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IDS

‘Public Sector Pay Premium’
Fact or Fiction?

A report for Unison

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From

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1 Executive Summary

It is not the case that all public sector workers earn more than all private sector workers. Nor is it the case that all public sector workers have counterparts in the private sector.

Comparisons between earnings for jobs in the public sector and earnings for jobs in the private sector have to be done with care and precision. Like must be compared with like. Average pay in each sector reflects the different mix of jobs and skills in each sector. There may be a difference in the average for each sector but any difference does not necessarily establish a 'pay premium'.

The private and public sectors are different in a number of respects. The private sector employs 80 per cent of all employees in the UK economy. It is not an undifferentiated whole but contains a variety of sectors, from finance to construction to manufacturing to retail and distribution. It has the largest number of the highest paid people in the economy but also has the largest number of the lowest paid people.

By contrast, the public sector, with 20 per cent of all employees, has a very different occupational, skill and gender mix to that of the private sector. It has a higher proportion of professional employees and contains a much higher proportion of women workers - around two-thirds of all public sector employees are women.

These substantial differences in income levels and occupational characteristics mean that average pay in any one sector will reflect all the complexity of skill mix, qualification, experience, responsibility, gender and seniority in each sector. This makes it even harder to draw simple comparisons. A number of organisations including the Office for National Statistics, Policy Exchange and the Institute for Fiscal Studies have tried to compare public and private sector pay using 'regression analysis' to account for the different characteristics of each workforce.

Although initial comparisons put the public/private sector pay difference at around 8 per cent, as more variables have been included in the regression models, to better take account of differences between the two sectors, estimated differences between the public and private sector have dropped sharply. Some recent comparisons have even suggested that the estimated differences are in favour of the public sector.

Additionally, many key factors that determine public and private sector wage differences cannot be properly accounted for by the two main public data sets used to compare public and private sector wages, ASHE and the LFS. These include experience and responsibility levels. It is not at all clear that a regression analysis that adequately takes into account all variables would show public sector wages to be above private sector wages.

Also, recent research in the US has highlighted that regression comparisons based on what is known as a comparison of 'log wages' can significantly overstate wage differences between the public and private sector (in favour of the private sector). This is because public sector wages are much less dispersed than the private sector. All the regressions looked at in this IDS report compare log wages.

Both the Annual Survey of Hours and Earnings (ASHE) and the Labour Force Survey (LFS) used to compare public and private sector earnings have a number of weaknesses and drawbacks. ASHE does not include the self-employed and the LFS is self-reported and is in many cases answered by proxy. Additionally, neither the LFS or ASHE adequately take into account bonus payments, pension contributions and non cash benefits such as company car allowances and private healthcare.

Bonuses, for example, are an important factor in earnings levels but because ASHE data presents a snapshot of earnings in April each year, it underestimates the impact of bonuses, typically paid between December and March and which are much more prevalent in the private sector.

IDS's own pay benchmarking and the pay benchmarking of other organisations, which is specifically designed to compare roles of like responsibility in similar organisations, consistently find that rather than a public sector 'pay premium', wages in the public sector are below wages in the private sector for comparable roles.

2 Introduction

The idea of a public sector 'pay premium' is a recent invention. Since around 2009/10, the idea of a 'pay premium' has been used to claim that all public sector workers earn more than all private sector workers. It has also been used to claim that all public sector workers earn more than their 'counterparts' in the private sector.

In reality there is no pay premium for those working in the public sector. It is not the case that all public sector workers earn more than all private sector workers. Nor is it the case that public sector workers all have counterparts in the private sector. There is no equivalent of the public sector operating in the private sector.

Previous research published by the ONS had shown that earnings' growth in the period from 2000 to 2008 had run neck and neck between the public and private sectors, perhaps with a marginal advantage to the private sector. So the claimed emergence of a huge pay premium in favour of the public sector came as a surprise, particularly the newspaper headlines[1] claiming that public sector workers were 'more than 40 per cent better off' than employees in the private sector.

The fact is that comparisons between earnings in the public sector and earnings in the private sector have to be done with care and precision. Like must be compared with like. It is well established that average pay in each sector reflects the different mix of jobs and skills in each sector so why would anyone compare averages and draw inappropriate conclusions? There may be a difference in the average for each sector but any difference does not establish a pay premium.

Critics of the public sector are often rather blind to the nature of pay and employment in the private sector. The private sector employs 80 per cent of all employees in the UK economy. It has the largest number of the highest paid people in the economy – in finance and business services - and the largest number of the lowest paid people – in retail, hotels, restaurants, care services and cleaning.

High salaries in the private sector are not just commanded by the top directors and senior managers in banking, finance and business services. The UK has a substantial share of higher paid people in multi-national corporations many of which are in sectors such as the airlines, aviation manufacturing, the defence industries, the car industry, chemicals and

1 See http://www.telegraph.co.uk/news/politics/8501369/Workers-in-the-public-sector-are-more-than-40pc-better-off.html and http://www.telegraph.co.uk/finance/jobs/9697750/Public-sector-workers-earn-86-more-a-week-than-private-sector.html

pharmaceuticals and oil and energy. In addition there are large numbers of highly paid professionals in accountancy, the law, information technology and professional engineering.

In addition to these highly paid groups, the private sector has a large number of employees in the lower paying industries, particularly in wholesaling, retail and hotels and restaurants, a sector with around 6.6 million workers, close to 23 per cent of all employees. Many of these employees work at or just above the National Minimum Wage and many work part-time.

By contrast, the public sector, with 20 per cent of all employees, has a very different occupational, skill and gender mix to that of the private sector. It has a higher proportion of professional employees, a higher proportion of graduates as a consequence, and contains a much higher proportion of women workers - around two-thirds of all public sector employees are women, with much higher proportions in the NHS, teaching and in local government.

These substantial differences in income levels and occupational characteristics mean that average pay in any one sector will reflect all the complexity of skill mix, qualification, experience, responsibility, gender and seniority in each sector. It makes it even harder to draw simple comparisons.

Furthermore, some of the earnings data in the Annual Survey of Hours and Earnings and the Labour Force Survey are not robust enough to make a detailed comparison of the public and private sectors. For instance, ASHE underestimates the impact of bonuses, other non-cash benefits and does not include the self employed, which include many of the highest private sector wage earners. Meanwhile, the LFS is self reported, often by proxy and includes many low earners in the public sector, which are in reality working for private sector contractors.

3 Average Weekly Earnings across the economy

Looking at the ONS series on Average Weekly Earnings (AWE) we can examine average earnings in the larger sections of the economy rather than simply looking for a public/private sector split. The AWE measure gives the average earnings for all employees in a particular sector. Each large sector has a weight in the whole based on the number of employees working in the sector, as shown in the table below.

