end of the wage distribution".*[33]

In addition, the Government's previous impact assessment supporting the October 2016 upratings for the NMW received a red rating on the basis that it did not fully count the potential legacy costs of October 2015 upratings to the NMW that may have extended beyond the first year of appraisal assessed in the IA for these upratings.

BEIS' labour market economists have done a number of things in an attempt to resolve this counterfactual issue:

E. Analysed historic data and trends to understand what has happened before the NMW was introduced.
F. Provided a more granular explanation of our underlying logic, clearly setting out assumptions and rationale.
G. Held a number of formal and informal meetings with the RPC to discuss the counterfactual.
H. Sought advice from a wide range of labour market experts, including academics who have regularly been cited in the LPC recommendation reports – ensuring engagement was fully in line with the RPC recommendations (including on organisations and academics to consult with – the engagement note can be found in Annex A.1.)
I. Consulted with 9 different individuals/organisations who are experts on the labour market through a number of face-to-face meetings and telephone conversations (the outcome of these discussions are summarised in the conclusions from labour market experts section below)
J. Developed a proposal on the counterfactual based on expert advice and presented this to the RPC (the proposal can be found in Annex A.2).
K. Engaged with business stakeholders to test our approach and core assumptions and try to understand their opinions on what they are likely to pay in the absence of an automatic pay rise.

As the true counterfactual is unobservable, the counterfactual assumptions will require some judgement. In this annex, we include extensive evidence (and sensitivity analysis) that underpin these assumptions.

As outlined above, in order to determine an appropriate counterfactual, we need to understand, among other things, the following:

[33] 2016 Impact Assessment - Uprating the NMW

- What is the structure of the labour market for the lowest paid?
- What factors determine wage growth?
- How are these factors relevant in the low paid sectors?
- What would wages in the low paid sector be in the absence of any intervention?

Once an appropriate counterfactual is established, we can assess the impacts fully. In order to quantify these impacts, we calculate the difference between the proposed rates and our counterfactual wage rates, over the amount of time it takes for our counterfactual wage to catch up to the proposed rate of pay (based on our assumed growth rate).

Theoretical Considerations

Market Structure

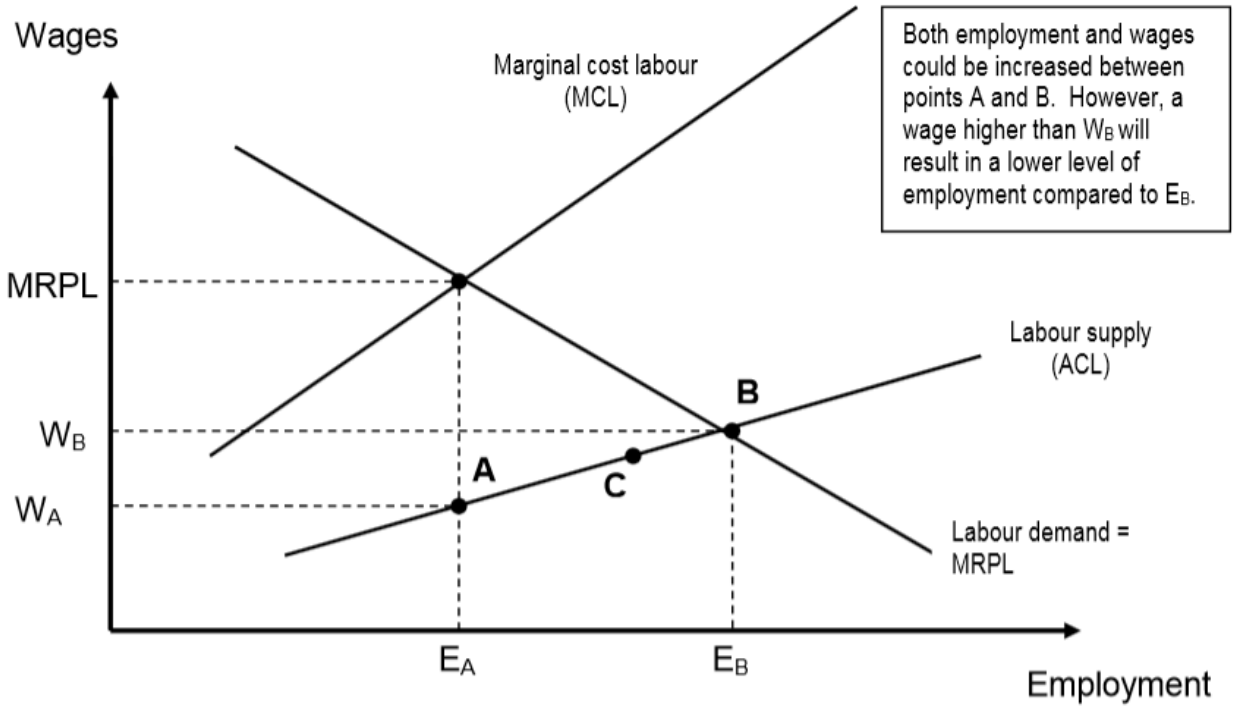
It is very difficult to define a market structure with absolute certainty, as the level of competition is hard to determine, with many indicators which are not necessarily consistent with one particular market structure. In this section, we examine some theoretical features of potential market structures within the low pay sectors, providing evidence where possible.

In a perfectly competitive labour market, the wage rate and the quantity of labour employed is determined by the interaction of supply and demand. The equilibrium wage rate is the rate where demand equals supply; where the wage rate is equal to the marginal revenue product of labour. If there are market imperfections, for example, when employers are able to exert excessive bargaining power over workers, this may lead to wages being bargained downwards as firms will seek to maximise profits. In this socially sub-optimal market outcome, employment levels are also consequently lower.

To illustrate the implications of imperfect labour markets where employers have market power, consider a stylised example of a monopsonist, where workers have homogenous skills. The monopsonist will initially hire the cheapest workers first. In order to attract new workers, it must raise the marginal wage, but it must pay this new, higher wage to all its employees[34]. Consequently the marginal cost of labour is greater than the average cost as captured by the labour supply curve. The employer will maximise profits when the marginal cost of labour equals the marginal revenue product. This is illustrated by point A in the following diagram. This equilibrium has lower wages and lower employment than the perfectly competitive equilibrium as illustrated by point B. A statutory wage floor (e.g. at point C) can address this market power and bring the market equilibrium closer to the efficient, perfectly competitive outcome (point B).

[34] If it does not pay this wage, there is scope for a new entrant (not withstanding any barriers to entry) to pay slightly higher wages than the incumbent, attract all of the labour and produce a higher level of output, with higher total profits.

Figure 1: A labour market characterised by market power for low paid workers

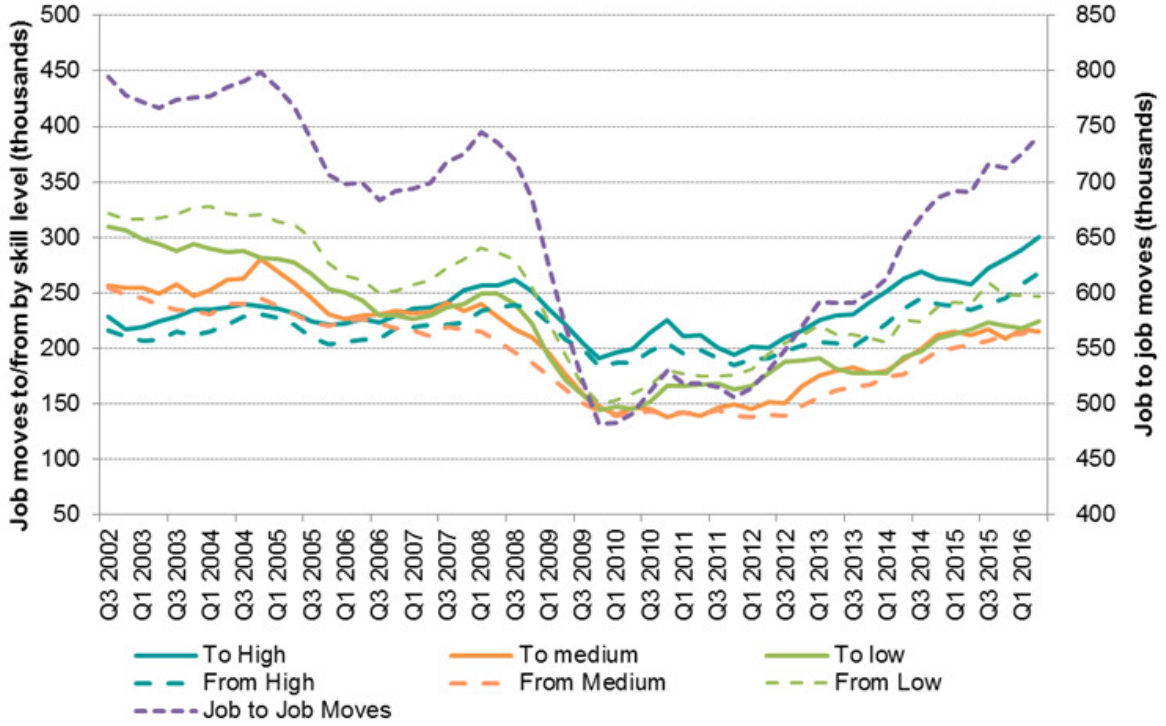


In reality, it is unlikely that this stylised pure market structure is entirely representative of competition in low paying sectors today.

Some sectors could share features of a monopsonistic market, in the sense that there are many workers but also many employers, however there is an excess supply of labour resulting in weak bargaining power for employees in the low paid sector. Unequal bargaining power can results in sub optimal outcomes, hence part of the rationale of the NMW/NLW is to correct this market failure and ensure the weak bargaining power does not lead to exploitative wages.

Some low paid sectors may also demonstrate features of a perfectly competitive market.

Figure 2: Job flows across the economy based on skill level (2002 – 2016)



Source: ONS Labour Market Flows August 2016, experimental statistics, four quarter rolling average. Skill level flows from ONS Longitudinal Labour Force Survey

While low paid employees/sectors and low skilled employees are not one and the same thing, there is some correlation between skill levels and pay. Figure 2 highlights that movements from and to low skilled positions have been increasing since 2009 overall, similar to medium skill level job flows. Overall, hundreds of thousands of workers move between low skilled-jobs in each quarter. This is indicative of the growing health of the low skilled sectors and the relative ease with which people are able to move between jobs. To illustrate this point, discussions with stakeholders in the low pay sector have indicated that staff retention can be difficult as there is competition within and across low paying sectors. Sometime this is due to the low skill requirements of some jobs and therefore low barriers to movement. This is potentially further evidence that low pay sectors are not pure monopsonies as there is likely to be some level of bargaining power, generally found in competitive markets.

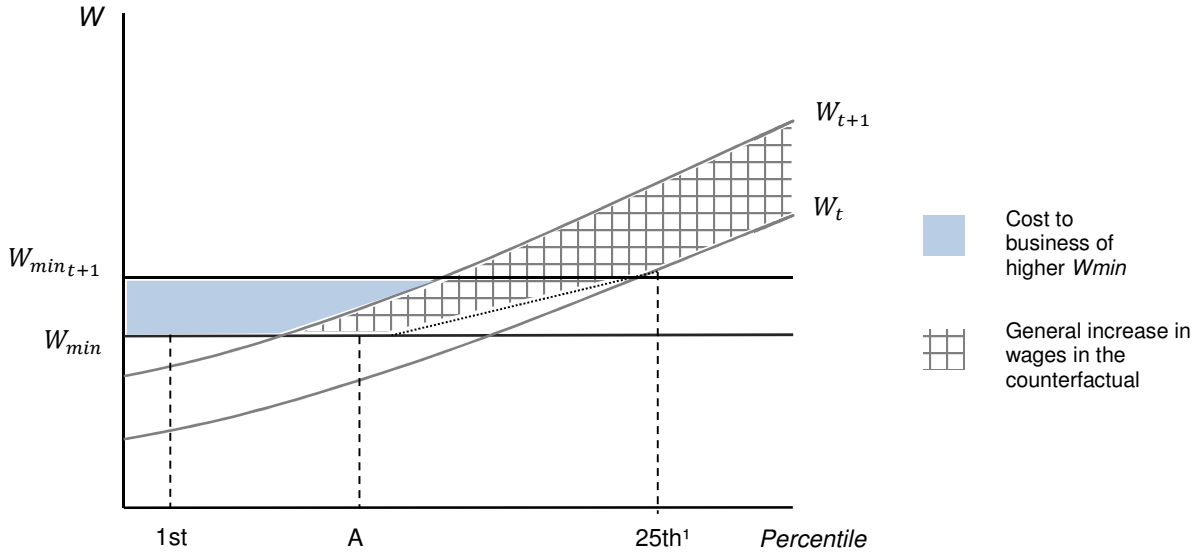
Another feature of a monopsonistic employer is that they are wage setters, due to the lack of competition from other firms (at least locally). However, as we will discuss later on, one of the main considerations of firms when setting wages are what other firms are paying[35]. This enables firms to remain competitive and pay wages which are attractive to employees, again, a feature of a competitive market rather than a monopsony.

[35] Labour Market Outlook Autumn 2016 - CIPD

Wage growth

In discussions with the RPC, they have suggested that for some workers towards the very bottom of the wage distribution, 'there is more likely to be zero wage growth in the counterfactual for wages'[36] in the absence of an NMW/NLW uprating. The full discussion on their views of the counterfactual wage growth and rationale behind this can be found in Annex A.2, however their argument is simplified rationale is provided below:

Figure 3: Shadow wage curve in RPC's proposed counterfactual



The diagram above 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 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}.

Under this wage growth assumption, the counterfactual wage growth for those earning the NMW, such as people at the 1st percentile, in the absence of an uprating, would be zero. 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 have seen 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 those who remain on W_{min}.

As the minimum wage is the legally binding pay floor, employers are not legally able to depress wages beyond this point. This is important for a marginal appraisal, the previous minimum wage would still be binding and therefore the starting point for this appraisal. In principle, we agree with the RPC that it is likely that some workers would not experience any wage growth over the short term in the absence of a minimum wage uprating. However, we would expect the majority

[36] RPC Opinion on Increasing NMW Rates 2016 IA

of those receiving the NMW to experience some wage growth, and agree with the RPC that those who do not, will not experience zero growth indefinitely. For the purposes of a quantitative appraisal we must use an assumption that, on balance, reflects the average position – while acknowledging that there will be dispersion around the mean.

Figure 4 illustrates that if there is wage growth, whilst the annual minimum wage uprating can mean that the counterfactual wages of the lowest paid may not reach the NMW rate before the next uprating occurs, in the absence of an uprating, the counterfactual wages will eventually catch up, and after this point there would be wage growth when assessing the marginal effects of that specific NMW increase.

