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Swansea University  
Prifysgol Abertawe

# **Modelling and Explaining Regional Differences in Economic Prosperity within Wales: Gender & Migration**

**REPORT FOR THE ECONOMIC RESEARCH UNIT,  
WELSH ASSEMBLY GOVERNMENT**



Llywodraeth Cynulliad Cymru  
Welsh Assembly Government

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The views expressed in these reports are those of the authors and do not necessarily reflect the opinions of the Welsh Assembly Government.

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# **Executive Summary**

## **Chapter 1**

- Enormous changes have taken place in the labour market during the last four decades. The number of women in the labour market has increased dramatically, with the greatest increase in labour market participation found amongst married women.
- Data released by the Office of National Statistics on 14 November 2008 showed that the full-time pay gap in Wales had risen to 12.7 per cent up from 10.3 per cent in 2007.
- In April 2008 female employees in Wales working full-time (and excluding over-time pay) earned on average £11.68 per hour, whilst for males the figure was £13.38. Females in 2008 therefore earned 87.3 per cent of the average hourly earnings of males and the gender gap was 12.7 per cent. In the case of weekly earnings (excluding over-time pay) females earned £426.90 and males £519.30 giving a gender pay gap of 16.8 per cent. The gender pay for annual earnings is even larger at 21.3 per cent.
- The gender pay gap, whether it is hourly, weekly or annual earnings, is currently smaller in Wales than in the UK. From 1983 until 1996 the gender weekly earnings gap is smaller in Wales than in the UK with periods of improvement between 1985 and 1989 and 1990 and 1993 before returning to the UK average in 1996. After 1996 Wales generally does better than the UK in closing the gender pay gap, although the position deteriorates in 2004 and 2008.
- Between 2007 and 2008 female earnings in Wales increased by 4.2 per cent, above the UK average of 3.7 per cent, with only the East and Scotland showing a faster rate of increase. For males in Wales earnings increased by 6.6 per cent clearly well above any other region and the male average increase in the UK of 3.9 per cent. Clearly 2007 to 2008 was a relatively good period for both females

and males in employment in Wales, though particularly for males, and hence the fall in the gender pay gap.

- An important factor explaining the widening of the gender pay gap in Wales in 2008 was the fact that male employees working in a number of relatively well paid occupations saw their earnings rise faster than females. Males had bigger increases than females in 3 of the 4 highest paid occupations.
- Within Wales the gender pay gap is larger in manufacturing than in services, and between 2007 and 2008 males saw a bigger increase in earnings than females in both these sectors. This was not the case for the whole of the UK.
- In the Finance sector males saw a 15.3 per cent increase in hourly earnings whilst females experienced only a 4.8 per cent increase. However, the reason for the increase in the gender pay gap in Wales over this period is not the result of males doing well in a few important industries but males doing better than females across the majority of industries.
- Between 2007 and 2008 private sector earnings increased faster than public sector earnings. Given the relatively higher concentration of women in public sector jobs in Wales this could partly account for the increase in the gender pay gap.
- In some unitary authorities over the period 2007 to 2008 the rate of increase of earnings was particularly high (over a third saw earnings growth of over 10 per cent over the previous 12 months) but especially for males. Regional differences in earnings growth partly account for the recent increase in the gender pay gap in Wales. However, the rate of increase in earnings was not uniformly higher for males than females, and in 9 of the 22 unitary authorities the rate of increase of female earnings was higher than males.
- In Wales, in contrast to the UK, the gender pay gap is smaller at the top of the earnings distribution than at the median. The much smaller gender pay gap at the top of the wage distribution in Wales reflects the much larger difference between



male earnings in the UK and Wales at this point in the earnings distribution than is the case for females.

## **Chapter 2**

- In this chapter, the analysis is based on the Labour Force Survey, instead of the Annual Survey of Hours and Earnings, because the LFS has data on an extensive range of individual characteristics.
- A comparison with ASHE data for Wales shows that the gender pay gap for full-time workers was wider in the LFS at 13.8 per cent than in the ASHE at 12.7 per cent.
- The difference in the gender pay gap between full-time and part-time female employees is found to be smaller in Wales than in the other regions of Great Britain.
- It is found that a certain proportion of the wage gap between men and women in Wales is caused by the differences in the hours worked, and the differences in work experience (as women tend to have more breaks than men – usually to look after children).
- A significant proportion of the gap is also caused by the fact that women and men do not tend to be employed in the same industries. For middle-earners working full-time, it can be seen that as a result of this fact, male workers receive 1.7 per cent higher wages than comparable female workers.
- A large proportion of the wage gap is also caused by the fact that women and men do not tend to be employed in the same occupations. For instance, for middle-earning full-time men, wages are 3.6 per cent higher than for females for this reason.

- After controlling for these differing characteristics, it is found that estimates of earnings discriminations are lower in Wales than in the other regions (except for Scotland), with in between 6.3 and 9.1 per cent earnings discrimination facing an average full-time working woman.
- It is found that estimates of earnings discrimination have decreased since the late 1990s.

### **Chapter 3**

- Population migration has many economic and labour market implications, which has lead to a substantial growth in the economic analysis of migration in recent years, especially as population movements - in particular from overseas - have increased.
- Wales has witnessed higher levels of international migration in recent years but this has been concentrated in particular areas. This not only includes the cities, especially Cardiff, but also towns in other parts of Wales such as Llanelli and Wrexham, which have seen their immigrant populations expand significantly after the expansion of the EU into Eastern Europe in 2004.
- In contrast, recent migration flows from other parts of the UK have been fairly stable and net in-migration has even shown some decrease in many UAs.
- The net out-migration of younger individuals and net inflow of older and retired individuals, has resulted in a further ageing of the population, this can have implications for the dynamism of local labour markets.
- It is well known that educated people are more likely to migrate. Wales has lost a disproportionate share of its highly qualified human capital. In contrast, Scotland has tended to attract a larger proportion of highly qualified migrants from other parts of Britain than Wales.

- The flow of individuals according to their educational levels leaving Wales is producing a widening of the qualifications gap between the Welsh born living within Wales and those living in other parts of the UK.

# **1. The Gender Pay Gap in Wales: Evidence from ASHE/NES**

## **1.1 Background**

Enormous changes have taken place in the labour market during the last four decades. The number of women in the labour market has increased dramatically, with the greatest increase in labour market participation found amongst married women. The composition of the labour force changed over this period as the jobs in male-intensive industries declined and the proportion in clerical and service sectors has increased. Nevertheless, a huge degree of occupational segregation still persists and women still earn on average substantially less than men. Female employees working full-time in the UK earn on average 17.1 per cent less than the average hourly earnings of full-time employees. The EOC (1991) Equal Pay Task Force found,

*“three main contributors to the pay gap: occupational segregation, the unequal impact of women’s family responsibilities and pay discrimination... Employment in the UK remains strongly delineated by gender involving both ‘horizontal’ and ‘vertical’ segregation. Horizontal segregation crowds women into female-dominated occupations and industries and limits their access to the broader range of male-dominated areas of economic activity. Vertical segregation limits career development that would enable women to earn more.” p 7*

A Cabinet Office study (Anderson *et al.*, 2001) highlighted differences in endowments of human capital, part-time working, travel patterns in relation to commuting, and gender segregation as determinants of the gender pay gap. The last of these two was split into occupational segregation, responsible for 3% points of the difference in relation to the gap in full-time work and 7% points in relation to part-time work and workplace segregation, responsible for 4% points of the full-time gap and 5% points of the part-time gap. Together these amount to about 40% of the full-

time pay gap and 30% of the part-time pay gap. Women benefit in particular from employment in the public sector, where the gender pay gap is much lower than in the private sector, but lose out from the fact they are disproportionately employed in small firms which pay less. This is exacerbated by the fact that the employer size wage effect is greater for women than for men.

## 1.2 Earning by Gender

Table 1.1 reveals that in April 2008 female employees in Wales working full-time (and excluding overtime pay) earned £11.68 per hour on average, whilst for males the figure was £13.38. Therefore females in 2008 earned 87.3 per cent of the average hourly earnings of males and the gender pay gap was 12.7 per cent. In the case of weekly earnings (excluding overtime pay) females earned £426.9 per week and males £519.3 giving a gender pay gap of 16.8 per cent. The gender pay for annual earnings is even wider at 21.3 per cent.

**Table 1.1: Average earnings of full-time employees, 2008**

	UK			Wales		
	Hourly	Weekly	Annual	Hourly	Weekly	Annual
Women	12.88	475.3	25,304	11.68	426.9	22,198
Men	15.54	603.4	35,122	13.38	519.3	28,208
Gender pay ratio (%)	82.9	78.8	72.0	87.3	83.2	78.7
Gender pay gap (%)	17.1	21.2	28.0	12.7	16.8	21.3

**Notes:** The gender pay ratio is women's average earnings as a percentage of men's: the gender pay gap is the difference between this figure and 100 per cent (which would represent gender pay equity). Annual earnings are provided only for employees who have been in the same job for at least twelve months

*Source: Annual Survey of Hours and Earnings, April 2008*

A number of reasons account for the wider gender pay gap in weekly than in hourly earnings. This includes the fact that on average males tend to work longer hours than females. Females are four times as likely as males to work in part-time jobs with “many women, particularly mothers finding themselves with no effective alternative to part-time jobs” (TUC 2008). Even females working full-time tend to work shorter hours than males, partly due to working less overtime. In 2008 full-time females in Wales worked 27.1 hours a week including 0.5 hours of overtime whereas males worked 40.7 including 1.8 hours of overtime. Males therefore are more likely to work overtime hours which are usually paid at a premium.

Table 1.1 also reveals that the gender pay gap, whether it is hourly, weekly or annual, is smaller in Wales than in the UK. The hourly gender pay gap (excluding overtime pay) is 12.7 per cent in Wales whilst for the UK as a whole it is 17.1 per cent<sup>1</sup> a difference of 4.4 percentage points, the same as the weekly pay gender gap. The annual gender pay gap difference between the UK and Wales is slightly larger at 6.7 percentage points.

