

Estimating Differences in Public and Private Sector Pay at the National and Regional Level, November 2012

Coverage: UK

Date: **22 November 2012**

Geographical Area: **UK and GB**

Theme: **Labour Market**

Theme: **Government**

Animated YouTube video

A podcast explaining this story using audio commentary and graphical animations is available on the [ONS YouTube Channel](#).

Summary

Whilst it is possible to estimate the public-private pay gap, different methods give different results and there is no definitive estimate. When comparing average pay in the public sector with the private sector it may be more appropriate to use mean pay, calculated by adding wages of all workers and dividing by the number of workers, rather than median pay, the point at which 50% of workers earn less and 50% earn more, as there are differences in the earnings distributions of each sector.

Comparing mean gross hourly earnings excluding overtime, public sector workers earned on average 14.9% more than private sector workers in 2011. However, using simple averages to compare earnings between the two sectors is often misleading as employees have different personal characteristics that can impact on their pay.

Regression modelling can be used to account as far as possible for the differences between the sectors. Using a regression model to account for gender, age, occupation, region that the job is located in, full time/part time, permanent/temporary, job tenure and including an adjustment to better reflect bonus payments, it has been estimated that the public sector earned 7.3% more per hour (excluding overtime) than the private sector in 2011. As this is an estimate it is subject to a margin of error such that there is 95% certainty that from all samples possible the pay gap in 2011 would be between 6.8% and 7.8%.

However, another important factor is the size of the organisation as large organisations tend to pay more on average than small organisations. This could be due to several factors such as working

conditions, responsibility and unionisation. This is important as public sector employees tend to be concentrated in large organisations with at least 500 employees whereas for the private sector, employees tend to be more evenly split between large and small organisations.

Adding organisation size into the model, in addition to accounting for the personal and job characteristics discussed above results in an estimated pay gap of 2.2%. A 95% confidence interval for this estimate indicates that the pay gap in 2011 would be between 1.7% and 2.7%.

These comparisons are based solely on hourly pay excluding overtime. Overtime paid at a higher rate would increase an employee's hourly pay whereas working unpaid overtime would effectively reduce hourly pay. If overtime pay and hours were included a different pay gap may be derived.

Employees in both the public sector and the private sector receive other forms of remuneration or benefits. For example, employees may receive pension contributions from their employer and in the private sector some workers may receive a company car or health insurance. This information is not collected on the Annual Survey of Hours and Earnings (ASHE) used for this analysis. If these other forms of payment were considered a different pay gap may be derived. Data on all factors that affect pay are not available, for example, education, employee ability or motivation. Pay information for self-employed workers is also not available.

There are arguments for and against including organisation size in the regression model. The argument for including it is that there is clear evidence from the private sector that large organisations pay more than small organisations for the same job. In other words, organisation size impacts on pay and for this reason it should be controlled for in the model as the aim of the regression model is to calculate a public sector pay gap after all other influencing factors have been controlled for.

If, by contrast, a view is held that public sector employees should earn the same as private sector employees irrespective of organisation size then it would be useful to see the results without organisation size included. Therefore, results are shown using a model both with and without organisation size.

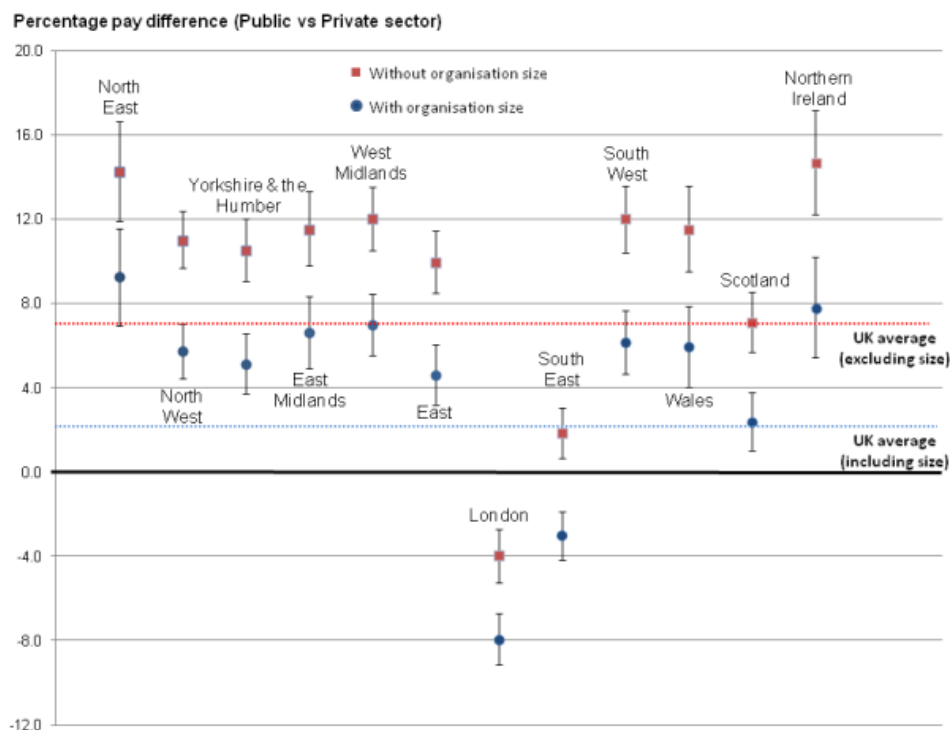
Previous analysis, published in March 2012, adjusted for differences in qualifications using the Labour Force Survey (LFS). However it is not possible to make this adjustment when including organisation size as information on the size of the organisation is not available on the LFS. Therefore, for consistency, qualifications have not been adjusted for in either model.

Whilst the above provides estimates of the pay gap for the UK, the pay gap differs across the regions of England and the devolved countries of the UK. For example, in 2011, using the same model as that used for the UK excluding organisation size, Northern Ireland had the largest pay gap of 14.7% in favour of the public sector.

In London public sector workers earned 4.0% less than those in the private sector. Using the model including organisation size, in 2011 the North East had the largest pay gap of 9.2% in favour of the public sector whilst in London public sector workers earned 7.9% less than those in the private sector.

Figure 1

95% confidence intervals for the average difference in the mean hourly pay (excluding overtime) between public and private sector workers expressed as a percentage of private pay, April 2011, regions in England and the devolved countries in the UK



Download chart

[XLS](#) [XLS format](#)

(30 Kb)

Most of the regions or countries are above the UK average whereas London and the South East are below. As 28% of employees work in either London or the South East the pay gap in these regions has a larger impact on the UK average than the other regions which represent a lower percentage of employees. In figure 1 it can be seen that a number of the confidence intervals overlap. For regions with overlapping confidence intervals, the pay gap in each region may not be statistically significantly different from each other.

The pay gap also varies at different points of the pay distribution. For the UK, using the model **excluding** organisation size, for the lowest earners at the 5th percentile (the point at which 5% of employees earn less and 95% earn more) public sector employees earned 15.1% more than private sector employees in 2011. At the 95th percentile, public sector workers earned 5.5% less than private sector workers.

Using the model **including** organisation size, at the 5th percentile, public sector employees earned 11.2% more than private sector employees in 2011. At the 95th percentile, public sector workers earned 10.3% less than private sector workers. This indicates that the overall estimated pay gaps of 7.3% (excluding organisation size) and 2.2% (including organisation size) are heavily influenced

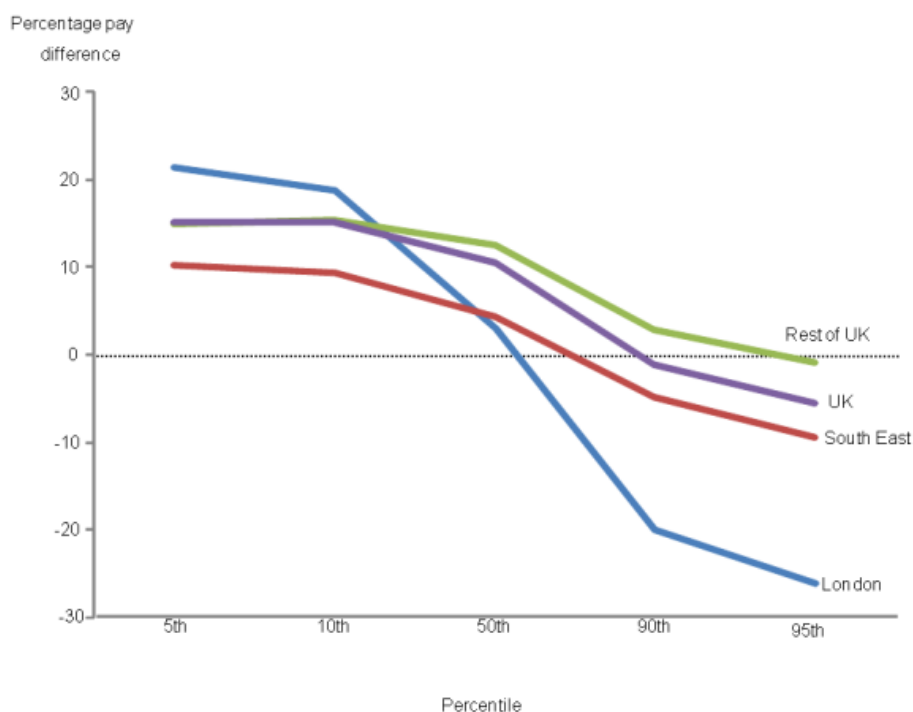
by those at the lower end of the pay distribution. This is likely to be due to the private sector having more jobs paid close to the minimum wage at the bottom of the pay distribution and having very high wages at the top of the wage distribution.

A similar pattern is seen for each of the regions or countries across the UK with London having the widest pay gap at the top of the distribution. For London, in 2011, at the 5th percentile the estimated pay gap was 21.2% in favour of the public sector and at the 95th percentile 26.4% in favour of the private sector when using the model excluding organisation size. Including organisation size gives an estimated pay gap of 16.3% in favour of the public sector at the 5th percentile and 29.0% in favour of the private sector at the 95th percentile.

Figures 2 & 3

Average difference in hourly pay between public and private sector workers expressed as a percentage of private pay for the 5th, 10th, 50th, 90th and 95th percentiles, April 2011, UK, London, South East, and Rest of UK

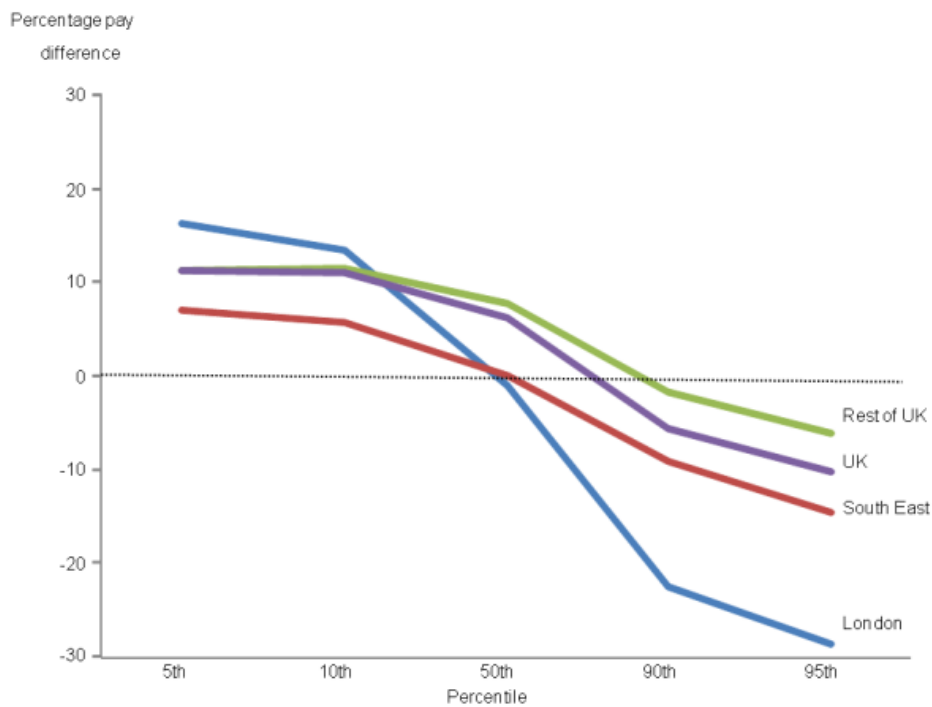
Regression model without organisation size



Download chart

[XLS](#) [XLS format](#)
(28.5 Kb)

Regression model with organisation size



Download chart

[XLS](#) [XLS format](#)
(28.5 Kb)

Conclusion

- Caution needs to be taken when comparing private and public sector pay.
- Regression modelling can be used to account for some of the differences however different models give different results.
- On average, public sector workers in London and the South East are paid less than private sector workers whereas for all other regions public sector workers are paid more than private sector workers (accounting for organisation size).
- Differences in public-private sector pay tend to be in favour of the public sector for low paid workers and in favour of the private sector for high paid workers.

