

Article

Characteristics and benefits of training at work, UK: 2017

The first analysis looking at the characteristics of those who take part in training at work and the benefits they receive from it, in the UK.

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1 . Main points

- In 2017, 26% of employees in the UK said they had taken part in in-work training or education in the previous three months.
- Participation in in-work training varies by occupation group, with employees in professional occupations most likely (37.3%) to undertake in-work training in 2017.
- Participation in in-work training is higher for women, though the training women undertake is typically shorter than training undertaken by men.
- Employees with higher levels of formal education are more likely to participate in in-work training, as are younger employees.
- One of the potential benefits of in-work training for employees is higher pay, where those in the mid-skilled occupation groups, such as builders, see the largest wage benefit despite more modest participation rates.
- For higher-skilled occupation groups, such as professional occupations, like scientists and business managers, there is an increase in managerial and supervisory responsibilities as a result of taking part in in-work training.

2 . What is in-work training?

For the purposes of this article, we refer to in-work training as participation in job-related training or education by employees in either the last four weeks, three months or 12 months prior to the employee being interviewed, regardless of whether the training has been completed or is still ongoing. The training can take place at work or outside of work.

The definitions section at the end of this article gives a specific in-work training definition for each data source used.

3 . Who participates in in-work training?

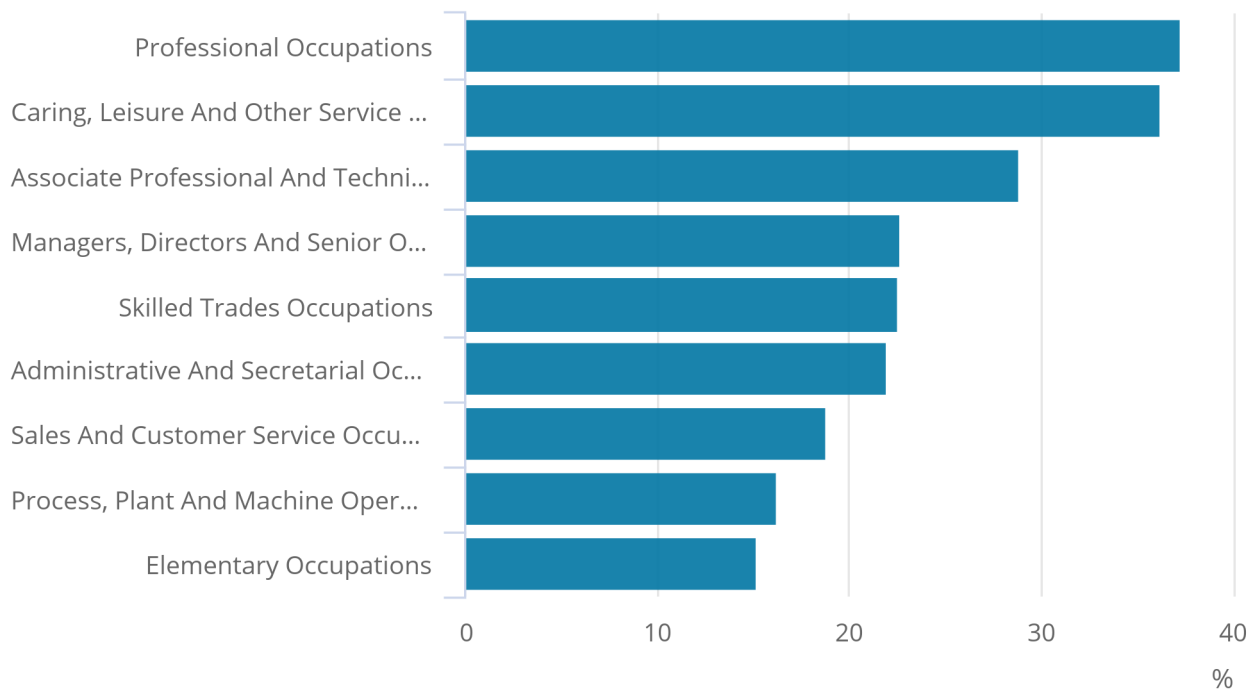
In 2017, 6.9 million employees said they had undertaken in-work training in the last three months, which is equivalent to 26% of the employee population.

Figure 1: Professional and caring, leisure and other service occupations have the highest participation rates of training

Proportion of employees who participated in job-related training or education in the last three months, by occupation, UK, 2017

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Proportion of employees who participated in job-related training or education in the last three months, by occupation, UK, 2017



Source: Office for National Statistics – Annual Population Survey

Notes:

1. 16- to 65-year-old employees.
2. UK coverage.

As seen in Figure 1, those most likely to take part in in-work training are those in professional occupations (37.3%), which includes healthcare and education professionals. Those with the lowest levels of in-work training are those in elementary occupations at 15.2%. Such variation between occupations could be due to some occupations requiring regular training more than others. For example, school teachers often must complete in-service training (INSET) days.