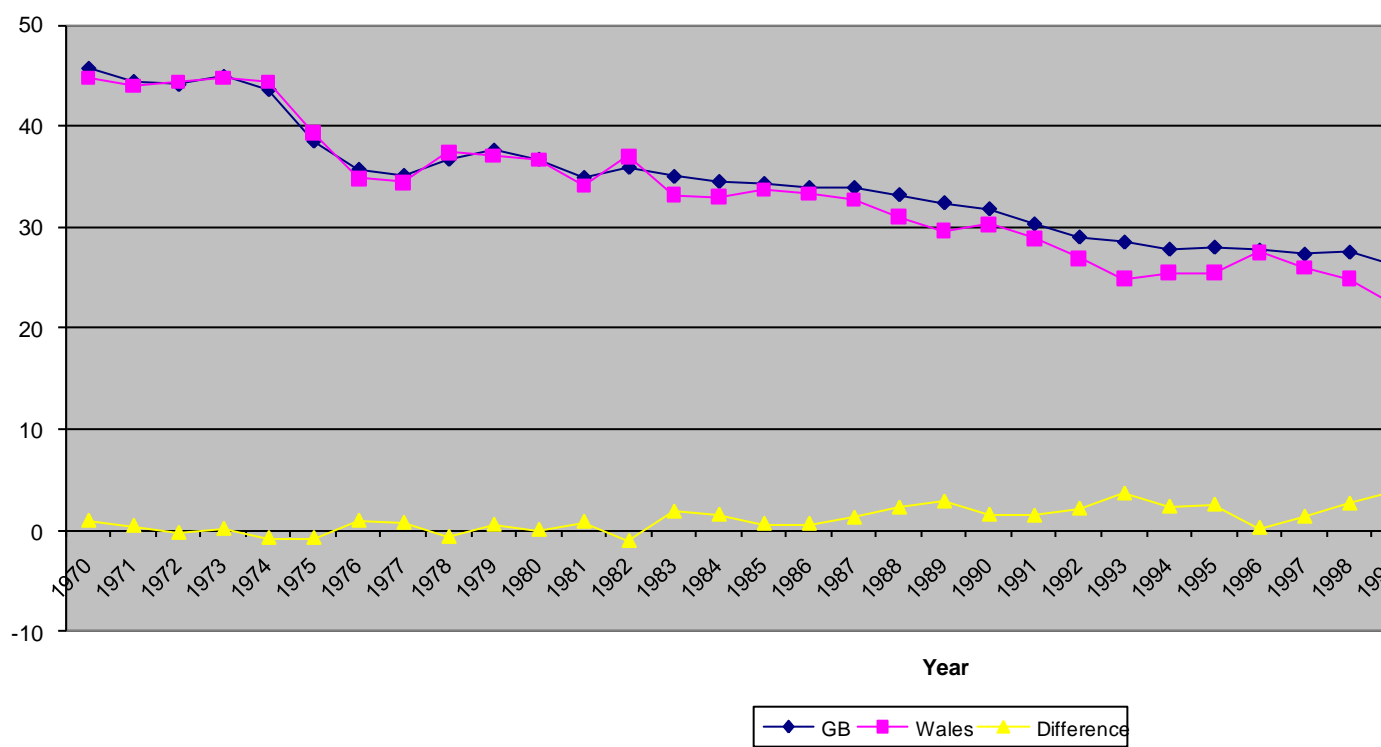
Figure 1.1 reveals that since the early 1980s the gross weekly earnings gender pay gap has been narrower in Wales than in the UK.<sup>2</sup> Since the early 1970s the UK gender pay gap has tended to fall over time although the rate of decline has been fairly modest more recently. Between 1970 and 1981 the gender pay gap in Wales was similar to that in the rest of the country. After 1983 until 1996 the gender weekly earnings gap is smaller in Wales than in the UK with periods of improvement between

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<sup>1</sup> Including overtime pay the hourly wage gaps are very similar at 12.8 per cent and 16.8 per cent respectively.

<sup>2</sup> The gender pay gap shows a fairly dramatic fall around the time of the Equal Pay Act of 1970 (which did not become fully operative until the end of 1975) and the Sex Discrimination Act of 1975.

**Figure 1.1: Pay Gap between Female Average Gross Weekly Earnings as Percentage of their Male Counterparts 1970-2008**



Source: New Earnings Survey and Annual Survey of

1985 and 1989 and 1990 and 1993 before returning to the UK average in 1996. After 1996 Wales generally does better than the UK in closing the gender pay gap, although the position deteriorates in 2004 and 2008.

The fall in the position of Wales in 2008 coincides with the onset of the recession.

Recently concern has been expressed that women may suffer more as we enter the current recession. Rake (2009) notes that “the fact that women have entered this recession on an unequal economic footing makes them particularly vulnerable to the impact of the downturn”. Britain only officially entered a recession in December 2008 following two quarters of negative GDP growth and our earnings data from ASHE comes from April 2008 so technically it is too early to pick up any effects of the currently recession. However, whilst we have not modelled it formally Figure 1.1 reveals little association between recessions and changes in the gender pay gap. In the recession in the 1970s output fell by 3.3 per cent starting in Q3 1973 (over 6 quarters), in this period the gender earnings gap saw a decline. In the early 1980s output fell by 4.6 per cent (over 5 quarters) starting in Q1 1980, again over this period the gender pay gap saw a decline. In the early 1990s output fell by 2.5 per cent (over 5 quarters) starting in 1990 Q1 and again the gender pay gap improved. Previous recessions therefore do not appear to have been associated with a worsening of the gender pay gap, but rather the reverse.



This recession, however, may be different given that it started with a financial crisis and this sector is forecast to decline sharply in size. This could lead to an improvement in the gender pay gap as it is in this sector that the gender pay gap is largest. Also despite the fall in the exchange rate (which has seen more than a 25 per cent depreciation against the US \$ and Euro over the last year), manufacturing appears to have been particularly hard hit during this recession, as in many earlier recessions and again this is a sector which employs relatively more males than females. Also the gender pay gap will be shown to be larger in manufacturing than in services.

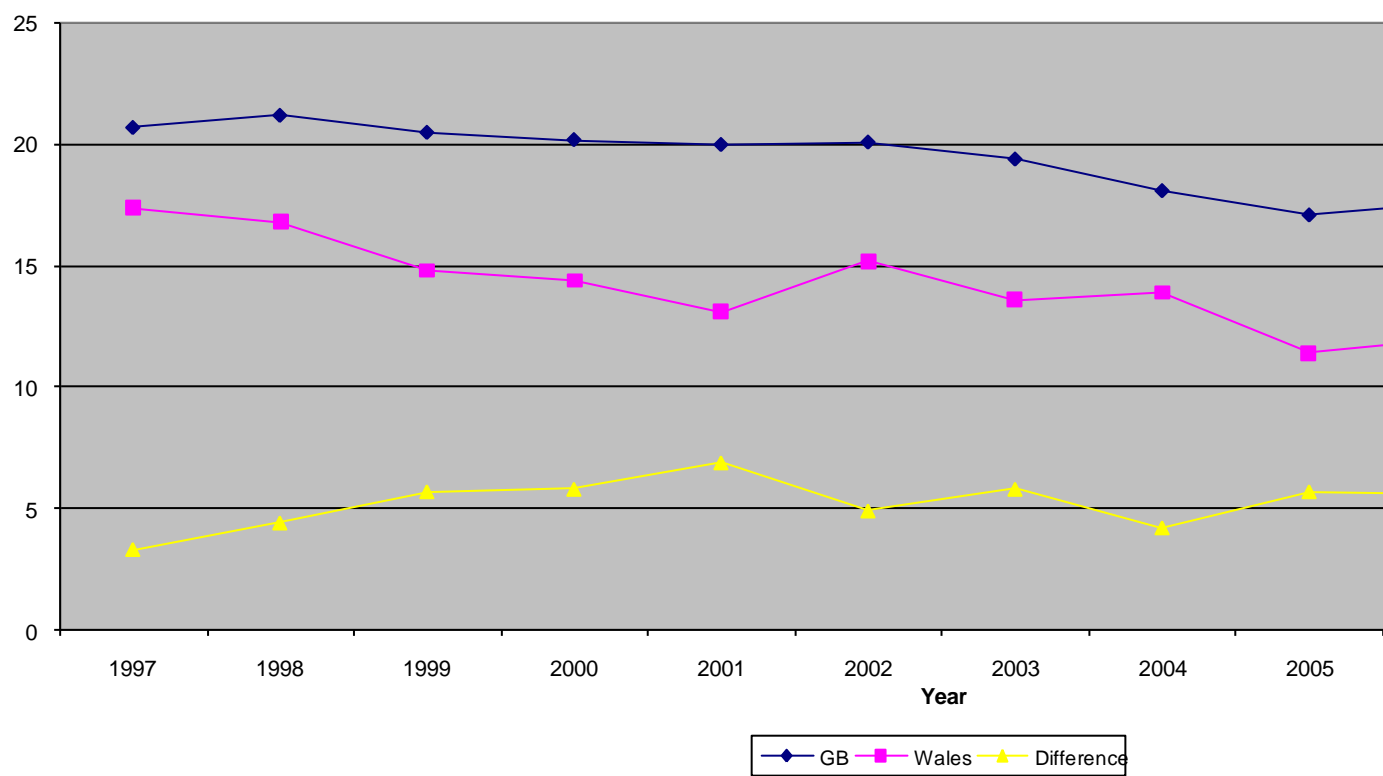
The current recession in terms of employment does appear to be hitting Wales harder than the UK and males more than females. The employment rate in Wales between December 2008 and February 2009 was 69.8 per cent (compared with a UK rate of 73.8 per cent) and this was 1.7 percentage points lower than a year earlier compared to a 1.1 percentage point fall for the UK as a whole. Between December 2008 and February 2009 employment of men in Wales fell by 23,000 (3.3 per cent) when compared with a year earlier. In the case of females over the same period employment rose by 4,000 (0.7 per cent). Most recent figures, therefore, show that in terms of employment rates this is falling faster for males than females at this point in the current recession, though the current employment rate for males at 72.0 per cent is still above that for females, 67.5 per cent.<sup>3</sup>

Figure 1.2 shows that the hourly earnings gender pay gap profile (excluding overtime pay) is similar to the weekly earning gender pay gap profile. The UK gender pay gap

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<sup>3</sup> Employment figures taken from WAG (2009)

**Figure 1.2: Pay Gap between Female Average Gross Hourly Earnings as a Percentage of their M  
1997-2008**



*Source: Annual Survey of Hours and Earnings*

generally falls gently from 1997 to 2005, between 2005 and 2008 the UK gender pay gap remains fairly constant. In Wales the gender pay gap shows greater variability than the national picture, between 1997 and 2001 the gender pay gap in Wales falls fairly sharply and the gap between Wales and the UK increases from about 3% to 7%. Between 2001 and 2002 the gender pay gap increases before generally declining again until 2008 when there is a noticeable increase. As with weekly earnings, hourly earnings show a relatively sharp increase in the gender pay gap in Wales in 2008 whilst in the UK the gender pay gap shows little change.

### **1.3 Earning by region**

Further light on the reasons for the change in the gender pay gap can be found in table 1.2 showing hourly earnings for females and males and their rate of change for the UK standard regions. The table shows that at £11.68 per hour female earnings in Wales are below the UK average and below 7 of 11 standard regions and only above North East (£11.47), East Midlands (£11.44) and Northern Ireland (£11.63). However in the case of females their earnings are lower than in 9 of the 11 standard regions and above only Northern Ireland. Whilst women earn substantially less than men in Wales, women earn 91 per cent of the average female wage of women in the UK. For males, the figure is 86 per cent which accounts for the smaller gender pay gap in Wales. Table 1.2 reveals that the reason the gender pay gap increased in Wales in 2008 was that male earnings increased by a greater amount than female earnings. Between 2007 and 2008 female earnings in Wales increased by 4.2 per cent, above the UK average of 3.7 per cent, with only the East and Scotland showing a faster rate of increase. For males in Wales earnings increased by 6.6 per cent clearly well above any other region and the male average increase of 3.9 per cent. Clearly 2007 to 2008

**Table 1.2: Average earnings of full-time employees UK regions, 2008**

<b>Hourly</b>							
<b>Region</b>	<b>Women</b>	<b>Annual percentage change</b>	<b>Men</b>	<b>Annual percentage change</b>	<b>% of UK average</b>		<b>Ratio</b>
					<b>F</b>	<b>M</b>	
UK	12.88	3.7	15.54	3.9	100	100	82.9
North East	11.47	3.4	12.93	3.4	89.1	83.2	88.7
North West	12.23	3.2	14.19	1.6	95.0	91.3	86.2
York/Humber	11.71	4.1	13.62	3.8	90.9	87.6	86.0
East Midlands	11.44	4.2	13.94	5.5	88.8	89.7	82.1
West Midlands	11.77	4.2	14.09	5.0	91.4	90.7	83.5
East	12.40	4.9	14.92	2.8	96.3	96.0	83.1
London	16.73	3.0	21.84	4.7	129.9	140.5	76.6
South East	13.03	1.7	16.52	2.9	101.2	106.3	78.9
South West	11.77	3.3	14.04	2.0	91.4	90.3	83.8
Wales	11.68	4.2	13.38	6.6	90.7	86.1	87.3
Scotland	12.48	4.8	14.43	3.2	96.9	92.9	86.5
Northern Ireland	11.63	2.7	12.57	3.4	90.3	80.9	92.5

*Source: Annual Survey of Hours and Earnings, April 2008*

was a relatively good period for both females and males in employment in Wales, though particularly for males, and hence the fall in the gender pay gap.