Further work

All Annual Survey of Hours and Earnings (ASHE) datasets used in this article are based on the [Standard Occupation Classification 2000](#) (SOC 2000) for occupation. The 2012 ASHE dataset is based on [SOC 2010](#). Following this article, analysis will be undertaken to understand how this change in SOC impacts on the pay gap with the results of this analysis and the 2012 estimates published at a later date.

Introduction

Comparing the pay of the public sector and the private sector is not a straightforward task because the two sectors are made up of a variety of different jobs and types of people. A number of different results can be derived depending on the methodology that is used to calculate pay differences.

Using median gross hourly earnings excluding overtime, public sector workers earned on average £13.66 per hour in 2011. This was £3.51 (34.6%) more than private sector workers who earned on average £10.15 per hour. Median pay tends to be used to compare earnings between different groups. However, when comparing average pay in the public sector with the private sector it may be more appropriate to use mean rather than median pay.

This is because of differences in the earnings distributions of each sector. The private sector has a wage distribution that is more dispersed than the public sector with more higher earners. Comparing mean gross hourly earnings excluding overtime, public sector workers earned on average £15.91 per hour in 2011, which was £2.07 (14.9%) more than private sector workers who earned £13.84 per hour.

This is based on earnings data collected in the [Annual Survey of Hours and Earnings \(ASHE\)](#). Due to the timing of this survey, in April each year, it does not pick up bonus payments made throughout the year.

It is possible to adjust the ASHE data so that the proportions of bonus payments paid in each industry (at the two-digit SIC) over the course of a year are reflected. This adjustment has been made using the Average Weekly Earnings series published monthly based on the Monthly Wages and Salaries Survey.

Using simple averages to compare earnings between the two sectors is often misleading as employees have different personal characteristics that can impact on their pay. For example, there are pay differences because of disparities in the types and skill levels of jobs, employee experience, distribution of men/women, and the location of the job.

Regression modelling can be used to account for some of these differences. Accounting for sex, age, occupation, region that the job is located in, employment status of full and part time and employment status of permanent and temporary, job tenure and including an adjustment to better reflect bonus payments, it is estimated that public sector employees earned on average 7.3% more per hour (excluding overtime) than the private sector in 2011.

However, another important factor is the size of the organisation. Regardless of sector, large organisations tend to pay more on average than small organisations. This could be due to several factors such as working conditions, responsibility and unionisation.

Removing sector from the regression model and including organisation size allows comparisons to be made of the mean hourly pay of employees in different size organisations. Employees in large organisations with 500 or more employees earned on average, 24.9% more than those working in organisations with fewer than 500 employees in the UK in 2011.

This is important as public sector employees tend to be concentrated in large organisations with at least 500 employees whereas for the private sector employees tend to be more evenly split between large and small organisations. For example in April 2011, for those where the size of the organisation is available, of those working in the public sector, 94.0% were working in larger organisations. In the private sector 49.0% of workers were in larger organisations of 500 or more employees.

There are arguments for and against including organisation size in the regression model. The argument for including it is that there is evidence, from the regression model described above, that in the private sector large organisations pay more than small organisations for the same job. In other words, organisation size impacts on pay and for this reason it should be controlled for in the model as the aim of the regression model is to calculate a public sector pay gap after all other influencing factors have been controlled for.

If, by contrast, a view is held that public sector employees should earn the same as private sector employees irrespective of organisation size then it would be useful to see the results without organisation size included. Therefore, results are shown using a model both with and without organisation size.

Including organisation size in the regression model, it is estimated that in 2011 employees in the public sector earned 2.2% more per hour (excluding overtime) than those in the private sector. This estimate of 2.2% is subject to a margin of error as it comes from survey results. The estimate provided is such that there is 95% certainty that from all samples possible the pay gap in 2011 would be between 1.7% and 2.7%.

These estimates are by no means a definitive measure of the public-private sector pay gap. Whilst these give an estimate of the pay gap for the UK, the pay gap varies between different regions and countries of the UK. There are also differences in the pay gap at different points of the pay distribution (discussed further in Sections B & C).

Also, a different model containing additional or different independent variables would give different results. Information on all factors that affect pay is not available, for example, employee ability or motivation. Also pay information for self-employed workers is not available meaning that some of the highest paid workers, and also some of the lowest paid workers have been excluded.

These comparisons are based solely on hourly pay excluding overtime. Overtime paid at a higher rate would increase an employee's hourly pay whereas working unpaid overtime would effectively reduce hourly pay. If overtime pay and hours were included a different pay gap may be derived.

Employees in both the public sector and the private sector receive other forms of remuneration or benefits. For example, employees may receive pension contributions from their employer and in the private sector some workers may receive a company car or health insurance. These are not collected on the Annual Survey of Hours and Earnings used for this analysis. If these other forms of payment were considered a different pay gap may be derived.

ONS have published two previous reports comparing the two sectors in [July 2011](#) and [March 2012](#). Previous analysis estimated that the public sector earned around 9.0% more per hour (excluding

overtime) than the private sector in 2011. The main enhancements to the methodology in this article to previous analysis are that bonus payments paid across the economy are better reflected and the regression considers the impact of different working patterns within the sectors and organisation size.

Previous analysis adjusted for differences in qualifications using the Labour Force Survey (LFS). However it is not possible to make this adjustment when including organisation size as information on the size of the organisation is not available on the LFS. Therefore, for consistency, qualifications have not been adjusted for in either model.

As well as looking at other factors that influence the differences at the national (UK) level, this article looks at regional variations in England and the devolved countries of the UK and differences in the pay gap at different points of the pay distribution.

The rest of the article is split into four sections:

- Section A: Aims to explain why accounting for differences in public and private sector pay is complex, citing a variety of factors to consider.
- Section B: Attempts to estimate the public/private sector pay gap using regression analysis to account for some of the key differences explained in Section A.
- Section C: Uses a regression analysis similar to that in Section B to show pay differences at a regional level.
- Annex 1: Explains how the different labour markets vary across the country.

The main source of data used in this article is the [Annual Survey of Hours and Earnings](#) (ASHE) which is the Office for National Statistics' (ONS) principal source for earnings estimates, collected in April of each year. The [Labour Force Survey](#) (LFS) is also used. This is a continuous sample survey covering 43,000 responding households in the UK each quarter. The Annual Population Survey (APS) is used to compare the regional labour markets and this is a combination of four successive LFS datasets and some local sample boosts to produce an annual dataset.

Section A: Factors that influence public and private sector pay comparisons

This section will consider a number of factors that should be taken into account when comparing earnings in the public sector and the private sector. These include:

- Skill level of employees,
- Occupational differences,
- Age,
- Gender,
- Qualifications,
- Reclassification of some banks after the recent recession to the public sector,
- Distribution of earnings in the public sector and the private sector,
- Organisation size,
- Employment status – full time/part time and permanent/temporary.

Skill level

Earnings tend to increase as the skill level for the job increases, and in order to show why the skill level of jobs in the public and private sector is relevant for the pay gap between the two sectors, consider the following example.

First, assume that the characteristics of two groups of workers (called group A and group B, each containing 100 people) are identical in terms of age, sex, on-the-job training, productivity etc. However, within these two groups there are a different proportion of high and low skill workers.

In group A there are 60 high skill workers and 40 low skill workers, and in group B there are 40 high skill workers and 60 low skill workers. In both groups a high skill worker is paid £9 per hour and a low skill worker is paid £6 per hour. In this example, the different proportions of high and low skill workers in each group would result in a different average wage. This is represented in table 1:

Table 1

| | Group A | | | Group B | | |
|-------------|---------------------------|---------------------------|------------------------|---------------------------|---------------------------|------------------------|
| | Number of workers | Hourly pay per worker (£) | Total Pay per hour (£) | Number of workers | Hourly pay per worker (£) | Total Pay per hour (£) |
| High skill | 60 | 9 | 540 | 40 | 9 | 360 |
| Low skill | 40 | 6 | 240 | 60 | 6 | 360 |
| All workers | 100 | - | 780 | 100 | - | 720 |
| | Average hourly pay =£7.80 | | | Average hourly pay =£7.20 | | |

Download table

[XLS](#) [XLS format](#)
(27.5 Kb)

This example shows that differences in the proportion of high and low skill jobs in each group, even after controlling for all other characteristics, results in an average wage in group A that is around 8% higher than the average wage in group B. This does not necessarily mean that group A is 'overpaid' in comparison to group B. Rather, the difference in the average wages reflects the higher proportion of high skill jobs in group A.

In terms of the public sector and private sector, and re-grouping occupations according to their skill level (although compositional differences within skill levels still remain between the public and private sector), from low skill to high skill, there was a larger percentage of workers in the two highest skill groups in the public sector compared with the private sector. Overall, 59% of public sector employees are classed as either high skill or upper middle skill compared with 49% of private sector employees.

Table 2

Percentage of employees by skill level in the public sector and the private sector, April 2011, UK

| Skill-level | Percentage | |
|--------------|---------------|----------------|
| | Public sector | Private sector |
| High skill | 31 | 26 |
| Upper middle | 29 | 23 |
| Lower middle | 32 | 36 |
| Low skill | 8 | 15 |

Download table

[XLS](#) [XLS format](#)

(17 Kb)

Source: Annual Survey of Hours and Earnings based on the Standard Occupational Classification 2000 (SOC 2000)

Since the public sector is made up of a more skilled workforce than the private sector it would be expected that, on average, public sector pay would be higher than private sector pay (although the overall difference is determined by a number of factors).

Over time the public sector has outsourced some jobs to the private sector. While some of this outsourcing has involved contracting out high skill jobs to the private sector, for example, Information Technology (IT) support, much of the outsourcing that has occurred has been in lower-skilled jobs, for example, cleaning. The result of this outsourcing has been to take many of the low skilled jobs that would have been carried out in the public sector and transfer them to the private sector.

Table 3

Percentage of employees by skill level in the public sector and the private sector, April 2002, UK

| Skill-level | Percentage | |
|--------------|---------------|----------------|
| | Public sector | Private sector |
| High skill | 23 | 23 |
| Upper middle | 30 | 24 |
| Lower middle | 35 | 40 |
| Low skill | 12 | 13 |

Download table

[XLS](#) [XLS format](#)

(17 Kb)

Source: Annual Survey of Hours and Earnings based on the Standard Occupational Classification 2000 (SOC 2000)

Table 3 shows that in 2002, the earliest year available with skills data on the same basis, around 12% of public sector employees were employed in low skill occupations compared with around 13% of private sector employees. Also, around 23% of public sector employees were employed in high skill occupations in 2002, with a similar percentage in the private sector.

This shows that the proportion of low skill jobs in the public sector has declined since 2002. In contrast, the proportion of low skill jobs in the private sector has increased. The proportion of high skill jobs in the public sector increased to around 31% of all public sector jobs by 2011, compared with a smaller increase in the private sector to 26% of all private sector jobs.

This increases the average pay in the public sector because a smaller proportion of workers are employed in lower-skilled jobs, and the average pay in the private sector is reduced as the lower-skilled jobs that were previously carried out in the public sector are incorporated into the private sector.