Figure 4: Counterfactual wage growth against the NMW

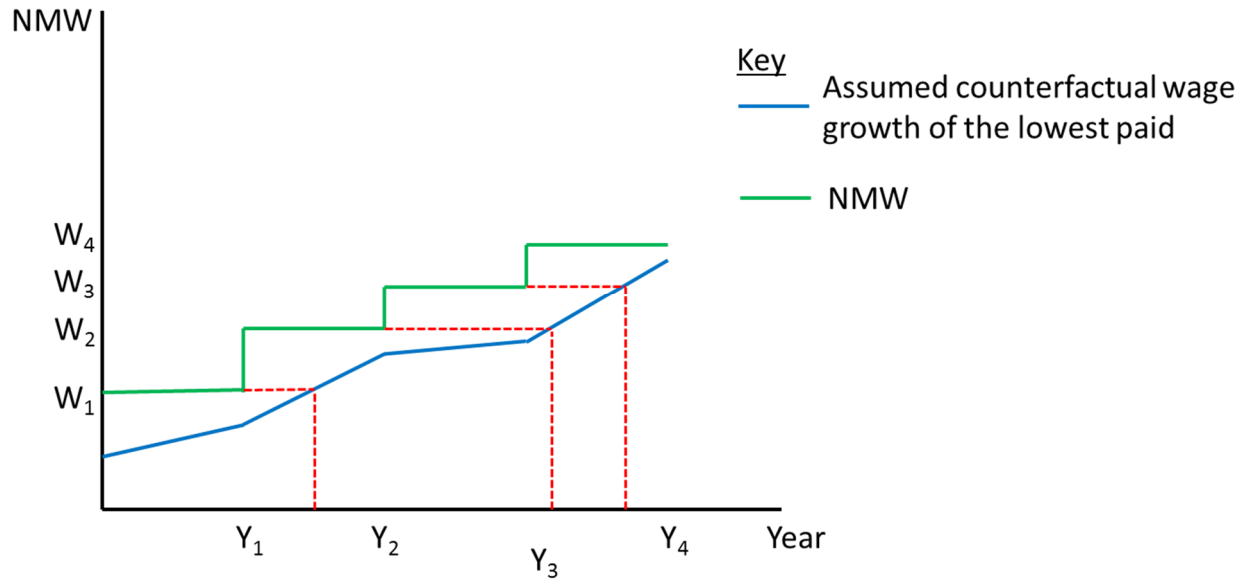
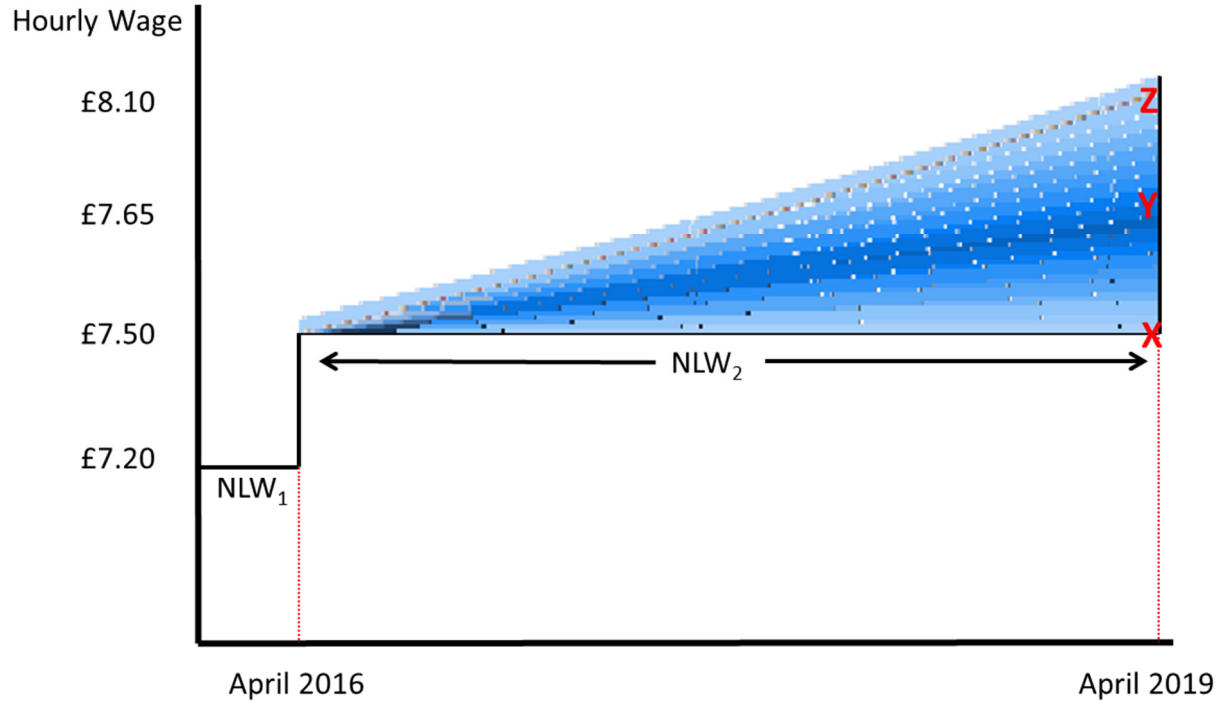


Figure 4 has assumed for simplicity that the lowest paid uniformly experience wage growth. However, we know in reality wages do not grow in this manner, with some people experiencing higher wage growth as illustrated by Figure 5. Other people will experience lower wage growth, and some may not experience wage growth at all.

Figure 5: Potential growth in wages for different low paid workers in the absence of a NMW/NLW uprating in 2018.



Employee X has received 0% wage growth – the marginal cost of the NMW/NLW on the business employing this employee would be much higher than for those who have experienced wage growth – we can imagine this is the sole employee in a struggling café where the manager has been unable to provide a pay increase. Employee Y has seen median wage growth of 2% - this employee could be working for a chain store in the retail sector or a chain supermarket, and employee Z has experienced higher than average wage growth – this employee may have been working in a fast growing firm which is achieving above average returns.

If we are to accept that some people would be experiencing 0% wage growth, two points must be addressed:

1) How long would this 0% growth rate prevail?
2) What are the pay dynamics of the lowest paid and what proportion of people are likely to experience 0% wage growth?

We will answer these questions in turn, making reference to available evidence and how they relate to the original questions outlined above, when determining an appropriate counterfactual.

Evidence

How long would a 0% wage growth rate prevail?

We accept that over the short term, it is possible and even likely that some people who are paid the NMW/NLW would not see any wage growth if the rates were frozen. However, in agreement with the RPC, we expect 0% wage growth on average in the medium/long term to be very unlikely in the absence of a minimum wage increase. There are a number of reasons for this which will be elaborated on and evidenced throughout this section:

A. Unprecedented rates of wage inequality across the distribution would be experienced.
B. Current, recent and historical evidence demonstrating wage growth of the lowest paid.
C. Coverage of minimum wage workers falls throughout the year, implying those on the NMW/NLW move off these rates throughout the year.
D. The determinants of pay means that all employers are not seeking to simply pay the lowest wage possible.
E. A 0% wage growth for minimum wage workers means eventually people could prefer not to work as their incentives to work are reduced.

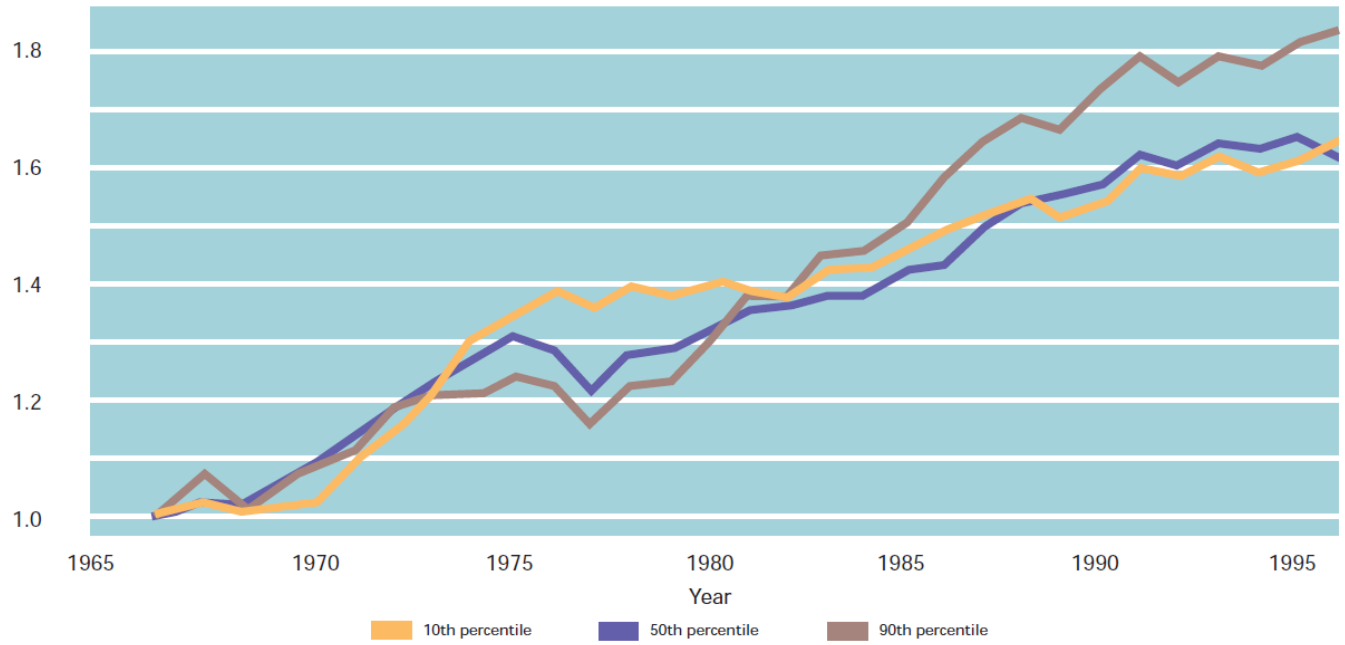
We have not considered evidence from other countries as labour markets and economies differ significantly between countries, so direct comparisons are generally not appropriate.

A. Unprecedented rates of wage inequality across the distribution

The existence of the NMW has reduced wage inequality across the wage distribution for the lowest paid in society. However, before the introduction of the NMW, (as evidenced below) wage inequality was not seeing any unprecedented rates of growth. The arguments below are relevant in understanding the impact of the existence of the NMW/NLW on wage inequality, when compared to a world without this intervention, and what this would mean if there was 0% wage growth indefinitely. Although the RPC agrees that an indefinite rate of 0% wage growth is unlikely, we believe it is worthwhile to illustrate with evidence, why this is the case.

The cumulative impact of an indefinite 0% wage growth for the lowest paid would result in unprecedented rates of inequality, contrary to the evidence presented in Figure 6.

Figure 6: An index of wage growth (1966 = 1) over a 30 year period before the introduction of the NMW, using data from the Family Expenditure Survey.



Gosling et al (1996)[37] provided some commentary on the different periods of wage growth with some explanation of why these rates may have prevailed.

- *"**1966–72:** Little change in the wage distribution, with similar real wage growth for the 10th, 50th and 90th percentiles.*

- ***1972–75:** A compression of the wage distribution, with positive real wage growth across the distribution, but faster growth at the bottom, during the period of the Conservative Government's statutory incomes policy.*

- ***1975–78:** Falling real wages at all percentile points in the distribution at the time of the Labour Government's 'Social Contract' voluntary incomes policy.*

- ***1978–96:** There has been a dispersion in wage growth between the bottom and the top, but the median experiences similar, and even slower wage growth than the bottom."*

Whilst this is evidence of the inequality gap widening between the very top and the very bottom of the distribution, the inequality gap between the median and the 10th percentile was closing before the introduction of the NMW. If there was 0% wage growth in the medium/long term for the lowest paid, inequality would have worsened to a much greater extent. As an example, if there was zero wage growth at the 10th percentile and median wages grew at 2% annually, over a five year period, this would imply a compounded increase of 8.2% at the median, signalling an equivalent 8.2% increase in the ratio between the 50th and 10th percentile. This is a generally

[37] Gosling, A., S. Machin and C. Meghir, 1996. *New Inequalities*. pp. 135–157.

unprecedented acceleration of inequality between the middle and bottom of the hourly pay distribution, and an increase never seen in any five year period in the past.

B. Current, recent and historical evidence demonstrating wage growth of the lowest paid

The UK labour market has been performing strongly over the last two years, reaching record highs of 74.5% in the employment rate in the three months to September 2016, with 31.8million people in work. In addition, there has been continued employment growth in low paying sectors.

There have even been significant improvements in the youth labour market, which was hit hard during the recession[38], with lower unemployment rates compared to their post-recession peaks and the lowest 16-24 year old NEET (not in education, employment or training) since records began. This is indicative of the improving health of the labour market, and in particular, the youth labour market.

Figure 7 provides further evidence from history on the wage growth across the distribution, including the low paid workers before the introduction of the NMW, illustrating that wages have always tended to grow at the bottom of the distribution.

[38] BEIS (Autumn 2016), Final Government Evidence to the Low Pay Commission's 2016 Autumn Report

Figure 7: Wage growth across the distribution between 1975 and 2015

Annualised wage growth (%)	Mean	5th	10th	25th	Median	70th	90th
1975-2015	6.3	6.2	5.9	5.9	6.1	6.4	6.7
1975-1997	8.8	8.1	8.0	8.3	8.8	9.2	9.7
1997-2015	3.2	3.9	3.4	3.1	3.0	3.0	3.0
1975-1979	13.5	14.3	12.9	13.3	13.4	13.6	13.9
1979-1982	15.5	13.6	13.7	14.3	15.2	16.3	17.1
1982-1989	6.5	5.5	5.7	5.8	6.4	6.8	7.3
1989-1992	8.5	7.5	8.0	8.2	8.3	9.0	9.5
1992-1997	3.2	2.4	2.7	2.8	3.3	3.6	3.7
1997-2006	4.3	5.1	4.4	3.8	3.7	3.9	4.3
2006-2011	3.2	3.3	2.9	2.9	3.0	3.0	2.8
2011-2015	0.9	2.2	1.9	1.6	1.5	1.2	0.6

Source: LPC estimates based on New Earnings Survey (NES), April 1975-1997; ASHE excluding supplementary information, April 1997-2004; ASHE including supplementary information, April 2004-2006; April ASHE 2007 methodology, 2006-2011; and April ASHE 2010 methodology, 2011-2015, standard weight, including those not on adult rates of pay and apprentices, UK

Note:

a. NES and ASHE data adjusted to take account of changes in the earnings series.
b. Shaded periods contain recessions.
c. The 5th percentile has included those on the NMW since 1999.

You can see from above that before the NMW was introduced, between 1975 and 1997, wages in the 5th and 10th percentile were still growing and once again, wage inequality between the lowest paid and the median or mean grew slowly, with less than a 1% difference over the 22 year period. These wage growth rates also account for periods of recession, where typically wage growth is expected to be low or stagnant. It is worth noting that before the recession of 1980/1981, wages of those at the 5th percentile were growing faster than those at the 90th percentile.

Whilst some would argue that this could have been influenced by government interventions (such as the existence of the Wages Councils), it is important to note two things:

1) "There were a large number of low paying sectors not covered by the (Wages Council) legislation"[39]. At their peak in the 1960s, Wages Councils covered 60 industries, however as further employment legislation took effect, their coverage fell as their powers were reduced and by 1986 they were 'somewhat ineffective'[40].

2) "Those workers who had not collectivised their wage setting and were left to the Wages Councils had experienced a relative decline in their levels of pay. Wages Councils still

[39] Dickens, R and Dolton, P - Using Wage Council Data to Identify the Effect of Recessions on the Impact of the Minimum Wage (2011)

[40] Discussion with LPC labour market expert

covered as many 3.5 million workers by the late 1970s and most had minimum standards little better than benefit levels"[41].

These points indicate that whilst Wages Councils played a role in setting minimum wages, they are unlikely to be solely accountable for the high levels of wage growth experienced by those at the lower end of the distribution.

The period between 1993 and 1997 is also demonstrative that in the absence of any wage interventions, wages of the lowest paid would still experience some growth.

These four years were a period of low and steady inflation, low unemployment and economic growth, after the last Wages Council had been abolished and before the introduction of the minimum wage, where the lowest paid still experienced wage growth in line with RPI. As a result, in the Low Pay Commission's first report, when recommending the NMW rates, they used this as their counterfactual.

"…there is real earnings growth across the whole of the labour market. It is therefore reasonable to assume that low pay has grown at least as fast as inflation since the data were collected and will continue to do so until the National Minimum Wage is introduced"[42] – LPC report 1998.

Assuming the lowest paid would have expected to see wage increases has been reiterated in their most recent 2016 report which states:

"Workers might reasonably have expected a pay rise in the absence of any change in the UK's pay floor… Taking annual median wage growth as a proxy for the wage increase that workers would have got in the absence of a minimum wage, the pay of a typical minimum wage worker increased additionally by £390 a year, slightly up on expectations in our Spring 2016 Report" – LPC Report 2016[43]

Finally, the balance of evidence to date suggests that the minimum wage has not had a detrimental impact on the employment of low paid workers. This includes an increase in the main rate of 10.8% in 2001 and an increase of 31% between 2000 and 2001. This evidence suggests that it would inconsistent to implicitly assume that the productivity (and therefore their wage level) of minimum wage workers would lag significantly behind the level of the minimum wage over the medium/long-term in a "shadow wage curve".