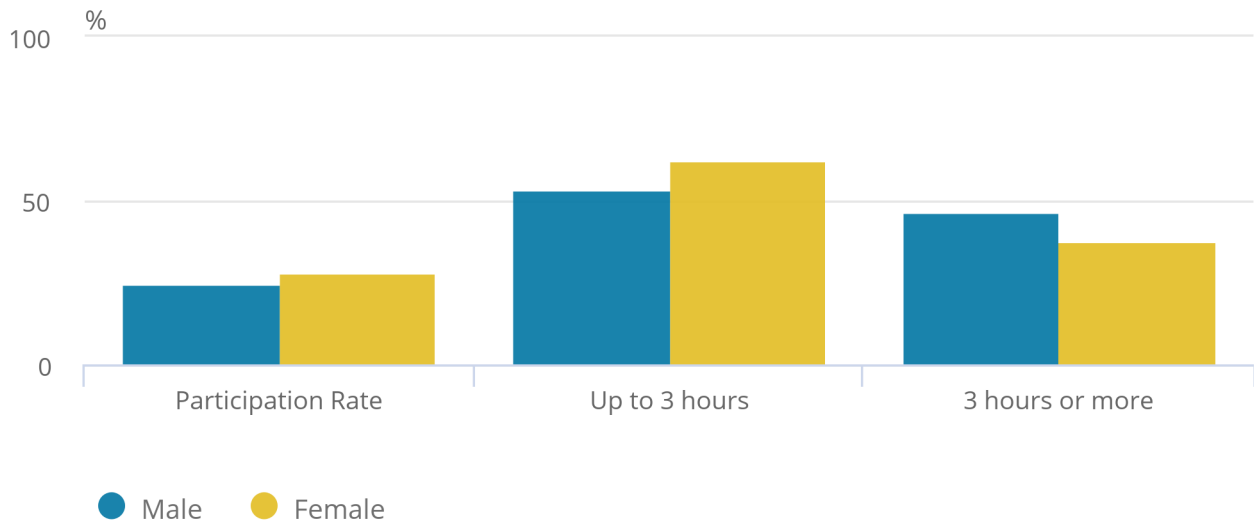
This variation in participation by occupation is reflected in differences observed for other characteristics like sex and qualification level.

Figure 2: Females are more likely to participate in in-work training than men, but also take shorter training on average

Proportion of people who participated in job-related training or education in the last three months, by length of training, UK, 2017

Figure 2: Females are more likely to participate in in-work training than men, but also take shorter training on average

Proportion of people who participated in job-related training or education in the last three months, by length of training, UK, 2017



Source: Office for National Statistics - Annual Population Survey, Labour Force Survey

Notes:

1. 16 to 65-year-old employees.
2. UK coverage.
3. Participation rate refers to the last 3 months.
4. Hours spent refers to the last 4 weeks.

Women are more likely to take on training at work than men. In 2017, the participation rate of in-work training for women was 4 percentage points higher than males (28.4% compared with 24.4%, respectively). This difference is largely explained by women having a higher share of employment in those occupation groups with the two highest rates of in-work training: professional occupations, and caring, leisure and other service occupations.

On average, women tend to spend fewer hours training than men. In 2017, 37.9% of women who trained in the previous four weeks said that their training lasted more than three hours per week, compared with 46.8% of men. This is in part explained by women being more likely to work part-time than men.

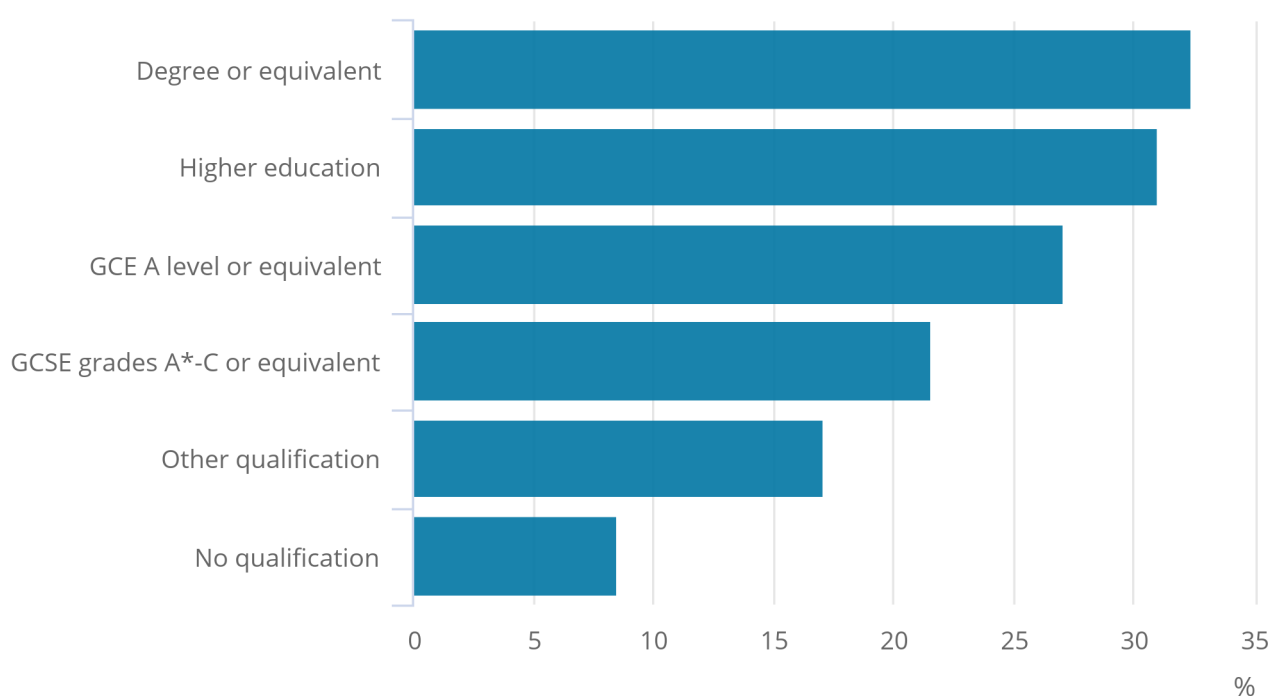
Looking at the proportion of total usual hours which were spent training, we see different patterns for men and women. The average number of hours spent training made up 6.2% of overall working hours for men, while the equivalent figure for female employees was 5.4%.