Many factors have been found to influence the level of an individual's earnings, with the skills that an individual brings to the labour market being particularly important. Gender, ethnicity, marital status, trade union membership, whether one works in the public or private sector, region of work and occupation and industrial attachment have all been found to be important. In particular, relatively low earnings in Wales have been found to be partly explained by the occupational and industrial structure found in the region and the importance of these factors in explaining the gender pay gap is addressed below.

#### **1.4 Earnings by Occupation**

Table 1.3 shows that earnings of females in Wales are lower than males in each of the main occupational groups. However the degree of female earnings disadvantage varies across occupations. The largest gap is found in skilled trades where females' hourly earnings are only 65.9 per cent of males. However, numbers of females working in this occupation is relatively low and therefore average earnings are based on a relatively small sample. The occupational groups employing the largest numbers of females are Administrative and Secretarial (employing 22 per cent of the full-time females), Associate Professional and Technical (employing 20 per cent of full-time females), and Professional (employing 15 per cent of full-time females). In these occupations females earn 89.4 per cent, 85.9 per cent and 89.0 per cent respectively of male earnings, close to the average across all occupations of 87.3 per cent. Relative to males females do best in Personal Services where they earn 95.9 per cent as much

**Table 1.3: Average hourly earnings of full-time employees by occupation, Wales, 2008**

	Hourly					Employment share	
	Women	Annual percentage change	Men	Annual percentage change	Ratio	Women	Men
Managers and senior officials	14.26	5.9	17.62	6.8	80.9	14	18
Professional	19.34	4.0	21.73	3.7	89.0	15	13
Associate professional & technical	13.36	4.4	15.55	10.9	85.9	20	13
Administrative & secretarial	9.24	3.2	10.33	6.5	89.4	22	6
Skilled trades	7.35	-0.4	11.15	9.8	65.9	N/A	15
Personal service	8.15	3.3	8.50	0.2	95.9	13	3
Sales & customer service	7.43	5.8	8.23	1.0	90.3	7	4
Process, plant & machine operative	7.88	-1.1	9.96	5.0	79.1	3	14
Other occupations	6.86	-1.6	8.04	1.7	85.3	5	13

*Source: Annual Survey of Hours and Earnings, April 2008*

as men, but this is a relatively low paying occupation for both men and women. In contrast, in the relatively high paying occupation of Managers and Senior Officials levels earn 80.9 per cent as much as males, but this is much better than the UK figure (see Table 1.4), where females earn just under three-quarters as much as males. This confirms the findings of Blackaby *et al* (1999) nearly a decade earlier, which found evidence for a ‘glass ceiling’ in Wales, and concluded that “the overall picture that emerges from the analysis of occupational structure is that Wales is a region with relatively few women in managerial and senior management roles. However, Wales

**Table 1.4: Average hourly earnings of full-time employees by occupation, UK, 2008**

	Hourly					Employment share	
	Women	Annual percentage change	Men	Annual percentage change	Ratio	Women	Men
Managers and senior officials	17.67	2.7	24.07	3.1	73.4	16	22
Professional	19.48	1.6	21.58	2.9	90.3	15	15
Associate professional & technical	14.13	4.7	16.22	3.4	87.1	19	15
Administrative & secretarial	10.21	4.2	11.33	5.1	90.1	22	5
Skilled trades	8.49	0.2	11.13	3.5	76.3	1	15
Personal service	8.46	3.4	9.51	3.8	89.0	11	2
Sales & customer service	7.79	2.3	8.50	3.7	91.6	6	3
Process, plant & machine operative	8.03	4.7	9.90	3.1	81.1	2	12
Other occupations	7.19	3.2	8.37	3.3	85.9	6	11

*Source: Annual Survey of Hours and Earnings, April 2008*

is also a region with relatively few men in management, and the proportion of women in these jobs is similar to the rest of the country”. The political structure of the UK is heavily biased towards the south-east of England and this has the effect of attracting the head offices of major companies, financial corporations and other institutions into the region. This has incalculable benefits to the south-east of England. In London, for example, 19 per cent of females and 29 per cent of males are employed as managers and senior officials.

Reflecting the fact that on average male earnings rose faster than female earnings between 2007 and 2008, Table 1.3 shows that male earnings in Wales rose faster than females in 6 of the 9 occupational groups. Males had bigger increases than females in 3 of the 4 highest paying occupations. The Associate Professional and Technical occupations, employing 20 per cent of females and 13 per cent of males, saw the biggest increase in earnings with male earnings increasing by 10.9 per cent but by only 4.4 per cent for females.

Skilled Trades occupations, employing a sizeable proportion of men (15 per cent) but relatively few women, saw the second largest increase in earnings between 2007 and 2008 at 9.8 per cent. Clearly an important factor explaining the widening of the gender pay gap in Wales in 2008 was the fact that male employees working in a number of relatively well paid occupations saw their earnings rise faster than females. Comparisons between Tables 1.3 and 1.4 suggests that there is greater variability in the annual percentage change in earnings in Wales than for the UK, this may reflect the fact that the occupational samples are much smaller in Wales than the UK leading to less precise estimates for Wales.

### **1.5 Earnings by Industrial Sector**

In terms of earnings by industrial sector Table 1.5 shows that in Wales the gender pay gap is larger in manufacturing than in services. In manufacturing, females receive only 74.8 per cent of the average hourly earnings of their male counterparts, whereas in services females receive 86.4 per cent of the average hourly earnings of males working in this sector. In the UK (see Table 1.6) the difference in earnings in manufacturing and services is very similar at 81.5 per cent and 80.7 per cent



**Table 1.5: Average hourly earnings by industrial sector, Wales, 2008**

	Hourly					Employment share	
	Women	Annual percentage change	Men	Annual percentage change	Ratio	Women	Men
Manufacturing	9.56	4.7	12.78	5.4	74.8	7	25
Services	11.88	4.0	13.74	6.8	86.4	91	66
Financial	13.24	4.8	16.00	15.3	82.8	4	3
Real estate and business admin	10.51	4.4	12.65	5.2	83.0	8	11
Public administration	12.31	1.8	15.45	6.8	79.6	11	9
Education	13.80	2.1	16.29	7.7	84.7	26	12
Health	12.23	6.5	18.44	1.6	66.3	24	7

*Source: Annual Survey of Hours and Earnings, April 2008*

respectively. Manufacturing accounts for a larger proportion of GDP in Wales than for the UK. In Wales 25 per cent of full-time men are employed in manufacturing whilst in the UK the figure is 20 per cent. For full-time females manufacturing accounts for 7 per cent of employment in both Wales and the UK. The fact that a higher proportion of men in Wales are employed in manufacturing (which on average has lower hourly earnings than services) than in the UK helps explain the lower gender gap in Wales.

The vast majority of both full-time women and men are employed in services and the employment share of services has increased over time as the manufacturing sector has been in long-term decline. Table 1.5 also presents hourly earnings information for a number, but not all, of the major service occupations. Within Wales the largest

gender pay gap is found in Health where females are found to receive only 66.3 per cent of the hourly earnings of men. This is somewhat surprising given the strong commitment of the NHS (a major employer in this sector) to equal opportunities over a long period of time and probably partly reflects compositional factors within this sector. However publically available tables don't provide a finer industrial (or occupational) breakdown within this sector so this cannot be investigated further at this point. Comparing the Wales position with that of the UK (see Table 1.6) a major difference is found in the gender pay gap in the Financial sector. Within the UK the hourly earnings of females is only 60.4 per cent of males, whilst in Wales it is 82.8 per cent.

**Table 1.6: Average hourly earnings by industrial sector, UK, 2008**

	Hourly					Employment share	
	Women	Annual percentage change	Men	Annual percentage change	Ratio	Women	Men
Manufacturing	11.56	5.8	14.19	3.8	81.5	7	20
Services	13.01	3.6	16.12	3.9	80.7	90	70
Financial	16.29	6.3	26.96	5.1	60.4	6	5
Real estate and business admin	13.95	4.5	18.03	3.9	77.4	14	16
Public administration	12.84	5.3	15.89	4.0	80.8	6	6
Education	14.78	1.6	17.05	3.8	86.7	21	9
Health	12.63	3.4	17.58	-0.6	71.8	20	5

*Source: Annual Survey of Hours and Earnings, April 2008*

In a recent major study of gender differences in employment and earnings in the finance sector Metcalf and Rolfe (2009) find occupational segregation by gender to be higher in this sector than in the economy as a whole and women are over-represented in administrative and secretarial jobs and “substantially under-represented in managerial jobs, including at the most senior level”. Working hours were also found to be relatively high for both females and males within this industry. Males were more likely to work overtime than females, particularly unpaid overtime, which may help in individuals gaining promotion and pay progression.<sup>4</sup> Indeed, “one reason for the absence of women in senior posts is the difficulty of combining a career in finance with having children”. They note larger establishments are more likely to have human resources departments and more developed and entrenched equal opportunities policies in place. Given that they find that finance workplaces in the financial sector tend to be larger and that the sector was relatively early in introducing family-friendly practices and policies to address gender equality issues the relatively larger gender gap found to exist in this sector is a major cause for concern.

Their data shows that the percentage of employees working in the finance sector in Wales (3 per cent) is lower than in any other region except the North East. Within the UK the finance industry pays by far the highest hourly earnings for both women (£16.29) and men (£29.96) and the relatively small size of this sector in Wales partly accounts for the relatively poor position of Wales in the regional hours earnings league table.

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<sup>4</sup> Commenting on the long hours culture generally which has been stated leads to males being favoured over women in the workplace Grimshaw and Rubery (2007) state, “evidence of long hours at work could be seen not as an indicator of commitment to the organisation and of potential for promotion, but of possible inefficiency in the performance of current tasks”.

The relatively underdeveloped financial sector in Wales, partly accounts for the smaller pay gap which is found to exist in this sector in Wales. This sector employs more full-time women than men in Wales which is not the case for the whole of the UK and these jobs tend not to be in head offices and the more technical and sophisticated side of the financial sector.

Within Wales males saw a bigger increase in their earnings between 2007 and 2008 than females in both manufacturing and services, which was not the case for the whole of the UK. Within Wales males saw a 15.3 per cent increase in finance whilst females only saw a 4.8 per cent increase. Within Wales the only industry where females saw a larger increase than males was in Health, whilst this is a relatively large employer of women it is a relatively small employer of men. The reason for the increase in the gender pay gap in Wales in 2008 appears not to be the result of males doing well in a few important industries but males doing better than females across the majority of industries.

Another sector difference which could account for the increase in the gender pay gap in Wales is different increases in public and private sector wages. Wales has a higher proportion of public sector to private sector jobs than is the case for the whole of the UK. Women are also more likely relative to men to be found in the public sector. Publically available data for public and private sector hourly earnings in Wales are not published by the ONS for the Annual Survey of Hours and Earnings, although they are available for the UK (see Table 1.7). This shows that hourly earnings are on average higher in the public sector than in the private sector, which has the effect of holding up wages in Wales relative to the rest of the UK. Consistent with earlier

evidence the gender pay gap is smaller in the public sector (13.8%) than in the private sector (21.8%). However between 2007 and 2008 private sector earnings increased

**Table 1.7: Average Earnings by public/private sector, UK, 2008**

	Public Sector		Private Sector		Private/Public
	Hourly	Annual percentage change	Hourly	Annual percentage change	Ratio
Women	14.30	3.1	11.90	4.4	83.2
Men	16.58	3.4	15.22	4.1	91.8
Gender pay ratio (%)	86.2		78.2		

*Source: Annual Survey of Hours and Earnings, April 2008*

more than public sector earnings. Given the concentration of women in public sector jobs in Wales this could partly account for the increase in the gender pay gap in Wales, though further regional disaggregated analysis would be required to shed further light on this issue.