C. Coverage of minimum wage workers falls throughout the year

In contrast to the current improving labour market situation, in 2012 the youth rates were frozen due to concerns about the vulnerability of younger workers to economic instability at the time.

The NMW remained unchanged from the 2011 rates of £3.68 and £4.98 for 16-17 and 18-20 year olds, respectively. In 2011, the coverage of 16-17 year olds at or below the NMW was 36,000, and 18-20 year olds at 130,000.

[41] http://www.geog.qmul.ac.uk/livingwage/history/index.html - Wills, J (circa 2005)

[42] http://webarchive.nationalarchives.gov.uk/20070603164510/http:/www.dti.gov.uk/files/file37987.pdf - LPC Report 1998.

[43] Low Pay Commission Final Report Autumn 2016

In the absence of the 2012 uprating, the coverage of both age groups fell, with 35,000 16-17 year olds and 123,000 18-20 year olds earning the NMW.

The coverage was even lower when 16 and 18 year olds were excluded from the 2012 coverage (as the first beneficiaries of the 2011 rates were likely to have turned 17 and 19 respectively by 2012). The 2012 coverage of NMW rates were 26,000 for the 16-17 rate and 71,000 for the 18-20 rate.

This drop in coverage indicates that many of those earning the NMW may have seen an increase in their wages over the course of the year – although the results are not conclusive. When looking at the proportion (as opposed to number) of employees paid at the relevant minimum wage rate, this fell sharply for 16-17 year olds but was relatively stable for 18-20 year olds. As such it is possible that some of the fall in coverage could be partly attributed to changes in employment levels.

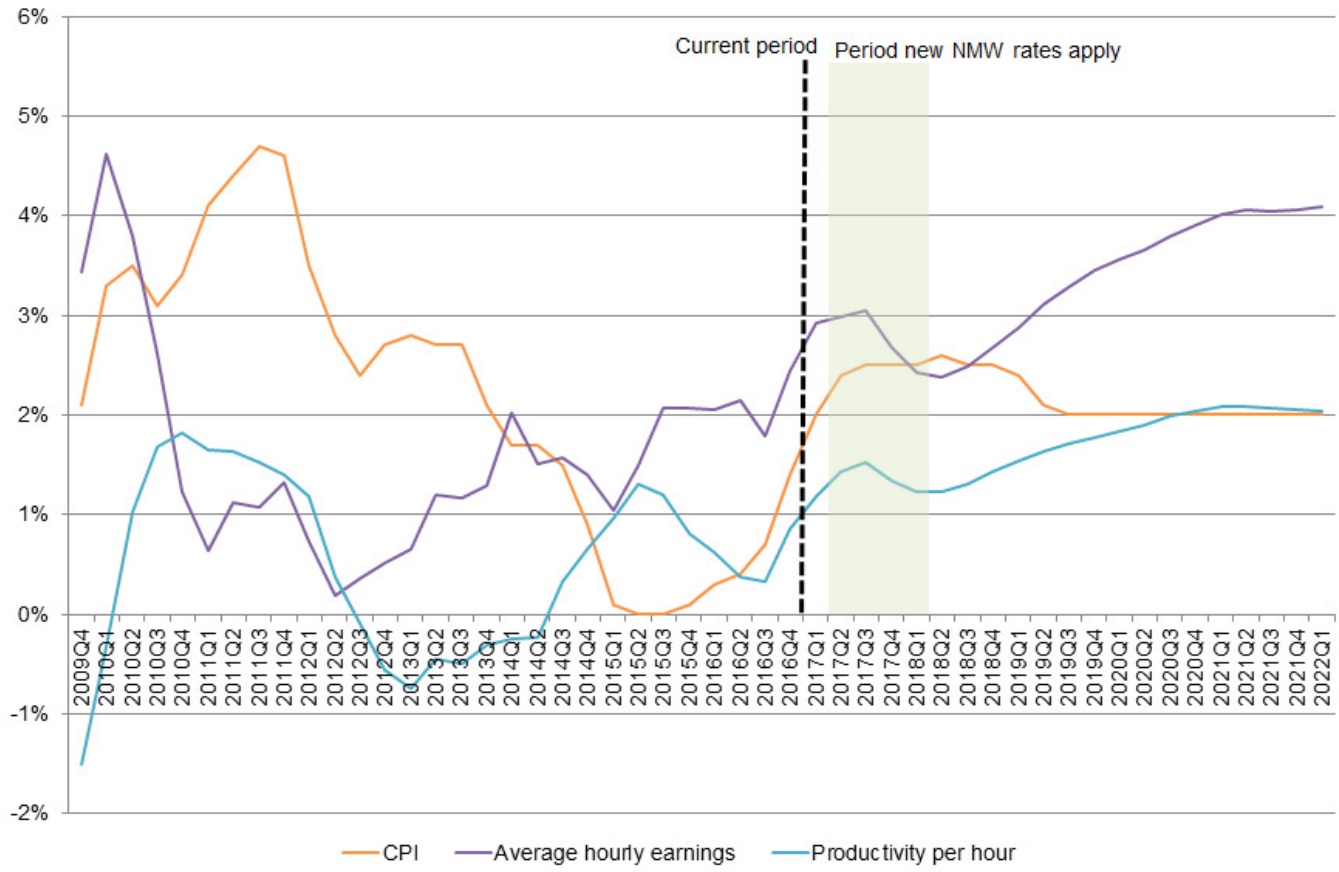
D. Pay trends, determinants of pay and their relevance to the low pay sectors

Pay trends

ASHE 2016 showed that real earnings growth was at its highest since the recession between April 2015 and April 2016. Adjusted for inflation, median full-time weekly earnings increased by 1.9% over the period.

Figure 8 presents historic and forecast annual growth in average hourly earnings, CPI inflation, and productivity per hour worked as forecast by the OBR's latest report (November 2016). These forecasts suggest that there will be continued growth in average hourly earnings and productivity over the next 5 years. While inflationary pressures are expected to result in a small fall in real wages towards the end of 2017, real wage growth is expected to pick up over the rest of the forecast period.

Figure 8: Actual and forecast annual growth in hourly earnings, inflation and productivity



Source: BEIS calculations based on OBR Economic and Fiscal Outlook November 2016. Annual growth rates based on four quarter rolling averages of average hourly earnings, CPI and hourly productivity indices.

Determinants of pay and their relevance to low paid sectors – stakeholder views

There are a number of factors which affect wage growth which go beyond government legislation, which is why it is unsurprising that in the absence of any intervention, wage growth was still experienced across the wage distribution.

As briefly mentioned previously, the economic environment can act as a constraint on wage growth. When the economy is performing well, we would expect wages to grow and when the economy is struggling, we would expect wages to grow slower or remain stagnant (as was the case during the recent recession which saw a number of sectors implementing pay freezes for at least one year). However, prior to the introduction of the minimum wage, the evidence above suggests that on aggregate, wage growth has always been experienced across the distribution (even through recessions – albeit much slower during these times).

XpertHR have confirmed the following as key determinants of pay deals, corroborated also by the CIPD's Labour Market Outlook report[44]:

[44] Labour Market Outlook Autumn 2016 - CIPD - page 12

- What other companies are paying
- Individual companies' abilities to pay
- Recruitment and retention issues
- Skills shortages
- Inflation

The first two reasons are the most applicable to low wage earners and low pay sectors overall (although anecdotally the social care sector has been experiencing issues around recruitment and retention, so this is not limited to just higher skilled sectors). Most organisations surveyed by XpertHR were found to be paying higher than the minimum wage so as not to be seen as 'minimum wage employers', and when the NLW came into force, larger firms tended to extend this to employees aged 18 and over.

It was also found that a large proportion of the larger firms were paying the voluntary Living Wage (as set out by the Resolution Foundation). This could be for a number of reasons including to remain ethical or to maintain a brand image.

However, according to XpertHR, firms tend to pay what they can afford to pay, rather than simply driving down wages as low as possible (also demonstrated in CIPD's Labour Market Outlook).

XpertHR advised that 2% is the average pay increase across industries at the moment, and in the absence of a NMW/NLW uprating, it is more realistic that the majority of workers on the NMW will see an increase closer to 2% than to 0%. This is in line with the LPC's assumptions in their most recent report (discussed above). Pay settlement experts from the Office of Manpower Economics, have also corroborated a non-zero growth wage, and again in line with the LPC's assumptions, have stated that a pay rise at least in line with inflation is realistic and achievable by the low pay sectors and industries, at least in the public sector. However, one conflicting view from a pay settlement expert from Incomes Data Research expected that the NMW/NLW rates are often used as an anchor by employers to indicate broader pay conditions and so if the rates were frozen, it is likely employers would see this as an indicator that the LPC and the Government perceive there to be change in the dynamics of the labour market and also freeze their wage bills in line with government policy, although this only considers what would happen in the event of a short term pay freeze rather than an indefinite one.

E. <u>A 0% wage growth for minimum wage workers means eventually people could prefer not to work an extra hour, as their incentives to work are reduced.</u>

Another reason for expecting a 0% wage growth or very low growth to prevail only for a limited time is due to the benefits system. If people never saw an increase in their wages, and the real value of their wages were falling over time, then their incentives to work will be reduced, and whilst every person is different and values their time and effort differently, some people could feel that their incentives are reduced to the point that they are unwilling to work an extra hour beyond that which would yield them the greatest payoff with the least level of effort.

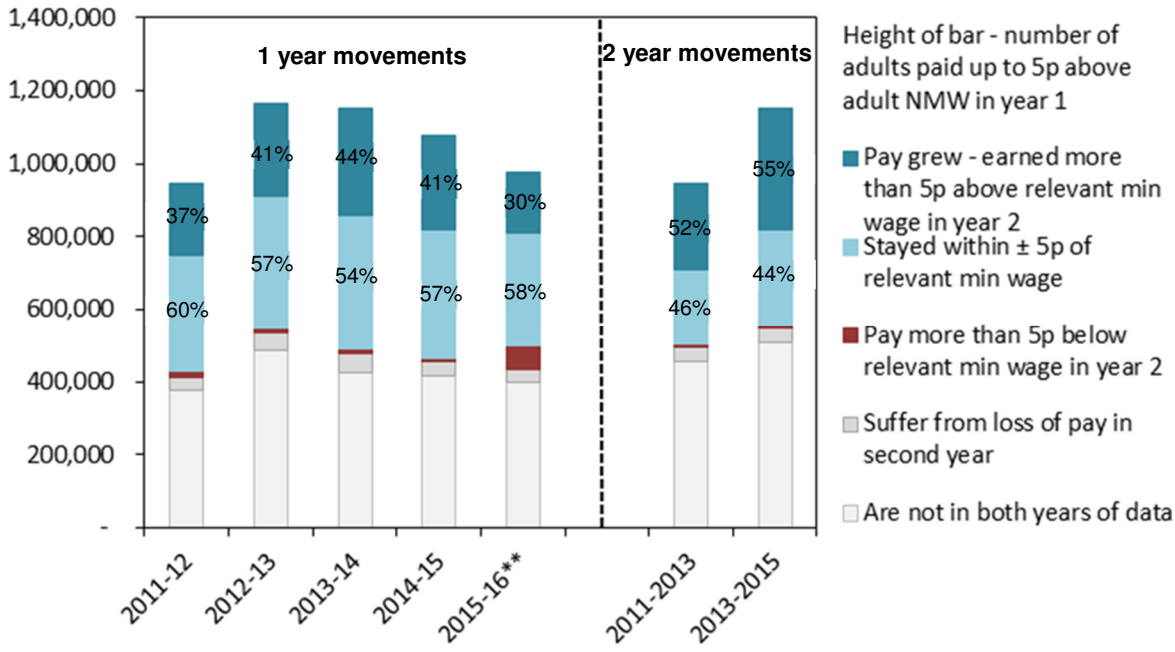
In this situation, keeping wages of the lowest paid indefinitely frozen would impact on labour supply, resulting in firms having recruitment difficulties, putting upwards pressure on wages - and is an unlikely scenario.

Pay dynamics of minimum wage workers

As well as growth in wages, the composition of the workforce form one year to another impacts on average earnings. In particular, inflows and outflows to/from employment and job-to-job moves within and between sectors. High-level economy data for wages, for example the ONS's Average Weekly Earnings series, looks at the change in average wages between two periods and so includes the effects of compositional changes in the labour market[45]. As such, the majority of wage statistics focus on the growth in median/average pay, as opposed to the median/average growth in pay – in part because this information is collected more easily (e.g. does not suffer from problems with attrition) and with greater frequency

As discussed above, the wage growth that workers would experience in the absence of a minimum wage uprating is an unobservable counterfactual. In order to help inform our core assumption on this for this impact assessment, we have conducted new analysis using the longitudinal element of ASHE to explore evidence on short-term earnings dynamics of low paid workers.

Figure 9: Pay dynamics of workers paid the adult minimum wage ± 5p in the first year of the comparison period (percentages as a proportion of workers in sample in both years)



Source: BEIS analysis of ASHE data
Notes:
** 2015-16 comparison which looks at workers aged 25+, whereas other years includes all workers aged 21+. Survey timing relative to the introduction date of the NLW can partly explain the apparent increase in workers moving in to the 'non-compliance' group between 2015 and 2016.
Excludes workers who suffered a loss of pay in the pay reference week in year 1 of the comparison period.
Weighted by Lpcalwght in first year of comparison.

[45] A good explanation of the effects of compositional shifts can be found within the ONS's ASHE release, and in this Bank of England article.

Figure 9 uses the cohort of employees that were paid within 5p of the applicable minimum wage rate in April of one year, and looks at what they were paid in the following April. In particular, we have focussed on the number/proportion of employees whose basic hourly pay broadly tracked the minimum wage from one year to the next, and those whose pay increased at a faster rate than this.

For example, of the employees in April 2011 paid within 5 pence of the relevant minimum wage rate (e.g. £5.88 - £5.98 for employees aged 21+) who were also in the sample in April 2012, 60% had pay levels that were within 5p of the relevant minimum wage applicable in April 2012 (e.g. £6.03 - £6.13 for employees aged 21+) – light blue bars.

37% of employees in the sample in both 2011 and 2012 saw their pay increase such that in April 2012 their pay was higher than 5p above the relevant minimum wage rate – dark blue bars. Broadly speaking, the proportion of minimum wage workers exiting this 10 pence band remained at around 40% between 2011 and 2015. Matching employees over two years shows that larger proportions of those initially within 5 pence of the minimum wage experienced pay increases taking them on to pay more than 5 pence higher than the new minimum wage 2 years later (52% of those in the sample in both 2011 and 2013, and 55% between 2013 and 2015). Crucially, this suggests that significant proportions of minimum wage workers experience pay increases from one year to the next – over and above the increase in the minimum wage. This evidence supports a counterfactual wage growth scenario greater than 0%. In addition, it suggests that wage growth occurred among this group even from the starting point of the pre-existing minimum wage rate.

The key exception to this trend is in 2015/16 in which the National Living Wage was introduced which represented a significant increase to the wage floor and therefore the size of the increase that workers in 2015 would have to experience to leave the 10 pence band around the minimum wage.

It is important to note that with longitudinal analysis, there is naturally attrition between years. In the example described above, 40%, or around 380,000 employees did not appear in the sample in 2012. There are a number of reasons for this, and unfortunately, we are not able to differentiate to what extent this is due to people not being in employment the following year (either temporarily, or permanently), or due to survey non-response.