Occupational differences

Even looking at more detailed occupational classifications, there are still differences in the jobs that are typically performed in the two sectors.

Incomes Data Services published a report that detailed some of the difficulties in comparing public sector and private sector earnings. This report can be found on the [IDS website](#).

The report uses the example of the category 'primary and nursery education teaching professionals'. Primary school teachers are typically employed in the public sector, whereas nursery teachers are typically employed in the private sector. It would be expected that, on average, a primary school teacher would earn more than a nursery teacher due to the different levels of qualifications and training associated with the two jobs.

However, by grouping both jobs into one category, the public sector earns, on average, more than the private sector in this category because the jobs typically performed in the public sector are among the higher paid jobs in this category compared with the lower paid jobs that are performed in the private sector.

This example demonstrates that comparing jobs in the public and private sector, and the corresponding earnings differences, is not a straightforward task, even after using narrow definitions for occupation classification, because differences still remain between public sector and private sector occupations.

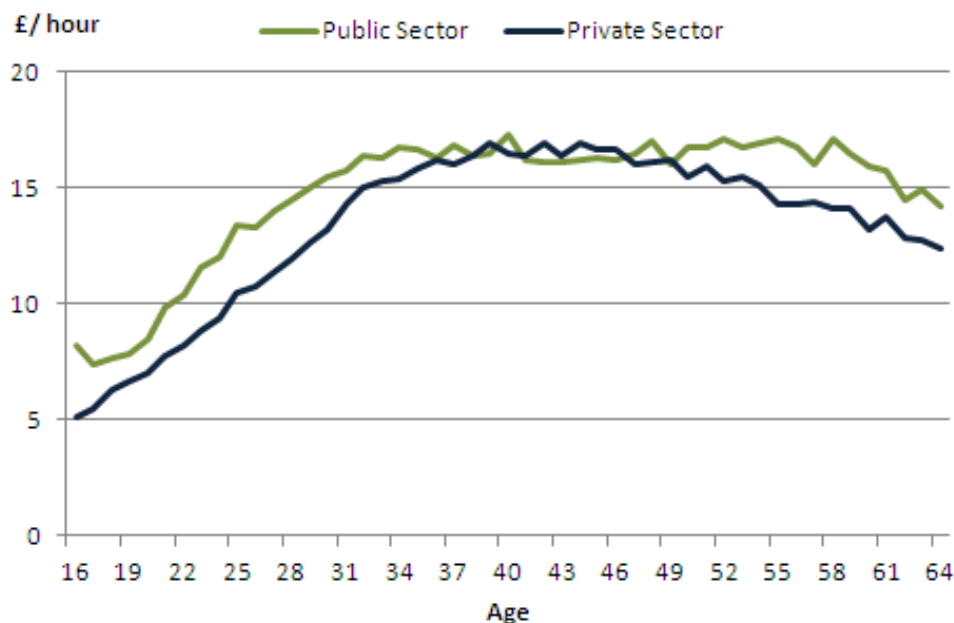
Age

The following graph shows that earnings tend to increase with age in both the public sector and the private sector. Average mean hourly earnings peak in the early 40s in both sectors. They decline slightly approaching retirement although the decline happens earlier in the private sector than in the

public sector. This is possibly because higher earners in the private sector are likely to leave the labour market earlier than higher earners in the public sector due to having higher wages.

Figure 4

Mean hourly earnings by age in the public sector and private sector, April 2011, UK



Download chart

[XLS](#) [XLS format](#)

(23 Kb)

Source: Annual Survey of Hours and Earnings

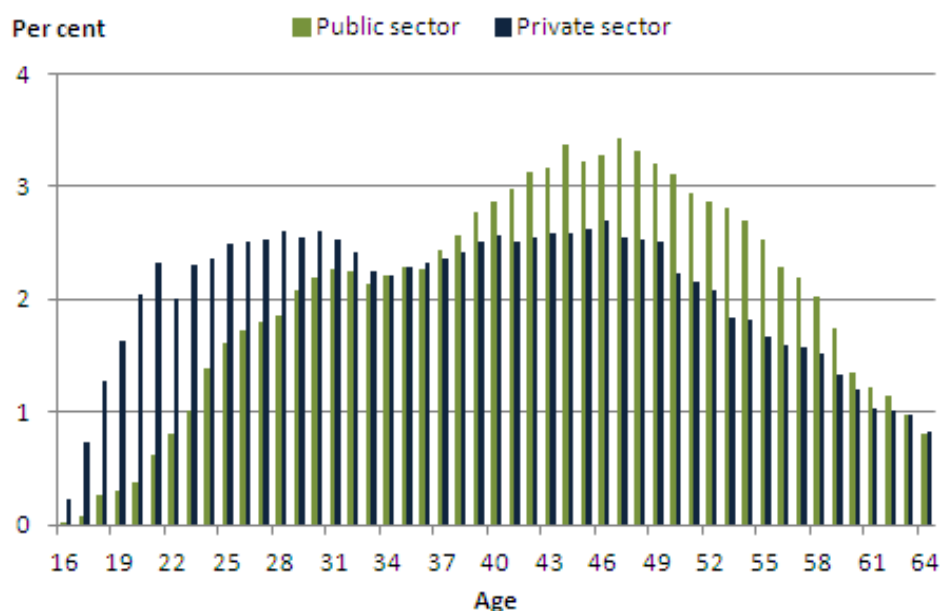
Age is used here as a proxy for experience (a reasonable assumption given that experience tends to increase with age). Similar to the example given above regarding the different skill mix in the public and private sector, keeping all other factors constant, if group A was made up of an older workforce than group B, it would be expected that, on average, there would be higher earnings in the sector with the older (more experienced) workforce.

The public sector generally consists of an older workforce than the private sector. Around 15% of employees in the private sector are aged 16 to 24 compared with around 5% of employees in the public sector, and around 45% of public sector workers are aged 35 to 49 compared with around 38% of private sector workers.

The difference in the age profiles of the two sectors, with a larger proportion of younger workers in the private sector compared with the public sector, and a larger proportion of older workers in the public sector compared with the private sector, is represented in the graph below.

Figure 5

Percentage of workers by age in the public sector and the private sector, April 2011, UK



Download chart

[XLS](#) [XLS format](#)

(22.5 Kb)

Source: Annual Survey of Hours and Earnings

Again, similar to the difference in the skill levels of the two sectors, given that the public sector is made up of an older workforce than the private sector it would be expected that, on average, public sector pay would be higher than private sector pay (although, again, the overall difference depends on a number of factors).

Gender

The difference in pay between men and women is a well-established area of research, with men tending to earn, on average, more than women.

Female employees in the public sector earn considerably more, on average, than female employees in the private sector. This is due to the different jobs that are typically carried out by women in the public and private sectors.

In the private sector a significant proportion of low paid jobs, such as cleaning and catering, are carried out by women. In the public sector, while women still perform lower paid jobs, such as caring and clerical work, there are also a high proportion of women employed in professional, higher paid occupations, such as nursing or teaching. This is represented in table 4:

Table 4

Percentage of female employees by skill level in the public sector and the private sector, April 2011, UK

| Skill-level | Percentage | |
|--------------|---------------|----------------|
| | Public sector | Private sector |
| High skill | 28 | 19 |
| Upper middle | 26 | 15 |
| Lower middle | 38 | 51 |
| Low skill | 8 | 15 |

Download table

[XLS](#) [XLS format](#)

(17 Kb)

Source: Annual Survey of Hours and Earnings based on the Standard Occupational Classification 2000 (SOC 2000)

Table 4 shows that in 2011 19% of women in the private sector were employed in high skill jobs, compared with 28% in the public sector. Table 4 also confirms that a higher proportion of women in the private sector were employed in low skill jobs (15%) compared with the public sector (8%).

Also the two sectors have a different percentage of men and women working within them. Around 65% of employees in the public sector are female, compared with around 41% of employees in the private sector.

Qualifications

Another characteristic that partially determines earnings is the level of qualifications of the employee. Employees with higher level of qualifications tend to earn more than employees with lower level of qualifications. Using LFS data, and taking an average over the four quarters of 2011, 40% of employees had a degree or an equivalent qualification in the public sector, compared with 25% of employees in the private sector.

This indicates that, overall, the public sector consists of a higher qualified workforce than the private sector. A higher qualified workforce would, on average, receive higher pay than a less qualified workforce. Therefore, it would be expected that, on average, the higher level of qualifications in the public sector would translate into higher average earnings in the public sector compared with the private sector.

Table 5

Percentage of employees by highest qualification in the public sector and the private sector, four quarter average, 2011, UK

| Qualification | Percentage | |
|-------------------------------|---------------|----------------|
| | Public sector | Private sector |
| Degree or equivalent | 40 | 25 |
| Higher education | 14 | 8 |
| GCE A Level or equivalent | 19 | 25 |
| GCSE grades A-C or equivalent | 18 | 24 |
| Other qualifications | 6 | 11 |
| No qualifications | 3 | 7 |

Download table

 [XLS format](#)

(17 Kb)

Source: Labour Force Survey

Reclassification of banks

In 2007, Northern Rock was reclassified as a public sector company, and, in 2008, Lloyds Banking Group, Royal Bank of Scotland Group and Bradford & Bingley were also reclassified as public sector companies. As the IDS report points out, average earnings in the financial sector are higher than average earnings in the private sector as a whole.

Therefore, the reclassification of the banks into the public sector had an effect on the public/private sector pay gap as some of the highest earners in the UK economy were incorporated into the public sector. For consistency over time the main series assumes employees of those banks reclassified to the public sector in 2008 were in the private sector throughout.

Distribution of earnings

The IDS report also points out some key differences when using the mean or the median to calculate the pay gap between average public sector earnings and average private sector earnings. If every worker was ordered in terms of their hourly earnings, the median value would be the person in the middle.

That is, this person would have higher earnings than half of all employees, and would also have lower earnings than half of all employees. As the IDS report comments, the median is “useful for finding a pay rate for a ‘typical’ worker within a fairly homogeneous group” (IDS, p. 13, June 2011). Mean hourly pay, on the other hand, is calculated by taking the total income of a group of workers

and dividing by the total number of hours worked in this group. Therefore, the mean takes into account any very high or low earners in the dataset.

ASHE tends to use median pay to compare earnings between different groups. However, when comparing average pay in the public sector and private sector it may be more appropriate to use mean rather than median pay. This is because of differences in the earnings distributions of the public sector and private sector.

As table 2 shows, the private sector is made up of a higher proportion of low skilled workers (15%) than the public sector (8%). These workers typically have a low level of formal qualifications, and earnings of low skilled workers tend to be at the lower end of the earnings distribution.

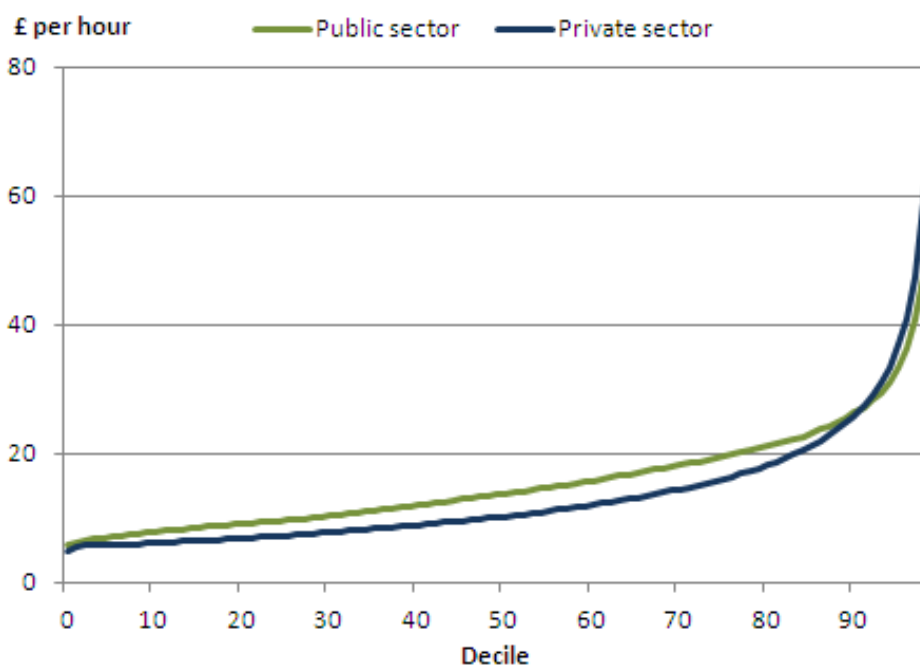
However, the private sector also includes many of the highest paid employees in the UK. Therefore, the private sector has a wage distribution that is more dispersed than the public sector, with some of the highest paid jobs, but also includes a large proportion of the low paid workers in the UK.

