

CLOSE THE GAP WORKING PAPER 11



Statistics

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This paper is an updated version of Statistics Working Paper 9 published in 2012. It provides the latest gender pay gap statistics for Scotland and revisits the complexities of measuring and reporting on the pay gap.

Introduction

This paper will provide information on how to calculate and report on the gender pay gap. In doing so it will aim to explore some of the complexities surrounding different methods of calculation and why it is important to understand what is behind the information reported in the media. It is hoped this will be useful for businesses and organisations that are looking to generate and report on their pay gaps. It will also be useful for those interested in gender disaggregated statistics and those who support organisations and businesses to challenge gender inequality in the workplace.

What is the gender pay gap?

The gender pay gap is an important indicator within the wider socio-economic context as it enables industries, regions or countries to benchmark how well they are challenging gender inequality. This is partly due to the fact that the gender pay gap i.e. the difference between women and men's earnings, is a global phenomenon and the reasons why the pay gap exists are symptomatic of wider issues related to the consistent undervaluing of women's contribution to the economy. As a result the gender pay gap is linked to a number of legal, social and economic factors which go far beyond the single issue of equal pay for equal work.

Annual Survey of Hours and Earnings

The UK Office of National Statistics has been producing information on the hourly earnings of women and men for a number of years. The methodology and quality of data collection has improved and in 2004 the Annual Survey of Hours and Earnings (ASHE) replaced the National Earnings Survey. Data on employees' earnings is drawn from payslip information and reported every year in a number of tables accessible to the public. The ASHE tables provide information about the levels, distribution and make-up of earnings and hours paid for employees within industries, occupations and regions. It also provides data on earnings for employees by sex for full-time and part-time workers. Further breakdowns include by region, occupation, industry, region by occupation and age-groups.

The provisional ASHE results are released at the end of each year and contains the revised survey results for the previous year. The revised results include corrections identified during the period of validation as well as any late returns to the survey.¹

Until 2011 the ONS calculated the ASHE results using the Standard Occupational Classification (SOC) codes from 2000. During 2011 the ONS recalculated the pay gap using the new SOC codes for 2010. This revision resulted in a UK gender pay gap of 10.5%, larger than the previous figure of the same year which had used the old SOC codes. The ONS have explained this difference as a reclassification of managerial/senior occupational role to exclude supervisor. Therefore a number of women in the survey who would have previously been classified as managerial/senior occupational group are now grouped into lower paid roles of supervisor. The ONS say SOC 2010 has a purer definition of the manager/senior occupational group. This also signifies the start of a new time series with regard to analysing longer term trends.

From the tables it is possible to calculate the gender pay gap for the whole of Scotland and for different occupational groups and age groups. Requests can be made to analysts at the Scottish Government to find out the pay gap for local geographical areas e.g. Highland and Islands region or for specific economic sectors e.g. energy.

Calculating the gender pay gap

The gender pay gap is a complex issue and there is no definitive way in which to report a single figure which fully captures those complexities.² There are a number of factors to consider when reporting on the pay gap and it is important to understand what the different statistics indicate.

The Government Equality Office (GEO), now part of the Home Office, uses the median hourly earnings (excluding overtime) to report on the pay gap, whereas, for example, the Equality and Human Rights Commission (EHRC) uses the mean average. The Office of National Statistics (ONS) now report ASHE with both the mean and the median measurements, but their statistical bulletin will 'give prominence to the median' (ONS, 2009). ASHE does not include the self-employed or those earning below the 'pay as you earn' (PAYE) income tax level, but it is possible to consider additional groups of people by integrating the Labour Force Survey results.

¹ ONS (2013) Annual Survey of Hours and Earnings
<http://www.ons.gov.uk/ons/rel/ashe/annual-survey-of-hours-and-earnings/2013-provisional-results/stb-ashe-statistical-bulletin-2013.html> Accessed Jan 2013.