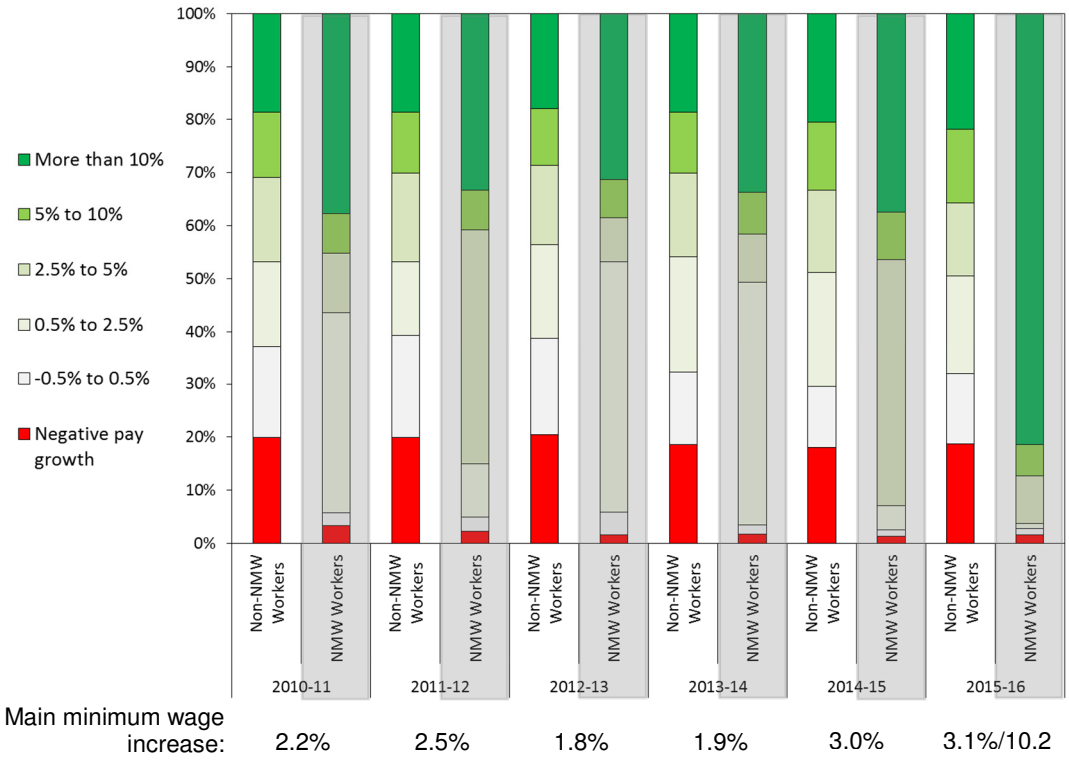
Figure 10 below examines employees who were in the sample in both of the comparison years – looking at the distribution of percentage changes in basic hourly pay. Crucially, the majority of employees examined, whether they earned the minimum wage initially or not, saw pay increases from one year to the next. For example, between 2014 and 2015, almost 40% of employees on the NMW in 2014 and in the sample in both years experienced hourly pay growth of over 10% (darkest green bar), whereas over 45% experienced hourly pay growth of between 2.5% and 5% - the same band that the NMW increase fell in to in that year. In contrast, around 20% of employees who were paid more than the NMW in 2014 and were in the sample in both years saw hourly pay increases of over 10% (darkest green bar), whereas around 15% experienced hourly pay growth of between 2.5% and 5%.

In addition, employees initially on the minimum wage were more likely to experience increases in hourly pay in the following year. This will in part be driven by the minimum wage; clearly demonstrated by the overwhelming proportion of minimum wage workers in 2015 who saw their pay increase by over 10% (the equivalent annual growth from the introduction of the NLW).

However, in years when the minimum wage rates have increased by less than this, there is still strong evidence that significant proportions of minimum wage workers saw pay increases larger than the increase in the minimum wage.

This analysis does not account for movements between jobs which can be a driver of negative, or larger pay increases.

Figure 10: Distribution of growth in basic hourly pay by whether workers are paid up to the relevant minimum wage (+5p) in the first year of the comparison period

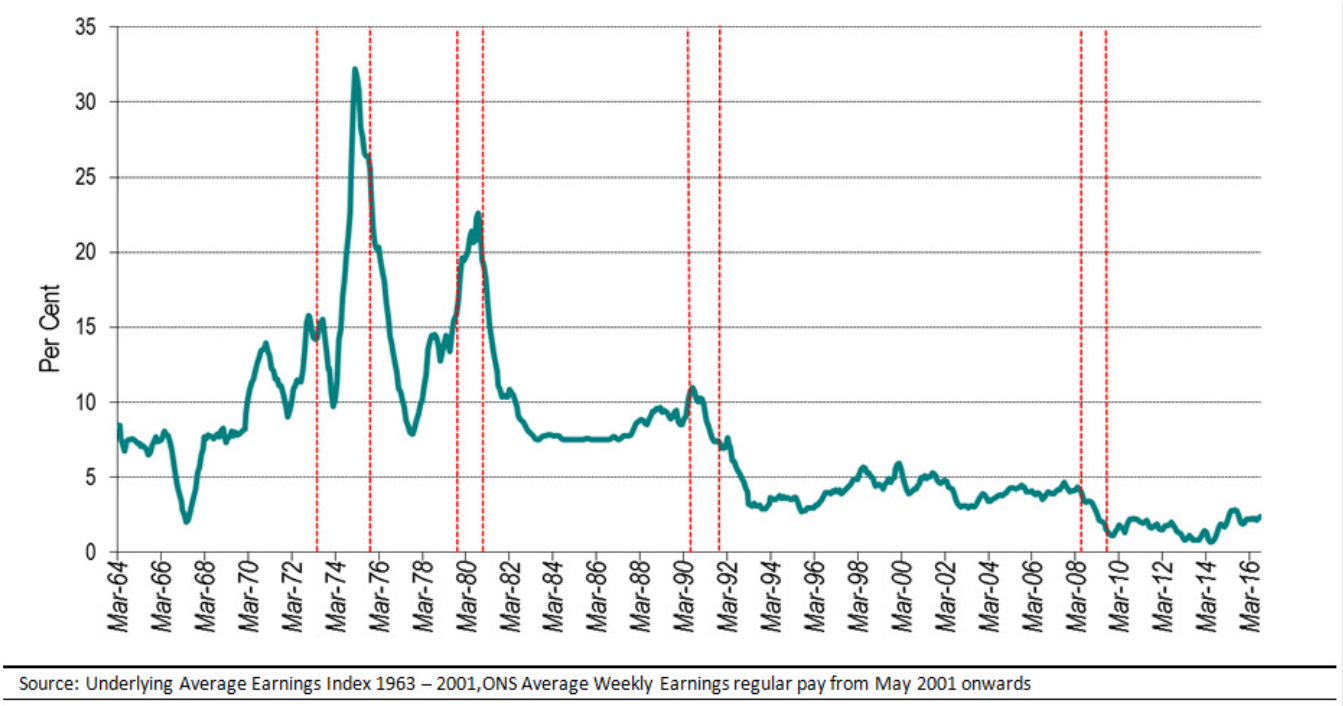


Source: BEIS analysis of ASHE data
Notes:
Only includes people who are in the sample in both comparison years
Excludes workers who suffered a loss of pay in the pay reference week in either year of the comparison period.
Weighted by Lpcalwght in first year of comparison.
2016 includes the introduction of the NLW. The timing of this policy change relative to the survey reference date meant that more workers than usual were legally paid below the minimum wage rate at the date of the survey.

Downwards Nominal Wage Rigidity

There is evidence in the literature of employers being unwilling to issue/employees being willing to accept wage cuts more generally in the UK. While this data includes compositional effects, aggregate data for growth in average weekly earnings shows that average nominal wages have always tended to grow since the 60s, when the data series begins. Figure 11 shows that since the 80s, recessions have tended to shock down growth in average weekly earnings. For example, between 1983 and 1990, growth in average weekly earnings ranged between 7.5% and 9.5%; following the early 90s recession growth tended between 3% and 5%; and, since the 2008 recession, growth has tended to be between 1% and 3%.

Figure 11: Underlying annual average earnings growth (% change), recessions between red lines



Source: Underlying Average Earnings Index 1963 – 2001,ONS Average Weekly Earnings regular pay from May 2001 onwards

Evidence from the Bank of England[46] has also suggested that there is evidence of downward nominal wage rigidity in the UK labour market. Analysis of the UK Wage Dynamics Survey 2014, which covered the period 2010-13 suggests that even in periods when firms need to adjust to negative demand shocks, nominal wage cuts are extremely limited, with some evidence of firms freezing wages (25% in 2010, falling to 10% in 2013). The majority of firms did not freeze wages and were asked why. Some of the most common answers were that the most productive workers would leave and that outside wage options act as a constraint on pay. Also, firms placed an emphasis on morale and employee effort. In contrast, comparatively less importance was placed on regulations and collective agreements.

Arguments around downwards nominal wage rigidity suggest that firms cut nominal pay relatively rarely, even in times of recession. Translating this argument on to low paid workers may suggest that once firms comply with legislation and the NMW/NLW, it would be unlikely that, on average, they would cut pay to below this rate in the short-run if offered the choice to do so (i.e. NMW/NLW legislation removed).

Stakeholder views

As part of our counterfactual development, we engaged with several representatives from key business stakeholder groups, including members from a number of low paid sectors, to test our core assumptions and gather their views on what they felt employers may pay in the absence of a NMW/NLW uprating.

[46] http://www.bankofengland.co.uk/research/Documents/workingpapers/2015/swp568.pdf

These views were broadly in line with advice from academics and labour market experts, and generally agreed that it is likely to be somewhere between inflation and average earnings, particularly as inflation is so low at the moment. However, they were unable to provide further information on where specifically on this scale it would be.

In contrast, one sector representative said wage growth was unlikely to be driven by either average earnings or inflation, but rather what was possible to be achieved at a more local level, based on affordability. Therefore, wage growth would be relatively uneven across the sector.

Further analysis of survey responses from the CBI's Employment Trends Survey 2016 found that most respondents were planning a pay rise for workers in line with RPI or higher, with 15% of firms planning a pay freeze. Whilst this was not specific to the low pay sector, low pay industries such as retail were included in this survey and we therefore expect these pay settlements would be extended to low paid employees in the absence of an NMW/NLW uprating.

As part of their consultation, the LPC also asked business stakeholders and employee representatives from low paid sectors about what the new rates should be set at, considering the UK's vote to leave the EU. Since this consultation conducted annually, we expect there will be some cognitive bias, particularly survey-response bias[47] which would occur as a result of the repeated survey process. The findings from business stakeholders are stated below:

"The majority of employer responses argued that economic uncertainty made the case for caution in relation to the rate for April 2017, though this was not always clearly defined. The National Farmers Union (NFU), the Association of Convenience Stores (ACS) and a social care charity called for a freeze in the rate. The BCC recommended an increase of 2.6 per cent (which would be £7.39). The British Beer and Pubs Association (BBPA) thought that any increase should be smaller than the March 2016 on-course bite path, suggesting £7.40. The National Day Nurseries Association (NDNA) agreed suggesting the rate should be 'as low as possible' due to funding shortfalls in childcare. The CBI and CIPD called for caution, with strong appeals for the LPC to move away from the 2020 target should the economy decline. EEF thought circumstances argued for 'modest increases' in the first year.

In contrast, at the upper end of those employer organisations providing particular numbers, the Federation of Small Businesses (FSB) suggested 4 per cent (which would be £7.49). A large hospitality firm thought the March 2016 on-course rate – £7.60 – would be affordable for its business, but was concerned about the future path."

According to the LPC, *"employee representative responses were more bullish",* arguing for larger increases in the rates. While not directly representative of employer views – these views are relevant for the purposes of establishing a counterfactual. In particular, unions and employees/employee representatives would play a role in determining the level and growth rate of low paid workers' wages in terms of what would be acceptable in a negotiation.

It is clear that pay rises are affordable in some sectors more than others, which is likely to drive a non-zero wage growth across low paid sectors as a whole. It is worth noting that these suggested rates do not consider what would happen in the long run in the face of an NMW/NLW

[47] Respondents who regularly partake in this survey understand its uses and therefore could suggest rates which would work in their favour.

freeze and also what businesses think they *should be* does not necessarily reflect what they *would be* in the face of a freeze.

Conclusion from labour market experts on the appropriate growth rate

As discussed above, a number of labour market and pay settlement experts suggested a counterfactual growth rate of at least inflation or average earnings would be appropriate[48]. A zero per cent wage growth counterfactual for all low paid employees was judged to be unrealistic[49].

Other labour market experts independently suggested using the growth rate of the 25th percentile, as this is the first percentile which is unaffected by the NMW/NLW, and where the spillover effect ends for the NMW. We assessed the appropriateness of using this as a proxy for minimum wage workers at a high level and the findings can be found in Annex A.4. It was determined that this would be a suitable proxy as the 25th percentile share similar characteristics in terms of location, skill level and age to that of NMW/NLW workers. However, the 25th percentile has experienced higher growth than the median in recent years and since the growth rates are still relatively close, we have reverted to the more modest average earnings growth forecasts. This will result in increased costs to business than when using the 25th percentile, but we feel it is worth treating this with caution and using average earnings. There are no forecasts of wage growth at the 25th percentile, so basing our assumption on average earnings growth means that our forecasts will be informed by more robust forecasting assumptions.

Economy forecasts

Figure 12: HM Treasury comparison of independent forecasts, %

	2017			2018		
	Lowest	Highest	**Median**	Lowest	Highest	**Median**
GDP	-1.9	2.8	**1.0**	0.7	2.5	**1.5**
Domestic demand	-2	3	**0.7**	0.4	2.9	
CPI	0.9	3.8	**2.8**	1.6	3.5	**2.6**
Average earnings	0.8	3.9	**2.3**	1.3	3.7	**2.6**
Real Household Disposable Income	0	2.1	**0.4**	0.4	2.9	

Source: HM Treasury (November 2016), Forecasts for the UK economy: a comparison of independent forecasts

Our best assumption uses the mid-point between the costs assessed using OBR average hourly earnings forecasts and OBR CPI forecasts. Earnings forecasts for low pay workers specifically do not exist. In addition, it is reasonable to assume that these wider conditions will apply at the low end of the distribution as well, as employment growth in low pay sectors have been stronger, with faster recovery than across the rest of the economy since the recession[50].

[48] Office of Manpower Economics, XpertHR

[49] As mentioned earlier, one expert from Incomes Data Research suggested 0% could prevail for an unspecified period of time as the NMW/NLW is used by firms as a signal, and so if it were frozen indefinitely, it could indicate to firms to also freeze the pay of their lowest earners. However, academics Alan Manning, Sarah Brown and Steve Machin suggested a long term 0% wage growth expectation in the face of a NMW/NLW freeze would be unrealistic. The reasons for this have been evidenced in this Annex.

[50] BIS (2016), Final government evidence to the Low Pay Commission's 2016 Report, Chart 18.

Conclusion

Whilst we are not assessing the impact of what would have occurred in the absence of the introduction of the NMW, we acknowledge that it would be useful to understand wages and wage growth patterns of the lowest paid before the introduction of the NMW to inform the appropriate counterfactual. As such, we have considered the evidence provided by the LPC in their 1998 report, along with the evidence presented in this section. Based on this evidence, we have used a counterfactual wage growth of inflation as our higher bound and average earnings as our lower bound estimate for costs[51].

In addition, we have conducted some sensitivities around what costs will be using a 0% wage growth for a NMW/NLW earners, recognising that this will entail a 10 year appraisal period as it assumes the current wage rates will never catch up to the proposed new NMW/NLW rates.

We have also considered the reality that in the absence of an automatic uprating, some people would experience different growth rates, including some who will experience 0% for a limited time. This would require arbitrary distinctions between different proportions of the labour market and this approach would require further judgement based assumptions and yield spurious accuracy which will be even more sensitive to slight changes in the model. However, the model makes allowances for individuals experiencing zero per cent wage growth via the mid-point estimate. Whilst it can be argued that there is a *very* high cost scenario of 0% growth, conversely, it could be argued that there is a *very* low cost scenario which is that all workers will experience the same rate of growth as that experienced by the 25th percentile.

[51] It was suggested independently by a number of labour market experts that using the growth rate of the 25th percentile would be an appropriate counterfactual for those on the NMW, however, evidence suggests that this has been growing faster than median earnings over the last 10 years (as detailed in Annex D), albeit very marginally. Thus, we will use median earnings as our higher bound cost estimate.