If each person working in each sector is placed in order, in terms of their hourly pay (excluding overtime), the bottom 5% of workers in the public sector earn less than £6.77 per hour, whereas in the private sector, 5% of workers earn less than £5.80 per hour.

Looking at the top 5%, in the public sector earnings are greater than £31.86 per hour, while in the private sector the top 5% earn more than £33.22 per hour. The top 1% of earners in the private sector, at more than £61.32 per hour, earns considerably more than the top 1% of earners in the public sector at more than £51.56 per hour.

Figure 6

Distribution of hourly earnings in the public sector and the private sector, April 2011, UK



Download chart

XLS [XLS format](#)

(28 Kb)

Source: Annual Survey of Hours and Earnings

When comparing the 95th percentile of earners with the 5th percentile in each sector:

- In the private sector the top earners are paid around 5.6 times as much as the bottom earners.
- In the public sector, the top earners are paid around 4.6 times as much as the bottom earners.

This shows that public sector pay is more compressed than private sector pay between high and low paid employees. Using median pay as the measure of the pay gap between the public sector and the private sector may not reflect this difference in the wage distribution of the private sector compared with the public sector. Therefore, in order to take this into account, mean pay will be used in this article to compare the average earnings of the public sector and the private sector.

Hourly earnings vs. weekly earnings

ASHE measures the earnings of employees in the public sector and the private sector in terms of hourly and weekly earnings. It is important to use the correct method of measuring earnings when considering the public-private sector pay gap due to differences in the average hours worked in the two sectors.

The reason why the average number of hours worked is relevant can be shown in the following example: Assume that there are two sectors, called sector A and sector B, and each sector pays each of their employees £500 per week. However, in sector A, each employee works 25 hours per week, and, in sector B, each employee works 50 hours per week. This means that, in terms of hourly pay, each employee in sector A earns £20 per hour whereas each employee in sector B earns £10 per hour.

If weekly earnings between the two sectors were compared it would be assumed that workers in sector A and sector B earned the same amount (and in weekly terms this is correct). However, for each hour of employment, employees in sector A earn twice as much as employees in sector B. Therefore, average hourly earnings provide a more accurate comparison of the difference in average earnings of the employees in each sector.

On average, employees in the private sector work more hours per week than employees in the public sector. This is shown in table 6 below (note that these average figures include employees who work part-time):

Table 6

Average number of paid hours excluding overtime worked per week in the public and private sector, April 2011, UK

| | <i>hours</i> |
|----------------|------------------------------------|
| | Average weekly hours worked |
| Public sector | 30.7 |
| Private sector | 33.4 |

Download table

 [XLS format](#)

(17 Kb)

Source: Annual Survey of Hours and Earnings

This means that a comparison of average weekly earnings in the public and private sectors gives a smaller pay gap than the average hourly earnings pay gap. However, for an analysis on the earnings difference between the public sector and the private sector, average hourly earnings provides a more accurate estimate because the effect of working longer hours is removed.

Organisation Size

Since the previously published analyses of pay differences between the two sectors, ONS has looked at other factors that may help to understand the pay differences. Research that is wider than the UK shows that workers in large organisations tend to earn on average more than workers in small organisations. This can be down to several factors such as working conditions, responsibility and unionisation.

The public sector tends to be concentrated in large organisations with at least 500 employees. In April 2011, for those where the size of the organisation is available, of those working in the public sector, 94.0% were working in these larger organisations.

For the private sector there is a much more even split of employees across the organisation sizes. In April 2011 around 49.0% of workers were in the larger organisations of 500 or more employees.

The types of jobs and people who work in small and large organisations differs across the economy but as Section B shows, when controlling for these differences, large organisations tend to earn more on average than smaller organisations. There are very few small public sector organisations and so when looking solely at the private sector, larger private sector organisations tend to pay on average more than smaller private sector organisations.

Employment Status

The additional factors of whether a job is full time or part time and whether it is permanent or temporary were also considered to determine if these had any impact on pay. It was found that on

average employees in full time jobs earn more per hour than those in part time jobs. Note these differences have not been controlled for other factors.

Table 7

Average hourly earnings (excluding overtime) by whether job is full time or part time, April 2011, UK

| | <i>Pounds</i> |
|-----------|-----------------------------|
| | Mean hourly earnings |
| Full time | 15.72 |
| Part time | 11.18 |

Download table

[XLS](#) [XLS format](#)

(17 Kb)

Source: Annual Survey of Hours and Earnings

The private sector has a higher percentage of full time workers. Part time working may be more common in the public sector due to the public sector promoting flexible working as part of its objective to be a model employer.

Table 8

Percentage of employees working full time or part time by sector, April 2011, UK

| | <i>Percentage</i> | |
|----------------|-------------------|------------------|
| | Full time | Part time |
| Public sector | 68 | 32 |
| Private sector | 75 | 25 |

Download table

[XLS](#) [XLS format](#)

(17 Kb)

Source: Annual Survey of Hours and Earnings

It was also found that on average employees in permanent jobs earn more per hour than those in temporary or casual jobs. This is likely to be due to the nature of temporary jobs compared to permanent jobs.

Table 9

Average hourly earnings (excluding overtime) by whether job is permanent or temporary, April 2011, UK

| | <i>Pounds</i> |
|-----------|-----------------------------|
| | Mean hourly earnings |
| Permanent | 14.63 |
| Temporary | 12.16 |

Download table[XLS](#) [XLS format](#)

(17 Kb)

Source: Annual Survey of Hours and Earnings

The private sector has a slightly higher percentage of permanent workers compared to the public sector.

Table 10

Percentage of employees working in permanent or temporary jobs by sector, April 2011, UK

| | Permanent | Temporary |
|----------------|-------------------|------------------|
| | <i>Percentage</i> | |
| Public sector | 91 | 9 |
| Private sector | 94 | 6 |

Download table[XLS](#) [XLS format](#)

(17 Kb)

Source: Annual Survey of Hours and Earnings

Section B: Regression analysis of public and private sector pay for the UK

The following analysis uses a statistical technique, called regression analysis, to estimate the pay difference when controlling for some of the factors that have been discussed in Section A. The primary source of data is ASHE using hourly earnings (excluding overtime) for employees whose pay in the April period was not affected by absence and were paid adult rates. This data has been adjusted using information from the Average Weekly Earnings series to allow for bonus payments paid outside of the pay period.

Bonus payments

The timing of the Annual Survey of Hours and Earnings in April of each year means that it does not pick up the total bonus payments each employee would get over the course of a year. This is in part because the survey reference period is outside of the main bonus season which is normally January to March and also because payments of bonuses can be many months after the survey data is collected.

Bonus payments are more prevalent in the private sector than in the public sector and so the timing of the survey may suggest the pay gap between the two sectors is wider because the survey misses a higher portion of wages in one sector over another.

Another source of earnings data is the Average Weekly Earnings series published monthly using the Monthly Wages and Salaries Survey. This collects total pay, regular pay and bonus pay across the economy with information available at an industrial level.

An adjustment to the ASHE data has been made so that the proportions of bonus payments paid in each industry (at the two-digit SIC) over the course of a year are reflected. This method involved using information on bonus payments paid in the reference period of April along with information collected on the survey about bonus payments as part of the annual pay collection.

Regression Model

The previously published results were based on a linear regression of log-hourly earnings with independent variables:

- Sex (because of differences in the distribution of men and women in the public and private sectors).
- Age & Age squared (because figure 4 suggests the relationship between earnings and age is non-linear).
- Occupations (from Soc 2000 – 11 groups) (because pay is heavily determined by the occupation carried out).
- Region (that the job is located in - 12 across the UK) (because of differences in the percentages of jobs in each sector across the country).
- Sector (Public, Private, Non-profit organisations).

To further improve the model the following independent variables have been added:

- Employment status of full and part time (because full time workers tend to be paid more per hour than part time workers with the percentage split varying between the sectors).
- Employment status of permanent and temporary (because permanent workers tend to be paid more on average than temporary workers with the percentage split varying slightly between the sectors).
- Job tenure based on days worked: <=183, 184-366, 367-732, 733-1830, 1831-3660, 3661-7620, 7321+ (job tenure is a proxy for firm specific experience).

A specification test was performed on the regression model with the aim of reducing the specification error as far as possible with the available data. 11 categories of occupation performed best. Using a more detailed occupation level can lead to some categories consisting nearly entirely of occupations in one sector.

The following interactions that improve the specification of the model have also been added:

- Sex*Age & Sex* Age squared – the potential work experience proxied by age for males and females are different, i.e. women experience more career interruptions than males.
- Occupation*Age – the return to work experience may be different for different occupations, e.g., professional occupations compared to elementary occupations.
- Occupation*Region – industry and labour market structures that impact on wages may differ between the regions (e.g. shortages for an occupation may be different in a different region).

The above variables relate to personal and job characteristics. It is also possible to control for the size of the organisation that employees work in. It is useful to control for this as larger organisations tend to pay more than smaller organisations with the percentage of employees in large and small organisations varying between the two sectors.

However as this is a characteristic of the organisation rather than a personal characteristic, the regression model has been run with and without organisation size. Organisation size was categorised into 6 size bands (<=10, 11-25, 26-50, 51-250, 251-500, 501+).

An interaction term between occupation and organisation size was also included as this improved the specification of the model. According to internal labour market theory wages for similar occupations are higher the larger the organisation size.

Larger organisations offer more opportunities to workers so that workers in larger organisations are employed in better occupational matches and earn higher wages. They are also less likely to separate from the organisation, but more likely to switch occupations within the organisation, while wages tend to be higher for workers with longer tenure.

The models have been run for 2003-2011 with 2003 being the earliest dataset that includes the required data.

Adjusting for qualifications

In the previously published paper an adjustment was made to account for the qualifications held by employees as this has an effect on earnings. As this information is not collected by ASHE but is collected on the LFS, the model used in the previous paper accounting for gender, age, occupation and region was fitted using LFS data, with the addition of qualification level.

It is not possible to make the adjustment for differences in qualifications for the updated model including organisation size as information on the size of the organisation is not available on the LFS. The survey only collects information on the number of people at the workplace of the employee, the difference being that a large company may have many outlets across the UK and a large workforce but very few people at each of their workplaces.

In this instance the LFS would classify someone in a small workplace but they may work in a large organisation. For consistency, both of the models with and without organisation size have not been adjusted for qualifications.

Regression analysis results for the UK

The model in the previously published paper, accounting for gender, age, occupation and region, gave a pay gap in favour of the public sector of 9.0% per hour (excluding overtime) in April 2011 (without adjusting for qualifications). Using the same model but including an adjustment for bonus payments reduces the gap to 7.2%.

When the additional variables full time/part time, permanent/temporary, job tenure and interaction terms (discussed above) are added into the model including the adjustment for bonus payments, the gap is estimated to be 7.3%. Therefore it is estimated that a public sector employee earned, on average, 7.3% more than a private sector employee in 2011.

As this estimate is based on a sample, there is the possibility that a different sample would give a different result. A 95% confidence interval estimates that the pay gap between the public and private sector in 2011 would be between 6.8% and 7.8%.

Adding organisation size into this regression model reduces the estimate of the pay gap to 2.2%. A 95% confidence interval estimates that the pay gap between the public and private sector in 2011 would be between 1.7% and 2.7%. Estimates of the pay gap using different regression models are shown in the following table.