² Hicks, S., and Thomas, J. (2009) Presentation of the Gender Pay Gap, Office of National Statistics (ONS)

The headline gender pay gaps reported in the media may differ according to the region, the average measurement used and whether the headline figure combines the full-time and part-time earnings. Table 1 illustrates the different pay gap calculations in Scotland for 2012 and 2013.

Table 1: Pay gap measurements: comparing mean (average) and median in Scotland

Pay gap in Scotland	2012		2013	
	Mean	Median	Mean	Median
Comparing women and men's full-time hourly pay (excluding overtime)	13.9%	8.4%	13.3%	7.6%
Comparing women's part-time and men's full-time hourly pay (excluding overtime)	35.4%	35.7%	33.7%	33.5%
Combined figure (all women/all men)	17.8%	17.7%	16.9%	16.9%

Source: Office of National Statistics Annual Survey of Hours and Earnings www.ons.gov.uk

In general the *median* is a measurement used to calculate the average, by finding the midpoint in all employees' hourly pay and discarding the lowest and highest rates of pay or 'outliers.' Therefore, half of the employees' earnings will be above the midpoint and half will be below the midpoint. The median, from a robust statistical perspective, is a more accurate measure as it is not skewed by very low hourly pay or very high hourly pay. However, as the very high paid people tend to be men, and the very low paid people tend to be women, its use can obscure some gendered differences.

The mean average is calculated by adding all employees' rates of pay together and dividing by the total number of employees. The mean includes the lowest and highest rates of pay. This will include a number of low paid employees, who are more likely to be women. International measures also use the mean when calculating the pay gap, which enables comparisons to be made with other countries, for example the global gender pay gap.

In some cases the pay gap is reported as one headline figure combining full and part-time earnings. Analysts at the Scottish Government recognise that the headline figure is influenced by compositional differences in working patterns. For example, more women work in lower paid, part-time work, which in statistical

reporting is referred to as the ‘part-time effect’.³ The 13.3 per cent illustrates the size of the gender pay gap when the part-time effect has been controlled for, although it is important to note that the ‘part-time effect’ is itself gendered.

The majority of part-time workers are women (75 per cent) and just under half of employed women are working part-time, 43 per cent compared to 13 per cent of men.⁴ A much lower percentage of men work part-time in Scotland and they are less likely to be in part-time positions over a long period of time.⁵ In addition, wages are more likely to be lower in female-dominated workplaces than male-dominated workplaces or workplaces which are more diverse. This is also true for the UK as whole.

How has the pay gap changed?

The ASHE results for 2013 indicate a slight decrease for Scotland when comparing women and men’s full-time hourly earnings. Table 2 shows the percentage change in full-time hourly pay, excluding overtime, for men and women. Although men earn more per hour than women on average, the increase in hourly pay from 2012 for women is greater compared to men for both median and mean average measurements. This explains the slight decrease in the pay gap in Scotland.

Table 2: Percentage change in hourly pay (excluding overtime) for men and women between 2012 and 2013

	Median hourly pay excluding overtime			Mean hourly pay excluding overtime		
	2012	2013	% Change	2012	2013	% Change
Men	£12.97	£13.27	2.3%	£15.90	£16.27	2.3%
Women	£11.88	£12.26	3.1%	£13.69	£14.11	3.0%

Source: ONS Annual Survey of Hours and Earnings 2012/2013
<http://www.ons.gov.uk/ons/rel/ashe/annual-survey-of-hours-and-earnings/2013-provisional-results/stb-ashe-statistical-bulletin-2013.html>

³ ASHE 2009 notes (as cited in Scottish Government (2010) *Gender Equality Scheme Annual Report*, Scottish Government, pg 82).

⁴ The source is from the Annual Population Survey reported at the ONS under the Labour Market Statistics Monthly Regional Data. The split between full-time and part-time is based on self-classification and excludes temporary workers. Regional Tables for Scotland <http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-293055> This information was accessed on December 2013

⁵ Grant, L., Yeandle, S., and Buckner, L., (2005) *Working below potential: women and part-time work* EOC Working Paper Series no. 40. Manchester: Equal Opportunities Commission

During 2011 and 2012 there was a significant jump in the full-time mean pay gap, from 11.4 per cent to 13.9 per cent. This could be explained by the higher number of women who work in the public sector compared to men in Scotland and have subsequently been affected by the public sector pay freeze, job losses and reductions in the number of posts.