Annex B: Engagement with labour market experts and key business stakeholders

Annex B.1: Engagement note to labour market experts

Appraising the UK minimum wage: Determining an appropriate counterfactual

Background

1. The National Minimum Wage (NMW) was introduced in the UK in 1999 and is widely considered to have increased the wages of the lowest paid with little or no employment impacts. Its introduction helped to significantly reduce extreme low pay. Having changed the shape of the labour market and wage distribution, more recent upratings have served to maintain or improve the position of low paid workers in the labour market, while sustaining the continued objective of not damaging the employment prospects for the lowest paid. The National Living Wage (NLW) was introduced in 2016 as part of a package of measures with the intention of rebalancing the economy from a low wage, high tax, high welfare society to a higher wage, lower tax, lower welfare society. This rebalancing is important for reasons of equity – it is important to ensure that work pays, and that low wage workers take a greater share of the gains from growth; the Government's aim is for the NLW to reach 60% of median earnings by 2020. The differences in objectives between the NMW and the NLW may have implications for the way in which we appraise their impacts.

2. The Government publishes Impact Assessments to inform their response to the recommendations on uprating the NMW and NLW from the Low Pay Commission. As part of that regular process, we are looking to develop the counterfactual to which changes are compared. We would welcome your views to further develop our evidence base on the appropriate wage growth at the lower end of the wage distribution and how long these wages would prevail in the absence of a NMW uprating.

Theoretical Basis

3. The choice of counterfactual should have a theoretical basis, as well as being supported by the evidence. The LPC's remit for the NMW is that it should seek to maximise the wages of the low paid without damaging their employment prospects. This is equivalent to targeting the competitive market equilibrium for low paid workers. We recognise that there are conceptual arguments as to the degree to which the counterfactual is based on zero or positive wage growth. Specifically, this should depend on the degree to which the labour market tends towards monopsony or perfect competition[52]. Assuming a monopsony labour market, the removal of a minimum wage (or the absence of an uprating) would likely see employers reverting to the minimum pay they could achieve in order to maximise profits, so if the minimum wage is set well above the monopsony equilibrium there may be no wage growth. However, even in a monopsony labour market, assuming some wage growth may be realistic as we generally live in a growing economy and can therefore expect increases to demand and productivity, which would result in wage growth.

4. The NMW has increased every year since its introduction in 1999; the annual NMW uplift has become a key feature of the wage-setting process for lower paid workers and their employers. This raises a question as to

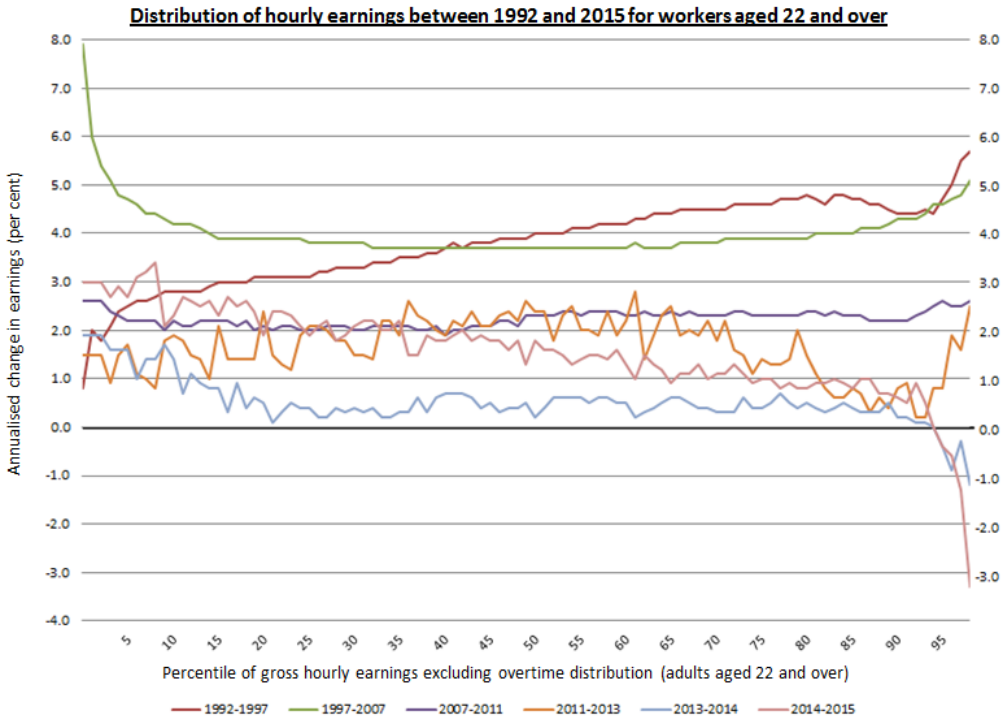
[52] This has been discussed in more detail in previous NMW/NLW impact assessments. Links are available at Annex A.

whether the NMW policy has triggered a structural change in wage-setting expectations – and therefore whether employer behaviour would be impacted in a scenario where there was no NMW uplift.

5. Therefore, any counterfactual we choose would need to reflect our current economic environment, wage setting expectations from employee and employers and relative bargaining power in the labour market.

The Evidence

6. There is evidence to suggest that wages across the distribution have tended to experience growth, and did so before the introduction of the NMW. The following graph shows the distribution of hourly earnings between 1992 and 2015 for workers aged 22 and over. However, it is difficult to determine attribution and which factors that have driven growth, across different parts of the wage distribution, would continue in the absence of the NMW.



Appraisal Period

7. There is a degree of uncertainty around the appropriate appraisal period to be used; as the NMW has increased every year since its introduction, it is difficult to isolate the impacts from one particular year's increase.
8. There is an implicit link between the wage growth assumption used in a counterfactual and the appraisal period chosen. For example, if we were to assume the lowest wages would grow in line with average wage growth in the counterfactual, the appropriate appraisal period could be the time taken for the wages in the counterfactual to naturally reach the proposed minimum wage rate. However, if we were to assume the lowest wages would not grow in the absence of government intervention, in theory, the appraisal period would extend indefinitely in to the future.

Questions for Labour Market Experts

We would welcome your views to enable us to develop an appropriate counterfactual. The questions at the end of this note are intended to be used as guides to frame your answers, however, please include any additional comments you may have and use evidence to support your views where appropriate.

1a) In your view, what wage increase would low paid workers experience in the absence of an NMW/NLW uprating and what evidence is there to support this?

1b) What evidence would support the choice of a counterfactual?

1c) Which factors, data sources or metrics do you believe are most valuable in informing the wage growth counterfactual for low paid workers e.g. real wage projections, inflation forecasts, skewness of pay distributions, other?

1d) In your view, what is the most appropriate characterisation of the typical market structure at the bottom of the pay distribution and in the middle? Is either of them a monopsony/non-competitive?

2a) In your view, how long would the impact of one NMW/NLW uprating persist for in the absence of a further uprating the following year?

2b) Which economic or policy factors should be taken into account when choosing an appraisal period for assessing an NMW/NLW increase?

Annex B.2: Proposed counterfactual based on engagement with labour market experts

National Minimum Wage Impact Assessment Counterfactual Methodology
Introduction

1. In order to estimate the impacts of the annual National Minimum Wage (NMW) / National Living Wage (NLW) upratings, we need to use an appropriate counterfactual for wage growth rates of those on the NMW / NLW. The RPC have asked the department to provide more evidence on its views on the counterfactual, so we have consulted labour market experts who have given their views and we intend to use their recommendations for the 2017 NMW / NLW upratings impact assessment, which we aim to submit to the RPC in late November.

Background

2. With input from the RPC, we have been working on developing our evidence base for the annual NMW and NLW upratings impact assessment in order to provide a robust counterfactual. We thank the RPC for their contributions in this process.

3. In order to arrive at an appropriate counterfactual, we have engaged with labour market experts, including academics from UCL, LSE and members of independent organisations such as the Office of Manpower Economics and the Bank of England. We have used their views to inform our proposed counterfactual and we are seeking your comments, in order to achieve an agreement on the wage growth counterfactual ahead of submitting the IA.

Proposed counterfactual – the central estimate

4. Having engaged with labour market experts, the general consensus was that this is a difficult problem and there is no perfect answer, as the information required for the counterfactual is not observable. Experts recommended that a sensible approach to developing the counterfactual would be to use the first point on the hourly pay distribution which has not been effected by the "ripple effect" of the NMW.

5. The "ripple effect" refers to the fact that the pay of some workers above the NMW/NLW may also increase in order to maintain wage differentials within firms or sectors. The idea is that employers may seek to maintain wage differentials between those on the minimum wage and those above. When the wage floor increases, workers who would previously be paid above the wage floor are caught up by workers on the new NMW and so employers may boost their wages beyond the new wage floor to keep the previous differential. For instance, if a worker's pay increases by 20p an hour, the supervisor's pay may also need to increase to maintain the differential/reflect additional responsibilities. This means that the first point on the pay distribution which can be considered to be unaffected by the NMW policy should be the best approximation of the wage growth that would occur at the lower end of the distribution in the absence of an NMW uprating.

6. In papers which examine this point[53], estimates range from the 5th[54] to the 25th[55] percentile. Stewart (2009) implied the ripple effect was relatively limited, reaching the 5th percentile but was sensitive to specification. The 25th percentile was suggested by academics and was also used in the previous impact assessments which we have produced.

7. We acknowledge that the ripple effect is likely to differ between the NMW rates and the NLW, however as the NLW was only introduced this year, it is too early to determine the first point on the hourly pay distribution which has not been affected by the ripple effect. Therefore, for the 2017 uprating we will use the 25th percentile. Over time, the department will consider the latest evidence on this and amend accordingly. We have conducted some high level analysis examining the key characteristics (age, work location and broad skill levels – based on SOC codes) of those on the NMW and the 25th percentile to see how similar they are.

8. We will regularly re-evaluate the point where the ripple effect ends, considering new evidence and the most recent data – in particular from the Low Pay Commission, which regularly evaluates the impacts of the minimum wage (and now NLW).

9. The Bank of England suggested a different approach to the analysis which was to expand on the analysis done by the LPC - this has typically been to use average earnings forecasts e.g. from the OBR, to forecast uniform growth across the wage distribution. The suggested extension was to attempt to produce our own distributional forecasts for wages based around the econometric analysis by Gregg and Machin[56] on the relationship between unemployment and wages. This would effectively mean creating a micro-simulation model for the wage distribution. However, we feel that even this approach would require further judgement based assumptions and therefore not necessarily produce the robust analysis we need for our purposes. In addition, given that the NMW has been present in the wage distribution since 1999, it would be difficult to strip out the effects of the wage floor from any modelled distribution. Gregg and Machin state, *"with the exception of the 10th percentile, which was no doubt affected by the introduction of the minimum wage in 1999 and large increases around 2002…"* when commenting on the results of their modelling of the sensitivity of unemployment sensitivity to real wage changes across the wage distribution. This would suggest that using a similar approach to model a "shadow wage curve" may produce small gains compared to opting for a simpler approach.

[53] http://www2.warwick.ac.uk/fac/soc/economics/research/workingpapers/2011/twerp_965.pdf
[54] **Stewart, M.,** 2009. *Testing for Spill-over Effects of the National Minimum Wage.* Research Report for the Low Pay Commission. December. (University of Warwick.)
[55] Card, D. and Krueger, A.B. (1995), *Myth and Measurement: The New Economics of the Minimum Wage*, Princeton University Press and Butcher, Dickens and Manning (2012), Minimum Wages and Inequality: Some theory and an application to the UK, CEP Discussion Paper
[56] http://www.resolutionfoundation.org/wp-content/uploads/2012/09/What-a-drag.pdf

0% growth vs CPI measure of inflation as the lower bound estimate for counterfactual wage growth

10. In the past, we have used a range of counterfactual growth rates as part of our analysis. These ranged from 0% wage growth and average earnings growth and as part of our impact assessment, we propose we continue using a range of growth rate scenarios.

11. Experts suggested that a 0% wage growth counterfactual would be unrealistic as this would imply growing inequality between those on the lower end of the distribution versus everyone else, which has been proven not to be the case. As evidenced by the latest inequality measures[57], income inequality has fallen compared to 15 years ago across the distribution. The same is also true of the hourly pay distribution (see p.13 of the LPC's Spring 2016 report[58]).

12. As an example, if there was zero wage growth at the 10th percentile and median wages grew at 2% annually, over a five year period, this would imply a compounded increase of 8.2% at the median, signalling an equivalent 8.2% increase in the ratio between the 50th and 10th percentile. This is a generally unprecedented acceleration of inequality between the middle and bottom of the hourly pay distribution.

13. Our own analysis of the Annual Survey of Hours and Earnings (ASHE) has confirmed that wages of the 25th percentile and 50th percentile has grown faster than, for instance, the 75th and 80th percentiles over the last 15 years. Although on an annual basis, the differences have been small between these percentiles.

14. The table below shows how different percentile points across the distribution have grown over the last 15 years (2000 = 100):

Year	10	15	20	25	30	40	50	60	70	75	80	85	90
2000	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2001	104.3	104.1	104.7	104.6	104.4	105.0	105.1	104.7	104.7	104.9	105.3	105.3	105.7
2002	110.3	109.6	108.7	109.1	108.4	109.3	109.4	109.3	109.5	109.9	110.0	110.3	110.7
2003	116.8	116.1	116.2	115.9	114.7	115.0	114.7	114.4	115.0	115.0	114.6	115.5	115.5
2004	121.5	119.7	119.1	119.0	118.5	119.0	118.9	118.8	119.2	119.4	119.0	119.1	119.7
2005	129.0	126.6	126.4	126.0	125.1	124.9	124.7	124.6	125.4	125.4	125.5	125.9	126.0
2006	135.3	132.6	131.5	131.2	130.3	130.0	129.6	129.8	130.1	130.3	130.2	130.5	130.1
2007	140.8	137.6	136.2	135.9	135.0	134.5	133.9	133.9	133.8	133.8	134.0	134.2	134.7
2008	145.5	141.3	140.4	139.9	139.1	138.8	138.4	139.2	139.4	139.2	139.2	139.4	139.1
2009	150.3	147.5	146.4	146.0	145.0	144.2	144.4	144.8	145.2	144.8	144.4	144.5	144.2
2010	153.0	149.3	148.9	148.8	147.0	146.6	146.0	147.1	147.1	147.2	146.9	146.8	146.1
2011	154.5	149.8	148.9	148.2	146.8	146.2	145.5	147.1	147.0	146.8	146.7	146.8	146.9
2012	157.5	153.4	151.3	150.6	148.6	148.4	147.9	148.6	148.8	148.7	147.9	147.3	146.9
2013	161.3	156.9	154.9	154.0	152.5	152.6	151.7	152.2	151.5	151.4	149.9	149.9	149.3
2014	162.5	159.2	156.4	155.2	153.0	153.0	152.5	153.3	152.7	152.2	151.2	150.4	149.9
2015	167.8	162.6	159.6	158.7	156.0	155.6	154.8	154.9	153.7	153.2	151.9	151.3	150.6

15. Those at the bottom end of the distribution have seen their wages grow the fastest, likely due to the direct and indirect impacts of the NMW upratings. Wage growth has been slower towards the higher end of the distribution, indicating the reduction in pay inequality across the distribution.

[57] Longer term trends in income inequality - ONS
[58] Low Pay Commission Report Summer 2016

16. Whilst unions in low paid sectors tend to be weaker, as low paid workers in general are less unionised, independent experts at the OME and LPC have advised that these workers would likely be able to negotiate a wage increase equivalent to at least the rate of inflation. As such, CPI inflation gives us a good lower bound for what wage growth might be in the absence of intervention. It is important to consider that a lack of unionisation and associated bargaining power could potentially be a result of the increased individual rights (including the minimum wage) and effective Government enforcement of these.

Distributional impacts on NMW beneficiaries:

17. We agree with the RPC on the point that if the wages of the low paid is expected to rise, the impacts on business that employ NMW workers make not be even due to distributional impacts (wage growth rates in the counterfactual would be different for different workers). However, this is difficult to model robustly and would rely on even more judgements on what the wage growth rates for different workers at the bottom end of the distribution will be (forecasts only exist for average wage growth). The impact on some workers will be underestimated and overestimated for others. We will be implicitly assuming that these impacts cancel each other out. We make this clear within the IA. This issue is also pertinent for the majority of IAs that are produced by the department.