## **1.6 Earnings by Unitary Authority**

Whilst Wales is close to the foot of the earnings league table, Table 1.8 shows that substantial regional wage differentials exist within Wales. ASHE provides earnings for unitary authorities for both workforce and place of residence. The table provides earnings figures by unitary authority of workplace by gender, but also provides the ratio of female to male earnings by residence in the final column. In Wales the highest level of average earnings for females is found in Neath and Port Talbot at £13.20 per hour, well above the Welsh average of £11.68 per hour and also above the

UK average for females of £12.88. The only other area within Wales shown to pay above the UK average is Pembrokeshire at £13.18 per hour, although, in this case the ONS notes that for statistical reasons this figure is measured relatively imprecisely so must be interpreted with care. All such estimates are shown with a \*. The areas in Wales which pay above the full-time Welsh average for females are Pembrokeshire\*, Carmarthenshire, Neath Port Talbot, Vale of Glamorgan and Cardiff. For males, the highest average hourly earnings are found in Cardiff, at £15.76 well above the Welsh average for males of £13.38 and also above the UK average for males of £15.54. Cardiff is the only unitary authority in Wales where hourly earnings for full-time male employees is above the UK average. The areas in Wales which pay above the full-time Welsh average for males are Anglesey\*, Denbighshire, Bridgend, Vale of Glamorgan and Cardiff. In the case of both females and males, three areas stand out as paying above the Welsh average: Bridgend, Vale of Glamorgan and Cardiff, all co-located on the South Wales coastal plain. Despite both females and males earning above the Welsh average in these areas, the Table 1.8 shows that the gender pay gap is well above the Welsh average in these areas. By workplace, full-time females in Wales earn only 87.3 per cent as much as full-time males: in Bridgend the figure is 85.5 per cent; in Vale of Glamorgan 78.9 per cent; and in Cardiff 80.3 per cent.

A number of areas appear to have full-time earnings marginally higher for females than males. These are Pembrokeshire (101.1\* per cent), Carmarthenshire (100.9 per cent) and Neath and Port Talbot (102.7 per cent). In the case of Neath and Port Talbot, this arises from a very strong earnings performance by full-time females, the top Welsh authority for female earnings, and males being paid well below the Welsh national average.

**Table 1.8: Average hourly earnings by workplace Welsh Unitary Authority 2008**

Hourly						
	Women	Annual percentage change	Men	Annual percentage change	Ratio workplace	Ratio residence
Anglesey	11.15*	4.8	13.65*	21.6	81.7*	75.7*
Gwynedd	11.16	-3.4	12.93	3.8	86.3	95.4
Conway	11.45	7.3	12.90	6.2	88.8	79.7
Denbighshire	10.87	1.7	14.24	10.8	76.3	78.1*
Flintshire	11.18	-0.5	12.83	-2.1	87.1	83.6
Wrexham	10.55	0.2	12.83	-1.0	82.2	89.9
Powys	10.00	4.3	11.62	5.0	86.1	82.8
Ceredigion	10.94	8.4	11.74*	-4.1	93.2*	78.9*
Pembrokeshire	13.18*	16.4	13.04	13.6	101.1*	106.7*
Carmarthenshire	12.85	9.1	12.73	9.2	100.9	101.6
Swansea	11.04	6.7	12.52	-1.0	88.2	88.0
Neath Port Talbot	13.20	16.3	12.85	-0.2	102.7	94.8
Bridgend	11.96	10.6	13.99	3.3	85.5	80.7
Vale of Glamorgan	11.66	-7.8	14.77	9.2	78.9	84.6
Cardiff	12.66	4.2	15.76	11.5	80.3	81.5
Rhondda Cynon Taff	11.23	3.3	12.09	8.1	92.9	94.6
Merthyr Tydfil	10.51	7.4	12.64*	5.7	83.1*	86.5
Caerphilly	11.05	2.8	12.73	2.8	86.8	91.6
Blaenau Gwent	11.62*	13.5	12.53*	19.3	92.7*	96.6
Torfaen	10.38	10.6	12.65	11.7	82.1	95.5
Monmouthshire	11.49	3.2	12.60	12.8	91.2	79.7
Newport	12.59	0.8	13.14	10.6	95.8	74.8
Wales	11.68	4.2	13.38	6.6	87.3	86.7

*Source: Annual Survey of Hours and Earnings, April 2008*

No clear rural urban split appears in the data Gwynedd and Powys have gender pay gaps close to the Welsh average, whilst for Ceredigion, Pembrokeshire, Carmarthenshire and Monmouthshire the gender pay gap is below the Welsh average, and well below the average in a number of areas. Rural areas tend to have hourly earnings below the Welsh average for both males and females in these areas the gender pay gap tends to be below the Welsh average. In the Welsh valleys, Rhondda Cynon Taff and Blaenau Gwent have relatively small gender pay gaps, whilst in Merthyr Tydfil, Caerphilly and Torfaen they are above the Welsh average. Comparing the three major cities in Wales, Newport has a gender pay gap below the Welsh average, Swansea slightly below the Welsh average and Cardiff well above the Welsh average.

It is over fifty years since Cardiff was made the capital city of Wales. Since that time it has seen substantial private and public sector investment and this has led to population growth and rising prosperity levels relative to the rest of the country. In recent years there has been a centralisation of public sector agencies and public facilities in Cardiff, such as the Millennium Stadium and Millennium Centre and of course the National Assembly as well as the enormous investment in the Cardiff Bay regenerative project.

The level of earnings in an area, as has been shown, will be strongly influenced by the industrial and occupational structure of an area and the skills of its workforce. Cardiff, with 50% of its workforce defined as 'Managers and Professionals', clearly has an advantage over Newport and Swansea where the figures are close to the Welsh average of 38.5%. Cardiff also has relatively fewer employees in Operative and



Elementary Occupations than Newport and Swansea, helping to improve its relative position further. In terms of industrial structure, Cardiff has fewer employees in manufacturing, where again Newport and Swansea are close to the Welsh average at 13.6 per cent. A major strength of Cardiff's industrial structure is the relatively high numbers in Finance, IT and business service industries. Cardiff is also found to have the highest skilled workforce with over half having NVQ3 qualifications ('A' level equivalent) or above. Those with no qualifications make up 12.9 per cent of the workforce, which is below the Welsh average (15.4 per cent) and below the figure for Newport and Swansea.

Obviously the gender pay gap within Wales will be influenced by the occupational and industrial structure and qualifications of the workforce in an area and there is no obvious reason to believe that gender discrimination would vary by area (but this is untested). The picture which emerges is that within Wales the gender pay gap appears to be lower in relatively low paying rural areas and higher in the capital city and its relatively prosperous commuting belt – the Vale of Glamorgan. A similar picture emerges looking at the UK regions (see Table 1.2), the gender pay gap is smallest in the relatively low pay regions of Northern Ireland, North East and Wales and largest in London and the relatively prosperous South East.

The final two columns of Table 1.8 reveal that the gender pay gap by workplace and residence varies substantially. Differences are obviously influenced by commuting patterns. Evidence has found that men tend to commute greater distances than women and are more likely to have access to a car. Commuting patterns will also be influenced by the perceived quality/amenity value of a residential environment,

income and wealth. Individuals may prefer to live in parts rural Monmouthshire rather than close to the docks in Newport, even if they work in Newport. An individual's wealth and income will determine whether they can achieve this. Positive assortive mating, that is high earning individuals tending to match in marriage, will also tend to increase differences in earnings between areas. Whilst relatively high earning couples may work in different unitary authorities they tend to live in the same authority. Residency based gender pay differences show that Neath and Port Talbot no longer has a female earnings premium. Whilst the difference in earnings between men working and living in Neath and Port Talbot is relatively small, the hourly earnings of women living in Neath and Port Talbot is much lower than those working in the area, and Neath and Port Talbot no longer has the highest hourly earnings, that position goes to Monmouthshire. Monmouthshire has the highest level of hourly earnings of any authority for both females and males and this may reflect not only commuting into other unitary authorities in Wales but also across the border into England and particularly Bristol, the regional capital of the South West. Females living in Monmouthshire have hourly earnings of £14.13 compared with £11.49 for those working in the area. Males living in Monmouthshire have hourly earnings of £17.72 compared with £12.60 for those working in the area. The effect of these changes is that the gender pay ratio moves from 91.2 per cent, above the Welsh average of 87.3 per cent on a workplace basis, to 79.7 per cent, below the Welsh average of 86.7 per cent on a residency basis. Obviously Monmouthshire is seen as a desirable place to live though earnings for those working in the area are well below the Welsh average for both females and males.

Measures of Gross Value Added (GVA) a proxy measure for economic welfare shows that a substantial gap exists between East and West Wales. Proximity to Offa's Dyke and its major lines of communication to neighbouring English centres of population are major characteristics of the more successful areas. Reflecting its relatively low levels of prosperity in 2000, West Wales and the Valleys qualified for European Union Objective 1 funding. Recently, following little improvement in the position West Wales and the Valleys, it qualified for Convergence Funding from the European Union.

The bottom rows of Table 1.8 confirm that earnings grew faster for males (6.6 per cent) than females (4.2 per cent) in Wales on a workplace basis and above the UK average for all full-time workers (3.8 per cent) between April 2007 and April 2008. In the case of males in Wales eight unitary authorities saw earnings growth of over 10 per cent over the previous 12 months. These areas were Anglesey (21.6 per cent)\*, Blaenau Gwent (19.3 per cent), Pembrokeshire (13.6 per cent), Monmouthshire (12.8 per cent), Torfaen (11.7 per cent), Cardiff (11.5 per cent), Denbighshire (10.8 per cent) and Newport (10.6 per cent). In the case of females, only 5 unitary authorities saw earnings growth of over 10 per cent and these were Pembrokeshire (16.4 per cent)\*, Neath and Port Talbot (16.3 per cent), Blaenau Gwent (13.5 per cent), Bridgend (10.6 per cent) and Torfaen (10.6 per cent). The rate of increase of earnings was not uniformly higher for males than females, and in 9 of the 22 unitary authorities the rate of increase of females earnings was higher than males. Whilst female earnings fell over the previous year in 3 unitary authorities for males this was the case in 5 unitary authorities. In the major cities of Cardiff, Swansea and Newport, only in Swansea was the rate of increase in female earnings greater than of males.

The period between April 2007 and April 2008 was obviously a relatively prosperous time in Wales for both females and males in full-time work as they saw their earnings increase on average well above the rate of inflation (CPI index) which was increasing at 3 per cent in April 2008. In some unitary authorities the rate of increase of earnings was fairly spectacular but especially for males. Regional differences in earnings growth obviously partly accounted for the recent increase in the gender pay gap in Wales.

### **1.7 Earnings by Age**

Hourly earnings by age are not available for Wales in the publicly available published ASHE tables. Table 1.9 reveals that for the UK the gender wage gap does vary by age, and generally increases with age. Whilst females in the 18-21 age range are on average earnings slightly more than males (104.9 per cent) the figure declines with age up until 40-49 where females are on earnings only 77.1 per cent of males. The position of females relative to males does improve in the top two age groups such that for the over 60 females are earning 84.8 per cent of males.

Labour market participation rates over the life cycle do differ between females and males. Women are much more likely than men to have periods out of labour market due to child-rearing activities. These breaks have been shown to have an important effect on the earnings growth of women, putting them at a relative disadvantage compared with middle aged men and this is supported by the evidence in Table 1.9.