The pay gap figure can also be affected by the timing of pay settlements over the survey period, where pay settlements affecting men’s earnings are included during the survey period, but not women’s which could explain the differences in hourly rates of pay.

Despite the jump between 2011 and 2012, the 2013 results indicate a slight decrease from 13.9 per cent to 13.3 per cent.



NB: In 2012 Standard Occupational Classifications 2000 (SOC 2000) was replaced by updated classifications in 2010, including a reclassification of Managers and Senior Officials. This graph is for illustrative purposes only.

Different occupational groups

Table 3 illustrates the gender pay gap for different occupational groups in relation to hourly pay.

Table 3: Mean Hourly Pay (excluding overtime) (£) for male and female employees in Scotland by occupational group 2013*

Occupation	Full-time Male	Full-time Female	% pay gap	Part-time Female	% pay gap* (comparing men's full-time pay with women's part-time pay)
All Scotland	£16.27	£14.11	13.3%	£10.79	33.7%
Managers and Senior Officials	£25.23	£19.41	23.1%	£15.79	37.4%
Professional Occupations	£21.87	£18.98	13.2%	£17.72	18.9%
Associate Professional and Technical	£18.67	£15.07	19.3%	£13.32	28.7%
Administrative and Secretarial	£12.83	£11.19	12.8 %	£10.04	21.8%
Skilled Trades	£12.49	£9.77	21.8%	£7.65	38.8%
Caring, Leisure and other service occupations	£10.48	£9.62	8.2%	£9.57	8.7%
Sales and Customer Service	£9.83	£9.04	8.0%	£7.71	14.7%
Process, Plant and Machine Operatives	£10.88	£8.28	23.9%	£7.57	30.4%
Elementary Occupations	£9.20	£7.92	13.9%	£7.24	21.3%

Source: ONS Provisional Results Annual Survey of Hours and Earnings 2013 Table 3 Region by Occupation (2 digit SOC 2010) hourly pay (excluding overtime). <http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcn%3A77-328216>

Table 3 illustrates the variation in size of full-time and part-time pay gaps between different occupational groups. The smallest pay gaps are found within sales and customer services, administration, and caring, leisure and personal services, all are female-dominated sectors which are characterised by low pay rates. Professional occupations is the only other group which also has a below average pay gap.

When comparing full-time hourly pay gaps, the largest gaps are between managers and senior officials, skilled trades, and process, plant and machine operatives occupations. This is also true when women's part-time pay is compared to men's full-time hourly pay. The part-time pay gaps are significantly large in those three groups. This can be partly explained by the relatively few women working part-time in those occupational groups compared to the proportion of male full-time employees.

Comparing the difference between median and mean earnings can explain the distribution of earnings for women and men within an occupational group. For example, the median pay gap for professional occupations is 5.1 per cent, which is significantly lower than the mean measurement of 13.2 per cent. The difference between measurements suggests there are fewer women earning higher rates of pay within this group. This can be further explained by considering the distribution of earnings within this group. The pay gap for the 10th percentile of professional for women and men working full-time is 2.3 per cent, compared to 19.7 per cent for the 90th percentile. The 90th percentile pay gap is almost four times the overall median average.

Weekly earnings

Table 4 details the differences in weekly pay, excluding overtime, between women and men. Compared to Table 3 the differences are greater in some cases than hourly rates of pay. Women are more likely to work fewer paid hours per week than men, due the disproportionate burden of care, and at the same time may not be categorised as part-time workers.