Table 11


Average difference in hourly pay between public and private sector workers expressed as a percentage of private pay using different regression models, April 2011, UK

| | <i>Percentage</i> |
|--|--------------------------|
| | Difference in pay |
| Previous ONS model ¹ | 9.0 |
| Previous ONS model with adjustment for bonuses | 7.2 |
| Updated ONS model without organisation size | 7.3 |
| Updated ONS model with organisation size | 2.2 |

Table notes:

1. Including an adjustment for differences in qualifications reduced this estimate to 8.2%

Download table

 [XLS format](#)
(27 Kb)

Note that different regression models give different results. Increasing the number of parameters explains more of the variation in the data, but also increases the complexity of the model. There is no single definitive model.

Estimates of the pay gap using the updated model both including and excluding organisation size for 2003-2011 are shown in the following chart. The 95% confidence intervals for these estimates are

given in the tables following this. It can be seen from the chart that the pay gap has increased since 2008, the start of the economic downturn, before falling slightly in 2011.

Figure 7

Average difference in hourly pay between public and private sector workers expressed as a percentage of private pay using different regression models, April 2003-April 2011, UK



Download chart

[XLS](#) [XLS format](#)
(27.5 Kb)

Tables 12 & 13

95% confidence intervals for the average difference in the mean hourly pay (excluding overtime) between public and private sector workers expressed as a percentage of private pay, April 2011, UK

Regression model without organisation size

| | <i>Percentage</i> | | | | | | | | |
|-------------|-------------------|------|------|------|------|------|------|------|------|
| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
| Lower bound | 2.4 | 4.1 | 5.7 | 5.1 | 3.6 | 2.8 | 5.1 | 7.0 | 6.8 |
| Estimate | 2.9 | 4.5 | 6.2 | 5.5 | 4.1 | 3.3 | 5.5 | 7.5 | 7.3 |
| Upper bound | 3.4 | 5.0 | 6.7 | 6.0 | 4.7 | 3.8 | 6.0 | 8.0 | 7.8 |

Download table

[XLS](#) [XLS format](#)

(18 Kb)

Regression model with organisation size

| | <i>Percentage</i> | | | | | | | | |
|-------------|-------------------|------|------|------|------|------|------|------|------|
| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
| Lower bound | -2.2 | -0.1 | 1.5 | 1.4 | -0.7 | -1.8 | 0.1 | 1.8 | 1.7 |
| Estimate | -1.6 | 0.5 | 2.0 | 1.9 | -0.1 | -1.2 | 0.6 | 2.3 | 2.2 |
| Upper bound | -1.1 | 1.0 | 2.5 | 2.4 | 0.4 | -0.6 | 1.2 | 2.8 | 2.7 |

Download table

[XLS](#) [XLS format](#)

(18 Kb)

Quantile Regression

The above regression models consider the difference in the mean pay of public and private sector workers. This does not take account of the fact that the distribution of pay tends to be narrower in the public sector than the private sector and so does not give a complete picture.

It is possible to use a different regression method, known as quantile regression, to estimate the difference in the median pay of public and private sector workers as well as the difference for each percentile for example the 5th or 10th percentile etc. This is useful as it indicates if the pay gap is different at different points of the pay distribution, effects which cannot be captured by mean regressions.

The pay gap between private and public sector workers has been estimated for the 5th and 10th percentile, the median and the 90th and 95th percentile for 2011 using the regression model both excluding and including organisational size.

Tables 14 & 15

Average difference in hourly pay between public and private sector workers expressed as a percentage of private pay by percentile, April 2011, UK

Regression model without organisation size

| | | | | | | <i>Percentage</i> |
|-------------------|-------------|-------------|-------------|-------------|--|-------------------|
| Percentile | | | | | | |
| 5th | 10th | 50th | 90th | 95th | | Mean |
| 15.1 | 15.1 | 10.4 | -1.0 | -5.5 | | 7.3 |

Download table

[XLS](#) [XLS format](#)

(18 Kb)

Regression model with organisation size

| | | | | | | <i>Percentage</i> |
|-------------------|-------------|-------------|-------------|-------------|--|-------------------|
| Percentile | | | | | | |
| 5th | 10th | 50th | 90th | 95th | | Mean |
| 11.2 | 10.9 | 6.0 | -5.8 | -10.3 | | 2.2 |

Download table

[XLS](#) [XLS format](#)

(18 Kb)

The pay gap is wider at the lower end of the pay distribution than at the higher end. For example, when organisation size is included, at the 5th percentile public sector employees earned 11.2% more than private sector employees in 2011. At the 95th percentile, public sector workers earned 10.3% less than private sector workers. This indicates that the overall pay gap of 2.2% is heavily influenced by those at the lower end of the pay distribution.

The pay gap in favour of the public sector at the lower end of the distribution may be due to the private sector having more jobs paid close to the minimum wage at the bottom of the pay distribution. The pay gap in favour of the private sector at the high end of the distribution can be explained by the fact that the public sector, in general, does not have the very high wages at the top of the wage distribution as seen in the private sector.

Therefore, it is important to consider the pay gap at different points of the distribution as the pay gap varies for the lower and higher paid.

The regression output for each of the above estimates is available from ONS on request.

Other factors

There may be other factors not collected on the ASHE dataset that, if controlled for, would affect the pay difference between the public and private sector. Employees in both the public sector and the private sector receive other forms of remuneration or benefits that are not taken into account in this analysis. For example, employees may receive pension contributions from their employer, and this is a form of deferred earnings.

In the private sector some workers may receive a company car or health insurance as a form of remuneration. This is a significant payment to the employee that would not be included in their hourly earnings. If these other forms of payment were included in the pay gap model, a different pay gap may be derived.

It is also worth noting that self-employed workers are not included on the ASHE dataset. This has an important effect. With regards to the public sector, ASHE captures most of the highest paid workers. However, in the private sector, many highly remunerated workers are self-employed.

This means that the ASHE estimate of average pay does not include many of the highest income workers in the private sector whereas a large proportion of the highest earners in the public sector will be included in the ASHE dataset. Also some of the lowest paid workers may be self-employed. Therefore, the public-private sector pay gap that has been estimated in this article might be different had the ASHE dataset included self-employed workers in the sample.

Section C: Regression analysis of public and private sector pay for regions and countries of the UK

As well as the public and private sector having a variety of different characteristics in terms of the jobs and types of people within them, there is also large variation in these characteristics across the regions and countries of the UK. These differences are discussed in Annex 1 of this paper.

This section uses the updated regression models with and without organisational size, used in Section B, to estimate differences in public and private sector pay for the regions in England and devolved countries of the UK. So the results presented are based on a linear regression of log-hourly earnings with the following independent variables:

- Sex - due to differences in the distribution of men and women in the public and private sectors.
- Age & Age squared - as the relationship between earnings and age is non-linear.
- Occupation (Soc 2000 - 11 groups) - because pay is heavily determined by an employee's occupation.
- Region or Country (that the job is located in) - as there are differences in the percentages of jobs in each sector across the 12 regions or countries of the UK.

- Employment status of full and part time - because full time workers tend to be paid more per hour than part time workers.
- Employment status of permanent and temporary - because permanent workers tend to be paid more on average than temporary workers.
- Sector - Public, Private or Non-profit organisation.
- Job tenure based on days worked: ≤ 183 , 184-366, 367-732, 733-1830, 1831-3660, 3661-7620, 7321+.
- Sex*Age & Sex* Age squared – because the potential work experience proxied by age for males and females are different.
- Occupation*Age – the return to work experience may be different for different occupations.
- Occupation*Region – industry and labour market structures that impact on wages may differ between the regions.
- Interactions between Region and Sector - to allow the pay differences between the sectors to be estimated for each region.

The following are also included in the model that controls for organisation size:

- Organisation size – because larger organisations tend to pay more than smaller organisations.
- Occupation*Organisation size - it is assumed that wages for similar occupations are higher the larger the organisation size.

Regression analysis results for regions and countries of the UK

Tables 16 & 17

Average difference in the mean hourly pay between public and private sector workers expressed as a percentage of private pay, April 2003-April 2011, regions in England and the devolved countries in the UK

Regression model without organisation size

| | <i>Percentage</i> | | | | | | | | |
|--------------------------|-------------------|------|------|------|------|------|------|------|------|
| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
| United Kingdom | 2.9 | 4.5 | 6.2 | 5.5 | 4.1 | 3.3 | 5.5 | 7.5 | 7.3 |
| North East | 8.7 | 10.8 | 10.4 | 11.4 | 10.0 | 8.5 | 12.2 | 15.4 | 14.3 |
| North West | 8.1 | 8.0 | 9.8 | 11.9 | 9.7 | 8.7 | 9.7 | 11.9 | 11.0 |
| Yorkshire and The Humber | 7.9 | 7.3 | 10.6 | 10.4 | 8.4 | 6.5 | 9.4 | 10.4 | 10.5 |
| East Midlands | 9.3 | 7.9 | 11.7 | 11.4 | 10.2 | 8.6 | 9.8 | 12.6 | 11.5 |
| West Midlands | 7.8 | 10.8 | 11.6 | 10.6 | 8.4 | 7.4 | 9.4 | 12.5 | 12.0 |
| East of England | 0.7 | 4.1 | 6.1 | 4.8 | 2.9 | 4.1 | 8.6 | 8.5 | 10.0 |
| London | -7.8 | -6.1 | -4.0 | -5.1 | -6.9 | -9.6 | -6.2 | -3.5 | -4.0 |
| South East | -2.8 | 0.1 | -0.1 | 1.0 | -0.9 | -1.6 | -1.9 | 1.7 | 1.8 |
| South West | 6.6 | 7.1 | 8.5 | 8.9 | 7.7 | 9.7 | 8.6 | 11.4 | 12.0 |
| Wales | 7.7 | 10.1 | 12.2 | 9.4 | 9.8 | 9.3 | 11.8 | 12.6 | 11.5 |
| Scotland | 2.7 | 4.3 | 6.7 | 3.1 | 3.0 | 3.4 | 7.0 | 7.8 | 7.1 |
| Northern Ireland | - | 11.1 | 13.4 | 5.4 | 9.8 | 11.4 | 14.8 | 13.6 | 14.7 |

Download table

XLS [XLS format](#)
(28.5 Kb)

Regression model with organisation size

| | <i>Percentage</i> | | | | | | | | |
|--------------------------|-------------------|------|------|------|-------|-------|------|------|------|
| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
| United Kingdom | -1.6 | 0.5 | 2.0 | 1.9 | -0.1 | -1.2 | 0.6 | 2.3 | 2.2 |
| North East | 4.5 | 6.9 | 6.5 | 7.9 | 6.0 | 4.4 | 7.5 | 10.2 | 9.2 |
| North West | 3.7 | 4.1 | 5.8 | 8.3 | 5.5 | 4.2 | 4.7 | 6.5 | 5.7 |
| Yorkshire and The Humber | 3.1 | 3.0 | 6.1 | 6.5 | 4.1 | 2.0 | 4.5 | 5.0 | 5.1 |
| East Midlands | 4.3 | 3.6 | 7.3 | 7.6 | 5.5 | 4.1 | 4.9 | 7.7 | 6.6 |
| West Midlands | 3.1 | 6.4 | 7.1 | 7.0 | 4.0 | 2.8 | 4.5 | 7.1 | 7.0 |
| East of England | -4.0 | 0.0 | 1.7 | 0.9 | -1.6 | -0.7 | 3.2 | 3.2 | 4.6 |
| London | -11.1 | -9.3 | -7.2 | -7.9 | -10.4 | -12.9 | -9.7 | -7.6 | -7.9 |
| South East | -7.4 | -4.1 | -4.4 | -2.6 | -5.1 | -6.0 | -6.6 | -3.3 | -3.0 |
| South West | 1.5 | 2.5 | 3.7 | 4.6 | 2.8 | 4.4 | 2.9 | 5.4 | 6.1 |
| Wales | 2.1 | 5.7 | 7.6 | 5.5 | 5.1 | 4.4 | 6.4 | 7.1 | 5.9 |
| Scotland | -1.7 | 0.6 | 2.6 | -0.3 | -0.7 | -0.6 | 2.5 | 2.8 | 2.4 |
| Northern Ireland | - | 6.8 | 8.2 | 0.9 | 4.8 | 5.5 | 8.3 | 6.7 | 7.8 |

Download table

[XLS](#) [XLS format](#)
(28.5 Kb)

Note – Data is not available for Northern Ireland for 2003.