Figure 3: People with degrees are more likely to participate in in-work training, while only 8.5% of employees with no qualifications said they took part in training

Proportion of employees who participated in job-related training or education in the last three months, by highest qualification achieved, UK, 2017

Figure 3: People with degrees are more likely to participate in in-work training, while only 8.5% of employees with no qualifications said they took part in training

Proportion of employees who participated in job-related training or education in the last three months, by highest qualification achieved, UK, 2017



Source: Office for National Statistics - Annual Population Survey

Notes:

1. 16 to 65-year-old employees. 2. UK average.

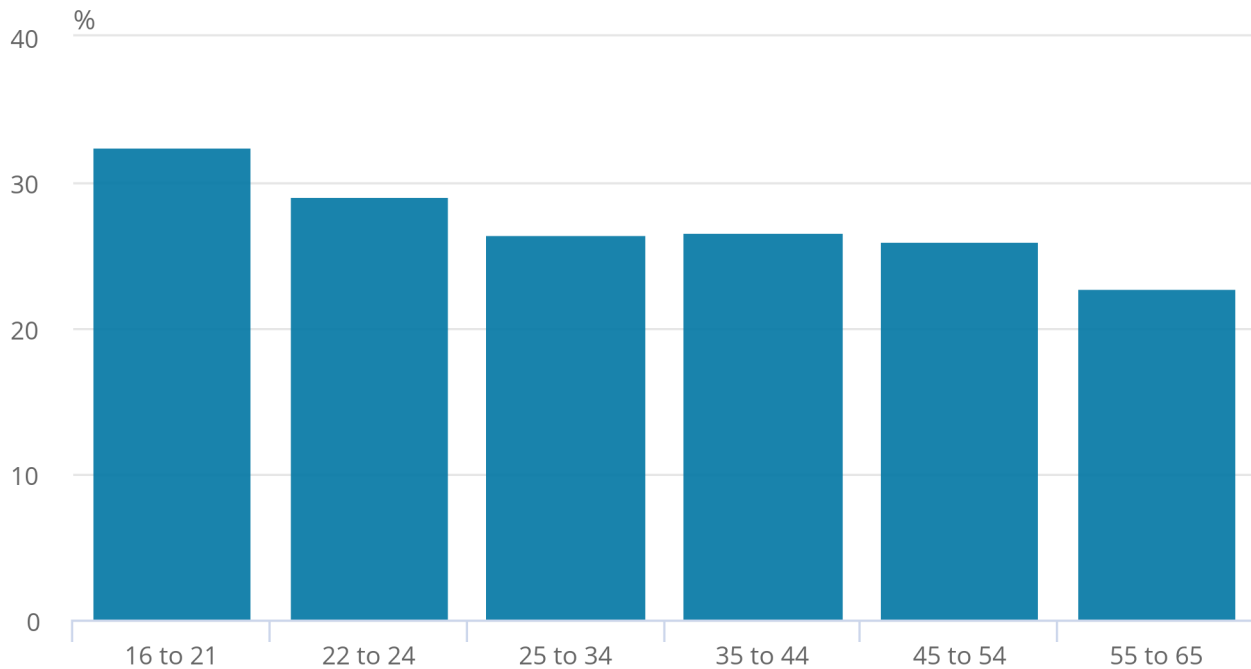
Participation rates in in-work training are higher for those with higher qualifications. For instance, employees who hold a degree or equivalent have the highest in-work training participation rate at 32.4%. This could be explained by more highly qualified employees being more likely to be employed in occupations with higher rates of in-work training. For instance, 45.7% of employees qualified to degree level work in professional occupations.

