



Department  
for Education

# **Labour market impact of progressing more learners to Level 3**

**Ad-hoc notice**

**December 2018**

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## Introduction

This ad-hoc statistical release presents analysis by the Department for Education (DfE) that estimates the potential labour market impact of raising the proportion of the population qualified to Level 3 or higher in England to match Germany levels. The analysis combines data from a range of sources to give an estimate of the impact, including the Organisation for Economic Co-operation and Development (OECD), the Labour Force Survey (LFS) and DfE official statistics and commissioned research.

We estimate the number of people in England that would need to achieve a Level 3 qualification to match Germany levels and then estimate (i) the additional earnings for those already in employment and (ii) the number of people who would enter employment as a result of achieving a Level 3 qualification and their earnings.

## Main findings

In Germany, an additional 22% of the population aged 25-64 is qualified to the equivalent of NVQ Level 3 or higher, relative to the UK. This equates to an additional 6.3 million people in England.

An increase to the proportion qualified to Level 3 for this population could mean an increase in annual wages for workers in England of £14.4bn.

## Methodology and data limitations

We estimate the effect on national wages in two stages: (i) the additional earnings from achieving a Level 3 qualification for those already in employment, and (ii) the population not in employment that we expect to enter employment as a result of achieving a Level 3 qualification and their earnings.

To estimate the additional earnings for those already in employment, we estimate the number of people in England aged 25-64 who would need to undertake Level 3 qualifications to match Germany levels and multiply this by the:

- a) employment rate for the population whose highest qualification is at Level 2
- b) median annual earnings for the employed population whose highest qualification is at Level 2
- c) wage differential associated with achieving a Level 3 qualification.

To estimate earnings for those who would enter employment, we estimate the number of people in England aged 25-64 who would need to undertake Level 3 qualifications to match Germany levels and multiply this by the:

- a) employment probability premium (the estimated additional likelihood of gaining employment as a result of achieving a Level 3 qualification)
- b) median annual earnings for the employed population whose highest qualification is at Level 2, uplifted by the wage differential associated with achieving a Level 3 qualification.

See annexes for a full list of assumptions used and their sources.

## Increasing the adult population with Level 3 qualifications to match Germany levels

In Germany, 87% of the population aged 25-64 have completed full upper secondary education (equivalent to Level 3 or higher qualifications)<sup>1,2</sup>; in the UK, this is just 65%. An additional 22% of the England population aged 25-64, approximately 6.3 million people<sup>3</sup>, would need to be qualified to Level 3 to match Germany.

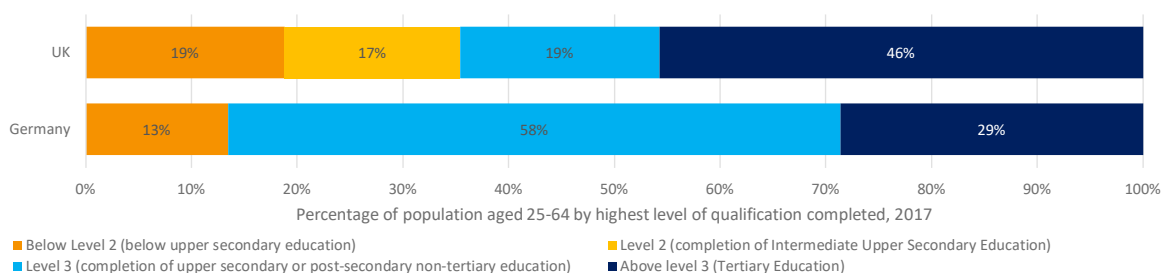
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<sup>1</sup> Programmes at ISCED level 3, or upper secondary education, are typically designed to complete secondary education in preparation for tertiary education or provide skills relevant to employment, or both: <http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-isced-2011-en.pdf>

<sup>2</sup> Germany does not have qualifications equivalent to completion of intermediate upper secondary education (Level 2 in England).