This gives, for example, an estimated pay gap between the public and private sector of 14.3% in the North East in 2011 when accounting for gender, age, occupation, region, full time/part time, permanent/temporary and job tenure. This estimate reduces to 9.2% when organisation size is also accounted for.

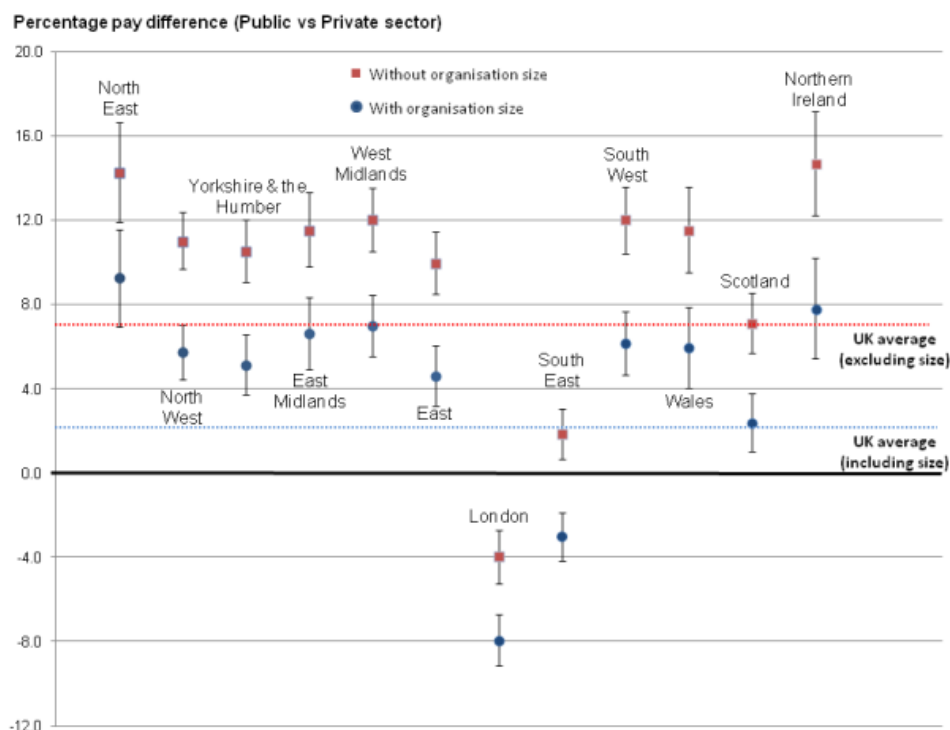
When organisation size is not accounted for, in 2011, public sector workers earned more on average than private sector workers in all regions except London. Whereas when organisation size is accounted for public sector workers earned more on average than private sector workers in all regions except London and the South East where they earned less.

In both models, the pay gap is negative for each of the years considered for London indicating that public sector workers earned less than private sector workers.

It should be emphasised that these differences in pay are estimates of any true differences. 95% confidence intervals for the estimated pay gaps in each region for 2011 for each model are shown in the following charts.

Figure 1

95% confidence intervals for the average difference in the mean hourly pay (excluding overtime) between public and private sector workers expressed as a percentage of private pay, April 2011, regions in England and the devolved countries in the UK



Download chart

[XLS](#) [XLS format](#)

(30 Kb)

Most of the regions or countries are above the UK average whereas London and the South East are below. As 28% of employees work in either London or the South East the pay gap in these regions has a larger impact on the UK average than the other regions which represent a lower percentage of employees. In figure 8 it can be seen that a number of the confidence intervals overlap. For regions

with overlapping confidence intervals, the pay gap in each region may not be statistically significantly different from each other.

As well as the possibility that a different sample would give a different result, there is no single definitive model and different regression models may give different results. The variables used to produce these estimates account for a large proportion of the variation in pay, for example, in 2011, 59.9% of the variation in pay can be explained by the variables in the model when excluding organisation size and 61.2% when including organisation size. However, there is still some variation that is not accounted for as there will be other factors that affect pay.

Quantile regression for regions and countries of the UK

As with the estimate of the pay gap for the UK, quantile regression can be used to estimate the pay gap at different points of the pay distribution. To illustrate this for the regions, the pay gap between private and public sector workers has been estimated for the 5th and 10th percentile, the median and the 90th and 95th percentile for 2011 using the regression model both excluding and including organisational size.

Tables 18 & 19

Average difference in hourly pay between public and private sector workers expressed as a percentage of private pay by percentile, April 2011, regions in England and the devolved countries in the UK

Regression model without organisation size

| | Percentile | | | | | Percentage |
|--------------------------|------------|------|------|-------|-------|------------|
| | 5th | 10th | 50th | 90th | 95th | Mean |
| United Kingdom | 15.1 | 15.1 | 10.4 | -1.0 | -5.5 | 7.3 |
| North East | 15.4 | 15.8 | 14.6 | 7.8 | 6.6 | 14.3 |
| North West | 15.5 | 16.2 | 13.0 | 1.5 | -4.1 | 11.0 |
| Yorkshire and The Humber | 12.8 | 13.3 | 11.2 | 4.5 | 0.5 | 10.5 |
| East Midlands | 13.2 | 14.4 | 14.1 | 4.1 | -0.5 | 11.5 |
| West Midlands | 14.8 | 15.6 | 13.5 | 4.7 | 2.4 | 12.0 |
| East of England | 14.5 | 14.9 | 12.5 | 3.3 | -2.5 | 10.0 |
| London | 21.2 | 18.6 | 3.1 | -19.9 | -26.4 | -4.0 |
| South East | 10.2 | 9.4 | 4.3 | -4.7 | -9.5 | 1.8 |
| South West | 15.0 | 15.0 | 13.1 | 4.1 | 1.6 | 12.0 |
| Wales | 10.4 | 13.3 | 13.1 | 7.1 | 0.0 | 11.5 |
| Scotland | 18.7 | 18.6 | 9.2 | -2.1 | -6.1 | 7.1 |
| Northern Ireland | 22.9 | 23.0 | 16.9 | 2.7 | -4.2 | 14.7 |

Download table

XLS [XLS format](#)

(19.5 Kb)

Regression model with organisation size

| | Percentile | | | | | Percentage |
|--------------------------|------------|------|------|-------|-------|------------|
| | 5th | 10th | 50th | 90th | 95th | Mean |
| United Kingdom | 11.2 | 10.9 | 6.0 | -5.8 | -10.3 | 2.2 |
| North East | 11.7 | 13.0 | 10.3 | 1.0 | 2.9 | 9.2 |
| North West | 11.3 | 11.9 | 8.9 | -2.7 | -8.8 | 5.7 |
| Yorkshire and The Humber | 9.6 | 9.6 | 6.5 | -1.2 | -4.8 | 5.1 |
| East Midlands | 9.8 | 11.0 | 10.1 | -0.3 | -5.1 | 6.6 |
| West Midlands | 10.5 | 10.9 | 9.6 | 0.4 | -2.7 | 7.0 |
| East of England | 10.9 | 10.6 | 8.0 | -1.8 | -7.4 | 4.6 |
| London | 16.3 | 13.4 | -1.0 | -22.4 | -29.0 | -7.9 |
| South East | 7.0 | 5.6 | 0.2 | -9.2 | -14.5 | -3.0 |
| South West | 11.0 | 10.6 | 8.0 | -1.1 | -3.3 | 6.1 |
| Wales | 6.7 | 8.9 | 8.6 | 0.1 | -5.8 | 5.9 |
| Scotland | 15.5 | 15.0 | 5.4 | -6.2 | -9.4 | 2.4 |
| Northern Ireland | 17.3 | 17.6 | 11.3 | -2.0 | -4.1 | 7.8 |

Download table

[XLS](#) [XLS format](#)
(19.5 Kb)

The pay gap is wider at the lower end of the pay distribution than at the higher end. This is true for all regions or countries across the UK except London and the South East when using the model including organisation size and London when excluding organisation size. For these whilst the pay gap is not wider at the bottom end of the distribution, at the bottom end it is in favour of the public sector and at the top of the distribution it is in favour of the private sector. At the lower end of the distribution the pay gap is in favour of the public sector in all regions. This may be explained by the fact that private sector employers are likely to pay low skilled workers at or around the national minimum wage whereas public sector employers generally pay above this.

The largest difference in the pay gap, when comparing the 5th percentile to the 95th percentile, is in London. This is the case using either of the models including or excluding organisation size, with public sector workers being paid more at the lower end of the distribution and private sector workers paid more at the higher end. The pay gap in favour of the private sector at the high end of the distribution may be explained by the fact that the public sector does not have the very high wages at the top of the wage distribution as seen in the private sector and on average London has the highest paid workers.

Therefore, when considering pay differences between public and private sectors, it is important to consider the pay gap at different points of the distribution. The overall tendency for pay to be higher in the public sector is heavily influenced by the bottom end of the pay distribution.

Again, these are estimates based on a sample such that different samples would give different results. Also a different model containing additional or different independent variables would give different results.

The regression output for each of the above estimates is available from ONS on request.

Conclusion

This article has shown that when comparing public sector and private sector earnings there are a number of factors that must be taken into account due to the different characteristics of these sectors. This makes it difficult to estimate a definitive “public-private sector pay gap”, and the gaps estimated in this article are exactly that - an estimate of the pay gap rather than an authoritative measure of the difference in the average earnings of the public sector and the private sector.

Regression modelling has been used to estimate that after accounting for: gender, age, occupation, region that the job is located in, part time/full time, permanent/temporary and job tenure, public sector employees, on average, earned 7.3% more per hour (excluding overtime) than those in the private sector in 2011. Accounting for organisation size in addition to these personal and job characteristics reduces this estimate to 2.2%.

Whilst this gives an estimate of the pay gap for the UK, the pay gap varies between different regions and countries of the UK. There are also differences in the pay gap at different points of the pay distribution

When comparing pay across regions and between sectors it is important to consider the different characteristics of the labour market within each region and within each sector as these can impact on average pay.

Regression analysis accounting for gender, age, occupation, part time/full time, permanent/temporary, job tenure, region the job is located in and organisation size, estimates that in 2011, public sector workers earned more on average than private sector workers in all regions except London. When organisation size is also accounted for public sector workers earned more on average than private sector workers in all regions except London and the South East where they earned less.

The overall tendency for pay to be higher in the public sector is heavily influenced by lower paid workers. Quantile regression has been used to show that the pay gap is wider at the lower end of the pay distribution than at the higher end. This is likely to be due to the private sector having more jobs paid close to the minimum wage at the bottom of the pay distribution and having very high wages at the top of the wage distribution. Differences in the public-private sector pay tend to be in favour of the public sector for low paid workers and in favour of the private sector for high paid workers

These pay gaps are estimates based on a sample such that different samples would give different results, as would a different model. Other characteristics not collected on the ASHE or LFS datasets, such as employee motivation or ability, may account for some of the differences. Also, ASHE does not collect earnings data on self-employed workers meaning that some of the highest paid workers, and also some of the lowest paid workers have been excluded.

Therefore these estimates are not definitive measures of the public private pay gap and should be considered alongside the characteristics of the sectors and the characteristics of each region.

References (and other reading)

[Holmes E and Oakley M, \(May 2011\), 'Public and private sector terms, conditions and the issue of fairness', Policy Exchange](#)

[Income Data Services, \(June 2011\), 'Public and private sector earnings: fact and fiction, pay report 1075, pp. 13-17](#)

[Institute of Fiscal Studies, \(February 2012\), 'The IFS Green Budget', pp. 109-123](#)

[Levy S, Coleman J, Guled, G, and Mitchell, H, \(2010\), 'Total reward: pay and pension contributions in the private and public sectors'](#)

[Standard Occupational Classification 2000 \(SOC 2000\)](#)

Background notes

1. Copyright and reproduction

© Crown copyright 2012

Under the terms of the Open Government Licence and UK Government Licensing Framework, anyone wishing to use or re-use ONS material, whether commercially or privately, may do so freely without a specific application for a licence, subject to the conditions of the OGL and the Framework.