Figure 4: In-work training participation rates are highest for people aged 16 to 21 years and these participation rates decrease for older age groups

Proportion of people who participated in job-related training or education in the last three months, by age group, UK, 2017

Figure 4: In-work training participation rates are highest for people aged 16 to 21 years and these participation rates decrease for older age groups

Proportion of people who participated in job-related training or education in the last three months, by age group, UK, 2017



Source: Office for National Statistics - Annual Population Survey

Notes:

1. 16 to 65 year old employees.
2. UK coverage.

Age differences in participation are likely to be influenced by what stage people are at in their careers. This is reflected in evidence from Understanding Society data for 2016 to 2018 on the main reasons given for taking in-work training. Overall, improving skills was the most popular reason given for completing training across all age groups, however, there were some reasons that were more likely to be mentioned than others in different age groups.

Table 1: Different reasons for taking in-work training are more likely to be given by different age groups
 Proportion of given age groups most likely to give specific reasons for participating in in-work training, UK, 2016 to 2018

Reason given for in work training	Age group most likely to give reason	Proportion of age group who gave reason
To start a new job	16 to 24	20.9
Prepare for a future job	16 to 24	35.4
Help with getting a promotion	25 to 34	19.1
To improve skills	35 to 44	70.9
Maintain professional status	55 to 65	54.9

Source: Understanding Society

Notes

1. 16 to 65 year olds in employment. [Back to table](#)
2. UK Coverage. [Back to table](#)

Those aged 16 to 24 years were the most likely to mention preparing for a new or future job as a reason for taking in-work training, however, those aged 55 to 64 years were most likely to be maintaining their professional status through in-work training.

4 . Benefits of training at work: wage benefit

At an individual level, undertaking in-work training may be associated with higher wages, since the main reason reported for completing training is to improve skills (this was reported by 68% of those who had trained in the last 12 months between 2016 and 2017).

The analysis that follows attempts to isolate the impact that in-work training has on the weekly wages of employees between two years, while controlling for a range of personal and job-related characteristics. However, there will be some characteristics that we cannot control for, such as motivation, which may be captured within the wage benefit of in-work training. Furthermore, our data only allow us to observe benefits over a one-year period. For some in-work training it is possible that benefits may be experienced over a longer time horizon. For more information on the methodology used for modelling in-work training wage benefit, please see the [Quality and methodology section](#).

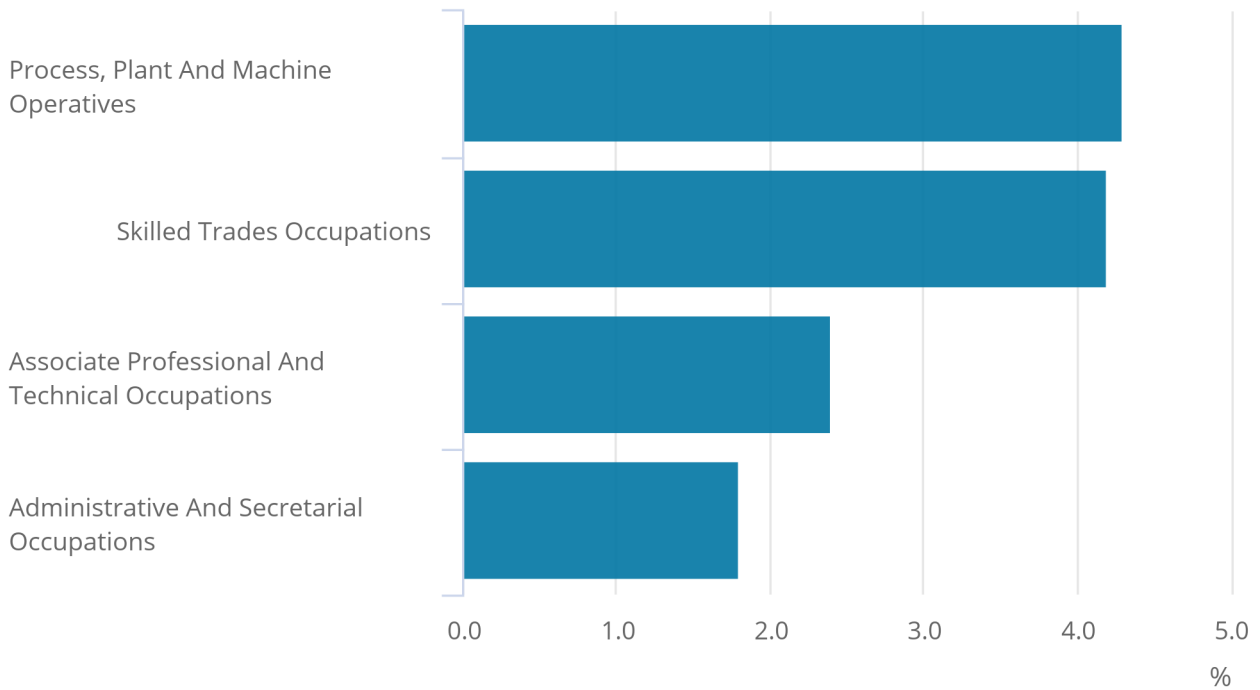
Different occupations require different skills. For example, in 2017, employers in caring, leisure and other service occupations thought that developing specialist skills or knowledge was most important. By comparison, employers in skilled trade occupations rated solving complex problems as the most important skill. So, changes in wages associated with developing skills are likely to differ both by the occupation an individual does and the skill they are developing.