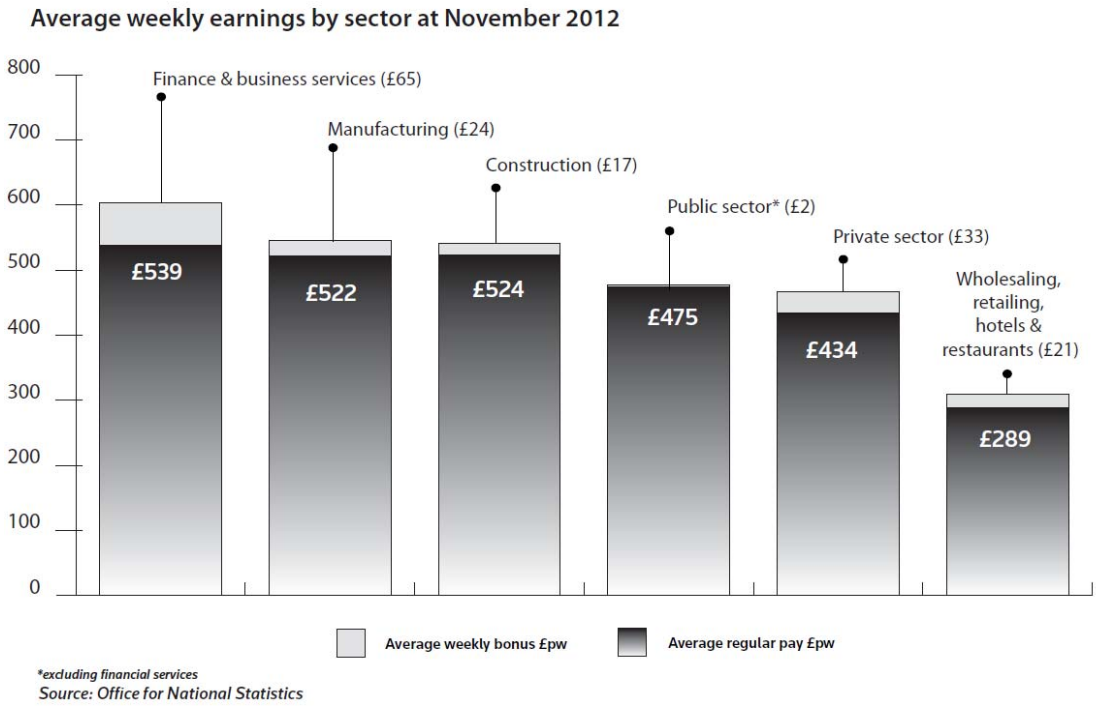
Some 20 per cent of employees work in the finance and business services sector - exactly the same as the proportion of employees working in the public sector. Yet average weekly earnings in finance and business services are £611 compared with £476 in the public sector. So, clearly there is a pay advantage to working in banking and finance rather than in public services but no-one refers to this as a finance sector 'pay premium'.

Table 1 Average Weekly Earnings November 2012

Sector	£pw	Proportion of UK employees %
Finance & business services	611	20
Manufacturing	545	9
Construction	542	4
Private sector	468	79
Public sector (excl. nationalised banks)	476	20
Public sector (incl. nationalised banks)	487	21
Wholesale/retail/hotels/restaurants	309	23

Source: ONS

Graph 1: Average weekly earnings by sector at November 2012



What the AWE figures, above, do show is that average weekly earnings in finance and business services, manufacturing and construction are well ahead of the public sector. However, average weekly earnings in the private sector as a whole are lower than the public sector (excluding the nationalised banks). The main reason for this is that the lower-paying sector of wholesale, retail, hotels and restaurants, with average weekly earnings of £309, has 23 per cent of employment and exerts a strong downward pressure on the average for the whole of the private sector.

A further point is that while the ONS has two definitions for the public sector, including or excluding the nationalised banks, it does not show a series for the private sector including the nationalised banks. Were it to do so then the private sector average would be raised closer to the public sector average.

A third point is that the current figures are significantly distorted by the re-classification in June 2012 of 196,000 staff in FE and sixth form colleges from the public sector to the private sector. Because this group of employees were earning below the average in the public sector, their exit raised the average in the public sector and in fact lowered the average in the private sector.

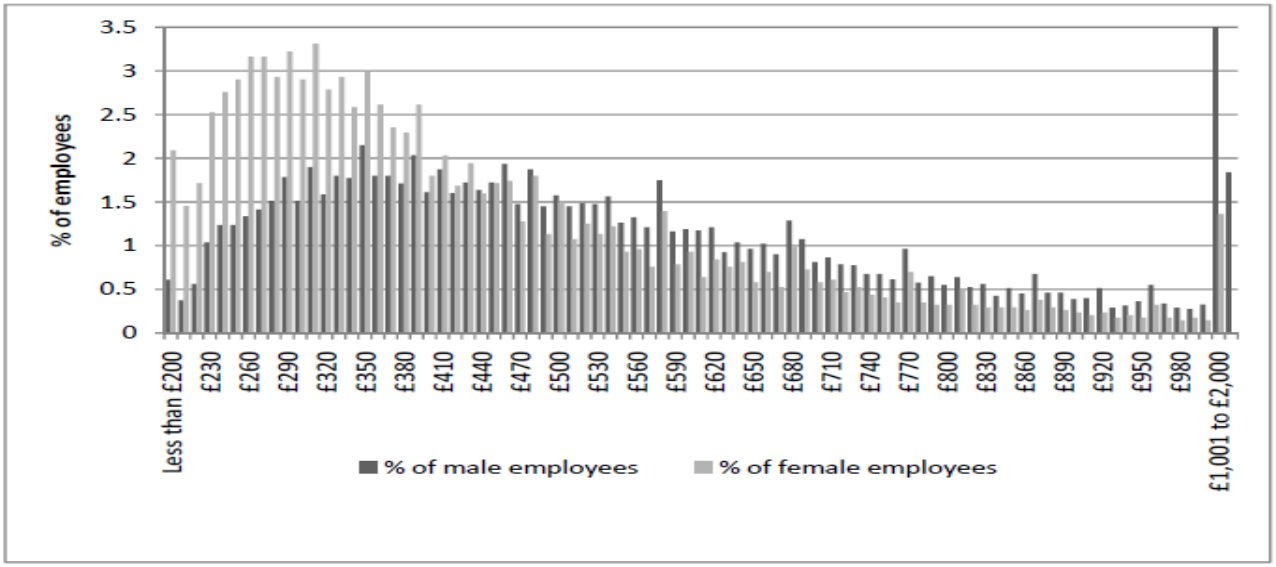
4 Earnings distributions are different

We can also illustrate how the overall earnings distributions for the public and private sectors are really rather different. Using data from ASHE we can create bar charts showing the proportion of full-time employees at each earnings level, in £10 intervals. We can then compare the findings.

In the private sector, the average earnings figures are heavily influenced by the very large number of employees in lower-paying jobs at one end, particularly among women employees, and the much higher proportion of higher-paying jobs to the right of the bar chart. By comparison, the distribution of earnings in the public sector is more in the intermediate range.

Graph 2: Public sector earnings distribution

Graph 3: Private sector earnings distribution



Source: ASHE 2011,ONS

At the lower end of the distribution there is a pay gap in favour of the public sector and a pay difference in favour of the private sector at the higher end.

The pay gap in favour of the public sector is not about comparing like with like jobs. It is largely due to the private sector having a huge number of jobs paid at or close to the National Minimum Wage at the bottom of the wage distribution. This has been exacerbated in the past decade with the large degree of outsourcing of lower skill jobs from the public to the private sectors, so there are now fewer low skilled employees in the public sector.

5 Different occupational groups in official statistics

By examining the earnings figures by industrial sector we begin to get to grips with a key issue – each major industrial segment of the economy has quite different occupational groups within it. There is not an equivalent of the public sector operating in the private sector which is paid less. It is a simple point, but nonetheless seems not to be understood by the advocates of the public sector 'pay premium'.

Advocates of the public sector 'pay premium' make a strange assumption that all roles in the public sector have 'counterparts', as they call them, in the private sector, when in general they do not. There are around 1.5 million employees working in the NHS and there is not an equivalent group in the private sector, nor is there an equivalent school system with 500,000 teachers in the private sector.