Table 4: Average (mean) weekly pay-excluding overtime (£) for male and female employees in Scotland by occupational group 2013

Occupation	Full-time Male	Full-time Female	Difference in pay per week	Percentage difference in women and men's full-time weekly earnings
All Scotland*	£625.10	£516.80	£108.30	17.3%
Managers and senior officials	£972.80	£728.10	£244.70	25.15%
Professional occupations	£807.30	£681.90	£125.40	15.5%
Associate professional occupations	£708.10	£553.40	£154.7	21.8%
Administrative and technical	£481.00	£406.40	£74.60	15.5%
Skilled trades	£491.90	£372.40	£119.50	24.3%
Caring, Leisure and other service occupations	£395.50	£354.20	£41.30	10.4%
Sales and customer services	£378.10	£334.20	£41.30	11.6%
Process, plant and machine operatives	£438.80	£316.50	£122.30	27.9%
Elementary occupations	£361.90	£299.50	£62.40	17.2%

*Read as: for 'All Scotland' full-time women earn £108.30 per week less than full-time men. Source: ONS Provisional Results Annual Survey of Hours and Earnings 2013 Table 3 Regions by Occupation (2 digit SOC 2010) weekly pay (excluding overtime)

When men’s average full-time weekly earnings and women’s average part-time earnings are considered then the gaps increase significantly. For example, this varies according to occupation from weekly pay gap of 65.0 per cent for managers and senior officials to a difference of 52.2 per cent for care, leisure and other service occupations.⁶

Pay gap according to age

The published ASHE tables also allow for a UK wide analysis of pay, sex and age. At present, a regional analysis combining age, sex and pay is only publically available at the UK level.

Table 5: Mean Hourly Pay (excluding overtime) (£) for male and female employees in the UK by age category 2013

Age category (all occupational groups)	Full-time Male	Full-time Female	% pay gap
All UK	£16.91	£14.25	15.7%
18-21	£8.10	£7.64	5.7%
22-29	£12.03	£11.74	2.4%
30-39	£17.03	£15.72	7.7%
40-49	£19.27	£15.48	19.7%
50-59	£18.93	£14.88	21.4%
60+	£16.41	£13.37	18.5%

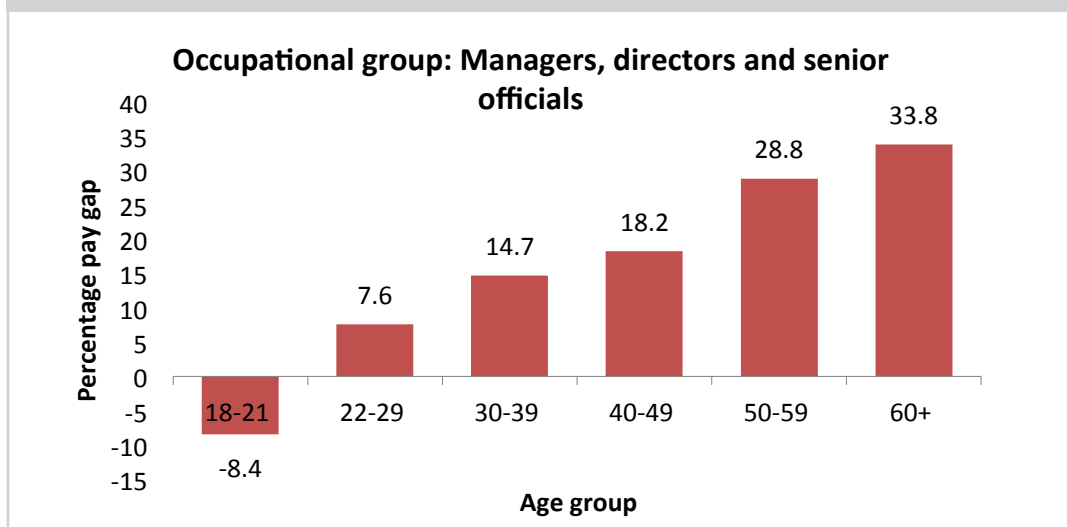
Source: ONS Provisional Results Annual Survey of Hours and Earnings 2013 Table 20.6a Age by Occupation (2 digit SOC 2010) hourly pay (excluding overtime)
<http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-328216>