Figure 5: Individuals in mid-skilled occupations tend to see the highest wage benefit from participating in in-work training

Wage benefit for employees who participated in job-related training or education in the last three months, by occupation group, UK, average between 2014 and 2017

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Wage benefit for employees who participated in job-related training or education in the last three months, by occupation group, UK, average between 2014 and 2017



Source: Office for National Statistics - Annual Population Survey

Notes:

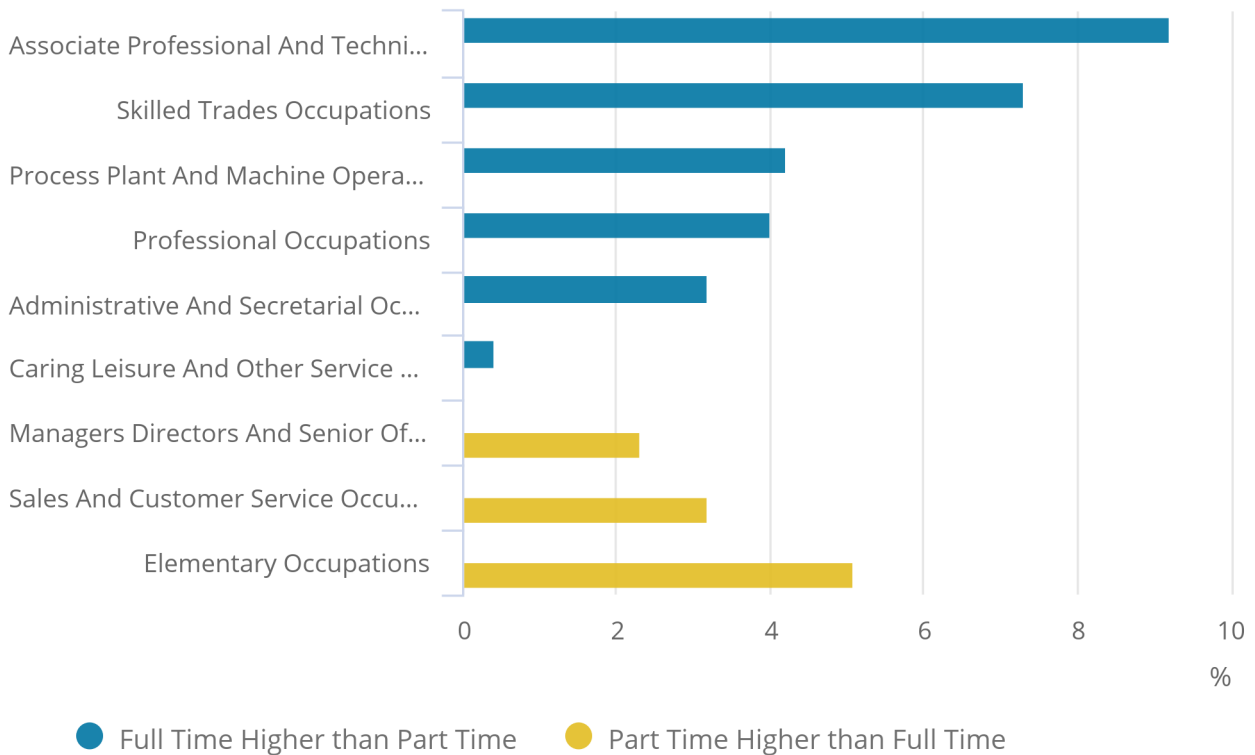
1. All other professions did not show a significant impact on wages a year after training.
2. UK coverage.

Figure 6: Full-time employees in mid-skilled occupations see a larger benefit from in-work training than their part-time counterparts

Percentage point difference in weekly earnings wage benefit between part-time and full-time employees, UK, average between 2014 and 2017

Figure 6: Full-time employees in mid-skilled occupations see a larger benefit from in-work training than their part-time counterparts

Percentage point difference in weekly earnings wage benefit between part-time and full-time employees, UK, average between 2014 and 2017



Source: Office for National Statistics - Annual Population Survey

Mid-skilled occupations

For the purpose of this section, we look at the wage benefit associated with mid-skilled occupations, which are:

- associate professional and technical occupations
- administrative and secretarial occupations
- skilled trades occupations
- caring, leisure and other service occupations
- sales and customer service occupations
- process, plant and machine operatives

The process, plant and machine operatives (4.3%), skilled trades occupations (4.2%), and associate professional and technical occupations (2.4%) all saw the largest wage benefits associated with in-work training or education, when compared with those that did not participate in in-work training.