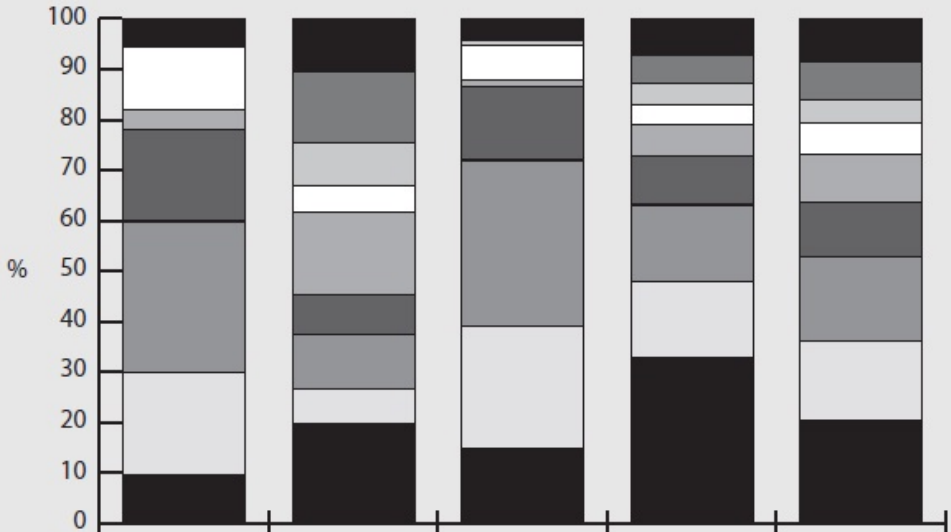
The finance and business services sector employs a wide range of people from cashiers to IT professionals to accountants and top bankers. Manufacturing companies employ professional engineers, chemists, technicians, craft-workers and semi-skilled engineering staff. The construction industry employs planners, architects, crane drivers and electricians. The retail and hospitality sector employs shop staff, distribution drivers and bar staff.

By contrast, around 50 per cent of public sector employees are professional and associate professionals in role such as doctors, nurses, midwives, teachers, social workers and police officers. The earnings for some of these groups tend to be in the middle to higher end of the pay distribution because they are professional roles requiring degree-level qualifications and this tends to raise the average earnings of the sector.

Graph 4: shows that the occupational structure of the public and private sector earnings figures contained in the Annual Survey of Hours and Earnings (ASHE) in each region varies significantly. Different proportions of higher or lower paid occupations in any sample will produce correspondingly high or low median or average earnings figures. In the North East, for example, over a third of the private sector sample is in three of the lowest paid occupations: sales and customer service; process, plant and machine operatives and elementary, compared with just 5.6 per cent in the public sector. In contrast, the higher paid occupations are represented more heavily in the public sector in the North East than in the private sector. These sample differences alone are sufficient to explain why public sector earnings overall appear to be higher in the North East than in the private sector.

Graph 4: Occupational composition of ASHE sample in NE, London and the UK at April 2011

Graph 1: Occupational composition of ASHE sample in North East, London and the UK at April 2011 (Source: ECR/ONS)



	NE Public %	NE Private %	London Public %	London Private %	UK %
Elementary Occupations	5.5	10.5	4.3	7.4	8.5
Process, Plant And Machine Operatives	0.0	14.0	0.0	5.5	7.5
Sales And Customer Service Occupations	0.0	8.7	0.9	4.3	4.6
Personal Service Occupations	12.5	5.0	7.1	3.8	6.2
Skilled Trade Occupations	4.0	16.6	1.4	6.3	9.6
Administrative And Secretarial Occupations	18.0	7.6	14.4	9.6	10.5
Associate Professional And Technical Occupations	30.0	10.8	33.0	15.3	16.9
Professional Occupations	20.5	7.0	24.0	15.1	15.8
Managers And Senior Officials	9.5	19.8	15.0	32.8	20.3

(Source: ECR/ONS)

6 The different characteristics of the public and private sectors

Previous research by both IDS and the ONS[2] has focussed on different occupational profiles in the private and public sectors. A key point which is raised in this research is that the composition of both the private and the public sectors has changed over recent years and this has to be taken into account. For example, a large swathe of lower-paid and unskilled work has been outsourced from the public to the private sector. This has been on such a large scale that it has raised the average level of earnings in the public sector while simultaneously lowering the average in the private sector.

A detailed analysis of the differences between the public and private sector can be found in the appendix to this report. Some of the main findings are that:

- The public sector has a much higher proportion of higher-skilled jobs, with 59 per cent of employees in the high skill and upper middle skill categories compared to 49 per cent in the private sector
- Some two-thirds of the public sector workforce are women, many of whom are employed in professional roles. In the NHS, the largest employer in the UK, around 81 per cent of the 1.1 million non-medical roles are performed by women.
- The public sector has a higher proportion of older employees. Earnings generally tend to increase with age and experience. These older employees tend to be in long-term careers as doctors, teachers, nurses, midwives and social workers
- The public sector workforce has a higher proportion of people with a degree or an equivalent qualification, 40 per cent in April 2011 compared with 25 per cent in the private sector

6.1 Weaknesses of ASHE and LFS for measuring public and private sector pay

These substantial differences in income levels and occupational characteristics mean that average pay in any one sector will reflect all the complexity of skill mix, qualification, experience, responsibility, gender and seniority in each sector. It makes it even harder to draw simple comparisons. Furthermore, the earnings data in the Annual Survey of Hours and Earnings (ASHE) and the Labour Force Survey (LFS) come with their own attendant weaknesses and drawbacks.

2 See '*Public and private sector earnings: fact and fiction*', IDS Pay Report no. 1075, July 2011; '*Public and private sector pay – an impossible comparison*', IDS Executive Compensation Review no. 372, February 2012; '*Estimating differences in public and private sector pay*', ONS, 2012

6.2 ASHE

The data from ASHE is a snapshot of earnings in April each year, collected through a 1 per cent sample of employee jobs through PAYE tax records. As a result, the more the data is subdivided by sector, occupation, region, gender and so on, the more it changes each year due to sampling variations and the less reliable it is.

Moreover, within ASHE, there are a number of different measures of 'average' pay. The ONS' chosen headline figure is median gross weekly earnings, but series are also available for hourly pay and annual pay, with or without incentive pay or bonuses, each of which is published as an average as well as a median figure. The comparative figures within these can vary surprisingly widely depending on what is being examined. Each of these series come with their own strengths and weaknesses, and there is no 'right' measure that is perfect for comparison between sectors. However, if a researcher is looking for evidence to support a pre-determined contention, there is enough choice within ASHE that they can usually find it.

The ASHE outcomes present a snapshot of earnings in April each year. Because of this, the data underestimates the impact of bonuses, which are typically paid between December and March each year, and are much more prevalent in the private sector. It also does not take account of other non-cash benefits, such as employer pension contributions, company car allowances and private health insurance, among other things.

Because it is based on PAYE records, ASHE does not include the self-employed, an expanding group that grew by almost 6 per cent to 4.2 million individuals in the two years to November 2012. This includes a large number of mid-range earners in roles such as carpentry, plumbing or taxi driving, but also many of the highest-earning individuals in private enterprise, including lawyers, independent consultants and entrepreneurs among other professions.

Lastly, comparing ASHE data by public and private sectors is made even more difficult because the public sector data includes employees at financial institutions such as RBS and Lloyds Group that were wholly or partly nationalised following the financial crisis of 2008. As publicly-owned bodies, these employees appear in the public sector count, but are actually in traditionally private-sector businesses, that are run in a private sector style and are expected to return to the private sector as soon as possible.