Information on the rate of growth of hourly earnings by age in the UK reveals that for all of the over thirty age groups, earnings of males increased faster than females, and

only in the 22-29 age group did female earnings increase faster than males. Figures are not published for Wales but if a similar picture were to emerge, and given the relatively large increase in the gender pay gap in the last year, this would be worrying

**Table 1.9: Gender hourly earnings by age, UK, 2008**

<b>Women</b>				<b>Men</b>			<b>Ratio</b>
	<b>Sample</b>	<b>Wage</b>	<b>Annual percentage change</b>	<b>Sample</b>	<b>Wage</b>	<b>Annual percentage change</b>	
16-17	21	4.9	-2.9	59	5.34	13.4	91.8
18-21	355	7.90	2.0	456	7.53	3.4	104.9
22-29	1,536	11.17	3.9	1,784	11.45	3.1	97.6
30-39	1,641	14.39	3.1	2,853	16.13	3.3	89.2
40-49	1,901	13.89	3.6	3,137	18.01	4.2	77.1
50-59	1,395	13.40	4.2	2,110	16.99	4.8	78.9
60+	246	11.83	3.6	700	13.95	4.5	84.8
All	7,087	12.88	3.7	11,074	15.54	3.9	82.9

*Source: Annual Survey of Hours and Earnings, April 2008*

as it would be unlikely that solely structural effects such as occupational and industrial factors would solely account for the change as males are doing better than females across all age groups.

The decline in the magnitude of the gender pay gap between 1998 and 2008 shown in Figure 1.2 could arise from either the entry of new cohorts into the labour market having better prospects than those leaving (a between cohort effect), or the result of gains made in each cohort over time (a within cohort effect), or a combination of

these two effects. Cohorts of women can differ in their levels of education and qualifications, choice of occupation, whether they have children and family size, which will influence the amount of time they have spent in work since leaving education. All of these factors could contribute to a narrowing in the gender pay gap. The pay gap could also narrow over time if the level of discrimination faced by females declined, and this could reduce the difference in female and male earnings for all age groups.

Table 1.10 shows between cohort and within cohort changes between 1998 and 2008. Between cohort changes are calculated by comparing the gender pay ratio for a particular age group in 1998 with that for the same age group in 2008. Findings indicate that for all age groups the gender pay gap has narrowed over the period. Between the dates of 1998 and 2008 the youngest age groups experienced the largest gains in relative earnings. The earnings gain generally falls with age groups with the 40-49 age group experiencing the smallest increase.

An important factor in determining the future direction of the gender pay gap is whether the disappearance of the gender pay gap for the 18-21 age group and partial disappearance for the 22-29 age group can be maintained as these cohorts age. Table 1.10 provides 'within cohort' changes which give an indication of how gender pay gaps vary over the life cycle. These are calculated by comparing the gender pay gap for one age cohort in 1998 with that for the next age cohort in 2008. For example, the within cohort changes for 30-39 year olds in 1998 are calculated by comparing the gender pay gap for those aged 30-39 in 1998 with those aged 40-49 in 2008.

Table 1.10 shows that the ‘within cohort’ effects for the 21-29 age group is small, though women do lose some ground on men. It is in the age range between 30 and 39 that women lose out most to men, with their earnings increasing at a much slower rate

**Table 1.10: Gender pay ratios in hourly earning by age 1998 and 2008**

<b>Age Cohort</b>	<b>1998</b>	<b>2008</b>
18-21	90.1	104.9
22-29	91.0	97.6
30-39	86.2	89.2
40-49	74.3	77.1
50+	73.8	80.2
<b>Between Cohort change</b>		<b>Percentage point increase</b>
18-21		14.8
22-29		6.6
30-39		3.0
40-49		2.8
50+		6.4
<b>Within Cohort change</b>		<b>Percentage point change</b>
22-29		-1.8
30-39		-9.1
40-49		5.9

*Source: Derived form from Annual Survey of Hours and Earnings data*

and so the gender pay gap widens sharply (9.1 per cent). Females in their 40s do recover some of the lost ground with the gender pay gap narrowing by 5.9 per cent.

The fact that the gender pay gap has disappeared for the youngest age group does not necessarily mean that the gender differences in earnings will disappear over time as new cohorts enter the labour market. Evidence has shown that gender pay gap increases with age and that time out of the labour market or part-time employment during child rearing has a damaging effect on the relative earnings profiles of females. Age effects may also reflect promotion barriers that may still exist which limit the advancement of females up organisational hierarchies. The glass ceiling was a term first used in the 1970s to describe the invisible barrier which exists within company organisational structures which prevents women gaining the top management posts. More recent research has suggested that women may also face 'glass walls' (difficulty in moving laterally within organisations especially into more strategic areas such as corporate finance) and 'sticky floors' (difficulty in moving not only to the top jobs but getting promotion generally), all of which limits the ability of many women to increase their earnings.

Overall, the evidence suggests an important factor explaining the narrowing of the gender pay gap is that more recent cohorts are typically doing better than their predecessors. However, for older women, 'within cohort' improvement is also an important factor in explaining the decline in the gender pay gap. This may reflect the fact that women in this age group (many relatively highly qualified) are moving from part-time to full-time work (as their children grow up) as they place a greater importance on developing their career.



## 1.8 Earnings of part-time workers

Whilst the focus in this report has been on making comparisons between the earnings of full-time females and full-time males, as noted earlier many women work part-time (or leave the labour market altogether) during child rearing and this can have a detrimental impact on their earnings profile. Table 1.11 shows that the average hourly earnings (excluding over-time) of female part-time employees in Wales, who constitute 42.7 per cent of female employment (slightly above the UK figure of 41.4%) are significantly lower than those of women who are employed full-time. In Wales, part-time females earn 75.9 per cent as much as full-time women, slightly less than is the case in the UK as a whole where the figure is 76.5 per cent. The table shows that the gap between women who work part-time in Wales and full-time men in Wales is even larger (66.3 per cent), but in this case females do relatively worse in the UK than in Wales (reflecting the relatively low position of full-time Welsh males employees in the UK male hourly earnings league table).<sup>5</sup>

**Table 1.11: Average hourly earnings of full-time/part-time employees**

	UK	Annual percentage change	Wales	Annual percentage change
Women part-time	9.85	2.6	8.87	2.0
Women full-time	12.88	3.7	11.68	4.2
Men full-time	15.54	3.9	13.38	6.6
Female p/t as % of female f/t	76.5		75.9	
Female p/t as % of male f/t	63.4		66.3	

*Source: Annual Survey of Hours and Earnings, April 2008*

<sup>5</sup> Leaker (2008) shows “that men earn more than women across the hours distribution, except for those working between 10 to 20 and 20 to 30 hours per week, where women’s earnings are slightly higher than men’s”. In Wales 12.4 per cent of men work part-time compared with 42.7 per cent of women.

## **1.9 Distribution of earnings**

In terms of measuring the gender pay gap the EHRC prefers to use hourly earnings (excluding over-time) as the mean (as undertaken so far in this report) rather than the median. The ONS tends to present information on the wage gap using the median. “Excluding over-time, the median hourly earnings of full-time men were £12.50, an increase of 4.1 per cent. The stronger growth in full-time men’s hourly earnings excluding over-time compared with women’s has meant that the gender pay gap has increased to 12.8 per cent, up from 12.5 per cent in 2007”, ONS (2008). Leaker (2008) from the ONS notes that, “the median is the most common measure used to summarise average earnings. This is the middle point of the population, with exactly the same number of people earning this amount as above. In some instances, it can be more suitable to present the median rather than the mean, as the latter can be influenced by the relatively few extreme values in a pay distribution”.

Table 1.12 shows the earnings for full-time females and male employees at the median, mean and various points along the earnings distribution. The tenth percentile shows that 90 per cent of workers earn more than this, whilst 10 per cent earn less. For the UK as a whole at the mean females earn 82.9 per cent of males, whilst using the median the figure is 87.3 per cent reflecting the fact that at the top of the earnings distribution (90th percentile) the gap between females and males is at its greatest (78.7 per cent). It also shows a widening of the pay gap when moving along the distribution. The pay gap is smallest at the tenth percentile and largest at the ninetieth percentile. The latter finding would be consistent with a ‘glass ceiling’ effect. Females generally are not attaining the jobs with the very highest salaries.

**Table 1.12: Average hourly earnings by percentiles 2008**

	<b>Median</b>	<b>Mean</b>	<b>10</b>	<b>20</b>	<b>25</b>	<b>30</b>	<b>40</b>	<b>50</b>	<b>60</b>
UK Women	10.91	12.88	6.33	7.41	7.93	8.44	9.55	10.91	12.64
UK Men	12.50	15.54	6.86	8.17	8.82	9.46	10.87	12.50	14.41
Ratio	87.3	82.9	92.3	90.7	90.0	89.2	87.9	87.3	87.7
Wales Women	9.73	11.68	6.16	7.15	7.58	8.00	8.85	9.73	11.01
Wales Men	11.30	13.38	6.52	7.62	8.10	8.65	9.84	11.30	12.92
Ratio	86.1	87.3	94.5	93.8	93.6	92.5	89.9	86.1	85.2

*Source: Annual Survey of Hours and Earnings, April 2008*

The pattern in Wales is very different. Mean and median gender pay gaps are very similar, though the relative earnings position of females is shown to be slightly higher using the mean than median. There is also no general widening of the pay gap in Wales when moving along the distribution. The gender pay gap is smallest at the 10th percentile and increases gently until the 30th percentile (an increase of 2 percentage points). Between the 30th and 60th percentile the rate of increase of the gender pay gap grows (7.3 percentage points), whilst between the 70th and 90th percentile the gender pay gap generally falls (3 percentage points). In Wales, in contrast to the UK, the gender pay gap is smaller at the top of the earnings distribution than at the median. The much smaller gender pay gap at the top of the wage distribution in Wales reflects the much larger difference between male earnings in the UK and Wales than is the case for females at this point in the earnings distribution.

Table 1.13 shows the same earnings information as Table 1.12 but for ten years earlier. The 1998 earnings data reveals similar general patterns to those present for 2008. In Wales, mean earnings were higher than median earnings in contrast to the UK. Consistent with the evidence presented in Figure 1.2 the gender pay gap has fallen at the mean over the period, and the tables reveal it has also fallen at the median and generally across the whole of the earnings distribution.<sup>6</sup> The only point seeing no improvement is at the 90th percentile in the UK where the gender wage gap widens slightly from 21.2 per cent to 21.3 per cent suggesting that women are finding it just as difficult to break into the highest earning jobs in the UK in 2008 as they did in 1998. In contrast in Wales the gender pay gap falls substantially from 15.2 per cent to 8.6 per cent at the 90th percentile.

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<sup>6</sup> Winckler (2009) notes over the “past decade, earnings near the bottom of the pay scale for both men and women have risen faster than the earnings of the average male worker”.

**Table 1.13: Average hourly earnings by percentiles 1998**

	<b>Median</b>	<b>Mean</b>	<b>10</b>	<b>20</b>	<b>25</b>	<b>30</b>	<b>40</b>	<b>50</b>	<b>60</b>
UK Women	7.22	8.39	4.14	4.92	5.29	5.67	6.40	7.22	8.27
UK Men	8.74	10.65	4.76	5.76	6.21	6.66	7.66	8.74	10.09
Ratio	82.6	78.8	87.0	85.4	85.1	85.1	83.6	82.6	82.0
Wales Women	6.64	7.60	3.91	4.64	4.96	5.28	5.91	6.64	7.46
Wales Men	8.07	9.14	4.44	5.35	5.71	6.09	7.02	8.07	9.17
Ratio	82.2	83.2	88.1	86.7	86.9	86.7	84.2	82.3	81.4

*Source: Annual Survey of Hours and Earnings, April 2008*

## 1.10 Conclusions

In 2006 the EOC estimated that the gender pay gap translates into a loss of around £330,000 over a women's working life. It is therefore of concern that after a period of general decline the hourly earnings pay gap in Wales, according to the Annual Survey of Hours and Earnings, increased in 2008. In this report we have analysed female and male earnings by occupation, industry, region and age in an attempt to explain the factors behind this increase. However, it can be dangerous to read too much into one year of data,<sup>7</sup> but it is important to be vigilant in monitoring this important issue. Figure 1.2 shows that the gender pay gap in Wales is below that in the UK and after a number of years of decline did increase in 2002 and 2004 but then continued to decline until 2008 when it again increased. However, over the period 1997-2008 the picture is one of general decline of the gender pay gap in both Wales and the UK. Figure 1.1 shows the weekly earnings gender pay gap over a much longer period and again shows a general decline in the gender pay gap in both Wales and the UK. In Wales there have been very short periods when the weekly gender pay gap has increased, although, the general picture is one of general decline, even if the rate of improvement may have slowed since the turn of the century.

