

Presentation of the Gender Pay Gap

ONS Position Paper

Stephen Hicks and Jennifer Thomas
4 November 2009

Contents

Executive Summary

1. Introduction
2. Current practice in ONS statistical bulletins
3. User presentation of the gender pay gap
4. The composition of the UK workforce
5. A wider set of measures
6. Different comparators
7. Measures of 'average'
8. Hourly earnings
9. Overtime
10. Tables for inclusion in the ASHE statistical bulletin

Executive Summary

- Monitoring the difference in men's and women's pay is important for understanding the impact of equal pay legislation and other policies aimed at reducing inequality between men's and women's pay.
- The review finds that there is no one measure that is appropriate as a single measure of such a complex issue.
- ONS will headline on a set of measures to look at the differences in men's and women's pay, rather than concentrating on just full-time employees, in both the Annual Survey of Hours and Earnings and the annual Civil Service Statistics statistical bulletins.
- The set of measures will comprise the following:
 - All female employees' average pay compared with all male employees' average pay
 - Female full-time employees' average pay compared with male full-time employees' average pay
 - Female part-time employees' average pay compared with male part-time employees' average pay
- ONS will continue to give prominence to the median as the best measure of average due to the statistical properties of earnings data and to ensure consistency with other earnings estimates in ONS statistical bulletins. Differences in men's and women's mean pay will continue to be included alongside differences in median pay. Differences in men's and women's pay across the earnings distribution will also be reflected in ONS statistical bulletins.
- ONS will continue to use hourly earnings in the ASHE statistical bulletin for calculating the gender pay gap. When calculating gender pay comparisons based on annual earnings information for the Civil Service Statistics statistical bulletin ONS will put part-time employees' earnings on an equivalent basis to full-time employees' earnings.
- ONS will continue to exclude overtime and bonus payments when making comparisons between men's and women's pay.

1. Introduction

Monitoring the differences between men's and women's pay (referred to as the gender pay gap) is important for understanding the impact of equal pay legislation and other policies aimed at reducing inequality between men's and women's pay. Since the introduction of equal pay legislation (Equal Pay Act 1970), there has been a strong interest in the position of women's pay compared to that of men's. Official statistics play an important role in allowing users to understand this difference and also how this has changed over time. When interpreting aggregate gender pay statistics from official sources it is important to recognise what the surveys measure and to appreciate what these estimates do and do not tell us about the differences in men's and women's earnings.

The Office for National Statistics' (ONS) principal source for structural earnings statistics is the Annual Survey of Hours and Earnings (ASHE). This is the preferred source for looking at the differences in men's and women's pay as it has a large sample and gathers earnings information from employers. Added to this, ONS collects information earnings from Civil Service departments and uses these to make gender pay comparisons, which are published in the Civil Service Statistics statistical bulletin.

There is no single measure of a gender pay gap and different users adopt different measures. The definitions used for calculation can have a large effect on the size of the gap. This was recently underlined in a UK Statistics Authority Monitoring and Assessment note published in June 2009¹. It highlighted that the ONS

headline estimate of 12.8 per cent² was very different to the estimate of 23 per cent used in a Government Equalities Offices (GEO) press release on 27 April 2009³. The ONS estimate was based on the difference between male and female full-time employees' gross median hourly earnings, while the GEO estimate was based on all employees, including both full-time and part-time employees.

The Statistics Authority note concluded that neither estimate of the gender pay gap was entirely satisfactory as an impartial and objective headline estimate and suggested that a more extensive set of measures was needed to present the differences between men's and women's pay. ONS has reviewed the way it presents differences in men's and women's pay in an attempt to:

- identify different approaches for presenting the gender pay gap in the UK and internationally
- evaluate the approaches, with particular emphasis on the choice of comparator used and the measure of 'average' adopted
- set out principles on how the gender pay gap should be presented in future ONS statistical bulletins

¹ UK Statistics Authority Monitoring and Assessment note: <http://www.statisticsauthority.gov.uk/assessment/monitoring-and-assessment-notes/monitoring---assessment-note-4-2009--gender-pay-gap.pdf>

² 2008 Annual Survey of Hours and Earnings (ASHE) Statistical Bulletin: <http://www.statistics.gov.uk/pdfdir/ashe1108.pdf>

³ GEO Press release accompanying publication of Equality Bill: http://www.equalities.gov.uk/media/press_releases/equality_bill.aspx

2. Current practice in ONS statistical bulletins

The statistical bulletin relating to ASHE⁴ is released in November each year. The aim of the statistical bulletin is to highlight the release of earnings estimates for that year and compare them with final estimates from the previous year. Accompanying the statistical bulletin are detailed associated tables made available on the ONS website⁵. The ASHE release contains, amongst other indicators, estimates of the difference between men's and women's pay. Following the release of the statistical bulletin, an analytical article is published, which provides a more thorough description of the estimates as well as providing further context, including time series⁶. Other ad-hoc analytical articles have also been produced to explore further the differences in men's and women's pay⁷.

In the ASHE statistical bulletin the main focus is on the earnings of full-time employees. This is partly because there is a significant focus on weekly and annual earnings estimates in the bulletin. These estimates are better presented and compared on a full-time basis, to take account of the different hours that employees work. When hourly earnings are examined the differences in hours

worked are taken into account, but to aid consistency with the weekly and annual estimates the main focus is also on full-time employees. However, estimates for part-time and all employees are also provided in the bulletin. Another reason for the focus on full-time employees is explained by the history of the survey and its design. The New Earnings Survey, the predecessor of ASHE, was first conducted in the 1970s at a time when the prevalence of part-time employment was lower. Also the sample of employees for ASHE is selected from the PAYE system and so (typically part-time) employees that earn below the income tax threshold are not covered. The self-employed are not covered in the survey and therefore estimates in the ASHE statistical bulletin refer to employees only⁸.