Appraisal Period

18. It was previously agreed with the RPC that the appropriate appraisal period would be the amount of time it takes for the counterfactual growth rate to catch up to the new NMW and NLW rates. This approach was cleared in the last IA and we intend to continue using this approach for future IAs.

Legacy Impacts

19. If we are able to agree on the counterfactual methodology, we will produce a standalone document covering legacy impacts of all changes in the NMW and NLW during this Parliament. However, due to legislative time constraints, we will prioritise the IA for the 2017 upratings (for November). The legacy costs documents will follow as soon as possible.

Conclusion

20. Based on discussions with labour market experts and the evidence presented in this paper, we will use the forecast growth rate of the 25th percentile as the counterfactual growth rate, and our appraisal period will depend on how long it would take this growth rate to catch up to the new proposed NMW and NLW rates. We would appreciate RPC views on this.

Annex B.3 – Results of high level analysis on the NMW vs 25th vs 50th percentiles (AHSE 2015)

21. In order to assess whether the 25th percentile is similar to those on the NMW, we have produced some high level analysis looking at key indicators which would allow us to examine the appropriateness of the 25th percentile as the counterfactual growth rate.

22. Our approach for assessing this was:

23. Considering the latest ASHE[59] data covering the last 12 months, aggregating those earning between 5p either side of the NMW and those earning between 5p either side of the wage at the 25th percentile. This gave us a much greater sample which would reduce the risk of sampling errors. Using ASHE data, we compared the skill level, age groups and locations and found that the characteristics in both groups were similar and therefore we have accepted the 25th percentile to be an appropriate counterfactual and will use the forecast wage growth rate of this percentile for our 2017 IA as that which would occur in the absence of a NMW uprating. We also looked at how the 25th percentile compares with the 50th percentile and found, not surprisingly that the 25th percentile was closer to the NMW overall than to the 50th percentile. We acknowledge that this is a backward looking method, however it has been recommended by academics as appropriate to use.

[59] Please note, this is data is unpublished and should be treated as sensitive.

Broad skill level (Based on ONS Standard Occupational Code divisions):

NMW	Frequency	Percent
High	11,563	2.7
Upper middle	35,661	8.4
Lower middle	235,192	55.3
Low	143,169	33.6
Total	425,586	100.0

25th Percentile	Frequency	Percent
High	10,758	2.8
Upper middle	57,143	14.9
Lower middle	218,720	56.9
Low	97,716	25.4
Total	384,337	100.0

50th Percentile	Frequency	Percent
High	30,525	16.0
Upper middle	56,760	29.7
Lower middle	88,676	46.4
Low	15,001	7.9
Total	190,962	100.0

Age band

NMW	Frequency	Percent
16-17	7,898	1.9
18-20	48,290	11.3
21-24	72,842	17.1
25-29	50,807	11.9
30-35	46,974	11.0
36-49	104,424	24.5
50-64	82,775	19.4
65+	11,577	2.7
Total	425,586	100.0

25th Percentile	Frequency	Percent
16-17	4,068	1.1
18-20	26,729	7.0
21-24	53,008	13.8
25-29	54,016	14.1
30-35	47,209	12.3
36-49	100,256	26.1
50-64	84,752	22.1
65+	14,298	3.7
Total	384,337	100.0

50th Percentile	Frequency	Percent
16-17	272	0.1
18-20	2,313	1.2
21-24	19,142	10.0
25-29	29,793	15.6
30-35	27,189	14.2
36-49	54,869	28.7
50-64	52,806	27.7
65+	4,578	2.4
Total	190,962	100.0

Region

NMW	Frequency	Percent
North East	18,652	4.4
North West and Merseyside	58,239	13.7
Yorks & Humber	37,588	8.8
East Midlands	39,439	9.3
West Midlands	42,307	9.9
South West	41,150	9.7
Eastern	43,880	10.3
London	29,593	7.0
South East	49,445	11.6
Wales	18,231	4.3
Scotland	31,291	7.4
Northern Ireland	15,772	3.7
Total	425,586	100.0

25th Percentile	Frequency	Percent
North East	12,406	3.2
North West and Merseyside	42,070	10.9
Yorks & Humber	33,044	8.6
East Midlands	30,638	8.0
West Midlands	38,047	9.9
South West	38,281	10.0
Eastern	38,110	9.9
London	32,566	8.5
South East	55,779	14.5
Wales	17,663	4.6
Scotland	29,823	7.8
Northern Ireland	15,911	4.1
Total	384,337	100.0

50th Percentile	Frequency	Percent
North East	6,135	3.2
North West and Merseyside	21,590	11.3
Yorks & Humber	15,917	8.3
East Midlands	12,308	6.4
West Midlands	15,122	7.9
South West	16,230	8.5
Eastern	20,222	10.6
London	22,750	11.9
South East	30,974	16.2
Wales	6,902	3.6
Scotland	12,495	6.5
Northern Ireland	10,316	5.4
Total	190,962	100.0

Annex B.4: RPC's response to the proposed counterfactual

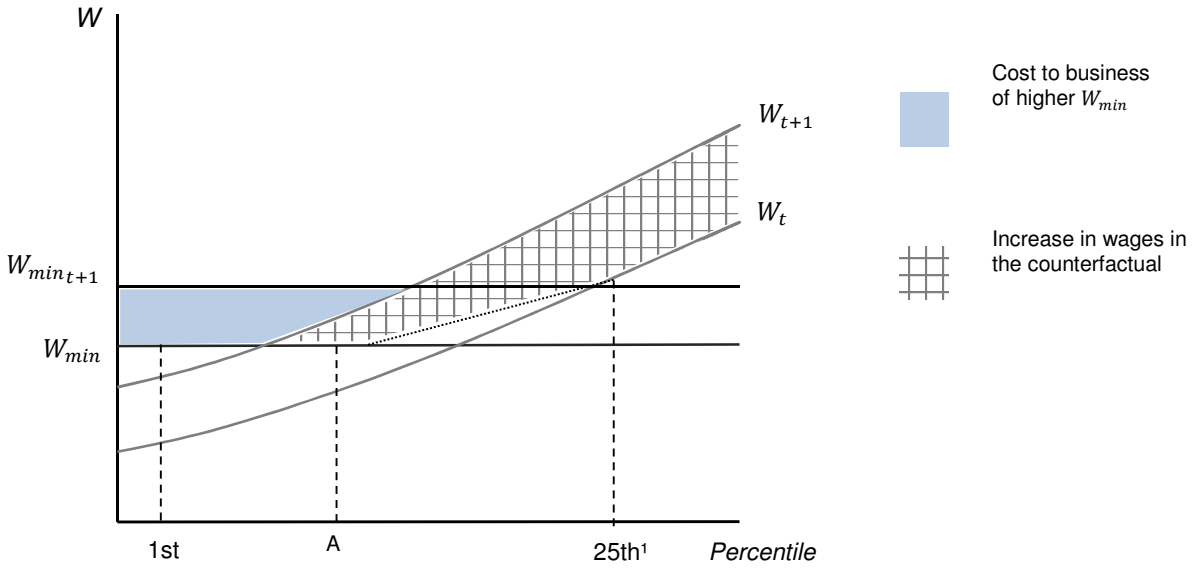
National Minimum Wage: Impact Assessment - Counterfactual Methodology

Thank you for your note dated 14 October setting out, in particular, the Department's proposed approach to the NMW/NLW counterfactuals, following consultation with labour market experts. As indicated previously, we welcome the Department conducting research with labour market experts in this area. You asked for the RPC's comments on the paper and these are set out below.

Main comments

Counterfactual wage growth

The Department is proposing to use the first point on the pay distribution (presently assumed to be the 25th percentile) as the best approximation of the wage growth that would occur at the lower end of the wage distribution, in the absence of an NMW uprating (paragraph 5). This is the point beyond which the Department currently expects the NMW to have no immediate or ripple effect. There is also a proposal to use the rate of CPI inflation as the lower bound for this wage growth (paragraph 16). The paper sets the reasoning for these assumptions, and for why it considers zero percentage wage growth to be unrealistic.
However, the paper does not include a discussion of what an equilibrium wage at the low end of the wage distribution might look like in the absence of an NMW uprating (or the NLW). Consideration of the likely level of such an equilibrium wage, and how this compares against the NMW, is particularly important in potentially informing assumptions about likely counterfactual wage growth at the lower end of the wage distribution.
This discussion could include consideration of a 'shadow wage curve' running below a horizontal NMW line. To give you an illustration of the RPC's thinking, a graph is sketched out below.



[1]This is the first point on the wage distribution where the ripple effect of the previous minimum wage (W_{min}), represented by the dotted line, is no longer felt. The graph can be adapted to show this effect from the following uprating in period t+1, using a diagonal line from $W_{\min(t+1)}$ up to W_{t+1}.

Key to graph

W_{min} and $W_{\min(t+1)}$ are horizontal lines representing the minimum wage in two time periods. (The difference between these two lines is the minimum wage uplift.)
W_t and W_{t+1} are shadow wage curves for the two time periods. (For simplicity, the graph presents the shadow wage curve moving up by a constant percentage across the wage distribution between the two time periods, perhaps reflecting general inflation in the economy or general upward pressure on the underlying equilibrium real wage at different levels.)
The actual wage curves would be kinked curves, starting horizontally along the W_{min} lines and then being the same as the shadow wage curve up as it exceeds the W_{min}.

The cross-hatched area represents the increase in wages across the economy in the counterfactual. This allows for a **ripple effect** from the previous minimum wage (W_{min}) ending at the 25th percentile (consistent with the Department's proposed approach). **Note that the graph does not include a ripple effect from the new minimum wage ($W_{\min(t+1)}$). As noted in the footnote to the graph, it could be adapted to include this without much difficulty.** The shaded area represents the first year impact of the NMW uplift ($W_{\min(t+1)}$) (**excluding ripple effects**).

For someone at the 1st percentile, the previous minimum wage still binds even though the general level of wages in the economy has increased by a constant underlying percentage. The argument, therefore, is that their wage growth would be zero in the counterfactual. The impact of raising the minimum wage at the 1st percentile will, therefore, be the full extent of the rise. For someone at point A, their counterfactual wage would rise but by less than the general percentage increase in wages across the economy. The impact of raising the minimum wage will be less than the full extent of the rise but still positive. Only beyond the 25th percentile will it be zero in the diagram (the precise point depending on what assumption is made about ripple effects in period t+1).

Using the analytical approach outlined, it is clear that the average percentage increase in the lowest two deciles will be much less than the increase in wages across the economy. The approach also leads the RPC to consider that a zero per cent increase relative to the counterfactual is not only reasonable, but highly likely, at the very low end of the wage distribution.

The RPC would find it very helpful if the paper provided a discussion in these terms, or at least explain why this approach is not possible. In particular, the RPC would like to be able to understand whether the Department's proposed approach, although not described in the paper in this way, captures the impacts illustrated in the graph.

Legacy impacts and sequencing of impact assessments

The RPC notes that the Department's plan is to produce a standalone document covering the legacy impacts (i.e. the impacts of the 2015 and 2016 upratings that extend beyond the first year) and that this will come after the IA for the 2017 upratings (paragraph 19). Given that the omission of these impacts from the IA on the 2016 upratings was a key factor in the RPC's opinion, this proposed approach has been flagged to committee members. We will come back to you on this.

In the meantime, it would be helpful if the Department could provide further explanation on why submitting both IAs together is not feasible, for example timing and resource constraints, and for further clarity on the timing of the legacy impacts document.

More detailed comments

Paragraph 1. RPC concerns were with the rationale and evidence base for the assumptions on counterfactual wage growth, rather than necessarily having a "different view" to the Department.
Paragraphs 7 and 8. RPC welcomes the Department's commitment to consider new evidence and to re-evaluate the assumption that the 25th percentile is where the ripple effect ends. It would be helpful if the note said a bit more on how and when this would be done.
Paragraph 9. The approach suggested by the Bank of England wasn't entirely clear and the RPC would be grateful for further explanation. In particular, might the "distributional forecasts for wages" provide a basis for estimating a shadow wage curve?
Paragraph 12. Is there evidence on the income distribution in countries without a NMW, or from the UK prior to the introduction of the NMW, which could be informative?
Paragraph 15. The Department acknowledges that "*those at the bottom end of the distribution have seen their wages grow the fastest, likely due to direct and indirect impacts of the NMW upratings*". This is the heart of the problem and why RPC feels that the 'shadow wage curve' discussion noted above is useful. To the extent that wage growth at the bottom end is driven by NMW uplifts, it may tell us little about the counterfactual.
Paragraph 16. RPC found this paragraph a little confusing, giving seemingly mixed messages. It would also be useful to be clear on which figure would be used if CPI inflation exceeded wage growth.
Paragraph 18. RPC welcomes this but would be grateful if the Department could confirm that the 2017 upratings IA will be on this basis.

We would be happy to discuss.

27 October 2016

Annex C: Estimates of the number of workers paid at or below the NLW and other minimum wage rates (April 2017) by low paying sector and region

	Coverage of all NLW and NMW rates - projected number of workers paid at or below in April 2017	
	NLW	**NMW rates**
North East	80,000	22,000
North West	215,000	53,000
Yorkshire & Humber	172,000	40,000
East Midlands	156,000	30,000
West Midlands	182,000	42,000
South West	142,000	34,000
East	159,000	39,000
London	162,000	25,000
South East	169,000	38,000
Wales	85,000	22,000
Scotland	138,000	29,000
Northern Ireland	79,000	31,000
Total	1,739,000	405,000

	Coverage of all NLW and NMW rates - projected number of workers paid at or below in April 2017
Agriculture	20,000
Food processing	86,000
Textiles	11,000
Retail	433,000
Hospitality	372,000
Cleaning	271,000
Social care	126,000
Childcare	73,000
Leisure	32,000
Hairdressing	39,000
Office work	59,000
Non-food processing	45,000
Storage	96,000
Transport	78,000
Non-low paying sectors	404,000
Total	2,145,000

Annex D: Remit of the LPC 2016 Spring Report

The Government is building on its strong economic performance that has seen 2 million more people in work in the last five years. A remaining, key economic challenge the Government wants to address is to move away from a low wage, high tax, high welfare society and encourage a model of higher pay and higher productivity – supporting people who work hard and want to get on in life to fulfil their aspirations.

On the 1 April 2016 the Government's new National Living Wage will come in to effect for workers aged 25 and over. The Government has set the initial rate at £7.20 – 50p higher than the current National Minimum Wage rate for those workers. The Government's objective is to have a National Living Wage of over £9 by 2020.

The Government asks the LPC to monitor and evaluate the NLW and recommend the level of the National Living Wage to apply from April 2017. We estimate that the level of the National Living Wage in April 2016 will be 55% of median earnings. The ambition is that it should continue to increase to reach 60% of median earnings by 2020, subject to sustained economic growth. In making recommendations in relation to the National Living Wage the LPC is asked to consider the pace of the increase, taking into account the state of the economy, employment and unemployment levels, and relevant policy changes. In addition to providing a recommendation for the NLW rate that will apply from April 2017, the Government also asks the LPC to provide an indicative rate for April 2018.

The Government will align the NMW and NLW cycles so that both rates are amended in April each year. This will take effect from April 2017. The Government would like the LPC to monitor, evaluate and review the levels of each of the different NMW rates (16-17, 18-20, 21-24 and apprentice rates) and make recommendations on the increase it believes should apply from April 2017. Our aim is to have NMW rates that help as many low-paid workers as possible without damaging their employment prospects. The LPC is therefore asked to consider the state of the economy and labour market as well as any relevant policy changes while making these recommendations.

Annex E: Public/private sector breakdown

The following tables break down our high, central and low scenario estimates of costs by public and private sector. To estimate this we have estimated the proportion of workers affected by each of the rates that work in the private sector; consistent with the approach undertaken for the October 2015 IA. For the NLW, this proportion is 90%, and for the main, development, youth and Apprentice NMW rates, the proportions are 93%, 95%, 98%, and 82% respectively. These proportions have been applied to the total costs to reach the estimates below. (Figures may not sum due to rounding).