Recently, concern has been expressed that women may suffer more than men as we enter recession, but this does not appear to have been the case in previous recessions when

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<sup>7</sup> Provisional work undertaken so far using the Labour Force Survey (LFS) comparing hourly earnings for 2007 and 2008 by gender finds a large decline in the size of the gender pay gap in Wales over the period while the UK as a whole experienced an increase in the size of the gender earnings gap. However the gender pay gap using the LFS data is calculated on earnings and hours including over-time as this cannot be removed in the LFS data so the results are not directly comparable. The Annual Survey of Hours and Earnings (ASHE) replaced the New Earnings Survey (NES) in 2004. It is currently created from a 0.8 per cent sample of employee records taken from HM Revenue and Customs pay-as-you-earn (PAYE) data. Employers provide information on employee earnings, but it does not include information on firms below the VAT threshold or employees whose earnings are below the PAYE threshold. The LFS is a quarterly sample survey of households (0.2 per cent of the population) living at private addresses in the UK. Individuals are asked to provide information on earnings and hours as well as other personal information.

considering earnings. However, ASHE data do not allow one to analyse the current recession as the latest data available is for April 2008.

## **2. The Gender Pay Gap in Wales: Evidence from the LFS**

### **2.1 Introduction**

In the previous chapter, a detailed description of the gender wage gap in Wales was provided using data from the Annual Survey of Hours and Earnings. In this chapter, the Labour Force Survey is used to show the relative importance of some of the factors revealed in the previous chapter in causing the gender pay gap for full-time employees in Wales. More particularly, the chapter attempts to estimate how much of this gender pay gap can be explained by gender discrimination. Also the chapter briefly discusses the degree of the earnings discrimination affecting women who work part-time compared to their full-time counterparts. To establish a context for these findings, a comparative approach is used throughout this chapter, with Wales being compared with three other areas of Britain. It may also be pertinent to compare some of these results with the results from a previous report on the Gender Pay Gap in Wales by Blackaby *et al.* (2001), which covered the period from Spring 1996 to Winter 1999. Finally, a comparison of findings from the analysis of the LFS for 2007 and 2008 can hopefully shed light on the reasons for the alleged increase in the gender pay gap in Wales between these years, while this pay gap decreased in Great Britain, as shown in the previous chapter using ASHE data.

### **2.2 Methodological Approach**

The theoretical framework used to determine the differences in earnings due to gender in Wales as well as elsewhere in the UK, as previously used in the report of 2001, is human capital theory. Two approaches are adopted: the single earnings equation approach and the separate earnings equation approach.



As established in Blackaby *et al.* (2001) the previous report, the first approach enables the estimation of the size of the earnings difference between women and men by controlling for selected personal and job characteristics. These estimates are known as the *female earnings disadvantage*; the *higher* the estimated percentage, the greater the degree of female earnings disadvantage.

The second approach enables the estimation of the extent of the pay gap between men and women which can be explained by discrimination. This is achieved by using the observed earnings difference to distinguish the *justified* from the *unjustified* earnings differences between men and women, by evaluating whether these differences are due to differences in individual, personal or job characteristics or due to the difference in the way these characteristics are rewarded. Discrimination arises when certain characteristics are rewarded differently for women and men, and in this chapter, its value is referred to as *earnings discrimination*. This figure can provide a benchmark for assessing the unequal treatment of women in Wales as well as in Britain more generally.

In this chapter, the analysis is based on the Labour Force Survey, instead of the Annual Survey of Hours and Earnings, because the LFS has data on an extensive range of individual characteristics. Examples of these are years of full-time education and educational qualifications, which are known to affect an individual's earnings. Similarly to Blackaby *et al.* (2001), to have a sufficiently large sample size for the analysis, and achieve robust

estimates, it is necessary to pool data in this case between the Spring quarter of 2005 and Winter quarter of 2008 inclusive<sup>8</sup>.

The earnings information which is to be used for the analysis is the gross hourly earnings of the working age population, as expressed in January 2008 prices. Gross hourly earnings are computed as actual gross weekly earnings deflated by usual weekly hours worked, excluding unpaid overtime. Even though it is possible to extract information on a wide variety of variables relating to hours worked, such as usual and actual hours, this definition of hourly earnings draws on both types of hours, for two reasons: Firstly since most salaried workers have paid holidays or bank holidays, the use of actual hours worked as a denominator would lead to an over-estimation of the hourly earnings data. Secondly, the period used as a reference for actual earnings and actual hours of work may well not be the same. While the LFS records actual earnings the last time the respondent was paid, it records hours worked over only the previous week. Therefore it cannot be ascertained that these earnings are those gained over the same reference period used for measuring actual hours worked.

As mentioned above, this chapter uses a comparative approach where the difference in the hourly earnings of men and women of working age in Wales contrasted with those of a number of other British regions. The first comparator is Scotland, which is relatively sparsely populated, and is exposed to many similar economic and social pressures as Wales. In contrast, the South East of England (and London more specifically) is a highly prosperous region with a highly dynamic local economy. It is likely that this area of Britain shows the most disparity with Wales, and more particularly the Welsh economy, due to the two regions'

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<sup>8</sup> Numbers of Observations for Wales in each year: 2005 – 812; 2006 – 972; 2007 – 881; 2008 – 893; Total - 3558

divergent economic characteristics. The final area used for comparison is the combination of the other regions of England, excluding the South East. This enables the evaluation of the economic position of women across England more generally, without having results affected by biases due to the South East's unique labour market.

### **2.3 Average hourly earnings of male and female employees**

Table 2.1 shows the average hourly earnings of men and women in Wales and the other regions of Britain for the period 2005-2008. Men working full-time received £11.24 per hour on average in Wales, compared with only £9.68 per hour for women working full-time and £8.25 for those working part-time. It can be noted that average hourly earnings in the LFS are lower than those found in the NES for both women and men working full-time and women working part-time (See table 1.2). This finding of lower earnings in the LFS data is generally established (Laux and Marshall 1994; Orchard and Sefton 1996) and although there is no official explanation for this, the DfEE *has* stated that the LFS earnings data are reliable and robust. More recently however, Ormerod and Ritchie (2007) show that earnings information in the LFS are an unbiased predictor for earnings in ASHE for the majority of pay distributions. According to the data shown in Table 2.1, women working full-time earned 86.2 per cent of the average hourly earnings of men working full-time. A comparison with ASHE data for Wales shows that the gender pay gap for full-time workers was wider in the LFS at 13.8 per cent than in the ASHE at 12.7 per cent. Women working part-time received 73.2 per cent of the average hourly earnings of male full-time employees in the LFS, compared with 66.3 per cent in the ASHE (See table 1.11); thus this pay gap is in fact wider in the ASHE at 33.7 per cent than in the LFS at 26.8 per cent. It can be seen from Table 2.1 that the gender pay gap for both full-time and part-time employees was narrower in Wales than in the other regions (except for full-time workers in Scotland), which seems consistent

with findings from the ASHE. The difference in the gender pay gap between full-time and part-time female employees is found to be smaller in Wales than in the other regions of Great Britain.

**Table 2.1 Average hourly earnings of employees, 2005-08**

	<b>Women: full-time</b>	<b>Women: part-time</b>	<b>Men: full-time</b>	<b>Women F/T as % of men F/T</b>	<b>Women P/T as % of men F/T</b>
Wales	9.61	8.16	11.16	86.2	73.2
Scotland	10.22	8.49	11.81	86.6	71.9
South East England	11.86	9.39	14.63	81.1	64.2
Rest of England	9.78	7.99	11.42	85.6	69.9

*Source: Labour Force Survey, Spring 2005 – Winter 2008.*

## **2.4 Earnings disadvantage for female full-time employees**

An important issue not addressed in the previous Chapter is the extent to which differences in workforce composition across regions may at least partly explain observed gender pay gaps. For instance, levels of educational attainment may differ between men and women, and similarly it may be different for Wales compared to other British regions. Given that a positive relationship is known to exist between earnings and educational attainment, these differences will clearly affect the observed gap in earnings between men and women. Given that the same can be said about other factors affecting earnings, it is important to estimate the earnings disadvantage faced by women taking into account such features. This estimation can be achieved by econometric regression analysis.

Table 2.2 reports the estimated female earnings disadvantage for women working full-time in the different areas of Britain for three points along the distribution of earnings: the bottom 25 per cent, the middle (also known as median) and the top 25 per cent. The first row of data in the table shows the earnings disadvantage faced by women after a minimal set of standard controls have been included. These controls consist of factors which are known to have an effect on earnings, such as educational attainment, work experience, and marital status. This model will be used as the baseline model for subsequent analysis.

Table 2.2 shows that, after controlling for the factors included in the baseline specification only, the hourly earnings of a female worker at the middle of the earnings distribution are 14.6 per cent less than the hourly earnings of a comparable male worker in Wales (see row 1 column 2). Row 1, column 1 shows that the female earnings disadvantage in Wales is slightly lower for low-earning workers (14.1 per cent), but higher for high-earning workers (15.9 per cent). This is slightly different from the other regions, which all have increasing female disadvantage as earnings increase up the distribution: for instance, in Scotland it increases over the distribution from 13.3 per cent to 13.5 per cent, then to 16.4, in the South East of England it increases from 15.5 per cent to 17.2 per cent, and then to 19.3 per cent, and in the Rest of England similarly from 13.9 per cent to 15.2 per cent, and then to 16.8 per cent.

**Table 2.2 Female earnings disadvantage by GB region, 2005-08**

	Wales			Scotland			SE of England			Rest of England		
	B	M	T	B	M	T	B	M	T	B	M	T
Baseline	14.1	14.6	15.9	13.1	13.8	16.5	15.7	17.4	19.4	14.0	15.2	17.0
+industry	16.9	19.5	20.6	12.9	16.0	16.9	16.0	17.1	17.6	15.5	17.3	17.8
+public sector	17.2	18.6	20.4	13.2	16.6	17.1	15.6	17.1	17.5	15.3	17.2	17.7
+labour market experience	14.3	11.9	13.7	9.8	11.7	10.8	13.3	13.8	12.3	12.9	13.5	12.2
Sample Size	3558			7318			23353			41084		

*Note:* B = Bottom 25 per cent; M = Median; T = Top 25 per cent.

*Source:* Labour Force Survey, Spring 2005 – Winter 2008.

### **Industry and public sector employment**

As shown in the previous chapter, the earnings of women and men in Wales are affected by the industries in which they are employed and whether they are employed in the public or private sector. In order to show the influence that such variables could potentially have on the pay gap between males and females, additional variables are gradually added into the baseline specification of Tables 2.2. Some effect is noticed by adding the supplementary controls, although there is no particular pattern across the regions. For instance, when we take into account the effect of males and females being employed in different industries, the female disadvantage in earnings for Wales increased. The largest increase in this disadvantage can be found in row 2 of column 2, at the middle of the earnings distribution –

female disadvantage increases here by almost 5 percentage points (4.8) as a result of controlling for industry of employment. Other smaller increases in female disadvantage can be found for both the top and bottom earners (4.68 and 2.8 percentage points respectively). This is similar only to the rest of England – although the increase is more marked for Wales - where the largest increase is at the median and the smaller increases can be found for top and bottom earners (increase of 2.06 percentage points at the median, and top and bottom have increases of 0.87 and 1.5 percentage points respectively). For the other regions, there seems to be no uniform change in the female disadvantage over the distribution when inserting the additional industrial controls; for some there is an increase in the measured female disadvantage and for others a decrease. It is important to note however that these changes are relatively marginal.