For further information, contact the [Office of Public Sector Information](#), Crown Copyright Licensing and Public Sector Information, Kew, Richmond, Surrey, TW9 4DU.

Tel: +44 (0)20 8876 3444

Email psi@nationalarchives.gsi.gov.uk

2. Follow ONS on [Twitter](#) or [Facebook](#) or view our podcasts on [YouTube](#).
3. Details of the policy governing the release of new data are available by visiting www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html or from the Media Relations Office email: media.relations@ons.gsi.gov.uk

These National Statistics are produced to high professional standards and released according to the arrangements approved by the UK Statistics Authority.

Copyright

© Crown copyright 2012

You may use or re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence, visit www.nationalarchives.gov.uk/doc/open-government-licence/ or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email: psi@nationalarchives.gsi.gov.uk.

This document is also available on our website at www.ons.gov.uk.

Appendices

ANNEX 1: Comparisons between different labour markets across the UK

When comparing the pay of employees working in different regions or countries of the United Kingdom, simply comparing average earnings in one region to average earnings in another region may be misleading as the labour market characteristics within each region differ.

Each region is made up of a variety of different jobs and types of people so that comparisons between regions are not on a like for like basis. For example, in each region there are differences in the makeup of the labour market in terms of the age, gender, qualifications held, employment status, that is, employee or self employed, and occupations of employees.

There are also differences in the types of jobs undertaken in terms of the sector and industry they are in and the skill levels required. Also some workers will commute between regions to find suitable jobs.

Earnings are often related to these factors and so observed differences in pay between regions could be due to differences in the characteristics of people and their jobs.

The pay distribution may also differ between regions so that the difference between the lowest and highest earners is larger in some regions than others. This can impact on both the mean and median level of pay.

This annex aims to explain the differences and similarities in the labour market characteristics of each region and why these differences need to be considered when comparing pay across regions.

The main source of data used in this section to compare the labour markets is the Annual Population Survey (APS). The Annual Survey of Hours and Earnings (ASHE) is used when comparing pay as it is the ONS preferred source of earnings data.

This section will consider a number of factors which can affect pay and compare each region of the UK on each of these factors. These factors include:

- Employment rates,
- Occupation and skill level,
- Industry,
- Qualifications,
- Pay distribution,
- Age and gender,
- Sector.

The UK will be divided into the 10 regions in England as well as the devolved countries in the UK.

Wage differentials in the labour market

Wage rates are affected by the demand for labour and the supply of labour. Put simply, if there is high demand for labour but short supply then average pay rates will be pushed up as employers compete to attract workers. Alternatively, if demand is low and there is lots of available labour, average wage rates would be pushed down as workers are forced to accept lower pay rates to secure jobs. Therefore the level of competition for jobs can push wages up or down.

This is further complicated by the fact that demand may be high for some skills but not others and the same for supply. In some regions there may be a mismatch between the skills that are in demand and the skills of the available labour market.

Average pay levels also vary with different types of jobs. Jobs requiring working in poor conditions, working unsocial hours or risk-taking can be rewarded through higher pay. High productivity levels and generating high levels of revenue are also often rewarded with higher pay. Trade unions can sometimes push up wages using their collective bargaining power.

Higher skill jobs tend to have higher pay rates with the gap between low skilled and high skilled jobs tending to get wider over time. This is partly due to the demand for skilled labour growing more quickly than for low skilled labour. This pushes up average pay levels for skilled labour as employers are competing for skilled workers.

There is an opportunity cost in acquiring qualifications, for example students forgo the income they could be earning from a full time job to gain a degree. Higher pay later on compensates these workers for the costs of gaining qualifications which can improve their skills therefore benefiting their employer.

Employment rates

Within each region the job opportunities that are available, in terms of the skills and qualifications that are required, will vary. The characteristics of the available labour market will also vary.

Employment rates can give an indication of how much competition there is for jobs. Low employment rates may indicate that there is lots of competition for jobs potentially pushing wage levels down. Alternatively the low employment rate may be heavily influenced by a skills mismatch in the region with employers finding it difficult to obtain workers with the right skills.

The employment rates, for those aged 16-64 differs across the regions. The South East and the East of England have the highest employment rates at 75% compared to the North East and Northern Ireland that have the lowest employment rates at 67%.

Table 20

Employment rates for those aged 16-64, April to June 2012, regions in England and the devolved countries in the UK

| | <i>Percentage, seasonally adjusted</i> |
|--------------------------|--|
| | Employment rate |
| UK | 71 |
| North East | 67 |
| North West | 70 |
| Yorkshire and The Humber | 69 |
| East Midlands | 72 |
| West Midlands | 69 |
| East of England | 75 |
| London | 69 |
| South East | 75 |
| South West | 74 |
| Wales | 69 |
| Scotland | 72 |
| Northern Ireland | 67 |

Download table

[XLS](#) [XLS format](#)

(28 Kb)

Source: Labour Force Survey

Occupation and skill level

Pay is often closely linked to occupation, for example a cleaner is likely to get paid a similar wage regardless of age, gender or the industry they work in. Occupation is a key determinant of pay with the level of pay associated with some occupations such as managers, directors and senior officials being higher than for other occupations such as sales and customer service occupations.

Occupations can be grouped by the skill level required into four categories:

- High – for example, senior government officials, financial managers, scientists, engineers, medical doctors, teachers and accountants.
- Upper-middle – for example, catering managers, building inspectors, police officers (sergeant and below), electricians and plumbers.
- Lower-middle – for example, machine operators, drivers, carers, retailing, clerical and secretarial occupations.
- Low – for example, postal workers, hotel porters, cleaners and catering assistants.

Earnings tend to increase as the skill level for the job increases, as discussed in Section A. The occupations and therefore the skills required for jobs vary across the regions and countries. London has the highest percentage of jobs that require a high level of skills, 33% of jobs, compared to the North East with 22% of jobs requiring a high skill level.

Table 21

Percentage of jobs undertaken by employees by their skill level, January-December 2011, regions in England and the devolved countries in the UK

| | <i>Percentage</i> | | | | | |
|--------------------------|-------------------|---------------------|----------------------------|---------------------|------------|---------------------------|
| | High | Upper middle | High - upper middle | Lower middle | Low | Lower middle - low |
| UK | 26 | 28 | 54 | 35 | 11 | 46 |
| North East | 22 | 27 | 50 | 38 | 12 | 50 |
| North West | 24 | 26 | 50 | 38 | 12 | 50 |
| Yorkshire and The Humber | 23 | 27 | 50 | 38 | 12 | 50 |
| East Midlands | 24 | 28 | 52 | 36 | 13 | 48 |
| West Midlands | 24 | 26 | 51 | 37 | 13 | 49 |
| East of England | 27 | 28 | 55 | 35 | 10 | 45 |
| London | 33 | 29 | 62 | 28 | 9 | 38 |
| South East | 30 | 28 | 58 | 33 | 9 | 42 |
| South West | 26 | 30 | 55 | 34 | 11 | 45 |
| Wales | 24 | 28 | 52 | 37 | 12 | 48 |
| Scotland | 24 | 28 | 52 | 36 | 12 | 48 |
| Northern Ireland | 24 | 28 | 52 | 38 | 11 | 48 |

Download table

 [XLS format](#)

(19 Kb)

Source: Annual Population Survey

The East of England, London, South East and South West all have an above average percentage of jobs requiring a high to upper middle level of skills.

Industry

Occupation is linked to industry with some occupations being associated with certain industries. As jobs in different industries require different skills and involve different tasks and varying levels of responsibilities, it is difficult to compare jobs and pay in different industries as comparisons are not on an exact like for like basis. Average hourly earnings for the main industries are shown in the following table (Note: Public administration, education and health does not refer solely to the Public Sector).

Table 22

Average hourly earnings (excluding overtime) by industry, April 2011, UK

| | <i>Pounds</i> |
|--|--------------------------------|
| | Average hourly earnings |
| Finance and business services | 17.50 |
| Public administration, education and health | 15.12 |
| Construction | 14.48 |
| Manufacturing | 14.15 |
| Wholesaling, retailing, hotels & restaurants | 10.22 |

Download table

XLS [XLS format](#)
(17.5 Kb)

Source: Annual Survey of Hours and Earnings

Those in the finance and business services industry, on average, earn over 70% more than those in the wholesaling, retailing, hotels & restaurants industry. Therefore, if one region has a much higher percentage of workers employed in the finance industry compared to another region, then average hourly earnings would be expected to be higher in the region where the finance industry is more prominent. The following table shows the percentage of employees in each region employed in the main industries.

Table 23

Percentage of employees in each industry, March 2012, UK, regions in England and the devolved countries in the UK

| | <i>Percentage</i> | | | | |
|-----------------------------|--|---------------------|----------------------|---|--|
| | Finance and business services | Construction | Manufacturing | Wholesaling, retailing, hotels & restaurants | Public administration, education and health |
| UK | 21 | 6 | 8 | 22 | 26 |
| North East | 16 | 6 | 9 | 22 | 32 |
| North West | 19 | 6 | 9 | 23 | 28 |
| Yorkshire and The Humber | 18 | 6 | 10 | 21 | 28 |
| East Midlands | 17 | 6 | 12 | 23 | 25 |
| West Midlands | 18 | 6 | 11 | 22 | 27 |
| East of England | 21 | 7 | 9 | 23 | 24 |
| London | 31 | 6 | 3 | 20 | 22 |
| South East | 22 | 7 | 6 | 21 | 25 |
| South West | 19 | 7 | 9 | 22 | 27 |
| Wales | 14 | 7 | 11 | 22 | 32 |
| Scotland | 19 | 6 | 7 | 22 | 28 |
| Northern Ireland | 13 | 7 | 10 | 23 | 32 |

Download table

XLS [XLS format](#)
(18.5 Kb)

Source: Workforce Jobs

The percentage of employees working in finance and business services varies the most across regions. London is well above the 21% UK average with 31% of employees working in finance and business services. Northern Ireland has the lowest percentage of employees employed in finance and business services at 13%.

Looking at the percentage of employees working in manufacturing, London is much lower than the UK average of 8% with only 3%. The East Midlands has the highest percentage at 12%. London

and regions in the east of England all have a lower than average percentage of employees working in public administration, education and health, with the other regions being above average.

The percentage of employees working in construction and wholesaling, retailing, hotels & restaurants is similar for all regions.

Qualifications

As explained in Section A, employees with higher levels of qualifications tend to earn more than employees with lower levels of qualifications.

Looking at the highest level of qualification held by those employed for each of the regions, London has the highest percentage of employees with a degree or equivalent at 47%, followed by the South East at 31%. For all other regions this ranges from 23-27% with the North East, East Midlands and West Midlands having the lowest at 23%.

Northern Ireland has the highest percentage of employees with no qualifications at 14%, followed by the West Midlands at 9%. For all other regions or countries there are 5-7% of employees with no qualifications. Scotland has the highest percentage of employees with higher education as their highest level of qualification, at 16%, and the lowest percentage with GCSE grades A-C or equivalent (excluding London) as their highest level, at 16%.