In terms of a measure of the 'average' the median is preferred to the mean when presenting earnings estimates. In statistical bulletins, ONS aims to present the typical difference between employees' pay taking account of the statistical properties of the underlying data. Because earnings estimates exhibit a skewed distribution, with a long tail of high earners, the median is considered a better indicator of typical pay than the mean. It is for this reason that median estimates have been used in ONS releases since the redevelopment of the New Earnings Survey in 2004, when it was renamed the Annual Survey of Hours and Earnings.

⁴ The 2008 ASHE first release is available to download using the following link:

<http://www.statistics.gov.uk/pdfdir/ashe1108.pdf>

⁵ The ASHE on-line tables are available from the following web page: www.statistics.gov.uk/ashe

⁶ Dobbs, C (2009) Patterns of Pay: results of the Annual Survey of Hours and Earnings 1997 to 2008, Economic and Labour Market Review, 3 (3), pp 24-32.

<http://www.statistics.gov.uk/cci/article.asp?ID=2108>

⁷ Leaker, D (2008), The gender pay gap in the UK. Economic and Labour Market Review 2 (4), p.19-24.: http://www.statistics.gov.uk/elmr/04_08/downloads/elmr_08_leaker.pdf

Barnard, A (2008), Modelling the GPG in the UK: 1998-2006. Economic and Labour Market Review 2 (8), p. 18-24: http://www.statistics.gov.uk/elmr/08_08/downloads/ELMR_Aug08_Barnard.pdf

⁸ Alternative sources for estimating the gender pay gap include the Labour Force Survey (LFS). This is not ONS's preferred source for earnings estimates. However, it is still useful because it can provide estimates of men's and women's pay by different personal characteristics not available in ASHE, for example number of dependent children and ethnicity. Where possible, ONS recommends using ASHE to look at gender pay gap statistics but recognises that there is still a role for the Labour Force Survey. For that reason Leaker (2008) examined the similarities and differences in gender pay gap estimates between the LFS and ASHE. Conclusions in this paper on presenting the pay gap in statistical bulletins also have relevance for presenting gender pay gap estimates from other sources in ONS analytical outputs.

Until now gender pay gap⁹ estimates have only been based on full-time employees in the ASHE statistical bulletin. However, estimates of men's and women's average earnings (full-time, part-time and all employees) have been provided in the bulletin (as well as associated on-line tables) to allow users to calculate pay gaps in different ways to meet their requirements.

Estimates of the gender pay gap based on the mean are presented in a table alongside estimates based on the median in the bulletin. This practice has been adopted in recognition of the advantages of using the mean for looking at the inequality of men's and women's pay in the labour market.

The ONS Civil Service Statistics statistical bulletin¹⁰ presents detailed information collected directly from Civil Service departments via the Annual Civil Service Employment Survey (ACSES). The release has, until now, highlighted the gender pay gap based on median annual earnings of male and female full-time permanent employees. As well as this, the gender pay gap by grade has also been provided to illustrate how much of the difference is due to more women being represented in lower grades than men. A table published within this statistical bulletin provides a breakdown of median annual earnings of permanent male and female employees of the Civil Service for full and part-time employees separately and together (all

employees). Added to this, the statistical bulletin also draws attention to the number of employees in different earnings bands to illustrate the distribution of earnings in the Civil Service. Estimates are based on annual gross earnings and exclude overtime and bonus payments.

Three of the associated on-line tables with this bulletin give the percentage difference in the average earnings for male and female permanent employees based on the median as well as the mean for each government department. These tables use full-time equivalent estimates of annual earnings to take account of the lower number of hours that part-time employees work and to enable comparisons to be made on a like-for-like basis.

It is important to note that gender pay gap estimates presented in ONS statistical bulletins do not reveal the extent of the difference in pay for men and women undertaking comparable jobs. They are not a measure of the extent of non-compliance with equal pay legislation, which is concerned with equal pay for equal work or work of equal value.

3. User presentation of the gender pay gap

Estimates from ASHE (and in some cases ACSES) are reported and further analysed by different users. There is no single way that the gender pay gap can be calculated and presented from the statistics that ONS makes available. The different approaches yield different gender pay gap estimates.

A review of users' presentation of gender pay gap statistics has shown that most tend to present more than one measure, with the choice of comparator and the measure of 'average' varying. In regard to a headline measure, there is little consistency in adopting the median or mean as the 'average' measure, nor

⁹ The gender pay gap is calculated by dividing women's average pay by men's average pay and multiplying this by 100. This ratio is then taken away from 100, which is the pay gap between average men's and women's pay.

$$100 - ((\text{Women's pay} / \text{Men's pay}) * 100)$$

It is possible for women's earnings to be greater than men's so that the percentage pay gap is negative. In some cases analysts stop short of calculating a gap and present the ratio of men's and women's pay rather than the percentage pay gap. ONS calculate the gap and present this in its statistical bulletins rather than the ratio. ONS will continue with this practice and recommend that this is adopted as much as possible by other users to avoid any potential confusion.

¹⁰ 2009 Civil Service Statistics Statistical Bulletin:
<http://www.statistics.gov.uk/pdfdir/cs0109.pdf>

choice of comparator group. In contrast, the main users identified in the UK used an estimate based on hourly earnings excluding overtime in preference to looking at weekly or annual earnings and including overtime in their headline measures.