Controlling for public or private sector employment, as in row 3, has a mixed effect on the female disadvantage in Wales. For low earners, the female disadvantage appears to increase, similarly to when industrial controls were included (i.e. the percentage in column 1 increases from row 3 to 4). This increase is relatively small however standing at 0.29 percentage points. For the rest of the distribution however, the estimate of the female earnings disadvantage decreases when controlling for whether the individual is employed in the public or private sector (i.e. the percentages in columns 2 and 3 decrease from row 3 to 4). This decrease is found to also be relatively small, with 0.83 percentage points for workers at the middle of the distribution and 0.26 for those at the top. This same pattern cannot be found in the other regions, where each region shows increases and decreases at different points in the earnings distribution. For the rest of England for instance, controlling for public sector employment results in a relatively small decrease in the female disadvantage across the distribution (with



decreases of 0.22, 0.12 and 0.12 percentage points for bottom, median and top earners respectively).

### **Labour market experience**

In table 2.2, the next row down attempts to correct for the fact that women tend to take breaks from employment for having or looking after young children and the effect this may have on female earnings disadvantage measurements. Unfortunately, the LFS does not contain data on the work history of each individual, therefore a proxy needs to be created to accurately represent the total work experience of both female and male respondents. Previously, work experience has been computed as the difference between the age of the respondent and the age at which the respondent left full-time education. This is a good measurement of work experience for men, however this is inappropriate for use with women, or particularly for married women. This is due to the fact that women's employment is less continuous than men, and therefore an appropriate measure of women's employment needs to be imputed<sup>9</sup>.

The use of this imputed work experience for women markedly decreases the estimates of female earnings disadvantage across all distributions for all regions as can be seen in Table 2.2. In Wales for example, the earnings disadvantage median earning women face decreases by 6.71 percentage points (from 18.62 to 11.91) as a result of using imputed work experience in the specification. In fact, once all controls have been included into the baseline specification, the original female earnings disadvantage decreases for both median and top earners by 2.73 and 2.29 percentage points respectively. The opposite is true for the bottom

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<sup>9</sup> To impute women's work experience, it is necessary to predict the probability of workforce participation of women of a given age in previous years. These predicted probabilities are average activity rates of females summed backwards over previous years up to that in which the woman left full-time education and first entered the labour market.

of the earnings distribution, where the female disadvantage including all controls ends up being slightly larger than that estimated using the baseline specification (by 0.21 points). It seems likely that for the bottom 25 per cent of earners using imputed work experience for females has a less marked effect on the estimates than for those earning higher wages. It may be pertinent to control for all of the factors used in the analysis of the gender wage gap when evaluating the female earnings disadvantage, whether over Wales or the whole of Great Britain.

It can be seen that Wales has a peculiar pattern when compared with the other regions. In Wales, the highest female earnings disadvantage can be found for top and bottom earners (with 13.65 and 14.28 per cent respectively). Similarly when compared with the other regions Wales has the highest disadvantage for both these groups. Scotland, the South-East of England and the rest of England all have lower female earnings disadvantage estimates for the top and bottom earners (10.81, 12.27 and 12.21 per cent respectively for top earners and 9.80, 13.3 and 12.86 per cent for bottom earners). The female disadvantage to middle-earning female workers in Wales is however one of the lowest in Great Britain, with only Scotland achieving a lower result (see row 4 column 2, 5, 8 and 11).

## **2.5 Earnings discrimination within industries and occupations**

In a similar way to how the earnings differential due to gender varies across regions, it is also very probable that the differential varies significantly by industrial and occupational category within each region. This can be established by estimating the relationship between earnings and gender within the same industrial and occupational groups for each of the four comparator regions.

## Industry

Table 2.3 shows the extent of earnings disadvantage faced by women in each industrial group for each region of Britain. Some of the estimates, however, are based on particularly small samples, making it difficult to extract any significant results from the data. This is mainly true for Energy & Water, Construction and Transport & Communication categories, particularly for Wales. For instance, only nine female observations are available for Energy & Water in Wales.

<sup>1</sup> Table 2.3 Female earnings disadvantage by industry, 2005-08

	Wales			Scotland			SE of England			Rest of England		
	B	M	T	B	M	T	B	M	T	B	M	T
Energy & water	17.6	26.5	4.2	1.8	3.0	10.3	9.8	7.9	10.5	21.8**	16.1**	17.3**
Manufacturing	19.0**	16.4**	21.1**	16.4**	15.1**	14.0**	10.5**	11.4**	5.5**	20.0**	20.5**	17.7**
Construction	9.1	2.9	13.2	10.1	2.5	10.0	-0.4	6.4 *	5.8	15.2**	18.8**	14.3**
Distribution, hotels and restaurants	15.2**	17.6**	20.8**	8.9**	14.6**	13.0**	13.0**	16.3**	18.4**	12.2**	15.7**	16.2**
Transport & communication	9.3	2.4	4.5	6.9	-1.9	2.4	3.5	4.7	6.5 *	2.3	1.7	-1.0
Banking, finance & insurance etc	6.3	11.7	15.9**	12.8**	15.4**	16.1**	17.1**	17.0**	19.5**	12.4**	14.5**	18.0**
Public administration, education & health	10.7**	8.1**	7.6**	10.4**	9.5**	7.9**	15.1**	12.6**	8.7**	11.9**	11.8**	9.0**
Other services	24.4**	25.4**	24.4**	16.1**	12.0*	3.8	17.6**	11.7**	5.6	8.4**	11.0**	12.0**

Note: \*\* significant at 95 per cent level

\* significant at 90 per cent level

Source: Labour Force Survey, Spring 2005 – Winter 2008.

It is possible to notice from Table 2.3 that the largest statistically significant estimates of female earnings disadvantage can be found in the “Other Services” sector. This sector is found to be composed of “Other community, social & personal”, “Private households with employed persons” and “Extra-territorial organisations & bodies”, which seems to be very diverse, resulting in a high amount of difficulty in reaching any conclusions over the reason(s) for the high female disadvantage estimate found for this sector. On the opposite side of the scale, the smallest significant estimates can be found in Public Administration, Education & Health. For top earners in Wales, this estimate is particularly small and somewhat close to Scotland’s (7.6 and 7.9 per cent respectively), and much larger estimates can be found such as in “Manufacturing”, “Distribution, Hotels and Restaurants” and “Banking, Finance & Insurance” (21.1 per cent, 20.8 per cent and 15.9 per cent respectively). This falls in line with previous findings by Blackaby et al. (1999). They found, by interviewing women in senior or middle management roles (i.e. the top earners), that women had difficulty in breaking into male-dominated circles and building the social networks that were vital to their career development.

The pattern of relative male earnings advantage in male dominated sectors can also be found in other regions of Great Britain. As well as in “Manufacturing”, in “Banking, Finance and Insurance” it seems women are the most disadvantaged, as these sectors have the highest estimates across almost all regions, despite the well paid nature of the “Banking, Finance and Insurance” sector. (as can be seen in the recent report by Metcalf H and Rolfe H (2009))

## Occupation

Due to the size of the LFS sample, particularly in the case of Wales, it is not possible to conduct a separate analysis for each of the 32 detailed occupational groups. It is possible however to pool some of these into broader occupational groups and estimate the female earnings disadvantage for each of the groups using the single equation approach (Table 2.4). In the first table we use five occupational groups (which will be referred to as broad occupation) and in the second table (Table 2.5) we use nine occupational groups (which will be referred to as detailed occupations).

<sup>11</sup> **Table 2.4 Female earnings disadvantage by broad occupation, 2005-08**

	Wales			Scotland			SE of England			Rest of England		
	B	M	T	B	M	T	B	M	T	B	M	T
Employer/Professional	11.9 **	8.4 **	4.6	3.4	7.2 **	7.6 **	12.1 **	11.1 **	10.0 **	12.9 **	9.3 **	7.6 **
Intermediate non-manual	12.9 **	11.5 **	8.0 **	13.3 **	12.4 **	12.7 **	14.2 **	16.0 **	16.5 **	12.9 **	14.9 **	13.2 **
Junior non-manual/ personal service	10.5 **	6.6 *	8.9 **	14.4 **	13.8 **	11.1 **	11.7 **	14.3 **	16.1 **	8.7 **	10.3 **	12.0 **
Foreman/ Skilled Manual	17.7 **	31.5 **	33.6 **	31.4 **	37.0 **	42.9 **	26.4 **	28.6 **	31.6 **	35.5 **	37.4 **	36.5 **
Low-skilled Manual	22.1 **	23.2 **	25.4 **	15.6 **	17.0 **	22.0 **	17.8 **	23.3 **	24.9 **	18.0 **	22.0 **	24.9 **

Similarly to the rest of Britain, in Wales the estimated female disadvantage in manual occupations is much larger than that for non-manual. For instance, men at the middle of the earnings distribution in skilled or low-skilled manual occupations have 31.5 and 23.2 per cent

higher wages respectively. The smallest significant disadvantage can be found in junior non-manual and personal service occupations for both bottom and median earning female workers, although for top earning female workers, intermediate non-manual occupations have the lowest earnings disadvantage. The disadvantage for female workers in Wales is much smaller, although not significant, in the case of top earners in Employer or Professional Occupations.

Most notably from Table 2.4, it can be seen that the earnings disadvantage facing females is consistently lower in Wales for Intermediate Non-manual occupations than for the other regions of Britain. This can be seen for all types of earners across the distribution, but is particularly important in the case of top earners. In Wales, this groups' female earnings disadvantage is estimated to be only 8 per cent, compared with 12.7 per cent in Scotland, 16.5 per cent in the South East of England and 13.2 per cent for the rest of England.

In table 2.5, a more detailed grouping of occupations is used. This enables a higher precision when discerning which types of occupations could generate more or less of a gender wage gap. However, due to the heightened detail, more estimates become insignificant due to the small number of observations, particularly in the cases of Wales and Scotland for certain occupational groups. Despite this fact, out of the few significant estimates, it can be seen that almost across the entire earnings distribution the lowest female earnings disadvantage for Wales can be found in administrative and secretarial occupational category.

When Wales is compared with the other British regions, it is fairly noticeable that there is little or no pattern; the smallest and largest earnings disadvantages to female workers vary

**Table 2.5 Female earnings disadvantage by detailed occupation, 2005-08**

	Wales			Scotland			SE of England			Rest of England		
	B	M	T	B	M	T	B	M	T	B	M	T
Managers and senior officials	17.5**	15.6**	3.0	11.2	16.2	18.5	11.0**	9.5 **	9.6 **	16.6**	13.0**	8.0 **
Professional Occupations	2.7	2.5	4.2	-5.1 *	1.9	1.3	11.8**	11.0**	9.9 **	5.6 **	6.2 **	5.2 **
Associate professional and technical	2.1	4.3	-1.9	4.5	1.1	2.2	8.2 **	8.7 **	9.0 **	6.3 **	5.3 **	3.7 **
Administrative and secretarial	9.7 **	7.7 **	2.9	3.6	5.0 *	11.1**	4.9 **	8.1 **	7.7 **	7.7 **	8.8 **	9.6 **
Skilled trades occupations	17.7**	31.5**	33.6**	31.4**	37.0**	42.9**	26.4**	28.6**	31.6**	35.5**	37.4**	36.5**
Personal service occupations	9.6	8.1	7.8	6.0	7.6	2.2	12.8**	14.0**	18.5**	7.0 **	8.8 **	8.8 **
Sales and customer service occupation	5.1	5.2	20.5**	15.2**	16.6**	16.1**	9.0 **	16.6**	15.4**	5.9 **	8.3 **	12.4**
Process, plant and machine operatives	20.5**	22.0**	20.3**	15.1**	18.1**	21.5**	16.9**	25.2**	25.2**	18.7**	22.1**	27.8**
Elementary Occupations	18.8**	21.2**	20.5**	11.2**	12.9**	20.4**	14.6**	18.4**	21.4**	13.7**	16.6**	19.2**

across the earnings distribution. For instance for middle-earning female workers in Administrative and Secretarial occupations, the lowest disadvantage is found in Wales (at 7.7 per cent). For those at the bottom and at the top of the earnings distribution however, the South-East of England has a lower but still significant earnings disadvantage for that occupational group (at 4.9 per cent and 7.7 per cent respectively).