<sup>3</sup> 28.9m people aged 25-64 in England; from ONS mid-2017 population estimates by age band at <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland>

**Figure 1: Percentage of population aged 25-64 by highest level of qualification completed, 2017**

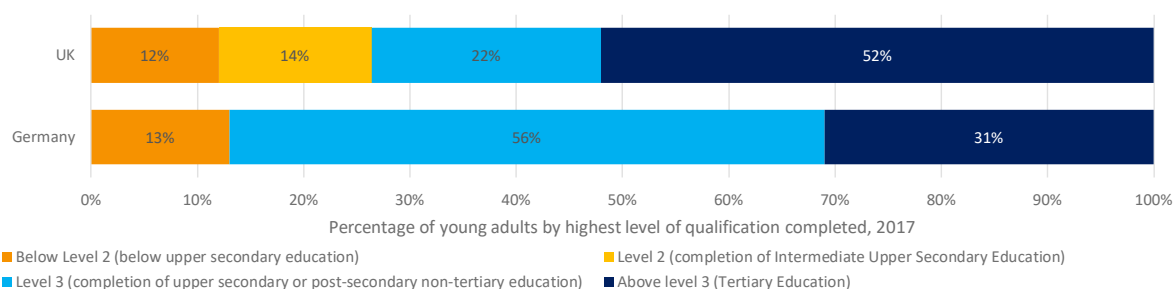


Source: OECD; Education at a Glance 2018, Table A1.1<sup>4</sup>

## Young adult population

In the young adult population (aged 25-34) in Germany, 87% have completed full upper secondary education (equivalent to Level 3 or higher qualifications)<sup>5</sup>; in the UK, this is 74%<sup>6</sup>. An additional 13% of the young adult population in England would need to be qualified to Level 3 to match Germany levels; this is equivalent to an additional 86,000 people aged 25 in England qualified to Level 3 in ten years' time<sup>7</sup>.

**Figure 2: Percentage of young adult population by highest level of qualification completed, 2017**



Source: OECD's Education at a Glance 2018, Table A1.2<sup>5</sup> and DfE's Education and Training Statistics for the UK 2018<sup>6</sup>.

<sup>4</sup> OECD's Education at a Glance 2018, Table A1.1: [https://www.oecd-ilibrary.org/education/education-at-a-glance-2018/educational-attainment-of-25-64-year-olds-2017\\_eag-2018-table14-en](https://www.oecd-ilibrary.org/education/education-at-a-glance-2018/educational-attainment-of-25-64-year-olds-2017_eag-2018-table14-en)

<sup>5</sup> OECD's Education at a Glance 2018, Table A1.2: [https://www.oecd-ilibrary.org/education/education-at-a-glance-2018/trends-in-educational-attainment-of-25-34-year-olds-by-gender-2007-and-2017\\_eag-2018-table15-en](https://www.oecd-ilibrary.org/education/education-at-a-glance-2018/trends-in-educational-attainment-of-25-34-year-olds-by-gender-2007-and-2017_eag-2018-table15-en)

<sup>6</sup> From OECD's Education at a Glance 2018, Table A1.2, however OECD figures do not separate Level 2 and Level 3 for the UK population aged 25-34. Instead, this split between highest level of qualification at Level 2 and highest qualification at Level 3 in the UK is taken from Table 3.4 in DfE's Education and training statistics for the UK: 2018 (age 25-29).

<https://www.gov.uk/government/statistics/education-and-training-statistics-for-the-uk-2018>

<sup>7</sup> England population projections: population aged 25 in 2028. <https://www.nomisweb.co.uk/>

# Estimating additional earnings from achieving a Level 3 qualification

## Earnings and employment probability premiums

Research by Bibby et al. (2014) estimates the earnings differentials associated with vocational education and training; comparing earnings for learners who achieved qualifications at Level 3 with those who started a Level 3 qualification, but did not achieve it. This research also estimates the employment probability premium associated with achieving a Level 3 qualification, i.e. the increased likelihood of being in employment due to having achieved a Level 3 qualification. Returns for apprenticeships and classroom-based learning are estimated separately.

We use the impact of achieving a qualification at full level 3 averaged over 3-5 years after completion for this calculation and assume that the current ratio between apprentices and Skills learners would remain stable<sup>8</sup>.

**Table 1: Earnings and employment probability premiums for Level 3 vocational qualifications**

	<b>Earnings premium</b>	<b>Employment probability premium</b>
Level 3 apprenticeship	16%	0.2 ppt
Full level 3 – classroom based	6%	3.3 ppt

Source: Bibby et al. (2014). BIS Research Paper Number 195: Estimation of the labour market returns to qualifications gained in English Further Education<sup>9</sup>.

## Estimating earnings

Analysis from the Labour Force Survey<sup>10</sup> indicates that the median annual wage of employees in England aged 19 to 64 whose level of highest qualification was at Level 2 was £20,400. We apply the estimated returns (percentage increase in earnings) to achieving a Full Level 3 qualification to this figure to estimate the additional earnings from achieving a Level 3 qualification.