The preferred headline measure of the gender pay gap by the Government Equalities Office (GEO) is the all employees measure, which includes full-time and part-time employees together. When using ASHE, GEO compares median gross hourly earnings (excluding overtime) of female employees with male employees. Alongside this measure, GEO looks at the gender pay gap of female full-time employees compared with male full-time employees as well as comparing female part-time employees' pay with male full-time employees' pay. These alternative measures tend to be used to give background or context where required.

When using estimates of the gender pay gap for the Civil Service and departments within it, GEO also prefers to take full and part-time employees together (all permanent employees) and base the estimates on median annual earnings.

GEO has proposed the use of the all employees measure - the overall gender pay gap - for the reporting duties of public bodies with more than 150 employees outlined in the Equality Bill. It is also currently used for the monitoring of the gender component of Public Service Agreement target 15 on Equality.¹¹ The Equalities and Human Rights Commission (EHRC) has recently consulted (on behalf of the government) on the measures that should be developed for voluntary gender pay reporting for non-public sector employers with 250 or more employees.¹²

The EHRC chooses to compare mean female full-time employees' earnings with mean male full-time employees' earnings and supplements this with a comparison of mean women's part-time gross earnings with the mean men's full-time gross earnings for its headline measures for the whole economy.

The Trades Union Congress (TUC) uses the same measures as the EHRC when reporting on the gender pay gap in their publications. When the Confederation of British Industry (CBI) use earnings information made available by ONS to look at gender pay statistics, they focus on comparing median gross earnings of female full-time employees compared with median gross earnings of male full-time employees.

In its annual report to the government,¹³ the Low Pay Commission (LPC) headlines on the difference between median male full-time and median female full-time employees' gross earnings. However, given its remit, it also focuses on the difference at the lowest decile. Added to this, LPC has also looked at the differences across the earnings distribution since the introduction of the National Minimum Wage, to assess the impact on the gender pay gap.

In regard to the devolved governments, the Welsh Assembly Government (WAG) makes comparisons between men's and women's pay using full-time mean gross hourly earnings excluding overtime. Statisticians in the Scottish Government recommend using full-time median gross hourly earnings (excluding overtime) when comparing male and female employees' pay whilst making estimates using the mean available on request. The Close the Gap group in Scotland compares the

¹¹ http://www.hm-treasury.gov.uk/d/pbr_csr07_psa15.pdf

¹² http://www.equalityhumanrights.com/uploaded_files/consultations/gender_pay_consultation.pdf

¹³ Low Pay Commission Report, (2009) National Minimum Wage, Low Pay Commission Report: http://www.lowpay.gov.uk/lowpay/rep_a_p_index.shtml

mean gross hourly earnings (excluding overtime) of male and female full-time employees and also mean gross hourly earnings (excluding overtime) for female part-time employees compared with male full-time employees¹⁴.

The Department of Enterprise, Trade and Investment in Northern Ireland¹⁵ compares full-time median gross hourly earnings of male and female employees excluding overtime in its annual ASHE statistics bulletin for Northern Ireland. However, the Office of the First Minister and Deputy First Minister in Northern Ireland has recently published a discussion paper where it considers the merits of using a set¹⁶ of measures to assess the gender pay gap.

Internationally there are a range of ways that the difference in men's and women's pay is presented, which may reflect national circumstances and specific equal pay legislation. Eurostat recommends presenting the gender pay gap using the arithmetic mean stating that, "to show the whole picture of the gender pay gap all employees should be included, in particular the extreme earnings should get an appropriate weight as they are relevant for the gender pay gap."¹⁷ With regard to choice of comparator, they adopt an all employees gender pay gap measure with overtime pay included. It is for this reason that ONS submits gender pay gap estimates from ASHE on this basis to Eurostat each year. The Organisation for Economic Cooperation and Development (OECD) uses a median full-time employees measure.¹⁸

The National Statistical Institutes (NSIs) that were consulted as part of this review¹⁹ tended to present a set of measures when looking at gender pay statistics, of which the coverage differed. Further, there appears to be little consistency in the headline estimates adopted. For example, USA headline on the median whereas Sweden headline on the mean. While New Zealand and the Netherlands present a headline measure based on all employees, USA and Sweden use a full-time employee measure. Australia use a range of measures when reporting on gender pay statistics and have adopted an approach where they inform on the different ways the gender pay gap can be measured and how these should be interpreted.

4. The composition of the UK workforce

The labour market position of men compared with women in the UK has a significant impact on the different measures of the gender pay gap.

We know that the difference in the employment rate (i.e. the proportion of working age people in employment) for men and women has narrowed considerably since the 1970's. The employment rate for men has fallen over time while for women it has increased, as more women have joined the workforce. At the start of 1971, the working age employment rate for women was 56 per cent compared with 69 per cent in the three months to August 2009. This increase compares with a similar sized decrease in the working age employment rate for men over the same period, with a fall from 92 per cent to 76 per cent.

¹⁴ <http://www.closesthegap.org.uk/>

¹⁵ http://www.detini.gov.uk/ni_ashe_2008.pdf

¹⁶ http://www.ofmdfmi.gov.uk/gender_pay_gap_measuremnt_in_ni_a_discussion_paper_pdf_560kb_.pdf

¹⁷ Eurostat, 2007. Task Force on Gender Pay Gap; Final Report.