A sensitivity around 0% has also been included for any given year has been included in Annex E. To understand the impact of a zero wage growth counterfactual, the costs should be multiplied by the appraisal period deemed appropriate.

Public sector (£m)

Central	Direct		Indirect		Total
	Wage Costs	Non-wage Labour Costs	Wage Costs	Non-wage Labour Costs	
NLW (25+)	£24.4	£4.9	£28.2	£5.7	£63.2
Main (21-24)	£0.8	£0.2	£0.1	£0.02	£1.1
Development (18 - 20)	£0.1	£0.02	£0.01	£0.002	£0.2
Youth (16 - 17)	£0.02	£0.005	£0.004	£0.001	£0.03
Apprentice	£0.6	£0.1	£0.03	£0.01	£0.8
Total	£25.9	£5.2	£28.4	£5.7	£65.3

Inflation (high cost)	Direct		Indirect		Total
	Wage Costs	Non-wage Labour Costs	Wage Costs	Non-wage Labour Costs	
NLW (25+)	£32.9	£6.6	£28.4	£5.7	£73.7
Main (21-24)	£0.8	£0.2	£0.1	£0.02	£1.1
Development (18 - 20)	£0.1	£0.03	£0.01	£0.002	£0.2
Youth (16 - 17)	£0.02	£0.005	£0.004	£0.001	£0.03
Apprentice	£0.7	£0.1	£0.02	£0.004	£0.8
Total	£34.5	£7.0	£28.6	£5.8	£75.8

Average Earnings (low cost)	Direct		Indirect		Total
	Wage Costs	Non-wage Labour Costs	Wage Costs	Non-wage Labour Costs	
NLW (25+)	£15.8	£3.2	£28.1	£5.7	£52.7
Main (21-24)	£0.7	£0.2	£0.1	£0.02	£1.0
Development (18 - 20)	£0.1	£0.02	£0.01	£0.002	£0.2
Youth (16 - 17)	£0.02	£0.005	£0.004	£0.001	£0.03
Apprentice	£0.6	£0.1	£0.0	£0.0	£0.8
Total	£17.3	£3.5	£28.2	£5.7	£54.7

Private sector (£m)

Central	Direct		Indirect		Total
	Wage Costs	Non-wage Labour Costs	Wage Costs	Non-wage Labour Costs	
NLW (25+)	£211.3	£42.7	£245.0	£49.5	£548.5
Main (21-24)	£10.7	£2.2	£1.5	£0.3	£14.6
Development (18 - 20)	£2.3	£0.5	£0.2	£0.04	£3.0
Youth (16 - 17)	£1.5	£0.3	£0.3	£0.1	£2.1
Apprentice	£3.0	£0.6	£0.1	£0.0	£3.7
Total	£228.7	£46.2	£247.1	£49.9	£571.9

Inflation (high cost)	Direct		Indirect		Total
	Wage Costs	Non-wage Labour Costs	Wage Costs	Non-wage Labour Costs	
NLW (25+)	£285.5	£57.7	£246.7	£49.8	£639.6
Main (21-24)	£11.2	£2.3	£1.4	£0.3	£15.1
Development (18 - 20)	£2.4	£0.5	£0.2	£0.03	£3.0
Youth (16 - 17)	£1.4	£0.3	£0.3	£0.1	£2.0
Apprentice	£3.0	£0.6	£0.1	£0.02	£3.8
Total	£303.5	£61.3	£248.5	£50.2	£663.6

Average Earnings (low cost)	Direct		Indirect		Total
	Wage Costs	Non-wage Labour Costs	Wage Costs	Non-wage Labour Costs	
NLW (25+)	£137.0	£27.7	£243.4	£49.2	£457.3
Main (21-24)	£10.2	£2.1	£1.6	£0.3	£14.2
Development (18 - 20)	£2.3	£0.5	£0.2	£0.04	£2.9
Youth (16 - 17)	£1.5	£0.3	£0.3	£0.1	£2.1
Apprentice	£2.9	£0.6	£0.2	£0.04	£3.7
Total	£153.8	£31.1	£245.7	£49.6	£480.2

Annex F: Sensitivity of costs around a 0% wage growth counterfactual, broken down by public sector and private sector costs.

The costs presented in this annex are for one year only. As we expect the maximum length of time for a zero per cent wage growth to prevail would be 5 years (although this is an absolute maximum and is unlikely to occur), we expect the maximum cost to be about £6.5billion, with £5.5bn of this a private sector cost and £1.1bn accrued by the public sector.
(Figures may not sum due to rounding).

Public sector (£m)

Zero	Direct		Indirect		Total
	Wage Costs	Non-wage Labour Costs	Wage Costs	Non-wage Labour Costs	
NLW (25+)	£29.1	£5.9	£31.4	£6.3	£72.7
Main (21-24)	£0.4	£0.1	£0.1	£0.01	£0.6
Development (18 - 20)	£0.1	£0.02	£0.01	£0.001	£0.1
Youth (16 - 17)	£0.00	£0.001	£0.04	£0.01	£0.1
Apprentice	£0.2	£0.04	£0.01	£0.001	£0.3
Total	£29.8	£6.0	£31.5	£6.4	£73.7

Private sector (£m)

Zero	Direct		Indirect		Total
	Wage Costs	Non-wage Labour Costs	Wage Costs	Non-wage Labour Costs	
NLW (25+)	£252.4	£51.0	£272.0	£54.9	£630.4
Main (21-24)	£5.7	£1.2	£0.9	£0.2	£7.9
Development (18 - 20)	£1.7	£0.3	£0.1	£0.03	£2.2
Youth (16 - 17)	£0.3	£0.1	£2.4	£0.5	£3.2
Apprentice	£1.0	£0.2	£0.03	£0.01	£1.3
Total	£261.1	£52.7	£275.4	£55.6	£644.9

Annex G: Specific Impact tests

Equality Analysis

The Department of Business, Energy and Industrial Strategy (BEIS) is required to comply with the public sector duty (PSED) set out in the Equality Act 2010 ("the Act"). The PSED requires the Minister to have due regard to the need to advance equality of opportunity, hinder discrimination and foster good relations between those with and without certain protected characteristics, which are set out later in this annex. This due regard is taken to eliminate unlawful discrimination and to tackle prejudice and promote understanding.

The NMW and NLW have national universal coverage for workers aged 16 and over working in all sectors and regions. Legally all employers will have to pay at least this minimum rate regardless of other social characteristics such as gender, ethnicity or disability. The simple and established minimum wage system is maintained, with the NLW (introduced in April 2016) providing a wider coverage.

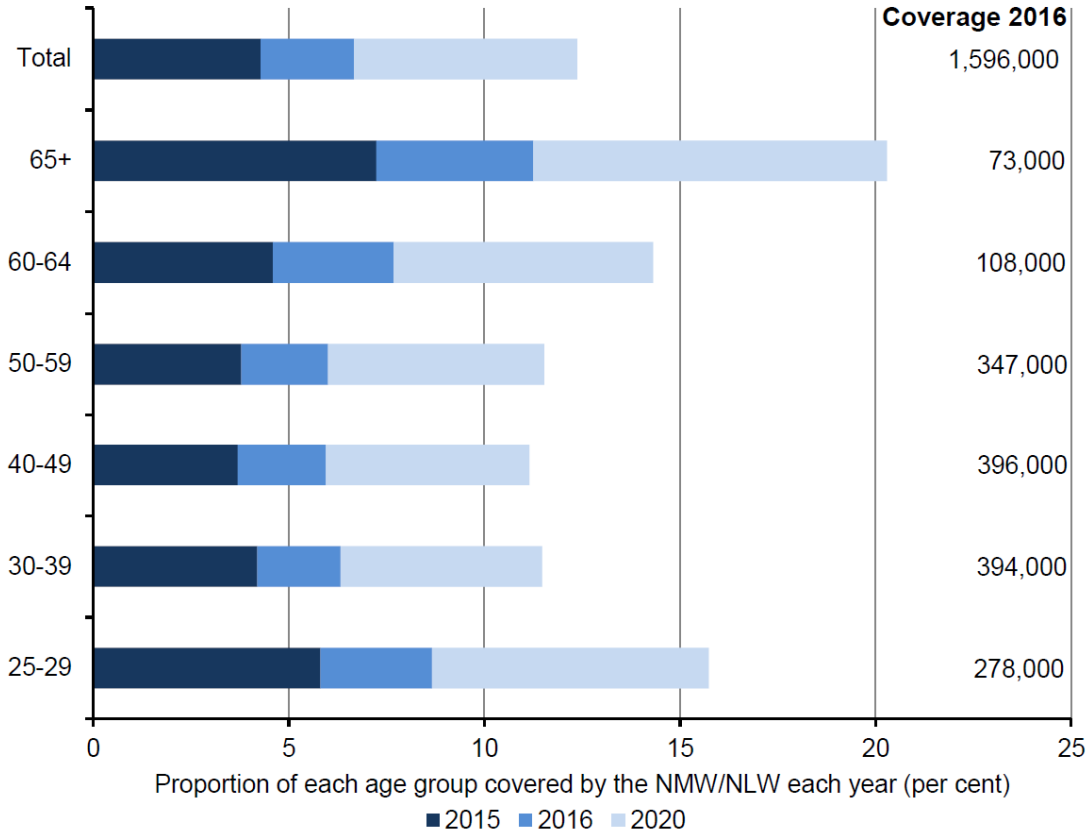
Ethnicity, religion, disability status, and marital status

There are two key challenges when analysing the impacts of the NMW increases on equality considerations.

- The Annual Survey of Hours and Earnings does not capture respondents' key socio-economic characteristics such as ethnicity, religion, disability status, or marital status. We use the Labour Force Survey for this information, but LFS pay estimates are less robust than ASHE.
- The rates apply to specific, narrow age groups and disaggregating these by socio-economic characteristics can yield sample sizes too small to make robust estimates.

Age

Chart A: Coverage of the NMW/NLW for workers aged 25 and over, by age, UK, 2015 - 2020



Source: LPC estimates using: ASHE April 2015-16, low pay weights, UK.

Chart A shows the estimated NLW coverage by age breakdown in 2015, 2016 and 2020. This chart shows how the coverage of NLW varies across different age groups. Coverage rates for older workers and younger workers are higher than for workers aged between 30 and 64. Despite these age groups showing the lowest coverage rate, they make up the majority of minimum wage workers – over 70 per cent of those on NLW. Those aged 65 and over have the highest rate of coverage, although numbers are relatively small (73,000 in 2016) as most of this age cohort has retired. The next highest coverage rate is for workers aged 25-29, and then those aged 60-64.

Analysis conducted by the Resolution Foundation observed that the age group 25-30 in particular were set to benefit the most from this policy, as a greater proportion of people in this age bracket work full time. With the Resolution Foundation estimating that this age group will make up 22% of employees affected, they are set to receive the highest cash gains of £400 in 2016. However bite levels for this age group are higher than for older workers.

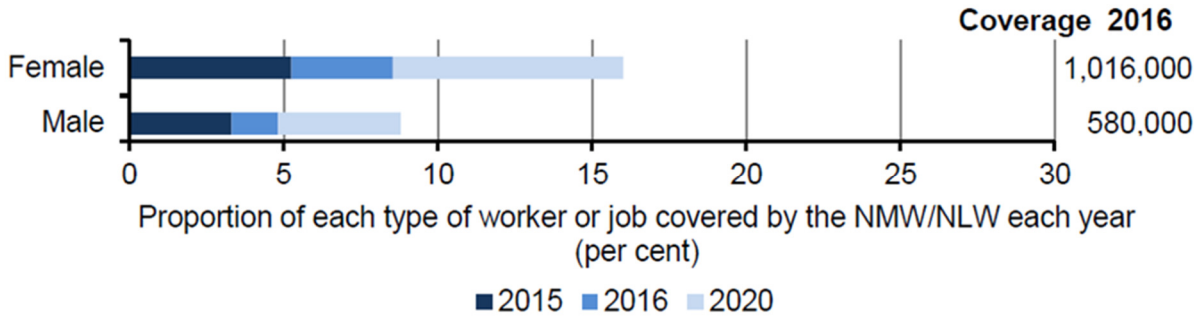
The Resolution Foundation find that the effects of the NLW are also widespread for those 66 and over. 1-in-3 workers can expect to see some pay rise in 2016; though many of these workers work part-time so will receive a lower share of the cash gains.

The National Minimum Wage Act 1998 allows different rates for different age groups below the age of 26.[1] Other age-related wage rates also exist in the current minimum wage structure.

[1] With the exception of persons participating in schemes or attending courses as described in section 3(1A).

Gender

Chart B: Coverage of the NMW/NLW for workers aged 25 and over, by gender, UK, 2015 – 2020



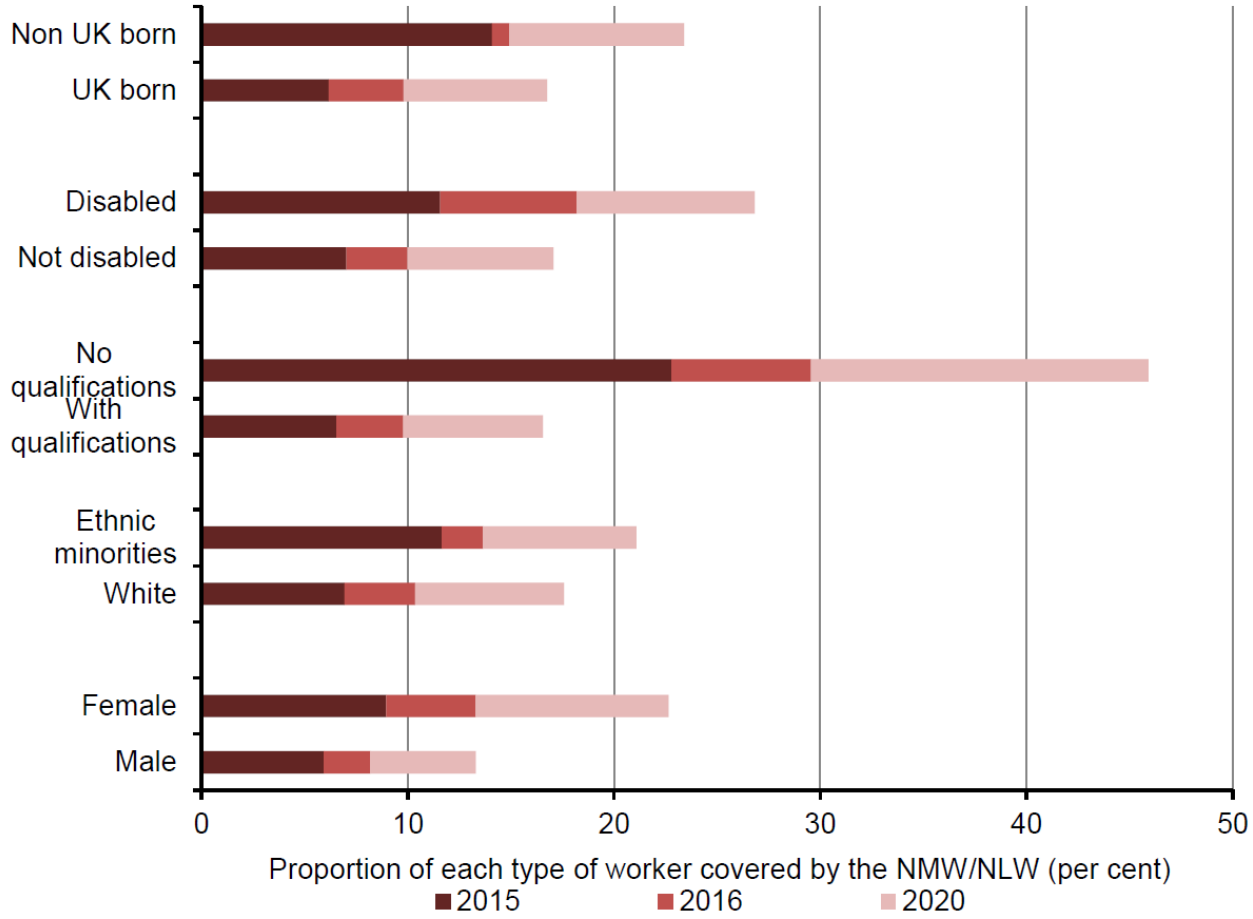
Coverage of the NLW also varies by gender. Chart B shows a higher proportion of women than men will be affected by the NLW. Female workers saw an increase in coverage from 5.3 per cent to 8.5 per cent in 2016. This disparity is largely due to women being more likely to work in low-paid roles and to work part time.