6.3 LFS

The Labour Force Survey data is collected through a survey of UK households, covering around 100,000 individuals in the most-recently released figures. The LFS is a useful social indicator and provides the main source of data for employment figures, but has significant flaws when used for in-depth comparison of earnings figures.

Firstly, the survey is conducted through questioning individuals face to face or over the telephone rather than through data reported by employers through the payroll, and this self-reporting element introduces a larger margin for error. Furthermore, the survey can be completed by proxy, meaning that in around a third of cases, members of a household are estimating the earnings of other individuals in the household. This enhances the margin for error.

Another weakness of the LFS is that the survey participants are somewhat self-selecting. The questionnaire is not compulsory to complete, and the response rate has declined significantly over the last 13 years. In the three months to November 1999, the LFS covered around 60,000 households, and more than 140,000 individuals. In the three months to September 2012, it covered 42,655 households, and just under 100,000 individuals. The lowest response rates are recorded in inner and outer London, where pay is typically higher than the rest of the country[3].

A third problem with the LFS is the reliability of its data on the division between public and private sectors. The survey contains a question on the sector in which individuals work, but the self-reported nature of the data again causes problems. The ONS looked at the reliability of its Annual Population Survey, which is derived from the LFS, and reported that it gave a figure for total public sector employment that was around 1 million people, or 15 per cent higher, than its other sources:

'Estimates of the number of people working in the public sector from the [Annual Population Survey] are generally much higher than ONS's official quarterly estimates of [public sector employment]. This is partially because many people who work within public sector premises, whilst being employed by private sector organisations, will classify themselves as working in the public sector, for example cleaners or security guards employed by a contractor to work at public sector premises.'[4]

[3] Labour Force Survey Performance and Quality Monitoring Report July to September 2012, ONS, released 14 November 2012.
[4] A Brief Guide to Sources of Public Sector Employment Statistics', ONS information note, 11 January 2011.

7 Problems with 'comparators'

One of the peculiar aspects of those who claim to have discovered a public sector 'pay premium' is the belief that all public sector occupations have private sector 'counterparts'. Reports by the think-tank Policy Exchange[5] into public and private sector earnings looked at various job categories within ASHE and compared public sector average earnings for each occupation with the equivalent figure for the private sector.

According to Policy Exchange, some 288 jobs in ASHE are 'comparable categories' of which 167 (58 per cent) show higher average earning in the public than the private sector on the measure the think tank used. However, an ONS occupational classification is not in itself any guarantee that jobs are being compared on a like with like basis. For example, one of the occupations highlighted by Policy Exchange in their report is that of 'sports and leisure assistant', showing a higher average earnings level in the public sector workforce. From this, we might assume that these figures compare earnings for employees in gyms and leisure centres and show that those run by councils pay higher wages for similar skills than those run by private operators.

But this would be not just an oversimplification but is also demonstrates a naïve approach to the labour market and the complexity of ONS job classifications. A closer look shows that the ONS code for sports and leisure assistants' covers no less than 57 separate job titles. These include gym assistant, pool attendant and lifeguard, but also job titles as diverse as professional gambler, croupier, golf caddie, master of ceremonies, wardrobe mistress, and a range of jobs in museums, such as educational assistants and guides.

This demonstrates that the notion of 'comparable jobs' is harder to measure than some commentators might think. The presence of museum workers in this category demonstrates a wider point – that even within the same occupational category, workers in differing sectors may be doing entirely different jobs requiring different skill sets.

Another occupational category highlighted by Policy Exchange is that of 'primary and nursery education teaching professionals'. According to their chosen measure, median annual pay for this employee group was £33,140 in the public sector and only £21,159 in the private sector. But this grouping of primary school teachers, who are predominantly employed in the public sector, with nursery school teachers, who are predominantly employed in the private sector, makes any attempt to compare and contrast public and

5 Policy Exchange- 'Public and private sector terms, conditions and the issue of fairness', Holmes & Oakley, May 2011& '*Further analysis on the public sector premium*', Oakley, November 2011

private sector earnings practically meaningless. In no way are we comparing like with like. They are not 'counterparts' as they have different skills and qualifications.

Even if nursery and primary school workers were perfectly balanced between the public and private sectors, a look at the job titles included in this occupational category reveals that it lumps together all teaching professionals including head teachers, regular teachers and dance lecturers, and even monks and nuns attached to religious primary schools.

Examining the average earnings of a group including nursery teachers, primary school heads and affiliated monks and nuns may well provide a useful snapshot of aggregate earnings in pre-secondary education. It is emphatically not useful, however, for comparing earnings between the public and the private sectors, since no attempt is made to give weight to the numbers of employees in different jobs.

Similar difficulties arise with teaching at secondary levels and above. Analysis of earnings in the private sector would have to separate out those teachers in the leading 'public' schools, those with accommodation in boarding schools and the earnings of those in so-called language schools above shops on Oxford Street in central London.

ASHE occupational categories may provide a means of benchmarking across groups of employees, but cannot be used to compare sectors in which the categories have different compositions, different job titles, different skill sets and different responsibilities.

8 Attempts to compare public and private sector pay

Given the differing characteristics of the public and private sectors, various organisations have undertaken what is called a regression analysis in order to determine the 'true' public-private sector pay difference. Organisations undertaking regression analysis of public and private sector pay include: the ONS, the Institute for Fiscal Studies, Policy Exchange, as well as researchers at Swansea University, and recently the economist David Blanchflower. A summary of their findings is given in the table below:

Table 2 **Summary of different regression findings since July 2011**

Regression	Date published	Dataset	Difference
Original ONS regression model	July 2011	ASHE	9.1*
Original ONS regression model	March 2012	ASHE	9.0**
Original ONS regression model adjusted for bonuses	Nov 2012	ASHE	7.2
Updated ONS regression model	Nov 2012	ASHE	7.3
Updated ONS regression model including organisation size	Nov 2012	ASHE	2.2
Policy Exchange	November 2011	LFS	8.9
Institute for Fiscal Studies 2012	February 2012	LFS	8.3
Institute for Fiscal Studies 2013	February 2013	LFS	5.2
Swansea University female public/private difference (Actual hours)	June 2012	LFS	6.0
Swansea University female public/private difference (Usual hours)	June 2012	LFS	5.3
Swansea University male public/private difference (Actual hours)	June 2012	LFS	-2.0
Swansea University male public/private difference (Usual hours)	June 2012	LFS	-4.1
David Blanchflower	Dec 2012	LFS	-2.0
*7.8 per cent including LFS adjustment for qualifications **8.2 per cent including LFS adjustment for qualifications			

Source: IDS

It is significant to notice that different regression analyses give different results. Although the initial regression analysis by the ONS[6], IFS[7] and Policy Exchange[8] gave similar findings, putting the public/private difference at between 7.8 per cent and 9.1 per cent, since then a number of other regression analyses have found that the supposed differences between the public and private sector are much lower.

This includes the ONS themselves who subsequently adjusted their analysis to better take into account the impact of bonuses on pay levels. When the ONS supplemented salary data from ASHE, with bonus data from the Average Weekly Earnings series (AWE), the ONS found

[6] '*Estimating differences in public and private sector pay*', ONS, 2011
[7] Institute for Fiscal Studies- '*IFS Green Budget*', Chapter 5: Public Sector Pensions and Pay, Emerson & Jin, February 2012
[8] ibid

that the public/private difference dropped from 9.0 per cent to 7.2 per cent. However, more significantly, when the ONS adjusted for organisation size, it was found that the difference between the sectors dropped to just 2.2 per cent.