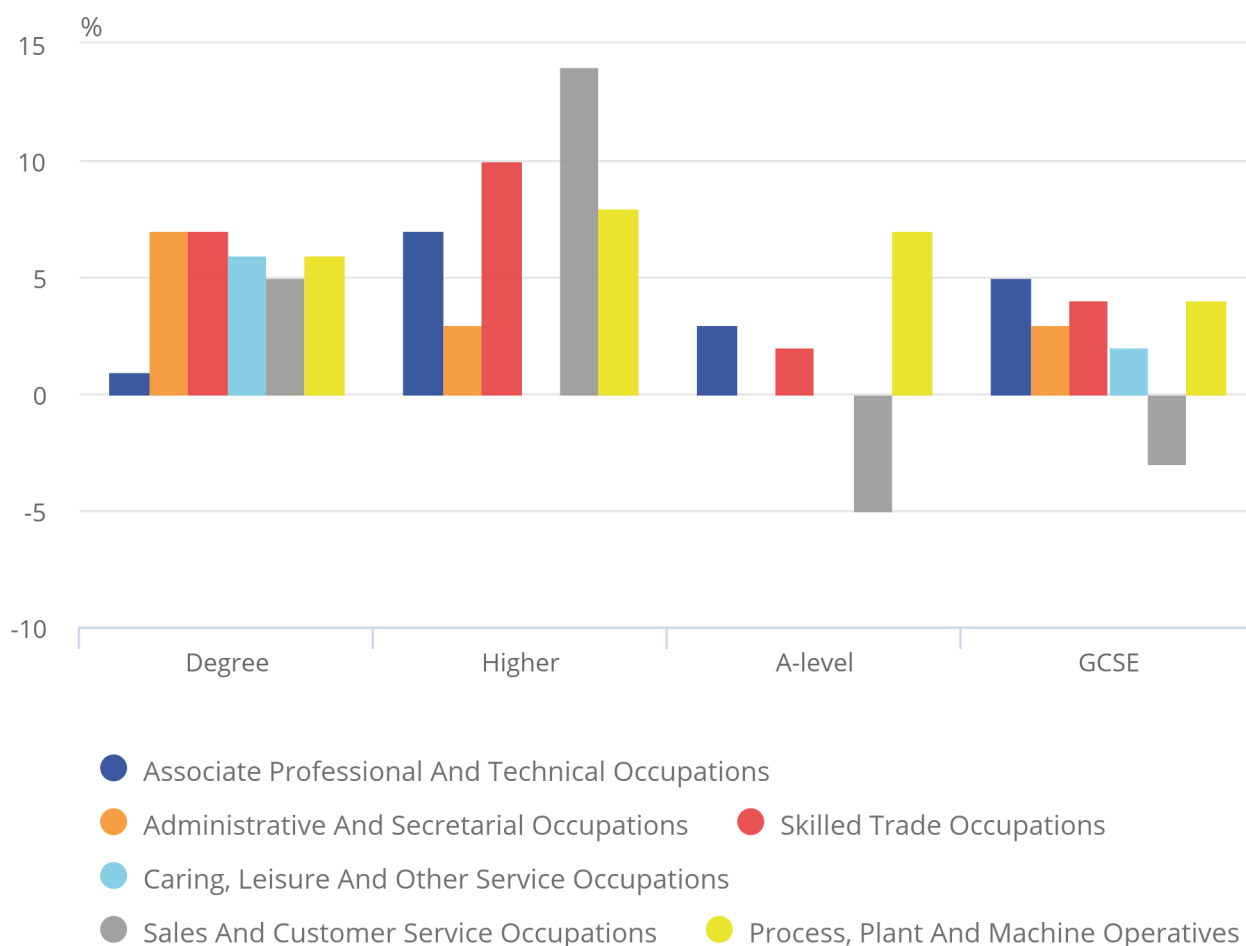
When considering the differences in wage benefit between full-time and part-time employees, Figure 6 shows that among mid-skilled occupations, the wage benefit of doing in-work training or education tends to be higher for full-time employees compared with part-time employees. For example, the wage benefit associated with in-work training for full-time employees in associate professional and technical occupations was 9.2 percentage points higher than for part-time employees in the same occupation group.