⁶ ONS Provisional Results Annual Survey of Hours and Earnings 2013 Table 3 Region by Occupation (2 digit SOC 2010) hourly pay (excluding overtime).
<http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-328216>

The pay gap is above average for those aged 40 and over. The ‘motherhood’ penalty⁷ is a factor which can help understand the increased pay gap. Women returning to the workplace after starting a family can find it increasingly difficult to reconcile family life with work, and for many the only option is to find part-time work, which is usually found in female-dominated occupations, such as administration, and is characterised by low pay. At the same time, there are fewer women working part-time and earning more in senior positions proportionately to the number of men earning higher rates of pay. Therefore it is not surprising that the pay gap increases significantly with age.

However, when age and occupational classification are considered there are slight differences. For age group 18-21 some occupational classifications notably manager and senior officials and professional occupations, women’s full-time earnings are higher than men’s full-time earnings. This changes however, for all other age groups, and, as expected the gap widens as age increases. For example, figure 2 illustrates the changes in the pay gap according to age for Manger, directors and senior officials across UK.

Figure 2: Gender pay gap according to age for Standard Occupational Classification (SOC) Manger, directors and senior officials across UK



Source: ONS Annual Survey of Hours and Earnings 2013 provisional results Accessed January 2014

⁷ ‘Motherhood’ penalty is a term used to describe the economic impact of taking time out of the labour market to look after children. For some women this results in extended periods of working part-time in often lower paid positions. The length of time which women work on a part-time basis, as well as the number of hours worked, are significant determinants of their levels of pay, their promotion prospects, and their income in retirement. At the same time it reduces a woman’s ability to build her human capital, and propensity to progress their careers. For example, women who have spent just one year in part-time work and then worked full-time, can still expect to earn up to 10 per cent less after 15 years than those who have worked full-time for all 15 years (Francesconi and Gosling, 2005).

Demographic specific surveys however, can reveal differences in pay for young women and men. The Higher Education Careers Service Unit (in partnership with Warwick Institute of Employment Research) has tracked female and male graduate's transition into the labour market and specifically their earnings. The most recent 2013 report found that the 2006 female graduate survey group earned less on average than their male counterparts from the same group surveyed.⁸ In some cases the difference was as much as £8000 per annum for women and men with the same qualifications.⁹ This has consistently found to be true in previous HECSU surveys with 1995 and 1999 graduate cohorts. Table 6 illustrates the 40-49 age group has some of the highest differences in hourly earnings between women and men in the UK.

Table 6: Pay gap for women and men aged 40-49 by occupational sector, across the UK.

Age category 40-49	Men's Mean average full-time hourly earnings	Women's Mean average full-time hourly earnings	Pay gap
All occupations	£19.27	£15.48	19.7%
Managers, directors and senior officials	£28.76	£23.52	18.2%
Professional occupations	£24.91	£20.56	17.5%
Associate professional and technical occupations	£20.60	£16.34	20.7%
Administrative and secretarial occupations	£14.72	£11.97	18.7%
Skilled trades occupations	£13.16	£9.95	24.4%
Caring, leisure and other service occupations	£11.15	£9.61	13.8%
Sales and customer service occupations	£11.45	£9.95	13.1%
Process, plant and machine operatives	£11.38	£9.00	20.2%
Elementary occupations	£9.81	£8.18	16.6%

Source: ONS Annual Survey Hours and Earnings 2013 provisional results <http://www.ons.gov.uk/ons/rel/ashe/annual-survey-of-hours-and-earnings/2013-provisional-results/stb-ashe-statistical-bulletin-2013.html> Accessed January 2014

⁸ Purcell, Elias, Atfield et al., (2012) Futuretrack stage 4: Transitions into employment, further study and other outcomes, HECSU, http://www.hecsu.ac.uk/current_projects_futuretrack.htm Accessed Jan 2014.