These findings are supported by other estimates. When academics at Swansea University undertook a regression they found that for men, looking at usual hours worked, wages in the private sector were actually 4.1 per cent higher than in the public sector. A recent regression by the former monetary policy committee economist David Blanchflower found that private sector workers earned 2 per cent more than public sector workers.

Such research suggests that actual differences between the sectors might be much lower than the original 7-9 per cent range estimated by the ONS, IFS and Policy Exchange and widely quoted by the Treasury. In fact, subsequent regressions suggest that private sector wages might even be higher than public sector wages.

8.1 What is regression?

Regression is a statistical technique that takes account of the impact of various variables on something. For instance, if we want to measure differences in pay between the public and private sector, these differences might be because one sector is simply paid more than the other, but it might also be because of different age structure in one sector or the other; higher qualification levels in one sector or the other; or a different gender balance.

What a regression analysis tries to do is strip away the differences caused by the additional factors and find out precisely what the difference in wages is purely by virtue of someone being in the public sector rather than the private sector. I.e., it tries to find out what someone of exactly the same age, with exactly the same skill levels, with exactly the same qualifications and so forth would be paid if they worked in one sector rather than the other.

And yet despite trying to control for these factors, researchers have produced different findings. The reason for this is that the outcome of a regression analysis will depend on how you do it, what variables are controlled for and how suitable the data is for undertaking a regression analysis.

8.2 Swansea University's robustness check of the IFS public-private pay estimates

In June of 2012, academics at Swansea University published a robustness check of the IFS's analysis of public and private sector wage differences. Although the IFS had controlled for age, education, qualifications and region, they had not controlled for a number of other factors which research had shown to affect earnings. These included job tenure, organisation size, occupation, the impact of working part-time and managerial responsibility.

What the research from Swansea University found, not unsurprisingly, was that when additional variables known to impact pay were controlled for, the findings changed. For example, rather than the average male public sector wage being 8.9 per cent more than the private sector as the IFS's variables would suggest, using Swansea's full specification of variables suggests that for men, the average wage in the private sector is 2.0 per cent higher than the public sector.

Fuller details of Swansea's findings are found in the table below, and show how the findings are affected using different methodologies, and by specifying different variables. This includes an estimate based on usual hours worked rather than actual hours worked. This is because research has found that actual hours worked can over-inflate the hourly earnings figure – in part because actual hours do not properly take into account holiday pay. Using usual hours worked, Swansea found that the pay difference changed from 7.1 per cent more for men in the public sector to 4.1 per cent more for men in the private sector. Not included in the table is the effect of union membership, which Swansea found lowered public sector wages in comparison to the private sector.

Table 3 Comparison of variables measured and findings between IFS and Swansea University analysis

	IFS specification	IFS plus qualification & regions	Swansea 'full' specification'*
Variables measured	Age, age squared, age left full time education	Age, age squared, age left full time education, highest qualification, region	Age, age squared, age left full time education, highest qualification, region, all qualifications, job tenure, plant size, occupational controls, part time/full time, managerial responsibility, ethnicity*
Difference: Actual hours, women (%)	16.0	11.2	6.0
Difference: Actual hours, men (%)	9.1	5.3	-2.0
Difference: Usual hours, women (%)	15.7	10.5	5.3
Difference: Usual hours, men (%)	7.4	3.1	-4.1
*Union membership not included as this reduces the sample size, but including this variable also reduces any pay differences further			

(Source: Swansea University/IDS)

8.3 Methodological problems with regression?

Recent research from the United States Congressional Budget Office[9] on pay differences between the public and private sector has found that most regressions can significantly overstate the differences between public and private sector workers due to the methodology that they use. Because the wages of public sector employees are substantially less dispersed than similar workers in the private sector the research suggests that it is not valid to use a statistical method to compare what is known as 'log wages' (the logarithm of public and private sector wages).

Using an alternative regression methodology to log linear regression, the CBO found that federal wages were 2 per cent above private sector wages compared to a typical 14 to 19 with log linear regressions. The CBO attributes such variations largely to this different approach to regression. This has an important bearing on the reliability of estimates of public private differences in the UK, as all the estimates that have been undertaken are based on a comparison of log linear wages.

Additionally, Swansea University highlights that other differences between the two sectors, particularly around choice of which sector to work in may similarly skew any findings. As the research states, 'If decisions around whether to work or not and whether to seek work in the public or private sector are not random, OLS estimates may be biased and may give a misleading impression of the correct regional public/private sector wage differential.'

[9] See '*Comparing Wages in the Federal Government and the Private Sector*' The Congressional Budget Office, January 2012

8.4 How suitable are the variables?

The findings from Swansea pose an important problem for calculating public and private sector wage levels. It shows that the results of comparisons depend on both the variables being controlled for, and also technical choices such as which measure of hours is to be used. But how suitable are the available variables themselves for use as part of a regression analysis? For example, experience is a variable which is commonly controlled for as it impacts on wages. However, the Labour Force Survey does not directly measure experience. Instead researchers take the age at which someone left full-time education, and combine this with a person's age. They do this to determine a 'proxy variable' which stands in for a measure of how much experience a person has.

But such a proxy has a number of drawbacks. Particularly, it does not take into account time spent outside of the labour market. This could be due to periods of unemployment or long-term illness, or it could be for child-rearing or other reasons. Given that many women leave the labour market for extended periods to raise children and that there are a higher proportion of women in the public sector than men, it raises the question of whether such a proxy for experience accurately represents experience, particular across genders.

And yet time spent within the labour market, is only one measure of experience. Equally important is the experience a person has in their current profession and current role. While both ASHE and the Labour Force Survey are able to measure job tenure, they are unable to measure the length of time someone has been in their current profession – how long they have been a teacher or a lawyer or an airline pilot. This is important as it measures the impact on wages of an individual who has changed career.

8.5 Missing variables

Examples such as the issues over how to accurately measure experience, highlight a key problem with using regression. As stated before, the findings from any regression model depend on the factors controlled for in the model. If a factor that impacts on pay differentials in the public and private sector is not included in the analysis, then the findings from any analysis will not truly represent wages in the public and private sector.

This fact is echoed by the ONS, who state that[10], 'there may be other factors not collected...that if controlled for would affect the pay difference between the public sector and private sector.' The ONS go on to say that due to the difficulty of calculating the public/private sector pay gap, their estimate, 'is exactly that – an estimate of the pay gap

[10] See '*Estimating differences in public and private sector pay*', ONS, 2012

rather than an authoritative measure of the difference in the average earnings of the public sector and the private sector.'

Variables which are likely to impact on pay, which have been controlled for in analyses in other countries, but have not been factored into to any of the IFS, Policy Exchange and ONS analyses include:

- Ethnicity: Different ethnic groups are likely to face different barriers to entry into the public and private sector workforce
- Citizenship: Similarly non-UK citizens will be able to access the public and private sector labour market in different ways (probably across genders too).
- Size of urban area/travel to work area: In the private sector, rural areas are less likely to attract large employers, which are known to pay more, as there will be an overall shortage of labour. Likewise, employers requiring a pool of highly skilled workers e.g. IT/Technology firms are less likely to locate away from major population centres. In contrast, many public sector roles will be spread more evenly across the population.