¹⁸ <http://www.oecd.org/dataoecd/44/52/37962502.pdf>

¹⁹ Australia (ABS), New Zealand (Statistics New Zealand), Netherlands (CBS), Sweden (Statistics Sweden & National Mediation Office), USA (Bureau of Labour Statistics), Canada (STATCAN) & Ireland (CSO).

These changes now mean that men make up 53 per cent of total employment while women make up 47 per cent. When only employees are considered (i.e. when the self-employed are excluded as they are in ASHE) then the difference is even smaller with 51 per cent of employees being men compared with 49 per cent being women in 2009 (see *Table 1*).

However, although the difference in the number of male and female employees is now small, the hours that men and women work in their jobs still differs. Women are much more likely than men to work part-time. Forty one per cent of female employees worked part-time in March to May 2009 compared with 11 per cent of male employees (see *Table 1*).

It is not only women's hours that that differ to men's but also the type of work they undertake. When the male and female workforce is divided into occupational groups there are also differences (see

Figure 1). In April to June 2009 male employees were most likely to be working as managers and senior officials (19 per cent) while least likely to be working in administrative and secretarial (5 per cent), sales and customer services (5 per cent) and personal services (3 per cent) occupations. In contrast, female employees were most likely to work in administrative and secretarial occupations (20 per cent) and least likely to be in skilled trades (1 per cent) or process, plant and machine operatives (2 per cent). Female employees were also less likely to be employed as managers and senior officials (11 per cent) than men, but more likely to be employed in sales and customer services (11 per cent) and personal services (15 per cent) occupations. There were less pronounced differences between the proportion of men and women working in professional and associate professional occupations and elementary occupations (see *Figure 1*).

Table 1

Number of full-time and part-time¹ employees² by sex; March to May 2009

United Kingdom (thousands)

Seasonally adjusted

	Men	Women	All	Proportion who are women
Full-time	11,297	7,251	18,547	39%
Part-time	1,409	5,010	6,419	78%
All	12,705	12,261	24,966	49%
Proportion working part-time	11%	41%	26%	

Source: Labour Force Survey, ONS

Notes:

1 The split between full-time and part-time employees is based on respondents' self classification.

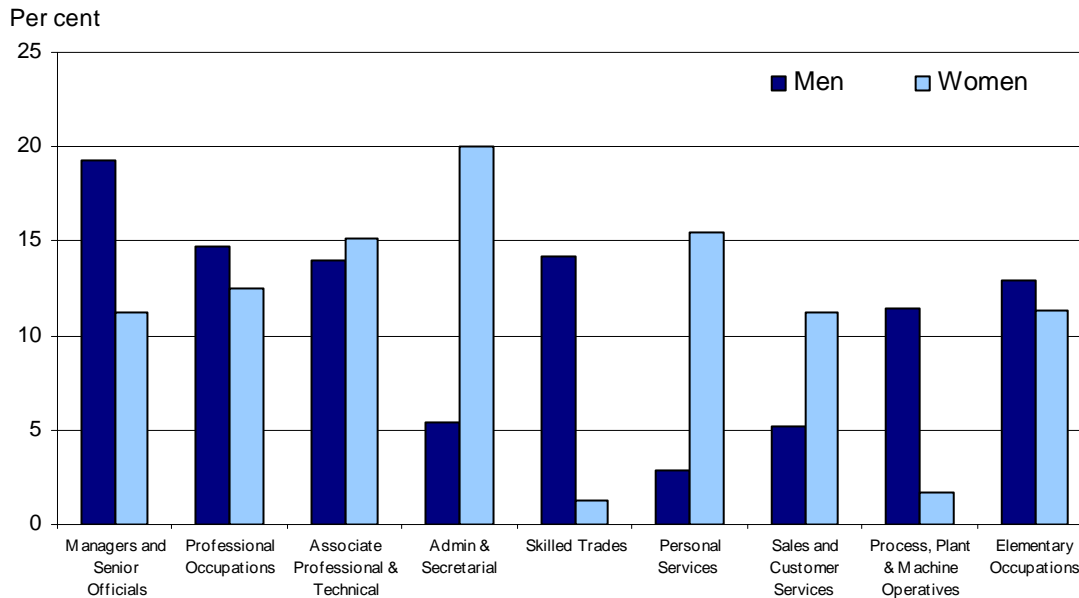
2 Figures are for employees only and do not include full-time and part time second employee jobs.

Figure 1

Proportion of male and female employees¹ in different occupational groups², April to June 2009

United Kingdom

Not seasonally adjusted



Source: Labour Force Survey, ONS

Notes:

1 Figures are for employees only and do not include full-time and part time second employee jobs.

2 Standard Occupational Classification 2000.

5. A wider set of measures

The higher prevalence of women in part-time work in occupations that tend to pay less is one reason for the differences between male and female employees pay.

For such a complex issue, there is no one measure that is appropriate as a single measure. Therefore ONS will headline on a wider set of measures in its statistical bulletins to reflect better the differences between men's and women's pay.

Exactly what this wider set of measures should include is considered further in the next section of this paper.

Conclusion 1: To better capture the composition of today's labour market and the complexity of this issue ONS

will headline on a set of measures in its statistical bulletins rather than focussing on a single headline measure when presenting the gender pay gap.

6. Different comparators

There are a number of ways that the comparison between male and female pay can be made, including:

- Comparing all employees' average pay, thereby comparing all female employees' average pay with all male employees' average pay.
- Restricting to full-time employees only, thereby comparing female full-time employees average pay with male full-time employees' average pay.