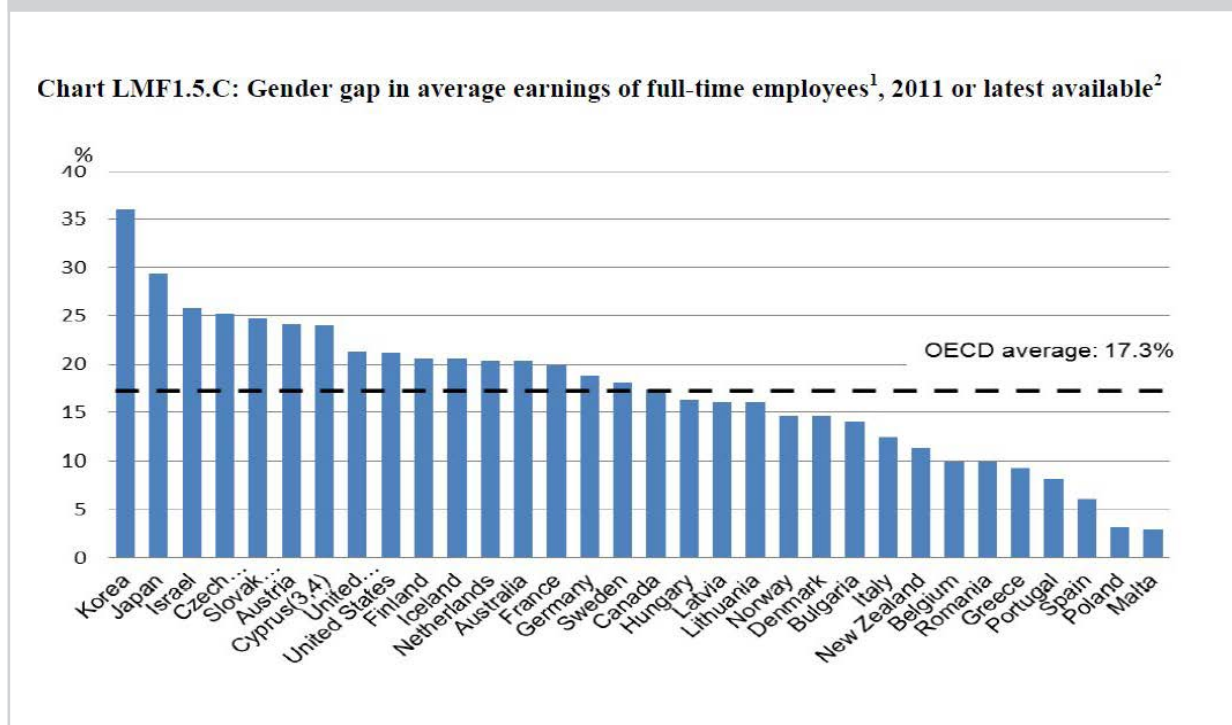
⁹ The Guardian <http://careers.theguardian.com/careers-blog/graduate-gender-pay-gap-university-subject> Accessed January 2014.

Global gender pay gap

The pay gap is a worldwide phenomenon and is symptomatic of the undervaluing of women's participation in social and economic spaces of production. The International Trade Union Congress estimate the global gender pay gap to be 16.5 per cent and it can be as much as 22 per cent.¹⁰

Figure 1 illustrates the OECD's estimates of the average (mean) gender pay gap of its 34 member countries. The gap ranges from over 35 per cent to less than 5 per cent across the different countries, and the overall gender gap in earnings is 17.3 per cent.

Figure 3: The gender pay gap in average earnings of full-time employees (mean) across each of the OECD countries



Source: OECD Employment Database, November; 2012 and EU survey on Income and Living Conditions and national sources, 2008.

¹⁰ ITUC (2008) The Global Gender Pay Gap [online] Accessed in December 2010 <http://www.ituc-csi.org/IMG/pdf/gap-1.pdf> and news release on global survey which estimates the global gender pay gap at 22%. <http://www.ituc-csi.org/new-report-shows-global-gender-pay>

This set of data is limited as it compares only full-time employees, but in some cases as the chart footnotes discuss, countries have submitted information about all employees who work over 15 hours per week. The pay gap varies between countries, partly due to differences in data collection and analysis and partly due to the nature of women's participation in local formal labour markets.