8.6 Responsibility levels not properly accounted for

One factor more than any other though is missing from most attempts to compare public sector wages - the responsibility level of a role. Workers with more responsibility levels are likely to have higher wages than workers with lower levels of responsibility. In fact responsibility is such a key variable, that for benchmarking organisations such as IDS, along with skill level, it is one of the major determinants of appropriate wage levels for a given job.

Given that there is a higher proportion of public sector workers in professional occupations, and that in the private sector there are higher proportions of elementary occupations and manual operative occupations, any failure to properly factor in responsibility level will have an important impact on the results of any comparison between the two sectors.

But the two main public datasets (ASHE and LFS) have only a very limited ability to factor in responsibility level because it is not something that is extensively surveyed by them. The LFS asks whether a respondent is a manager, supervisor or neither, and also whether the respondent has the authority to hire or dismiss employees, while ASHE asks a simple yes/no question: "did the employee have direct supervisory or managerial control of any other employee(s)?" This however does not give an indication of whether someone has responsibility for managing lots of people or just a few people, and it does not ask about the seniority of those managed, both of which are key indicators of level of managerial responsibility.

Knowing the exact number of employees managed or how senior they are, are themselves only limited parts of an employee's overall responsibility levels. Someone might have responsibility for the lives of other people, as in the case of doctors, nurses and paramedics; others might have responsibility for giving high level or highly important advice as in the case of lawyers, business advisors or senior civil servants. Yet none of these measures of responsibility are picked up by ASHE or the LFS.

8.7 Is regression the best technique for comparing public and private sector pay?

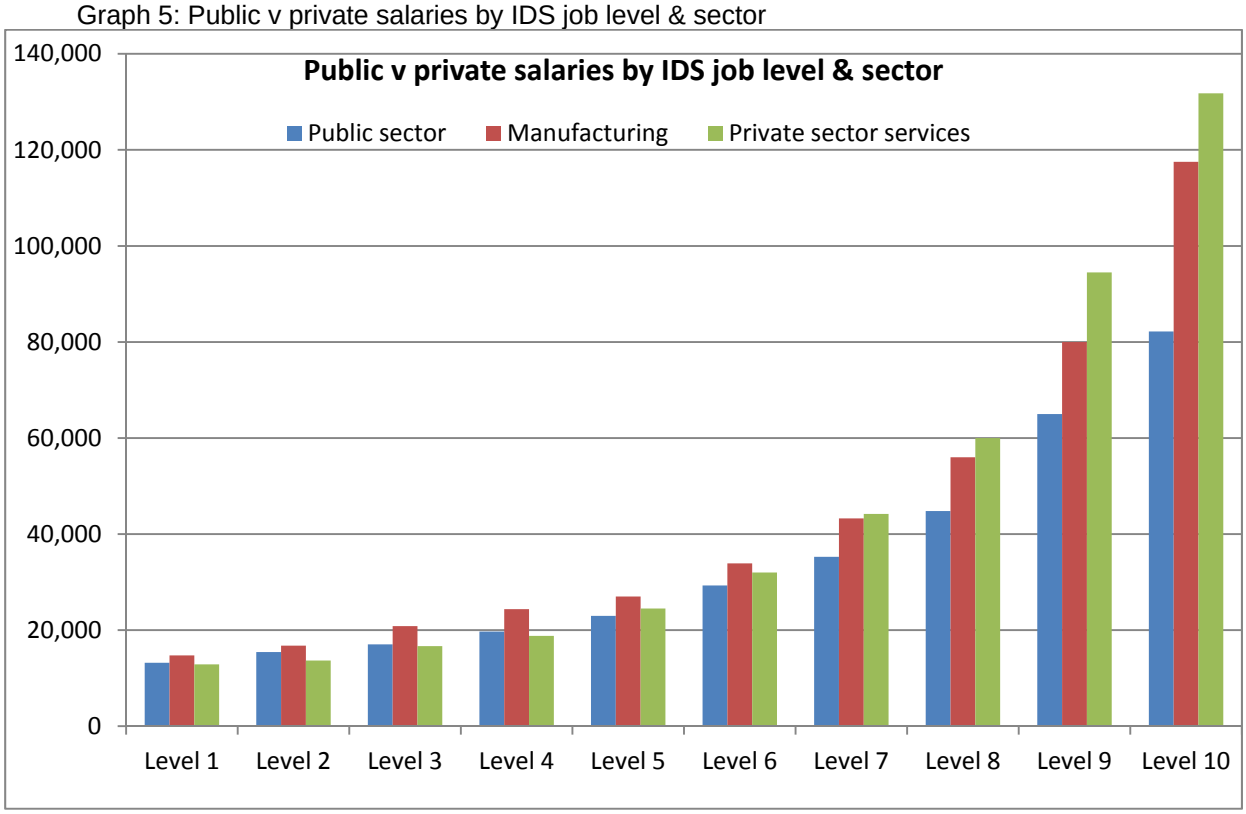
As has been outlined, there a number of methodological shortcomings with comparing public and private sector pay through regression, and a close analysis suggests that regression techniques can provide misleading figures into pay differences between the public and private sectors.

In part, these drawbacks are because the regression techniques lump together, without distinction, occupations as diverse as teachers, private sector managers, cleaners, nurses, bankers, aerospace engineers, train drivers and shop assistants. But it is also because the data that regression is based on is unable to compare what is most fundamental - roles with a similar span or responsibility, requiring a similar level of skills in organisations of a comparable size.

Such an analysis is what HR professionals do when they benchmark roles between different organisations. And such benchmarking is undertaken following a complex analysis of the job description of a role and what a particular role involves on a day to day basis. It is also why major private sector organisations make extensive use of benchmarking, rather than looking solely at the wage levels of occupations in publicly available datasets.

As can be seen in the graph below, using data from the IDSPay.co.uk database and based on our own job evaluation methodology, an alternative picture of public and private sector pay differences emerges. This shows that while public sector pay at the lower responsibility levels is higher than in private sector services (but not manufacturing), it falls further and further behind at higher responsibility levels. The problem with the current regression approaches is that they compare broad occupational sectors that take no account of the more complex factors shaping the distribution of earnings within an occupation.

Graph 5: Public v private salaries by IDS job level & sector



Source: IDSPay.co.uk

9 Conclusion

As this report has shown it is not the case that all public sector workers earn more than all private sector workers. Nor is it the case that public sector workers all have counterparts in the private sector. There is no equivalent of the public sector operating in the private sector.

The fact is that comparisons between earnings in the public sector and earnings in the private sector have to be done with care and precision. Like must be compared with like. The different characteristics in each sector need to be taken into account before drawing any conclusions. And likewise, it needs to be recognised that huge sectors of the private sector, including finance and business services, manufacturing and construction all have higher average earnings than the public sector. In reality, it is the large amount of low paid private sector workers in wholesale, retail, hospitality and catering/restaurants that bring the aggregate wages of the private sector below the public sector.

But where comparisons between the public and private sector have been made, they have not been made with care and precision. When estimating a public/private sector wage differential for 2011/12 of 5.2 per cent, the Institute of Fiscal Studies stated in its recent Green Budget[11], that:

> "It is possible that these numbers are capturing unobserved differences between public and private sector workers, and therefore do not reflect a true pay 'premium' per se."

And yet such calculations have informed the evidence in the Treasury's submissions to the public sector pay review bodies, and so it is vital that the estimates accurately reflect levels of public and private sector pay.

Meanwhile, the alternative approach to public and private sector comparisons, the approach which genuinely does compare like with like – pay benchmarking – is rarely mentioned within the context of the debate on public and private sector pay. It does not generate newspaper headlines, and yet it is the most reliable way of comparing pay levels between organisations of similar size and roles of similar responsibility. And consistently, IDS's own extensive benchmarking data and the data from other major benchmarking organisations find that rather than a public sector pay premium, wages in the public sector are below wages in the private sector for comparable roles.