- Restricting to part-time employees only, thereby comparing female part-time employees' pay with male part-time employees' pay.
- Comparing female part-time employees' pay with male full-time employees' pay.

These are the most common methods that are adopted in the literature and also by the main users identified. However, this is by no means an exhaustive list and there are other ways that differences between men's and women's pay can be compared.

6.1 The impact of choice of comparator on the size of the gender pay gap

In the measurement of the gender pay gap, it is common practice to focus on full-time employees only. *Table 2* shows how the inclusion of part-time earnings in a measure of the gender pay gap, to cover all employees, increases the gender pay gap significantly (12.8% for median full time employees only against 22.5% for median all employees).

The main reason for this difference when using full-time employees only compared to all employees is due to what can be termed the part-time effect. The reason why the inclusion of part-time employees in the calculation increases the gender pay gap to such an extent is that part-time employees

(both men and women) earn less on average than their full-time counterparts and, as discussed earlier, a higher proportion (41 per cent) of these part-time employees are women, compared with only 11 per cent of men.

It is also possible to compare male part-time employees' earnings with female part-time employees' earnings. *Table 2* shows that the gender pay gap on this basis using the median is -3.5 per cent, indicating that average pay for male part-time employees was lower than female part-time employees in April 2008.

Another way that users calculate the gender pay gap is to compare female part-time employees' earnings with male full-time employees' earnings, often labelled the 'part-time pay gap'. The difference when this measure is used is much higher than when full-time and part-time employees are considered separately. The median gender pay gap when using this comparator was 39.9 per cent in April 2008.

Table 2

Median hourly earnings excluding overtime¹, April 2008

United Kingdom

	Men	Women	All	Gender pay gap
Full-time	£12.50	£10.91	£11.87	12.8%
Part-time	£7.26	£7.51	£7.49	-3.5%
All	£11.97	£9.27	£10.53	22.5%

Source: Annual Survey Hours Earnings, ONS

Notes:

¹Employees on adult rates, whose pay for the survey period was not affected by absence.

6.2 Choice of comparator

Section 5 outlined that the higher density of women in lower paid part-time occupations is one of the reasons for the difference in men's and women's average pay. It does not appear to be sufficient in today's labour market just to look at full-time men's and women's pay in isolation. The all employee measure takes account of the structural differences in the labour market that impact on men's and women's pay.

However, one disadvantage of using a measure that includes all employees is that the difference which is down to the inclusion of part-time employees is not easily seen. Taking full-time and part-time employees' pay together combines the different pay distributions, masking the differences between full-time and part-time employees' pay.

Splitting the sample into full-time employees and part-time employees and comparing men's and women's pay in each group has advantages. The full-time measure illustrates the size of the gender pay gap after controlling for the part-time effect, showing the extent to which these structural differences impact on the wider all employees measure. The presentation of women's part-time pay as a percentage of men's part-time pay alongside the full-time measure also illustrates that there are a number of men, as well as women, who are in lower paid part-time work.

Some users prefer the 'part-time pay gap' (which compares women's part-time pay with men's full-time pay) to the all employees gap. Users produce this statistic in recognition of the lower pay rates of part-time work compared to full-time work and the fact that women are more likely to work part-time than men.

This measure compares different pay rates of men and women in very different jobs - the occupations that female part-time employees work in are different to those of men and attract lower wages than full-time work.

ONS has concluded that it should headline on the following measures in its statistical bulletins in future:

- All female employees' average pay compared with all male employees' average pay
- Female full-time employees' average pay compared with male full-time employees' average pay
- Female part-time employees' average pay compared with male part-time employees' average pay

When presenting gender pay gap estimates it is important to describe what each measure is actually showing. For example, when the all employee pay gap is presented it should be made clear that this measure is influenced by compositional differences in the workforce, i.e. the larger proportion of women who work in lower paid part-time jobs compared with men.

ONS will not include the measure that compares female part-time employees' average pay with male full-time employees' average pay in its statistical bulletins. However, ONS will continue to make available in its statistical bulletins and on-line associated tables, estimates of men's and women's hourly pay for full-time and part-time employees to allow users to calculate this gap.

This measure of the pay gap needs careful explanation when it is used. To the casual reader of these statistics, the term 'part-time gender pay gap' could lead them to infer that this is measuring the

difference in pay between men and women in part-time employment.

ONS therefore believes it is important to state that this measure captures more than just pay differences due to gender, but it is also influenced by the differences that exist between part-time and full-time employees' earnings.

Conclusion 2: The set of measures in ONS statistical bulletins will comprise the following:

- **All female employees' average pay compared with all male employees' average pay**
- **Female full-time employees' average pay compared with male full-time employees' average pay**
- **Female part-time employees' average pay compared with male part-time employees' average pay**

7. Measures of average

As already noted, there is a choice as to whether the mean or median is used to look at differences between men's and women's pay. ONS already provides estimates of the gender pay gap based on the mean alongside those of the median in the ASHE statistical bulletin. Also the associated on-line tables for the ASHE statistical bulletin and the Civil Service Statistics statistical bulletin provide gender pay gap estimates based on the mean to supplement those calculated using the median.

7.1 The impact of different measures of 'average' on the size of the gender pay gap

It is important to understand that the choice of 'average' used does affect the estimate of the gender pay gap.

Table 3 shows that the difference in hourly earnings is largest when comparing all female employees with all male employees and smallest when comparing part-time employees, regardless of whether median or mean earnings are compared. However, it is not always the case that the difference is smaller when measured using the median rather than mean earnings. This is primarily because of the difference in the earnings distribution between part-time and full-time employees' pay.