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<sup>8</sup> Ratio of Apprentices to Skills learners using Table 5:1 Adult (19+) Education and Training Participation by Level; and Table 1: All Age Apprenticeship participation by Level and Age (19+)  
<https://www.gov.uk/government/statistics/further-education-and-skills-march-2018>

<sup>9</sup> Bibby et al. (2014). BIS RESEARCH PAPER NUMBER 195 (2014) Estimation of the labour market returns to qualifications gained in English Further Education  
<https://www.gov.uk/government/publications/further-education-comparing-labour-market-economic-benefits-from-qualifications-gained>

<sup>10</sup> Internal analysis; Labour Force Survey, 2018 Q3.

To estimate earnings for the population entering employment through gaining a Level 3 qualification, the returns uplift for achieving a Full Level 3 qualification is applied to the £20,400 annual wage for those whose highest level of qualification was Level 2.

### Employment rates

The wage differentials only apply to those in employment; the employment rate is 78% for the population aged 25-64 with a highest qualification at Level 2<sup>11</sup>.

### Limitations of the available data

It is important to note that the following estimates were only available using a broader population (than that of England) and are be applied to the England population for this estimate:

- The proportion of the population aged 25-64 with upper secondary education (whose highest qualification is at Level 3 or above) **in the UK**.
- The employment rate for the population of **England and Wales** aged 25-64 whose highest qualification is at Level 3.

We have not attempted to account for any changes in demand for employees qualified to Level 3 or above that may result from a higher proportion of the population qualified to this level.

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<sup>11</sup> 5+ GCSEs or equivalent, using England and Wales population aged 25-64  
<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/qualificationsandlabourmarketparticipationinenglandandwales/2014-06-18>

## Annex A: Summary of assumptions used in estimating the impact of raising the proportion of the England population aged 25-64 qualified at Level 3 to match Germany levels

<b>Cohort in scope</b>	
Population aged 25-64 in England needing a Level 3 qualification to match Germany levels; gap of 22% between UK and Germany <sup>i</sup>	6.3m
Employment rate for population qualified at Level 2 <sup>ii</sup>	78.3%
Split between apprenticeships and classroom learning at Level 3 <sup>iii</sup>	70% apprentices; 30% classroom-based
<b>Additional earnings from achieving a Level 3 for those already in employment</b>	
Population achieving an Advanced Apprenticeship and remaining in employment	3.5m
Wage differential for Advanced Apprenticeship, relative to non-achievers <sup>iv</sup>	16%
Annual median earnings where highest qualification is at Level 2 <sup>v</sup>	£20,400
Total impact of additional earnings for apprentices	£11.1bn
Population achieving a Skills qualification at Level 3 and remaining in employment	1.5m
Wage differential for Full Level 3 Skills, relative to non-achievers <sup>iv</sup>	6%
Annual median earnings where highest qualification is at Level 2 <sup>v</sup>	£20,400
Total impact of additional earnings for Skills learners	£1.8bn
<b>Total from increased earnings</b>	<b>£12.8bn</b>
<b>Additional earnings from people entering employment as a result of achieving a Level 3</b>	
Additional population in employment as a result of achieving an Advanced Apprenticeship - 0.2 ppt increase in employment rate <sup>iv</sup>	9,000
Earnings for apprentices (£20,400 annual median earnings where highest qualification is at Level 2 <sup>v</sup> , uprated by 16% returns to Level 3 estimate <sup>iv</sup> )	£23,600
Apprenticeship total impact of additional people in employment	£210m
Additional population in employment as a result of achieving a Skills qualification at Level 3 – 3.3 ppt increase in employment rate <sup>iv</sup>	63,000
Earnings for Level 3 Skills (£20,400 annual median earnings where highest qualification is at Level 2 <sup>v</sup> , uprated by 6% returns to Level 3 estimate <sup>iv</sup> )	£21,600
Skills total impact of additional people in employment	£1.4bn
<b>Total from additional population in employment</b>	<b>£1.6bn</b>
<b>Total estimated impact (annual)<sup>vi</sup>:</b>	<b>£14.4bn</b>



## Annex B: Summary of assumptions used in estimating the impact of raising the proportion of the England population aged 25 qualified at Level 3 to match Germany levels by 2028