[11] See: Institute for Fiscal Studies- '*IFS Green Budget 2013*', Chapter 6: Public spending and Pay, Rowena Crawford, Jonathan Cribb and Luke Sibieta, February 2013.

As our analysis has shown, most public/private sector pay comparisons are not factoring in, or are unable to factor in, many of the most important variables known to affect wage differences between the public and the private sector. Additionally, many of the most recent comparisons, factoring in some of these additional variables, are showing a sharp drop in the differences between public and private sector pay. Some even suggest that public sector wages are lower than private sector ones. This shows that at the very least, until there is a more thorough understanding of the methodological drawbacks of the comparisons, the findings need to be used with much more care and caution than they are being used at the moment.

10 Appendix

10.1 Differences in skill levels

The ONS has carried out research[12] into the different levels of skill within the public and private sectors which produce some striking results. It has also compared the skill levels in 2002 and compared these with 2011 and the results show some remarkable changes over a quite short period of time.

The ONS analysis classifies jobs from low skill to high skill for each sector. It shows a much larger percentage of workers in the two highest skill groups in the public sector compared with the private sector. Overall, some 59 per cent of public sector employees are classified as either high skill or upper middle skill compared with 59 per cent of private sector employees. As the public sector is made up of a more skilled workforce than the private sector, on average public sector pay would be expected to show a difference, though skill level is not the only factor involved.

Table 4 Percentage of employees by skill level, April 2011, UK

Skill level	Public sector % in sector	Private sector % in sector
High skill	31	26
Upper middle	29	23
Lower middle	32	36
Low skill	8	15

Source: ASHE, ONS

If we compare the skills picture in 2011 with that of 2002 we see some very substantial changes, particularly in the low skilled category. Over the decade we saw large-scale outsourcing of lower paid jobs from the public sector to the private sector and the scale of this is revealed if we compare the ONS data for 2002 and 2011.

[12] See ONS '*Estimating Differences in Public and Private Sector Pay at the National and Regional Level*', November 2012

Table 5 Percentage of employees by skill level, April 2002, UK

Skill level	Public sector % in sector	Private sector % in sector
High skill	23	23
Upper middle	30	24
Lower middle	35	40
Low skill	12	13

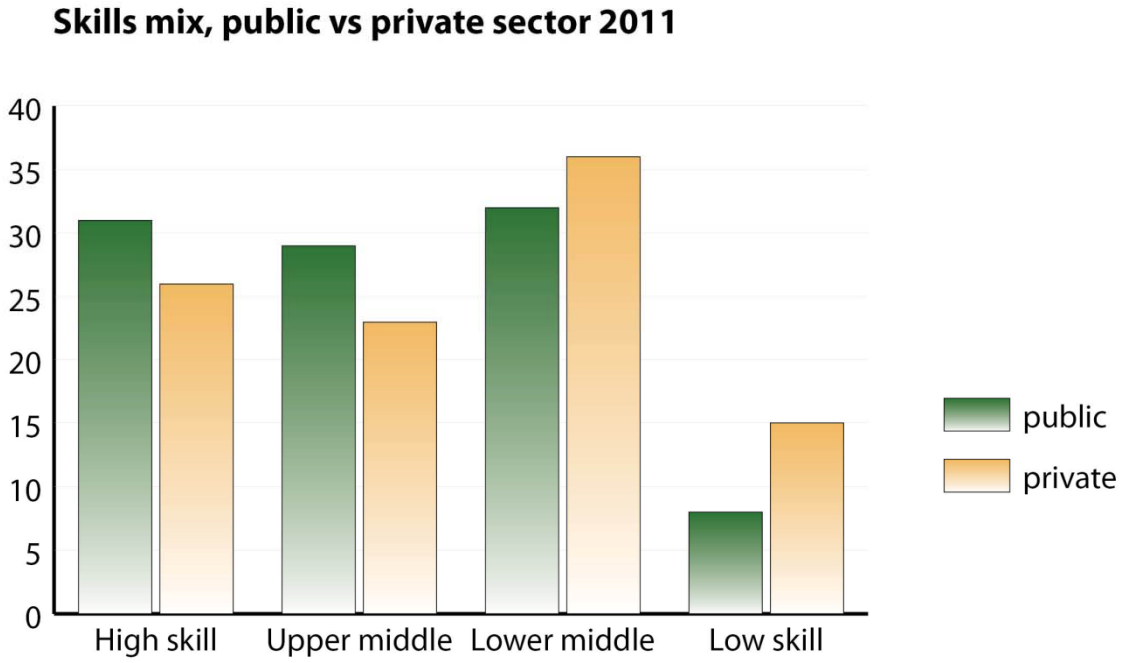
Source: ASHE, ONS

The ONS data shows that in 2002, the earliest year available with skills data on the same basis as 2011, around 12 per cent of public sector employees were employed in low skill occupations compared with around 13 per cent in the private sector. A comparison with 2011 shows that the proportion of low skill jobs in the public sector declined to 8 per cent while it grew to 15 per cent in the private sector.

Meanwhile, between 2002 and 2011, the percentage of employees with high skills in the public sector grew from 23 per cent to 31 per cent. By contrast, the percentage of employees with high skills in the private sector grew much less, from 23 per cent to 26 per cent.

Over the time period average pay in the public sector will have risen because a smaller proportion of workers are now employed in low-skilled jobs. By contrast, average pay in the private sector is reduced as the low-skill jobs that were previously carried out in the public sector are incorporated into the private sector.

Graph 6: Skills mix, public vs private sector 2011



Source: ONS

10.2 Gender profiles of the workforces

One of the most profound differences between the public and the private sector workforces is that the public sector is dominated by women workers, with around 66 per cent of employees being female, and an even higher proportion in the National Health Service. By contrast, the ratio is almost reversed in the private sector, where 41 per cent of employees are female.

It is well known that women employees in the public sector earn considerably more, on average, than female employees in the private sector. But this has nothing to do with any notion of a public sector 'pay premium'. It is due to the different jobs that are typically carried out by women in the public and private sectors.

In the private sector, the female-dominated roles tend to be lower-skilled and significantly lower paid, including the five 'c's of catering, cleaning, cashiering, clerical work and caring. In the public sector, by contrast, female-dominated roles include caring and clerical work but there is also a high proportion of women employed in professional, higher paid occupations, such as teaching and nursing. This difference in skills is shown in the following table.

Table 6 Percentage of female employees by skill level, April 2011, UK

Skill level	Public sector % in sector	Private sector % in sector
High skill	28	19
Upper middle	26	15
Lower middle	38	51
Low skill	8	15

Source: ASHE, ONS

10.3 Proportions of women employees in parts of the public sector

While the proportion of women employees in the public sector is around 66 per cent, it varies across the sector with the highest proportions being found in the NHS, teaching and in local government. The table below shows these proportions. Most of the available data for this table is based on 2010 and 2011 before substantial cuts to the workforce, but the proportions will not have altered greatly.