Discussion

Over time there has been a reduction in the gender pay gap from an estimated 29 per cent in 1970 to 10.7 per cent in 2011, but since the 1990s the decrease slowed to around 11 per cent in 2011. In 2012 the pay gap in Scotland increased to almost 13.9 per cent and this year it has decreased slightly to 13.3 per cent, despite the full-time UK pay gap figure having increased. A possible explanation for the jump between 2011 and 2012 could be that women who account for approximately two thirds of those employed in the public sector are therefore likely to be disproportionality affected by pay freezes, job losses and reductions in the number of posts within the public sector. The subsequent slight decrease of the gender pay gap might be because of the slight year on year increase of men working part-time or it could be a reaction to the significant increase between 2011 and 2012. The headline pay gap figure cannot illustrate the full complexities of the pay gap, nor does it enable an analysis for receiving equal pay for equal work (the focus of equal pay legislation). Hourly earnings do not reveal differences of pay between comparable jobs, work of equal value one of the tests of equal pay. However, the headline national pay gaps calculated using ASHE does provide an evidence base for policy and practice to address the economic injustice women face in Scotland, in the UK and internationally.

In 2004 Walby and Olsen researched how much of the gender pay gap is associated with different factors. These factors included working patterns over the course of a life-time; occupational segregation; size of an organisation and whether it is unionised or not and direct discrimination related to the choices women make in the labour market.¹¹ However, Walby and Olsen emphasised the systemic indirect discrimination experienced by women in education, training and the labour market and the importance of these experiences in shaping all the other factors mentioned.

Therefore it is possible to identify the three main causes of the pay gap as: occupational segregation; lack of flexible working opportunities and discrimination in pay and grading structures. This resonates with the experiences of women

¹¹ Walby, S. and Olsen, W., (2004) Modelling Gender Pay Gaps. Manchester: Equal Opportunities Commission

participating in the labour market who find it difficult to secure work which is flexible, to accommodate caring for family and relatives. This leads to women opting to look for part-time, flexible working options which are more likely to be found in lower valued and lower paid sectors of the economy i.e. social care, administration, catering and service industries. In addition, the nature of women's participation in the labour market has been characterised by the historic undervaluing of women's contribution to society and the economy. Despite over 40 years of legislation for equal pay between men and women, which aimed to correct the undervaluing of female employment and ensure equal pay for 'like work' or 'work of equal value', pay and grading structures continue to reward stereotypical male behaviour and characteristics.

The statistical evidence backs this up. A higher percentage of women work part-time compared to men in Scotland, a smaller percentage of women are in managerial and senior positions and women are concentrated in certain occupational groups and sectors e.g. public sector, health and social care, administration. However, at the UK level there are changes which suggest that the pay gap between young women and men has reduced significantly, which could partly be explained by the equalising of qualification levels between women and men upon entry to labour market. However, the pay gap between young men and women varies greatly between occupational groups and where there is a significant reduction it is a short-lived. Table 5 and 6 illustrate the pay gap increases significantly above the national average for those aged 40 and over and sector specific studies such as HECSU Futuretrack study have reported a significant difference between female and male earnings within the same graduate cohort despite having the same qualification.

This economic injustice will extend over the period of a woman's working life, regardless of a woman's earnings when initially entering the labour market. For example, from the survey, women earn on average in Scotland £108.30 less per week than men. Over the course of a woman's working life (full-time from age 16-64) she will earn £270,316 less than a man.

Gender disaggregated statistics are necessary for policy makers, employers and organisations to challenge gender inequality. The cross-cutting and complex issues relating to the nature of women and men's access to education, training and participation in the labour market can only be understood if the information provided is disaggregated according to gender, otherwise new policies and practices will continue to perpetuate gender inequality.