<b>Cohort in scope</b>	
Population aged 25 in England in 2028 needing a Level 3 qualification to match Germany levels; gap of 13% between UK and Germany <sup>vii,viii</sup>	86,000
Employment rate for population qualified at Level 2 <sup>ii</sup>	78.3%
Split between apprenticeships and classroom learning at Level 3 <sup>iii</sup>	70% apprentices; 30% classroom-based
<b>Additional earnings from achieving a Level 3 for those already in employment</b>	
Population achieving an Advanced Apprenticeship and remaining in employment	47,000
Wage differential for Advanced Apprenticeship, relative to non-achievers <sup>iv</sup>	16%
Annual median earnings where highest qualification is at Level 2 <sup>v</sup>	£20,400
Total impact of additional earnings for apprentices	£150m
Population achieving a Skills qualification at Level 3 and remaining in employment	20,000
Wage differential for Full Level 3 Skills, relative to non-achievers <sup>iv</sup>	6%
Annual median earnings where highest qualification is at Level 2 <sup>v</sup>	£20,400
Total impact of additional earnings for Skills learners	£24m
<b>Total from increased earnings</b>	<b>£174m</b>
<b>Additional earnings from people entering employment as a result of achieving a Level 3</b>	
Additional population in employment as a result of achieving an Advanced Apprenticeship - 0.2 ppt increase in employment rate <sup>iv</sup>	120
Earnings for apprentices (£20,400 annual median earnings where highest qualification is at Level 2 <sup>v</sup> , uprated by 16% returns to Level 3 estimate <sup>iv</sup> )	£23,600
Apprenticeship total impact of additional people in employment	£2.8m
Additional population in employment as a result of achieving a Skills qualification at Level 3 – 3.3 ppt increase in employment rate <sup>iv</sup>	850
Earnings for Level 3 Skills (£20,400 annual median earnings where highest qualification is at Level <sup>v</sup> , uprated by 6% returns to Level 3 estimate <sup>iv</sup> )	£21,600
Skills total impact of additional people in employment	£18.4m
<b>Total from additional population in employment</b>	<b>£21.2m</b>
<b>Total estimated impact (annual):</b>	<b>£195m</b>
Average estimated annual impact per person in scope (86,000 people)	£2,270 per year / £44 per week
<b>Total estimated impact over 40 year working life<sup>vi</sup></b>	<b>£7.8bn</b>
<b>Total estimated impact over 40 year working life (discounted by 3.5% per year)</b>	<b>£4.1bn</b>

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- <sup>i</sup> OECD's Education at a Glance 2018, Table A1.1: [https://www.oecd-ilibrary.org/education/education-at-a-glance-2018/educational-attainment-of-25-64-year-olds-2017\\_eag-2018-table14-en](https://www.oecd-ilibrary.org/education/education-at-a-glance-2018/educational-attainment-of-25-64-year-olds-2017_eag-2018-table14-en) ; and  
MYE1: Population estimates: Summary for the UK, mid-2017, England only, aged 25-64  
<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland>
- <sup>ii</sup> 2011 Census, from Table 1: Economic activity by highest level of qualification by age, England and Wales, 2011  
<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/qualificationsandlabourmarketparticipationinenglandandwales/2014-06-18>
- <sup>iii</sup> Table 5:1 Adult (19+) Education and Training Participation by level; and Table 1: All Age Apprenticeship participation by Level and Age (19+ only)  
<https://www.gov.uk/government/statistics/further-education-and-skills-march-2018>
- <sup>iv</sup> Bibby et al. (2014). BIS RESEARCH PAPER NUMBER 195 (2014) Estimation of the labour market returns to qualifications gained in English Further Education  
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/383646/Estimation\\_of\\_the\\_labour\\_market\\_returns\\_to\\_qualifications\\_gained\\_in\\_English\\_Further\\_Education\\_-\\_Final\\_-\\_November\\_2014.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/383646/Estimation_of_the_labour_market_returns_to_qualifications_gained_in_English_Further_Education_-_Final_-_November_2014.pdf)
- <sup>v</sup> Internal analysis; Labour Force Survey, 2018 Q3.
- <sup>vi</sup> Calculations are based on unrounded assumptions – numbers here may not sum due to rounding.
- <sup>vii</sup> OECD's Education at a Glance 2018, Table A1.2: [https://www.oecd-ilibrary.org/education/education-at-a-glance-2018/trends-in-educational-attainment-of-25-34-year-olds-by-gender-2007-and-2017\\_eag-2018-table15-en](https://www.oecd-ilibrary.org/education/education-at-a-glance-2018/trends-in-educational-attainment-of-25-34-year-olds-by-gender-2007-and-2017_eag-2018-table15-en) , with UK split between highest level of qualification at Level 2 and highest qualification at Level 3 taken from Table 3.4 in DfE's Education and training statistics for the UK: 2018 (age 25-29)  
<https://www.gov.uk/government/statistics/education-and-training-statistics-for-the-uk-2018>
- <sup>viii</sup> England population projections: population aged 25 in 2028. <https://www.nomisweb.co.uk/>



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