Table 7 Proportions of female employees in the public sector

Employee group	Proportion of female employees	Total workforce	Reference period
Police offices in England and Wales	26.2	139,586 FTS	12 months to 31 March 2011
Police staff	68.6	94,146FTE*	12 months to 31 March 2011
Nursery and primary school teachers**	85.9	196,300 FTE	November 2010
Secondary school teachers	60.2	195,600 FTE	November 2010
Teaching assistants**	93.7	213,900 FTE	November 2010
Civil Service	53.3	434,980	Quarter 1, 2012
Local government (E&W)	75.9	2,012,200	Quarter 4, 2011
NHS – Medical and Dental Staff	42.7	99,394	September 2011
NHS – All non-medical staff	80.9	1,083,637	September 2011

*Includes PCSOs

**Teachers & teaching assistants in local authority maintained and academy schools in England only

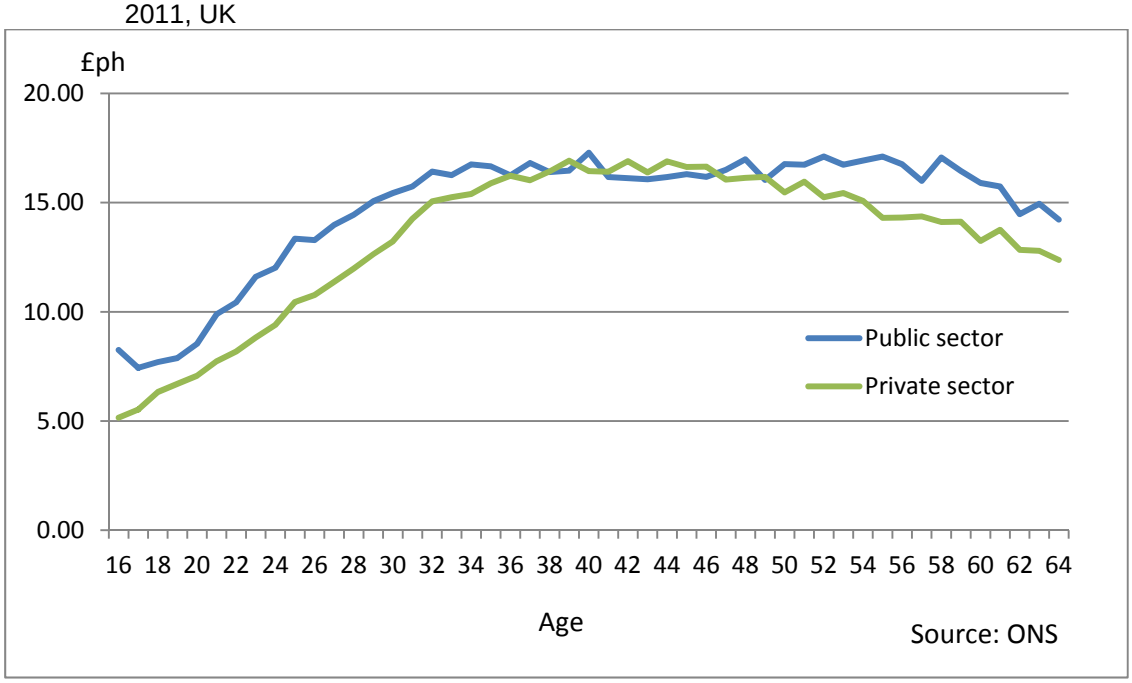
Source: IDS

10.4 Age and experience

Earnings tend to increase with age and experience and this is true in both the public and private sectors. ONS data[13] shows that average mean hourly earnings peak for people in their early 40s in both sectors. They decline slightly approaching normal retirement date and data shows that the decline happens earlier in the private sector than in the public sector.

The ONS thinks 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 the fact that they have higher earnings.

Graph 7: Mean hourly earnings by age in the public sector and private sector, April 2011, UK



The ONS data shows that the public sector generally has an older workforce than the private sector. Around 15 per cent of employees in the private sector are aged 16 to 24 compared with just 5 per cent of employees in the public sector. By contrast, around 45 per cent of public sector workers are aged 35 to 49 compared with around 38 per cent of private sector workers.

IDS analysis shows that a variety of factors are at work here. One is that many roles in the public sector require degree level skills or equivalent so people are in training for longer. Then people enter long-term careers as doctors, teachers, nurses, midwives or social

13 See ONS *'Estimating Differences in Public and Private Sector Pay at the National and Regional Level'*, November 2012

workers. As many of these people are professional women workers their longer career trajectories are important is terms of household incomes.

An insight into different levels of staff turnover in the public and private sectors was recently provided by the ONS[14] in its analysis of earnings growth for those who had not changed jobs between April 2011 and April 2012. For this group of workers, earnings grew by 3.8 per cent in the private sector and by 2.8 per cent in the public sector, much higher rates of growth than for all workers which was close to 1.5 per cent in each sector.

The table below shows the proportions of full-time and part-time staff in the public and private sector who stayed in the same job or moved to a different job in the ASHE surveys for 2011 and 2012. It shows that 80 to 90 per cent of employees remain in post. It also shows a tendency for public sector employees to stay in post in greater proportions, consistent with professional workers having longer careers. There are a higher proportion of part-time workers in the private sector changing jobs, many of whom will be in the lower paying sectors.

Table 8 Proportions of jobs in the public and private sectors in which the employee was in the same job for at least one year at the time of the 2011 and 2012 ASHE surveys

		2011		2012	
		% same job	% different job	% same job	% different job
Public sector	Full-time	87.8	12.2	89.7	10.3
	Part-time	84.5	15.5	86.4	13.6
Private sector	Full-time	82.9	17.1	82.4	17.6
	Part-time	74.0	26.0	73.4	26.6

Source: Ashe, ONS

14 Presentation by ONS, November 2012

10.5 Differing levels of qualifications

Employees with higher levels of qualifications tend to earn more than employees with lower levels of qualifications. Using Labour Force Survey data, and taking an average over the four quarters of 2011, the ONS estimates[15] that 40 per cent of employees in the public sector had a degree or an equivalent qualification, compared with 25 per cent in the private sector. A higher qualified workforce would, on average, receive higher pay than a less qualified workforce. It would therefore be expected that, on average, the higher level of qualifications in the public sector would lead to higher average earnings in the public sector compared to the private sector.

The ONS previously found[16], when comparing employees who have a degree or an equivalent qualification, that those in the public sector earned around 5.7 per cent less than those in the private sector on average in 2010.

Table 9 Percentage of employees by highest qualification, four quarter average 2011, UK

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

Source ONS, LFS

15 '*Estimating differences in public and private sector pay*', ONS, 2012
16 '*Estimating differences in public and private sector pay*', ONS, July 2011

10.6 Organisation size

As the ONS stated in their recent report[17] exploring public and private sector earnings differences, there are important differences between the size of organisations in the public and private sectors. The ONS explains that there is a great deal of academic work which shows that large organisations tend to pay more than small organisations. This is attributed to several factors such as working conditions, responsibility and unionisation. IDS would add that larger organisations in the private sector tend to be leaders in their industrial sector and are possibly multi-national companies in sectors such as oil production, petrochemicals, pharmaceuticals, banking, insurance, precision engineering, car manufacture, aviation and engineering construction.

The ONS explains that organisation size is important as public sector employees tend to be concentrated in large organisations with at least 500 employees, whereas for the private sector some 49 per cent of employees are in organisations of 500 employees or more but 51 per cent are in organisations with fewer than 500 employees.

The ONS says that across the economy, employees in large organisations with 500 or more employees earned, on average, 24.9 per cent more than those working in organisations with fewer than 500 employees in the UK in 2011. A further finding in the latest ONS analysis is that the pay difference is quite different at the lower end of the pay distribution compared to the higher end.

17 See ONS '*Estimating Differences in Public and Private Sector Pay at the National and Regional Level*', November 2012