When the focus is on the difference between full-time male and female employees pay the median yields a lower gender pay gap than the mean. *Table 3* shows that in April 2008, the median gender pay gap for full-time employees' hourly earnings excluding overtime was 12.8 per cent compared with 17.1 per cent using the mean. This is because of the relatively small number of highly paid employees that are more likely to be men than women.

However, it should be noted that when the gender pay gap for all employees is considered, the mean yields a slightly lower estimate than the median. *Table 3* illustrates that the gender pay gap using the median for all employees was 22.5 per cent in April 2008, compared with 20.9 per cent for the mean.

Figure 2 shows that both the male and female full and part-time earnings distributions have a long tail to the right of the distribution, but the part-time earnings distribution has a much larger percentage of employees on lower rates of pay. In April 2008, around 47 per cent of male and female part-time employees earned between £5.00 and £7.50 per hour

compared with around 14 per cent of male full-time employees and 20 per cent of female full-time employees. When calculating the median pay for full-time employees only, female employees who work part-time are not included and therefore the median hourly earnings estimate for women is closer to that of men's. When the lower paid part-time female employees are included median hourly pay is lower resulting in a higher gender pay gap for the all employee measure.

When female part-time employees' pay is compared with male part-time employees' pay the median yields a lower gender pay gap estimate than the mean because there is very little difference between male and female part-time earnings at the 50th percentile. In contrast, the mean is affected by the higher proportion of high earning male part-time employees compared to female part-time employees (See *Figure 3*).

7.2 Choice of the measure of average

When measuring differences in men's and women's pay the mean does have some advantages. The mean provides a summary statistic that is more sensitive to change at the tails of the earnings distribution. In contrast the median identifies the wage of the middle wage earner (it is the pay value below which 50 per cent of employees fall). Therefore, if there are increases in women's pay relative to men's at the bottom and top ends of the distribution the mean will pick this up more readily than the median, which will only show a change if the earnings of the middle of the distribution are affected (Anderson et. al., 2001)²⁰. Although, it should still be noted that the

median will be affected if the number of high or low earners changes.

Users that prefer the mean (for example, the TUC, EHRC and Eurostat) state that they do so because they are interested in capturing the difference in men's and women's pay across the whole of the earnings distribution. The TUC state in their report *Closing the Gender Pay Gap, An update report for the TUC's women's conference 2008*, that:

"Part of the story about pay inequality is that women are over-represented at one extreme of the distribution and men are over represented at the other extreme; this means that gaps calculated using the median under-state the size of the problem."²¹

Another benefit of using the mean measure over the median is that there is a longer historical time series available on that basis. At the inception of ASHE in 2004 a consistent time series was produced back to 1997, but estimates prior to that were not reworked. If interest lies in comparing the gender pay gap now with the 1970s then using the mean is preferred to allow estimates over time to be produced on a more comparable basis.

Although there are advantages to using estimates of the gender pay gap based on the mean there are still advantages for using the median. When confronted with a skewed distribution the median is the most appropriate measure of central tendency. It is for that reason ONS focuses on median earnings estimates when presenting average earnings in its statistical bulletins.

²⁰ Anderson T., Forth, J., Metcalf, H., and Kirby, S. (2001) *The Gender Pay Gap: Final Report to the Women and Equality Unit*. Cabinet Office, Women and Equality Unit, London.

²¹ <http://www.tuc.org.uk/equality/tuc-14435-f0.pdf>

Table 3

Gender pay gap by choice of comparator and by mean or median, April 2008

United Kingdom

%	Full-time women/full-time men	Part-time women/part-time men	All female employees/all male employees
Median	12.8	-3.5	22.5
Mean	17.1	13.2	20.9

Source: Annual Survey of Hours and Earnings, ONS

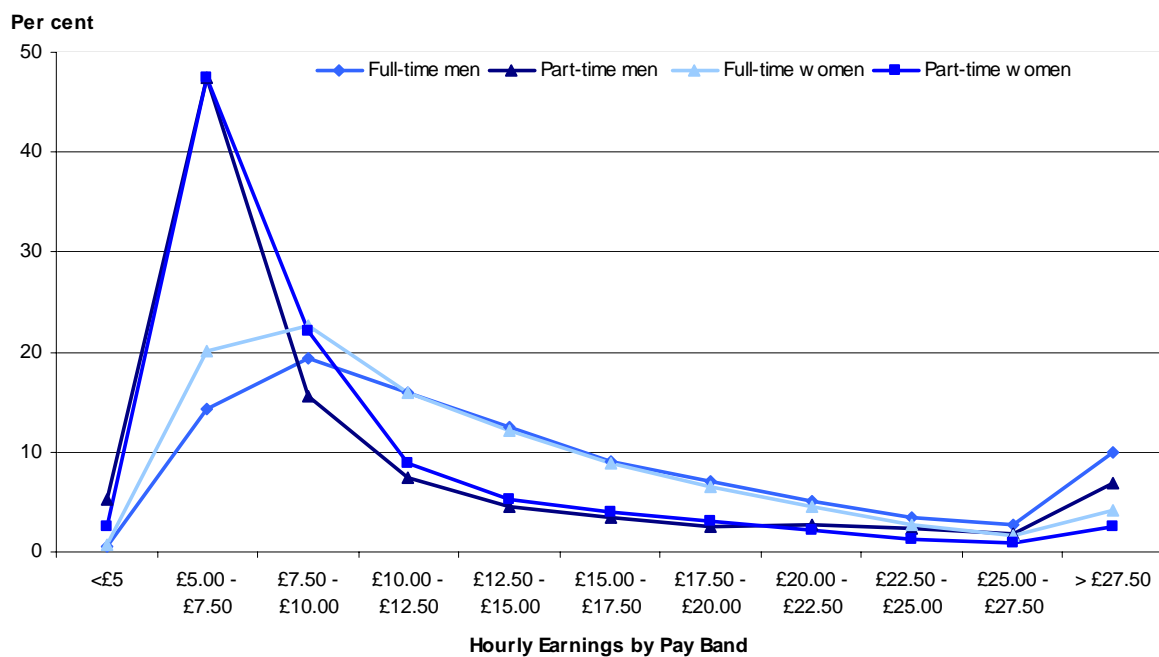
Notes:

¹Hourly earnings excluding overtime for employees on adult rates, whose pay for the survey period was not affected by absence.

Figure 2

Distribution of employee proportions by earnings band, April 2008

United Kingdom



Source: Annual Survey of Hours and Earnings, ONS

Notes:

¹Hourly earnings excluding overtime for employees on adult rates, whose pay for the survey period was not affected by absence.

The gender pay gap is a comparison of two skewed earnings distributions and ONS believe the median is the most appropriate measure when seeking to provide a summary of that difference. In ONS statistical bulletins the median is thought of as the best estimate of typical earnings, given the skewed distribution. Therefore ONS considers the median as the best estimate of the typical difference in men's and women's pay.

The median is also a more stable measure, which is less influenced by extreme values at the higher and lower ends of the pay distribution. This is important when looking at trends over time, annual changes, and in particular when one is dealing with smaller domains, for example, when looking at the gender pay gap by region or within occupations or industries.

ONS appreciates that some users will want to go beyond measuring the typical difference between men's and women's pay and will want to use a summary measure of central tendency that more readily captures the changes in the differences at the top and bottom end of the distribution (i.e. the mean). However, giving this measure prominence over the median would lead to a tension in ONS statistical bulletins with other indicators appropriately based on the median measure only. Giving prominence to gender pay gaps based on the median therefore ensures consistency with other parts of the ONS statistical bulletins as well as better representing the statistical properties of the underlying data.

Conclusion 3: That ONS continues to give prominence to the median because of the statistical properties of earnings data and to provide consistency with other estimates in its

statistical bulletins. ONS will continue to supplement this with estimates based on the mean.

7.3 Differences in men's and women's pay across the earnings distribution

When the mean difference in men's and women's pay is contrasted to the median measure it can also provide useful complementary information (UK Statistics Authority, June 2009). If the difference between the two measures is monitored then any divergence or narrowing between the measures can indicate that the tails of the earnings distribution have changed and are impacting on men's and women's pay.

However, any summary statistic of central tendency is limited in reflecting changes at the bottom and top end of the pay distribution. Looking at the difference in men's and women's pay across the distribution can aid understanding. Users already do this (for example the Low Pay Commission) and ONS produces earnings estimates for quartiles and deciles in the associated tables to the ASHE statistical bulletin to allow users to understand changes in men's and women's pay across the earnings distribution.

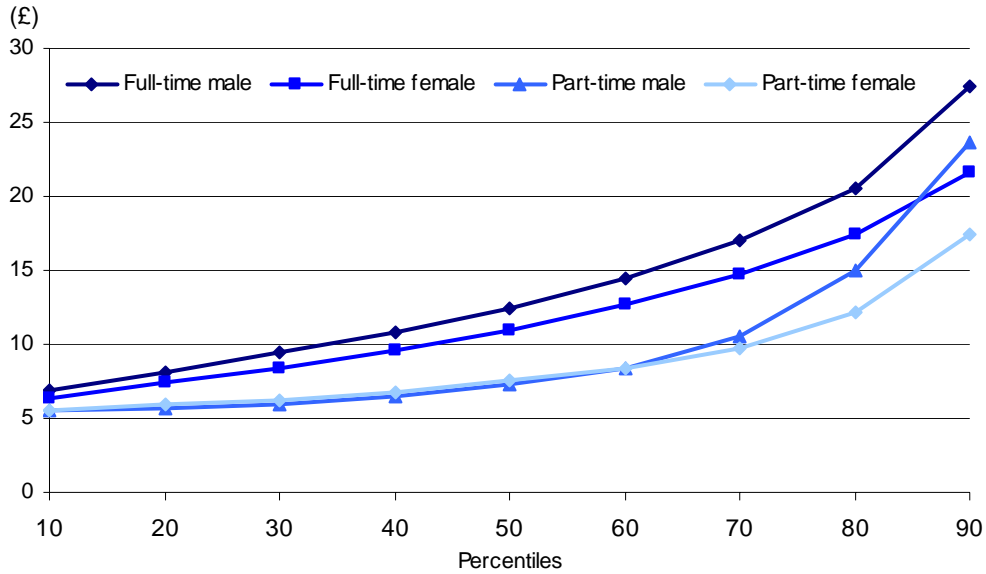
Figure 3, below, shows the differences between men's and women's pay across the earnings distribution and *Figure 4* presents the differences in the gender pay gap for the three measures that ONS will headline on in its statistical bulletins.

Conclusion 4: ONS will reflect the differences in men's and women's pay across the earnings distribution in the ASHE statistical bulletin.