Figure 7: Mid-skill employees with degrees tend to experience higher wage benefits than those with lower levels of education

Percentage difference in gross weekly earnings for those who did in-work training compared with those who did not, by occupation group and level of qualification, UK, average between 2014 and 2017

Figure 7: Mid-skill employees with degrees tend to experience higher wage benefits than those with lower levels of education

Percentage difference in gross weekly earnings for those who did in-work training compared with those who did not, by occupation group and level of qualification, UK, average between 2014 and 2017



Source: Office for National Statistics - Annual Population Survey

Notes:

1. UK average.
2. The effect of in-work training.

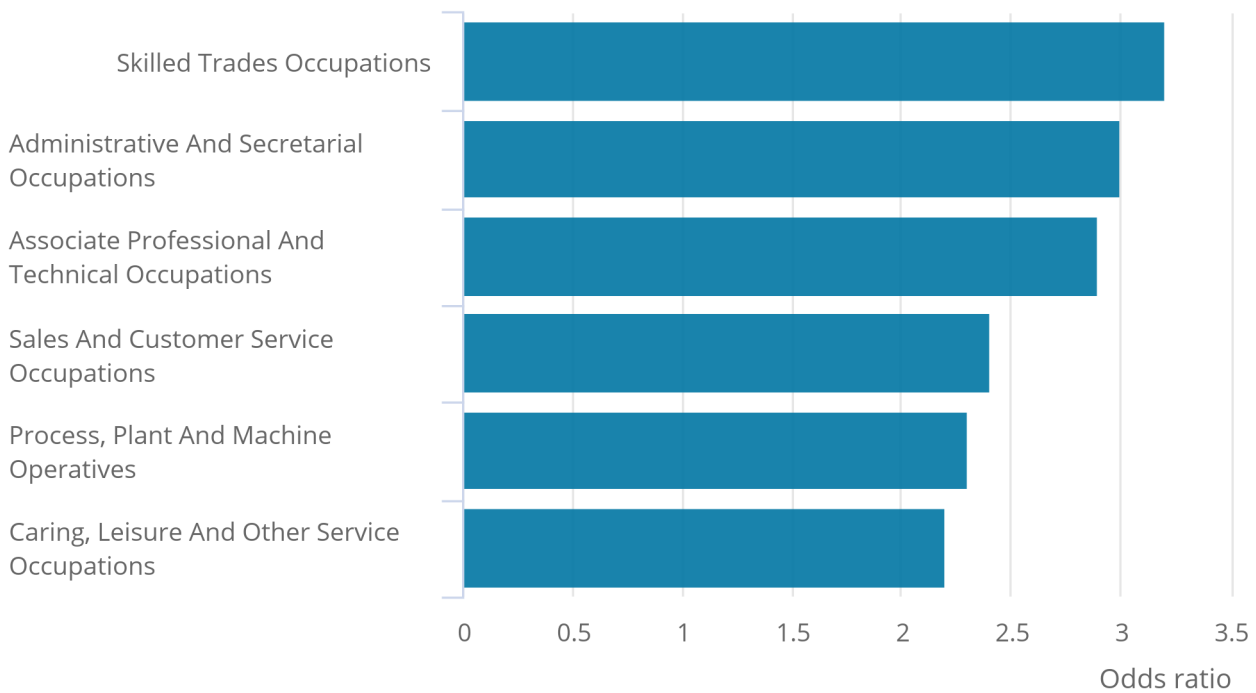
The wage benefit for undertaking in-work training or education can also differ according to the employees' highest level of qualification, which can be seen in Figure 7. Across the majority of mid-skilled occupation groups, there was a positive relationship between highest qualification and the size of the wage benefit, although with some variation. For example, those in the administrative and secretarial occupations group, with a degree or equivalent qualification, see a wage benefit of 7% when participating in in-work training compared with those that have not participated.

Figure 8: Those who trained in a previous year had much greater odds of training in the next year than those who did not train

Odds ratio of undertaking in-work training given that you have trained in the previous year, UK 2016 to 2017

Figure 8: Those who trained in a previous year had much greater odds of training in the next year than those who did not train

Odds ratio of undertaking in-work training given that you have trained in the previous year, UK 2016 to 2017



Source: Office for National Statistics - Annual Population Survey

Notes:

1. UK coverage.

For all mid-skilled occupation groups, those who trained in the previous year had much greater odds (an average of 2.9) of training at a later date than those who did not undertake training (Figure 8). This motivation to undertake in-work training may lead to further increases in wages in future periods. Further information around how the model works can be seen in the Quality and methodology section.

High-skilled occupations

While those in professional occupations tend to have the highest participation rate in in-work training compared with all other occupation groups, there is no wage benefit seen a year after participating in training. This could be partly explained by the reason for undertaking in-work training, where professionals are more likely to state “maintaining professional status” (31%), compared with all other occupation groups.

As the professional occupation group contains many different subgroups of professional occupations, such as teaching and educational professionals; health professionals; business, media and public service professionals; and science, research, engineering and technology professionals, the participation rate and wage benefit from doing in-work training will differ among these subgroups. For example, healthcare professionals such as nurses, must participate in [mandatory in-work training to revalidate their qualification](#). Those professionals in science, research, engineering and technology see 2.7% higher weekly earnings a year on from training, compared with those who did not complete training.

Unlike for mid-skilled occupations, managers and professional occupations do not see a different effect of in-work training depending on their highest qualification obtained. Managers and professionals with a degree do not see a significant increase in earnings from training, and neither do those with GCSEs as their highest qualification.