Further supporting analysis conducted by the Resolution Foundation, which includes spillover effects, shows women benefit more from the NLW than men do; 62% to 38% of men as a percentage of all 25s and over affected in 2016. They conclude that the distributional gains from the NLW will lead to a "modest narrowing" of the gender pay gap over the coming years[2].

[2] Resolution Foundation 'Higher Grounds: who gains from the National Living Wage' page 21

Ethnicity and Disability

Chart C: Coverage of the NMW/NLW for workers aged 25 and over, by worker characteristic, UK, 2015 – 2020



Source: LPC estimates using: LFS Microdata, income weights, quarterly, not seasonally adjusted, Q2 2015 and Q2 2016, UK.

The NLW is a universal policy which covers all ethnicities equally. However coverage estimates vary between ethnic groups.

The coverage of the NLW is higher for ethnic minorities than White workers. Those not born in the UK, disabled workers and ethnic minority workers, also have higher coverage rates of the NLW than their direct counterparts – UK-born workers, non-disabled workers and White workers. The increase in the rate of coverage varies across these groups, for example, the increase in coverage for disabled workers has been relatively large compared the non-UK born group.

It is important to remember that the aggregation of these figures mask the variability within this group, which is made up of many diverse ethnicities.

Promoting equality of opportunity

The 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.

The NMW policy framework has been successful since its introduction in April 1999, providing protection for low-paid workers. The NLW was introduced into the current NMW framework as a premium top-up for those aged 25 and over. The NMW and NLW policy is designed to have a positive impact on all workers in low paid sectors regardless of their characteristics.

The NLW is expected to protect the equality of opportunity for those aged under 25. While their opportunity may be impacted by not receiving the new statutory pay floor, this is balanced by (i) protecting the employment prospects of younger workers given their tougher labour market conditions and the importance of developing skills and experience, and (ii) possibly improving the attractiveness of younger workers for employers.

Eliminating discrimination and other prohibited conduct

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 allowing the rates to vary up to age 25. Potential risk of a substitution towards recruitment of workers under the age of 25 could be seen. However businesses can react to increased wage costs in a number of ways: reducing hours worked, restructuring work forces and pay structures, reducing profit margins or boosting worker productivity. Furthermore, some firms do not use pay structures based on age-related rates, negating risks of increased discriminatory recruitment policies.

Fostering good relations

The PSED requires 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

We consider the introduction of the NLW 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.

The increase in April 2017 to £7.50 from the current NLW of £7.20 will mean a 4.2% increase in hourly pay, and a full time worker will earn £546 more compared to today.

Additional analysis done by the IFS estimates similar gains for families with and without children. This policy will positively impact a range of family dynamics at different scales and time periods.

Annex H: Legacy Costs - Revised estimates for NLW/NMW upratings since October 2015

We have produced legacy costs for the NMW upratings during this Parliament and the introduction of the NLW, for the purposes of the Business Impact Target (BIT) score. The costs of the apprentice NMW uprating of 2015 where the Government rejected the LPC's recommendation is the only cost which counts towards the BIT (as explained in the body of the IA). These costs are entirely new estimates based on the methodology employed in this Impact Assessment which was reviewed and revised this year. These estimates replace any estimates previously made of the impact of minimum wage increases (NLW and NMW) for the purposes of the Business Impact Target. To remain consistent with this IA, for these legacy costs, we have assumed the high cost scenario is where wages grow in line with inflation and the low cost estimate where wages grow in line with average earnings. Our best estimate is the mid-point of these costs, in the absence of an exact counterfactual. We have used the latest data and OBR forecasts which were available prior to the time that the policy came in to force.

Costs are presented as total costs, broken down by wage and non-wage costs. We have used a counterfactual growth rate of average earnings as our low cost estimate and inflation as our high cost estimate. The mid-point of these costs is our best estimate. This is consistent with the methodology employed in this IA.

The costs presented below account for the full appraisal period, which varies depending on the length of time it will have taken for the counterfactual to catch up to the proposed rates, starting from the pre-existing rates. As some rates will catch up sooner than others, the appraisal periods detailed below are the maximum lengths of time it takes for the final rate to catch up.

Totals may not sum due to rounding.

Legacy Costs: October 2016 NMW Uprating

Here we are appraising the impact of increasing the 21-24 NMW rate from £6.70 to £6.95, the 18-20 rate from £5.35 to £5.55, the 16-17 NMW rate from £3.87 to £4.00 and the ANMW from £3.30 to £3.40.

Based on our counterfactuals of average earnings wage growth (low cost) and inflation increases in wages (high cost), these costs are appraised over a maximum period of 3 years, although this varies depending on the individual rate/age group, given that these all increased at different rates.

In our central scenario, total costs are estimated at £128.1m over three years (undiscounted). This comprises £77.1m of direct wage costs and £15.6m of non-wage labour costs associated with this and £33.0m of indirect costs as a result of employers maintaining differentials further up the wage distribution – this includes £5.6m of non-wage labour costs. As per the original IA, we have not estimated transitional costs. The economic net present value is £0 as this is a transfer from firms to employees and the exchequer.

For the purposes of the Business Impact Target, total private sector direct costs in our central scenario is £84.8m . However, these upratings are non-qualifying regulatory measures as the Government implemented the LPC's recommendations in full.

<u>Undiscounted estimates</u>

Central	Total over 3 years		
	Wage and Non-wage Impacts (£m)		
	Wage Costs	Non-wage Labour Costs	Total
Main (21 - 24)	£55.3	£11.2	£66.5
Development (18 - 20)	£37.9	£7.7	£45.6
Youth (16 - 17)	£8.3	£1.7	£11.8
Apprentice	£3.0	£0.6	£4.2
Total	£104.6	£21.1	£128.1

Average Earnings (low cost)	Total over 3 years		
	Wage and Non-wage Impacts (£m)		
	Wage Costs	Non-wage Labour Costs	Total
Main (21 - 24)	£25.7	£5.2	£30.9
Development (18 - 20)	£19.8	£4.0	£23.8
Youth (16 - 17)	£3.8	£0.8	£4.5
Apprentice	£1.2	£0.2	£1.4
Total	£50.5	£10.2	£60.7

Inflation (high cost)	Total over 3 years		
	Wage and Non-wage Impacts (£m)		
	Wage Costs	Non-wage Labour Costs	Total
Main (21 - 24)	£84.9	£17.2	£102.1
Development (18 - 20)	£56.0	£11.3	£67.3
Youth (16 - 17)	£12.9	£2.6	£15.5
Apprentice	£4.8	£1.0	£5.8
Total	£158.7	£32.1	£190.7

IA Calculator estimates

Cost of Option			
Total Net Present Value	**Business Net Present Value**	**Net direct cost to business per year** (EANDCB: 2014 prices; 2015 present value)	**BIT Score**
0.0	-86.3	28.3	84.9

NPV / Business NPV Base Years	
Price Base Year	2016
PV Base Year	2016
Appraisal period	3

Net Benefit (Present Value (PV)) (£m)					
Low:	0.00	High:	0.00	Best Estimate	0.00

Costs	Total Transition (constant price)	years	Average Annual (excl. Transition, constant price)	Total Cost (present value)
Low	0.0		20.2	60.6
High	0.0		67.1	198.7
Best Estimate	0.0		41.9	124.7

Benefits	Total Transition (constant price)	years	Average Annual (excl. Transition, constant price)	Total Benefit (present value)
Low	0.0		20.2	60.6
High	0.0		67.1	198.7
Best Estimate	0.0		41.9	124.7

Direct impact on business (Equivalent Annual) £m:					
Costs:	28.3	Benefits:	0.0	Net:	-28.3

Legacy Costs: October 2015 NMW Uprating

Here we are appraising the impact of increasing the 21+ NMW rate from £6.50 to £6.70, the 18-20 rate from £5.13 to £5.35, the 16-17 NMW rate from £3.79 to £3.87 and the ANMW from £2.73 to £3.30. The increase in the ANMW went against the LPC's recommended increase to £2.80.

Based on our counterfactuals of average earnings wage growth (low cost) and inflation increases in wages (high cost), these costs are appraised over a maximum period of 10 years, although this varies depending on the individual rate/age group, given that these all increased at different rates. The 10 year period in particular applies to the ANMW. The costs of uplifting the non-apprentice rates have been appraised using the new methodology employed in this IA. The appraisal period will therefore be the length of time it takes for the counterfactual rates to catch up to the proposed NMW rates. It will therefore make no difference to the total costs by doing a ten year appraisal period for these rates, however, it will result in a lower average annual cost.

In our central scenario, total costs are estimated at £681.8m over ten years. This comprises £393.6m of direct wage costs and £78.1m of non-wage labour costs associated with this, and £210.1m of indirect costs as a result of employers maintaining differentials further up the wage distribution – this includes £34.7m of non-wage labour costs. As per the original IA, we have not estimated transitional costs. The economic net present value is £0 as this is a transfer from firms to employees and the exchequer.

For the purposes of the Business Impact Target, total private sector direct costs in our central scenario is £238m. The increases to all rates (£182m of this) with the exception of the ANMW are non-qualifying regulatory measures as the Government implemented the LPC's recommendations. The increase in the ANMW qualifies for the Business Impact Target. The BIT score for this particular measure is estimated at £56m.

<u>Undiscounted estimates</u>

Central	Total over 10 years		
	Wage and Non-wage Impacts (£m)		
	Wage Costs	Non-wage Labour Costs	Total
Main (21 - 24)	£424.0	£84.1	£508.1
Development (18 - 20)	£30.9	£6.2	£37.1
Youth (16 - 17)	£4.0	£0.8	£4.8
Apprentice	£110.0	£21.8	£131.7
Total	£569.0	£112.8	£681.8
Average Earnings (low cost)	Total (over 10 years)		
	Wage and Non-wage Impacts (£m)		
	Wage Costs	Non-wage Labour Costs	Total
Main (21 +)	£181.9	£36.0	£217.9
Development (18 - 20)	£13.8	£2.7	£16.5
Youth (16 - 17)	£1.5	£0.3	£1.8
Apprentice	£60.1	£11.9	£72.0
Total	£257.4	£51.0	£308.3
Inflation (high cost)	Total (over 10 years)		
	Wage and Non-wage Impacts (£m)		
	Wage Costs	Non-wage Labour Costs	Total
Main (21 - 24)	£588.7	£116.6	£705.3
Development (18 - 20)	£35.5	£7.0	£42.5

Youth (16 - 17)	£6.5	£1.3	£7.8
Apprentice	£159.8	£31.6	£191.5
Total	£790.6	£156.5	£947.1

IA Calculator estimates

The tables below do not include the Apprentice NMW costs i.e. the BIT score represents the non-qualifying regulatory measures.

Cost of Option			
Total Net Present Value	**Business Net Present Value**	**Net direct cost to business per year** (EANDCB: 2014 prices; 2015 present value)	**BIT Score**
0.00	-314.95	36.4	182.0

NPV / Business NPV Base Years	
Price Base Year	2015
PV Base Year	2015
Appraisal period	10

Net Benefit (Present Value (PV)) (£m)					
Low:	0.00	High:	0.00	Best Estimate	0.00

Costs	Total Transition (constant price)	years	Average Annual (excl. Transition, constant price)	Total Cost (present value)
Low	0.0		23.6	236.3
High	0.0		75.6	746.8
Best Estimate	0.0		55.0	542.1

Benefits	Total Transition (constant price)	years	Average Annual (excl. Transition, constant price)	Total Benefit (present value)
Low	0.0		23.6	236.3
High	0.0		75.6	746.8
Best Estimate	0.0		55.0	542.1

Direct impact on business (Equivalent Annual) £m:					
Costs:	36.4	Benefits:	0.0	Net:	-36.4

The tables below are specifically for the Apprentice NMW costs – i.e. the score in scope of the BIT

Cost of Option			
Total Net Present Value	**Business Net Present Value**	**Net direct cost to business per year** (EANDCB: 2014 prices; 2015 present value)	**BIT Score**
0.00	-97.10	11.2	56.0

NPV / Business NPV Base Years	
Price Base Year	2015
PV Base Year	2015
Appraisal period	10

Net Benefit (Present Value (PV)) (£m)					
Low:	0.00	High:	0.00	Best Estimate	0.00

Costs	Total Transition (constant price)	years	Average Annual (excl. Transition, constant price)	Total Cost (present value)
Low	0.0		7.2	69.6
High	0.0		19.1	173.1
Best Estimate	0.0		13.2	121.4

Benefits	Total Transition (constant price)	years	Average Annual (excl. Transition, constant price)	Total Benefit (present value)
Low	0.0		7.2	69.6
High	0.0		19.1	173.1
Best Estimate	0.0		13.2	121.4

Direct impact on business (Equivalent Annual) £m:					
Costs:	11.2	Benefits:	0.0	Net:	-11.2

Legacy Costs: Introduction of the NLW, April 2016

Here we are appraising the impact of introducing the NLW for workers aged 25 and over and not in the first year of their Apprenticeship. In effect, this was an increase from the 21+ NMW rate of £6.70 to £7.20.

Based on our counterfactuals of average earnings wage growth (low cost) and inflation increases in wages (high cost), these costs are appraised over a period of five years.

In our central scenario, total costs are estimated at £2.9bn over five years. This comprises £1.8bn of direct wage costs and £368.7m of non-wage labour costs associated with this; and £764.0m of indirect costs as a result of employers maintaining differentials further up the wage distribution – this includes £126.7m of non-wage labour costs. These costs have a net neutral economic impact as they have corresponding benefits for workers and the exchequer. We have retained the same transition costs used in the original IA, estimated at £22.6m over 1 year. The economic net present value is -£22.6m over five years. Other quantified but non-monetised impacts are described in the original IA.

For the purposes of the Business Impact Target, total private sector direct costs in our central scenario is £2bn. However, this uprating is a non-qualifying regulatory measure.

Undiscounted estimates

Central	Total over 5 years		
	Wage Costs	Non-wage Labour Costs	Total
NLW (25+)	£2,452.5	£495.4	£2,947.9
Average Earnings (low cost)	Total over 5 years		
	Wage Costs	Non-wage Labour Costs	Total
NLW (25+)	£1,413.0	£285.4	£1,698.4
Inflation (high cost)	Total over 5 years		
	Wage Costs	Non-wage Labour Costs	Total
NLW (25+)	£3,492.0	£705.4	£4,197.4

IA Calculator estimates

Cost of Option			
Total Net Present Value	**Business Net Present Value**	**Net direct cost to business per year** (EANDCB: 2014 prices; 2015 present value)	**BIT Score**
-22.6	- 1,940.2	399.5	1,997.5

NPV / Business NPV Base Years	
Price Base Year	2015
PV Base Year	2015
Appraisal period	10

Net Benefit (Present Value (PV)) (£m)					
Low:	0.00	High:	0.00	Best Estimate	-22.6

Costs	Total Transition (constant price)	years	Average Annual (excl. Transition, constant price)	Total Cost (present value)
Low	0.0		339.7	1,683.3
High	0.0	1	839.5	4,070.2
Best Estimate	22.6		589.6	2,899.3

Benefits	Total Transition (constant price)	years	Average Annual (excl. Transition, constant price)	Total Benefit (present value)
Low	0.0		339.7	1,683.3
High	0.0		839.5	4,070.2
Best Estimate	0.0		589.6	2,876.7

Direct impact on business (Equivalent Annual) £m:					
Costs:	399.5	Benefits:	0.0	Net:	-399.5