Figure 3

Male and female full-time and part-time employees¹ hourly earnings excluding overtime by percentile

United Kingdom



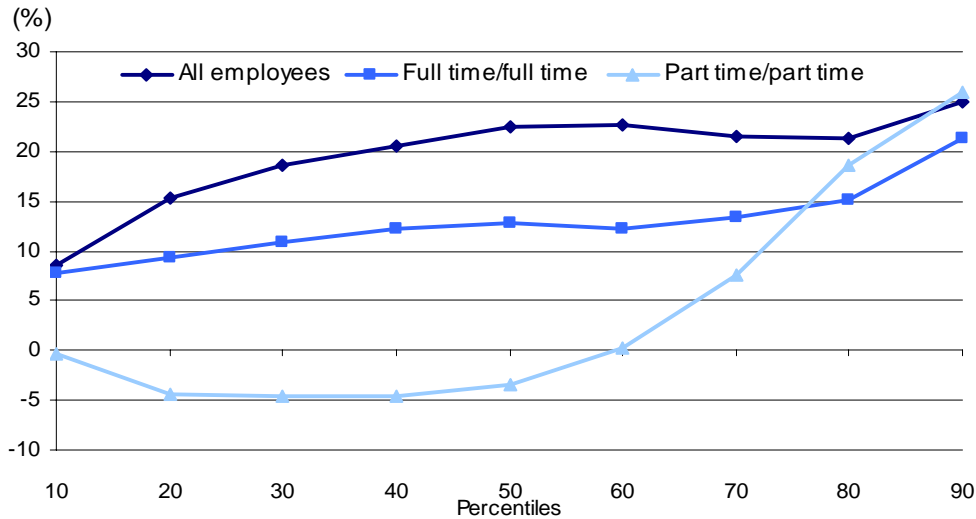
Source: Annual Survey of Hours and Earnings, ONS

Notes:¹ Employees on adult rates, whose pay for the survey period was not affected by absence.

Figure 4

Gender pay gap estimates by percentile¹

United Kingdom



Source: Annual Survey of Hours and Earnings, ONS

Notes:¹ Hourly earnings excluding overtime for employees on adult rates, whose pay for the survey period was not affected by absence.

8. Hourly earnings

When calculating differences in men's and women's pay there is a choice as to whether hourly, weekly or annual earnings are used. Estimates based on hourly earnings yield the narrowest pay gaps as women are more likely to work fewer hours in a week and a year than men.

Throughout the literature, and across a wide set of users, including those proposed by Eurostat, hourly earnings are commonly used as a chosen measure in preference to weekly or annual earnings. This is to take account of differences arising from differences in working time. Although the differences in hours that women work can be seen as one reason for the gender pay gap and some users argue that using hourly rates ignores the differences in hours worked that contribute to the gap (Anderson et. al., 2001).

However, ONS will continue using hourly earnings in preference to weekly and annual earnings for gender pay gap measures in the ASHE statistical bulletin because it believes that this measure allows a better like-for-like comparison of pay rates between men and women.

The situation for the Civil Service Statistics statistical bulletin is a little different. Currently annual information is collected and no hourly or weekly earnings estimates are calculated or presented. For this reason, the different salary levels that part-time workers receive due to the differences in hours worked make comparisons more difficult. Therefore it is recommended that part-time earnings are put on a full-time equivalent basis before making the comparison between men's and women's earnings.

Conclusion 5: ONS will continue to use hourly earnings in the ASHE

statistical bulletin for calculating the gender pay gap. When calculating gender pay gaps based on annual earnings information for the Civil Service Statistics statistical bulletin, ONS will convert part-time earnings to a full-time equivalent basis before calculating gender pay gaps for all employees.

9. Overtime

Currently in the ASHE and Civil Service Statistics statistical bulletins ONS use estimates excluding paid overtime and bonus payments when looking at the differences between men's and women's pay. Eurostat, however, include paid overtime in their estimates for making comparisons of the gender pay gap across member states.

The inclusion of paid overtime payments results in a higher gender pay gap as men work relatively more paid overtime than women. ONS will therefore continue to compare men's and women's pay using basic pay (i.e. excluding overtime) to take account of these differences when looking at differences between men's and women's pay.

Conclusion 6: ONS will continue to exclude overtime and other bonus payments from gender pay gap calculations.

10. Tables for inclusion in the ASHE statistical bulletin

The next release of the ASHE statistical bulletin is scheduled for 12 November 2009 and this will include final 2008 estimates and provisional estimates for April 2009. The bulletin will take on board the conclusions in this paper and ONS plans to include tables that show the wider set of measures outlined in this paper.

Firstly, a table giving average hourly pay levels excluding overtime for male and female employees broken down by full-time and part-time status is planned. Both the median and mean estimates will be provided (see *Table A* below).

A second table would present the headline gender pay gaps outlined in this report.

This table would also be based on hourly earnings excluding overtime and present the pay gaps between all male and female employees, male full-time and female full-time employees and male part-time and female part-time employees. Again the median and the mean will be shown (see *Table B* below).

Table A

Average hourly earnings, excluding overtime

Employees on adult rates, whose pay was unaffected by absence

<i>£ per hour</i>	Full-time		Part-time		All	
	Median	Mean	Median	Mean	Median	Mean
Men	12.50	15.54	7.26	11.35	11.97	15.32
Women	10.91	12.88	7.51	9.85	9.27	12.11
All	11.87	14.53	7.49	10.17	10.53	13.92

Table B

The gender pay gap for hourly earnings excluding overtime

Employees on adult rates, who pay was unaffected by absence

%	Median	Mean
Full-time / full-time	12.8	17.1
Part-time / part-time	-3.5	13.2
All employees / All employees	22.5	20.9