Table 24

Percentage of employees by highest level of qualification held, January-December 2011, regions in England and the devolved countries in the UK

| | <i>Percentage</i> | | | | | | |
|--------------------------|----------------------|------------------|---------------------------|-------------------------------|-------|------|------------|
| | Degree or equivalent | Higher education | GCE A Level or equivalent | GCSE grades A-C or equivalent | Other | None | Don't know |
| North East | 23 | 10 | 26 | 26 | 8 | 6 | 1 |
| North West | 25 | 10 | 25 | 24 | 9 | 7 | 1 |
| Yorkshire and The Humber | 24 | 9 | 24 | 24 | 11 | 7 | 1 |
| East Midlands | 23 | 10 | 25 | 23 | 10 | 7 | 1 |
| West Midlands | 23 | 9 | 23 | 24 | 11 | 9 | 2 |
| East of England | 25 | 8 | 24 | 25 | 10 | 6 | 1 |
| London | 47 | 7 | 15 | 13 | 11 | 6 | 1 |
| South East | 31 | 9 | 24 | 21 | 9 | 5 | 1 |
| South West | 27 | 10 | 25 | 22 | 9 | 5 | 1 |
| Wales | 26 | 10 | 24 | 24 | 9 | 7 | 1 |
| Scotland | 27 | 16 | 26 | 16 | 7 | 7 | 1 |
| Northern Ireland | 25 | 8 | 23 | 21 | 7 | 14 | 2 |

Download table

[XLS](#) [XLS format](#)
(18.5 Kb)

Source: Annual Population Survey

Pay distribution

The 5th percentile is the level at which 5% of workers earn less and 95% earn more, the 10th percentile is the level at which 10% of workers earn less and 90% earn more etc. Looking at the difference between the 5th and 95th percentiles shows that the pay distribution varies across the regions and countries. London has the widest distribution and Wales the narrowest. As discussed

in section A, when there are differences in the earnings distributions it may be more appropriate to compare the mean rather than the median. Comparing the mean hourly pay between regions shows that London has the highest mean pay and Wales the lowest.

Table 25

Mean hourly earnings and average hourly earnings at the 5th and 95th percentiles (excluding overtime), April 2011, regions in England and the devolved countries in the UK

| | 5th Percentile | 95th percentile | Range | <i>Pounds</i> Mean |
|-----------------------------|----------------|-----------------|-------|-----------------------|
| North East | 5.93 | 27.54 | 21.61 | 12.87 |
| North West | 5.93 | 28.81 | 22.88 | 13.18 |
| Yorkshire and The Humber | 5.94 | 27.23 | 21.29 | 12.88 |
| East Midlands | 5.93 | 27.06 | 21.13 | 12.89 |
| West Midlands | 5.93 | 28.76 | 22.83 | 13.14 |
| South West | 5.95 | 28.22 | 22.27 | 13.11 |
| East of England | 5.96 | 29.93 | 23.97 | 13.68 |
| London | 6.25 | 50.28 | 44.03 | 20.38 |
| South East | 6.00 | 33.41 | 27.41 | 14.93 |
| Wales | 5.93 | 25.96 | 20.03 | 12.50 |
| Scotland | 5.98 | 29.01 | 23.03 | 13.74 |
| Northern Ireland | 5.93 | 26.31 | 20.38 | 12.61 |

Download table

 [XLS format](#)

(28 Kb)

Source: Annual Survey of Hours and Earnings

Dividing a higher percentile by a lower percentile indicates how much more than lower earners, the higher earners earn. For example, dividing the 95th percentile by the 5th percentile shows how much the top 5% earn compared to the bottom 5%.

Table 26

Ratio of percentiles for average hourly earnings (excluding overtime), April 2011, regions in England and the devolved countries in the UK

| | Percentile | | | | | |
|--------------------------|------------|-------|-------|-------|-------|-------|
| | 95/05 | 90/10 | 95/50 | 90/50 | 50/10 | 50/05 |
| North East | 4.64 | 3.61 | 2.69 | 2.17 | 1.66 | 1.73 |
| North West | 4.86 | 3.68 | 2.78 | 2.2 | 1.67 | 1.75 |
| Yorkshire and The Humber | 4.58 | 3.51 | 2.66 | 2.15 | 1.64 | 1.72 |
| East Midlands | 4.56 | 3.62 | 2.68 | 2.2 | 1.64 | 1.7 |
| West Midlands | 4.85 | 3.66 | 2.78 | 2.19 | 1.67 | 1.75 |
| South West | 4.74 | 3.63 | 2.74 | 2.2 | 1.65 | 1.73 |
| East of England | 5.02 | 3.75 | 2.76 | 2.18 | 1.72 | 1.82 |
| London | 8.04 | 5.22 | 3.21 | 2.4 | 2.18 | 2.5 |
| South East | 5.57 | 4.06 | 2.84 | 2.25 | 1.81 | 1.96 |
| Wales | 4.38 | 3.48 | 2.6 | 2.13 | 1.63 | 1.69 |
| Scotland | 4.85 | 3.62 | 2.64 | 2.08 | 1.74 | 1.84 |
| Northern Ireland | 4.44 | 3.69 | 2.64 | 2.23 | 1.66 | 1.68 |

Download table

[XLS](#) [XLS format](#)

(18.5 Kb)

Source: Annual Survey of Hours and Earnings

London has the highest pay gap between the lowest and highest for each of the comparisons in the above table, with those in the top 5% earning just over 8 times as much as those in the bottom 5%. Wales tends to have the lowest gap with the top 10% earning nearly 3.5 times as much as the bottom 10%.

Pay variation within regions

There are differences in pay between the regions and countries of the UK but there are also differences within these. Breaking down each region or country into Local Authorities shows that the average pay varies between the Local Authorities. Focusing on the Local Authorities with the

highest and lowest mean hourly pay within each region or country shows there is a wide difference in average pay, this can be seen in the following table. For example, in London the lowest mean hourly pay when comparing Local Authorities is £13.48, 34% below the mean for London, with the highest being £33.77 which is 66% above the mean for London (please note that further breakdowns for Northern Ireland are not available).

Table 27

Mean hourly earnings (excluding overtime) and the lowest and highest mean when broken down into Local Authorities, April 2011, regions in England and the devolved countries in the UK (excluding Northern Ireland)

| | Overall | Lowest | % from overall | Highest | <i>Pounds</i> % from overall |
|--------------------------|---------|--------|----------------|---------|---------------------------------|
| North East | 12.87 | 9.23 | -28 | 14.38 | 12 |
| North West | 13.18 | 10.09 | -23 | 15.32 | 16 |
| Yorkshire and The Humber | 12.88 | 10.82 | -16 | 14.09 | 9 |
| East Midlands | 12.89 | 10.5 | -19 | 16.07 | 25 |
| West Midlands | 13.14 | 9.88 | -25 | 14.76 | 12 |
| South West | 13.11 | 9.15 | -30 | 15.44 | 18 |
| East of England | 13.68 | 10.99 | -20 | 17.27 | 26 |
| London | 20.38 | 13.48 | -34 | 33.77 | 66 |
| South East | 14.93 | 11.06 | -26 | 19.98 | 34 |
| Wales | 12.5 | 11.04 | -12 | 14.08 | 13 |
| Scotland | 13.74 | 11.26 | -18 | 18.06 | 31 |

Download table

[XLS](#) [XLS format](#)
(19 Kb)

Source: Annual Survey of Hours and Earnings

Live and work in same Local Authority District

With pay varying for many local areas within each region it is important to distinguish between where an employee is working as opposed to where they live as most employees will commute to work. Looking at those employees within each region or country who live and work in the same Local Authority District it can be seen that London has the lowest percentage at 33% and Yorkshire and The Humber the highest at 73%.

The high percentage of employees in London who do not live and work in the same Local Authority is likely to be influenced by the extensive public transport available in London making it easier for employees to commute to work.

Northern Ireland is excluded from the table as only workers who live and work in the UK are considered. All workers living in Northern Ireland are either working in Northern Ireland or are working in the Republic of Ireland which is outside the UK. Workers who live in one region but work in Northern Ireland are included as being in the UK.


In all regions or countries (except Northern Ireland), those that do not live and work in the same Local Authority District are more likely to work in a full-time job than to work part time.

Table 28

Percentage of employees that live and work in the same Local Authority District by full time and part time status of employees, January-December 2011, regions in England and the devolved countries in the UK (excluding Northern Ireland)

| | <i>Percentage</i> | | |
|--------------------------|-------------------|------------------|------------------|
| | All | Full time | Part time |
| North East | 56 | 51 | 67 |
| North West | 62 | 57 | 75 |
| Yorkshire and The Humber | 73 | 69 | 82 |
| East Midlands | 59 | 54 | 71 |
| West Midlands | 61 | 57 | 70 |
| East of England | 57 | 51 | 70 |
| London | 33 | 29 | 48 |
| South East | 58 | 52 | 71 |
| South West | 68 | 64 | 78 |
| Wales | 70 | 67 | 80 |
| Scotland | 72 | 68 | 80 |

Download table

 [XLS format](#)
(18 Kb)

Source: Annual Population Survey

Those who do not live and work in the same Local Authority District are also more likely to be working in jobs requiring a high level of skills as seen in the following table.

Table 29

Percentage of employees that live and work in the same Local Authority District by skill level required for their job, January-December 2011, regions in England and the devolved countries in the UK (excluding Northern Ireland)

| | <i>Percentage</i> | |
|--------------------------|----------------------------|---------------------------|
| | High - upper middle | Lower middle - low |
| North East | 49 | 62 |
| North West | 55 | 69 |
| Yorkshire and The Humber | 66 | 79 |
| East Midlands | 54 | 64 |
| West Midlands | 56 | 67 |
| East of England | 51 | 64 |
| London | 31 | 38 |
| South East | 51 | 66 |
| South West | 64 | 75 |
| Wales | 66 | 75 |
| Scotland | 66 | 77 |

Download table

 [XLS format](#)

(18 Kb)

Source: Annual Population Survey

This indicates that people are more likely to travel further for a full time or higher skill job, both of which are associated with higher average earnings. It should be noted that there may be employees who do not live and work in the same Local Authority District but who only live a small distance from their workplace due to living on the border of two Local Authority Districts.

Age and gender

It is important to consider the age of the labour market when comparing pay because, as discussed in Section A, earnings tend to increase with age with average mean hourly earnings tending to peak when employees reach their early 40s.

Gender also needs to be considered as men tend to earn, on average, more than women as also discussed in Section A. This can be through a variety of factors, for example women tend to leave the labour market to look after children whilst men continue their progression.

When the mother then re-enters the labour market they can find themselves earning lower amounts than their male counterparts. Also women are more likely to work in part-time roles which on average tend to pay less per hour than full-time roles.

However, whilst age and gender are linked with pay they are not key determinants and should be considered alongside other factors. For example, it would be reasonable to expect a 40 year old cleaner to be paid more than a 25 year old cleaner but it would not be reasonable to expect a 40 year old cleaner to be paid more than a 25 year old accountant. It is important to consider occupation, skill level and industry alongside age and gender.

Across the regions of the UK, the mean age of those in employment ranges from 39 – 42 years. London has the lowest average age at 39, with South West the highest at 42. The gender split of employees also does not vary greatly across the regions. London has the highest percentage of males at 56% and Scotland the lowest at 52%. For all the other regions the percentage of males is 53-54%.

Sector

As well as difficulties in comparing pay between the regions of the UK because of the different factors discussed within this paper, there are also difficulties in comparing pay between the public and private sectors as discussed in Section A.

The percentage of the workforce working in the public sector compared to the private sector varies across the regions and countries of the UK. For example, 17% of those employed in London work in the public sector compared to 28% of those in Northern Ireland.

Table 30

Public sector employment as a percentage of total employment, Q2 2012, regions in England and the devolved countries in the UK

| | <i>Percentage</i> |
|--------------------------|----------------------------------|
| | Public sector¹ |
| North East | 23 |
| North West | 20 |
| Yorkshire and The Humber | 21 |
| East Midlands | 18 |
| West Midlands | 20 |
| East of England | 16 |
| London | 17 |
| South East | 16 |
| South West | 18 |
| Wales | 25 |
| Scotland | 24 |
| Northern Ireland | 28 |

Table notes:

1. Royal Bank of Scotland Group plc and Lloyds Banking Group plc are included in the public sector estimates

Download table

 [XLS format](#)
(18.5 Kb)

Source: Office for National Statistics

Jobs undertaken in the private sector are often very different to those in the public sector making it difficult to compare jobs and therefore pay. Also the total remuneration can be different in each sector. For example, whilst in both sectors employees may receive pension contributions from their employer, a form of deferred earnings, employees in the private sector may also receive a company car or health insurance as a form of remuneration. This is a significant payment to the employee that would not be included in their earnings.