Other than an increase in wage benefit, employees who participate in in-work training and education are more likely to receive managerial or supervisory responsibilities, if they did not have these responsibilities prior to the training. The odds for professionals who have taken training reporting that they now have these extra responsibilities are 1.1 times higher compared with those that did not do any training or education. Additionally, similarly to mid-skilled occupations, those who trained in the previous year had much greater odds (an average of 2.7) of training at a later date than those who did not.

5 . In-work training definitions

Table 2 provides more information about in-work training and the definitions used.

Table 2: In-work training definitions

Number	Source	Time period	Definition
1	Labour Force Survey /Annual Population Survey	Last 4 weeks	Of those who have done job related training or education in the last three months, people who have taken part in job-related education/training in the last 4 weeks (either completed or ongoing).
2	Labour Force Survey /Annual Population Survey	Last 13 weeks	Respondent has done job related training or education in the last three months (either completed or ongoing).
3	Understanding Society	Last 12 months	In the last 12 months, respondent has done a training scheme or course, either completed or ongoing. Includes any part-time or evening courses, training provided by an employer, day release schemes, apprenticeships and government training schemes.
4	Employer Skills Survey	Last 12 months	Includes job-specific training, health and safety and induction training, training in new technology, management training, supervisory training, but excludes so-called wider development activities such as supervising employees, giving opportunities for staff to watch other carry out their tasks, and allowing staff to perform tasks beyond their job roles

Source: Office for National Statistics

6 . Quality and methodology

When analysing the benefits from in-work training, it is important to remove the effects that might influence the increase in earnings, or the likelihood of training. We do this through a regression analysis. Regression analysis allows us to refer to the effect of changing one variable, for example, switching from not having participated in in-work training to having taken it, while holding other characteristics constant. All this analysis took advantage of the longitudinal nature of the Annual Population Survey (APS), by using information the same individuals gave from the first period on whether they took in-work training and relating that to outcomes in the second period a year later. Different models were applied to different parts of the analysis, outlined in this section.

Wage benefit models

A base model was developed with pooled two-year longitudinal APS datasets from between 2013 to 2014 and 2016 to 2017.

This regressed the logarithm of earnings in the second period as the dependent variable against:

- the logarithm of earnings in the first period
- age
- the square of age
- sex
- high-level qualifications obtained in the second period
- whether the individual works full-time or part-time
- an interaction term of the high-level occupation in the second period and whether the individual took in-work training in the last three months in the first period.

The base level for the interaction of occupation and whether the individual took in-work training was set at professional occupations not conducting in-work training as this was the largest category.

Several other variables were considered but discounted due to the minimal effect they had on the significance of the standard model, and on the coefficients of interest. So the analysis is only restricted to people who had some employee earnings in both periods, asked 12 months apart. As there was heteroscedasticity in the model, White-robust estimation was applied to control for it. For clarity, heteroscedasticity in a model exists if there are subpopulations that have different variances from others. A similar model was run for the hourly pay analysis, though with the level of hourly pay, rather than the logarithm.

This model was then also run for the subpopulations of full-time and part-time status in the second period, sex, whether employed in the public or private sector in the second period, and highest qualification obtained in the second period. Additionally, the model was re-run by high-level occupation separately, which allows for the effect of education on earnings to vary across occupations, which may also have an interaction with whether someone took in-work training.

To then derive the wage benefit, two coefficients with individual significance at p-value 0.05 or less were combined for each occupation. The coefficient, per occupation, for not having done in-work training was subtracted from the coefficient for having done in-work training. This is since all the categories of the interaction of occupation and in-work training were baselined against the category “professional occupations” and “not done in-work training”. If one of the coefficients was not significant, a value of 0 was implicitly applied in the derivation of the wage premium, and if both coefficients were not significant, a premium of 0 was derived.

The wage benefits were derived differently for the model run separately for each occupation. In this case, the coefficient of the factor of in-work training was used and interpreted as a percentage change to earnings in the second period when having taken in-work training compared with having not taking it.

Even with the controls used in the model, it is possible, and likely given the academic literature, that there is endogeneity in the model from unobserved characteristics of the individual. An endogeneity problem refers to a correlation between the independent variable and the error term in the model. These characteristics, such as ambition and motivation, which are unobserved and so assumed away in these findings, may correlate with the participation of in-work training as well as weekly earnings in the second period, so the effects seen from in-work training may be partly down to these and other characteristics. It is worth noting that, by controlling for earnings in the first period, some individual fixed effects that help determine earnings differentials may have been controlled for.

Likelihood of further training model

For this analysis, a logistic regression was conducted. As in the base wage premium model detailed previously, the longitudinal nature of the APS was exploited to consider in-work training in the first period along with the same controls. This time, the dependent variable used was whether someone took in-work training in the second period, and this was run across individual two -year APS datasets rather than the pooled dataset, as there was higher significance, which allowed for time series trends to also be considered.

7 . The occupation classification

More information and a detailed breakdown of occupation classifications is available on the [ONS Standard Occupation Classification \(SOC\) Hierarchy](#) page.

8 . Authors

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