## **2.6 Discrimination and the gender pay gap**

Each variable found to be important when using the single equation approach is included within the model specification for the separate equation approach. The extent of the earnings disadvantage faced by women implied by such an estimation method is given in Table 2.6a (where it is shown as the ‘predicted difference’), with the portion of this disadvantage reasonably due to individual or job characteristics (i.e. ‘characteristics’) and to actual discrimination (i.e. ‘coefficients’). In order to simplify comparisons between the results in the table and the percentages in the text, the amount of female earnings disadvantage due to discrimination is also shown.

Table 2.6a, which relates to the period from 2005 to 2008, shows that the earnings discrimination females face increases the further up the earnings distribution they are. For instance, earnings discrimination in Wales increased from 7.9 per cent for the bottom to 11.7 per cent for the top earners. Even though the estimate of discrimination for the bottom-earners in Wales is larger than in Scotland, it is still lower than for the other regions’ estimates (see row 6, columns 1, 4, 7 and 10). For median-earnings however, it can be seen that earnings discrimination is lower in Wales than in any of the other regions, whereas it seems that the highest earnings discrimination affects the top-earners. It should be noted that median-earning females earn 8.3 per cent less than comparable males in Wales, weighing up



against 9.9 per cent for Scotland and the South-East of England, and 9.5 per cent for the Rest of England. It is possible that the lower earnings discrimination found in Wales is due to the fact that average male earnings in Wales tend to be lower than for their equivalent counterparts in the rest of Britain, rather than an actual decrease in the level of earnings discrimination facing female workers. At the same time however, top-earning females in Wales earn 11.7 per cent less than comparable men due to earnings discrimination, which is higher than the estimates for Scotland at 10.4 per cent, South-East England at 10.2 per cent, and the Rest of England at 10.7 per cent.

It may be important to note that these estimates of earnings discrimination facing women working full-time fall in line with the 10 per cent ball-park estimates found by Greenhalgh (1980) and more recently by Lissenburgh (2000) in similar cross-sectional analyses.

The bottom panel of Table 2.6a seeks to quantify how much of the difference in earnings across genders can be explained by differences in average endowments of these earnings-affecting characteristics. When the coefficient is found to be positive, it can be said that that characteristic increases the extent of the men's higher hourly earnings; when it is negative however, it can be said that it helps to reduce the extent of female earnings disadvantage. The higher the characteristics' coefficient, the more important that characteristic is in explaining the difference between male and female individuals, and therefore in increasing (if positive) or reducing (if negative) female earnings disadvantage.

The entire row representing "experience" (bottom panel row 2) shows particularly high coefficients implying the universal importance of men's greater accumulation of labour

**Table 2.6a Earnings Decompositions Excluding Occupational Controls, 2005-08**

	Wales			Scotland			SE of England			Rest of England		
	B	M	T	B	M	T	B	M	T	B	M	T
Predicted Difference	0.120	0.130	0.184	0.114	0.142	0.172	0.179	0.202	0.230	0.132	0.149	0.172
Characteristics	0.044	0.050	0.073	0.035	0.047	0.073	0.086	0.108	0.132	0.045	0.058	0.071
(%)	36.6	38.4	39.8	31.0	33.2	42.7	48.1	53.2	57.7	33.9	38.9	41.0
Coefficients	0.076	0.080	0.111	0.079	0.095	0.098	0.093	0.095	0.097	0.087	0.091	0.101
(%)	63.4	61.6	60.2	69.0	66.8	57.3	51.9	46.8	42.3	66.1	61.1	59.0
Earnings Discrimination	7.9	8.3	11.7	8.2	9.9	10.4	9.7	9.9	10.2	9.1	9.5	10.7
(%)												

*Breakdown of Characteristic Component*

Education	-0.017	-0.020	-0.024	-0.011	-0.013	-0.014	-0.006	-0.008	-0.010	-0.014	-0.017	-0.019
Experience	0.049	0.072	0.094	0.041	0.058	0.071	0.051	0.073	0.096	0.048	0.066	0.082
Job Tenure	0.019	0.016	0.015	0.003	0.003	0.002	0.019	0.016	0.013	0.013	0.012	0.011
Qualifications	-0.024	-0.027	-0.031	-0.025	-0.029	-0.033	-0.016	-0.016	-0.016	-0.026	-0.030	-0.033
Marital Status	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.000	0.000	0.000
Industry	0.030	0.017	0.020	0.041	0.032	0.043	0.037	0.037	0.037	0.039	0.036	0.029
Public Sector	-0.021	-0.015	-0.005	-0.016	-0.006	0.002	-0.003	0.002	0.008	-0.018	-0.011	-0.002
Number of Employees	0.004	0.004	0.002	0.000	0.000	0.000	0.001	0.002	0.002	0.001	0.001	0.001
Year	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002

market experience, thereby increasing their earnings advantage. This can be seen through the fact that for all regions for all points of the earnings distribution (except for the bottom earners in South-East England) at least one third of men's earnings advantage is due to the longer average labour market experience held by men. In Wales, this tends to be more important than in other regions, with about half of men's earnings advantage explained by labour market experience.

The opposite can be said of industrial sectors in Wales: the distribution of male and female employees between the different industrial sectors has a similar effect on earnings as labour market experience, however this effect, in Wales, has the lowest magnitude in Britain (except in the case of bottom-earners in South-East England). It accounts for as much as a quarter of the earnings disadvantage for bottom-earning females, but only a around a tenth of the disadvantage for median and top-earnings females (the lowest in Britain). However, industrial structure in Wales still accounts for the wages of bottom-earning men being only 3.0 per cent higher than those of comparable women. For middle and top-earnings men this difference is even smaller, with wages being only 1.7 per cent and 2.0 per cent higher respectively for men than for women. Again these are found to be smaller than for the other regions. The existence of such an effect caused by the different industrial sectors is due to the male-domination of some of these sectors – in particular Manufacturing, Construction and even Banking, Finance and Insurance have been found to have differences in pay due to gender.

**Table 2.6b Earnings Decompositions Excluding Occupational Controls, 1996-99**

	Wales			Scotland			SE of England			Rest of England		
	B	M	T	B	M	T	B	M	T	B	M	T
Predicted Difference	0.152	0.165	0.194	0.150	0.182	0.228	0.155	0.190	0.236	0.173	0.202	0.228
Characteristics	0.069	0.080	0.097	0.073	0.087	0.103	0.084	0.098	0.118	0.083	0.092	0.110
(%)	45.6	48.6	49.8	48.9	48.0	45.2	54.2	51.6	50.0	48.1	45.7	48.3
Coefficients	0.083	0.085	0.097	0.077	0.095	0.125	0.071	0.092	0.118	0.090	0.110	0.118
(%)	54.4	51.4	50.2	51.1	52.0	54.8	45.8	48.4	50.0	51.9	54.3	51.7
Earnings Discrimination	<b>8.7</b>	<b>8.9</b>	<b>10.2</b>	<b>8.0</b>	<b>10.0</b>	<b>13.3</b>	<b>7.4</b>	<b>9.6</b>	<b>12.5</b>	<b>9.4</b>	<b>11.6</b>	<b>12.5</b>
(%)												

*Breakdown of Characteristic Component*

Education	-0.027	-0.027	-0.025	-0.021	-0.021	-0.021	-0.008	-0.009	-0.012	-0.018	-0.019	-0.021
Experience	0.070	0.079	0.099	0.069	0.084	0.094	0.050	0.067	0.089	0.065	0.078	0.096
Job Tenure	0.000	0.000	0.000	0.003	0.003	0.002	0.008	0.007	0.006	0.004	0.004	0.004
Qualifications	-0.011	-0.017	-0.019	-0.007	-0.009	-0.005	0.004	0.004	0.004	-0.004	-0.004	-0.003
Marital Status	0.007	0.008	0.007	0.010	0.008	0.014	0.008	0.007	0.009	0.008	0.007	0.007
Industry	0.051	0.053	0.041	0.025	0.022	0.021	0.026	0.024	0.021	0.043	0.034	0.030
Union	-0.000	-0.000	-0.000	-0.002	-0.002	-0.001	0.000	0.000	0.000	-0.001	-0.001	-0.001
Public Sector	-0.027	-0.019	-0.011	-0.006	-0.004	-0.004	-0.005	-0.003	-0.001	-0.017	-0.010	-0.005
Number of Employees	0.005	0.004	0.006	0.004	0.004	0.003	0.002	0.001	0.002	0.003	0.003	0.003
Year	0.000	0.000	0.001	-0.000	-0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Since the last report, in Wales, earnings discrimination has decreased over almost the entire distribution: only the top quarter of earners see an increase in their earnings discrimination (from 10.2 to 11.7 per cent). The only area where earnings discrimination has decreased since the last report is the rest of England, where across the earnings distribution it can be seen that the estimates for female earnings discrimination are reduced. For the other regions the effect is mixed; in the South-East of England, earnings discrimination has increased for all but top-earners, and in Scotland, it has decreased for all but bottom-earners.

### **Occupational status**

In the previous chapter, it has been demonstrated that female workers are concentrated into lower occupational categories, in Wales as well as in the rest of the country. These lower occupational categories tend to have lower earnings. In consequence, some allowance should perhaps be made for different occupational employment patterns between men and women (similarly with industrial employment patterns) when evaluating the importance of female earnings disadvantage, as well as when assessing how much of the wage gap is due to earnings discrimination. Despite this fact, the crowding of female individuals into lower paying occupational groups may itself be part of the discriminatory process (e.g. Rubery 1992) and therefore including occupational controls into the model may be unnecessary. On the other hand, it would also be rather inappropriate to see discrimination as the only reason for the crowding of women into particular occupational groups: choice of occupation may also be influenced by preferences and skills and opportunities for flexible working. In fact, it might be said that the appropriate measure of female earnings disadvantage and earnings discrimination may be found somewhere between the estimates presented in Table 2.6a, which exclude occupational controls from the specification, and the estimates presented in Table 2.7a, which include them.

The occupational groups used here are the same groups previously used in Table 2.5. Some of these groups do tend to have few female observations; however the greater detail in occupational grouping will result in greater detail of the effect these groups may have in controlling for the different distribution of women across occupations.

It is expected, in fact, that controlling for the occupational distribution of workers will result in a lower measurement of earnings discrimination. Therefore for any earnings differential, more of this differential will be accounted for, resulting in the part attributable to discrimination falling. It can be noted that in Wales, earnings discrimination has fallen across the earnings distribution after adding occupational controls; for the bottom quarter of earners from 7.9 to 5.7 per cent, for middle earners from 8.3 to 6.4 per cent and for the top quarter of earners from 11.7 to 6.7 per cent.

Despite the above interpretation, it is not so clear that these entries are in fact comparable. Due to the nature of quantile regression, predicted earnings are used rather than observed earnings. Although these will tend to be very similar they are not identical, and therefore the inclusion of occupational controls into the specification results in a different predicted earnings distribution than if they had not been included, making tables 2.6 and 2.7 difficult to compare. Even though quantile regression is useful for analysing the level of female disadvantage and earnings discrimination across different points in the earnings distribution, it is not possible to make a direct comparison between different wage determination specifications without some level of error. It can be seen however that Wales almost has the smallest estimates of earnings discrimination in Britain (except for Scottish bottom and median-earners).

**Table 2.7a Earnings Decompositions Including Occupational Controls, 2005-08**

	Wales			Scotland			SE of England			Rest of England		
	B	M	T	B	M	T	B	M	T	B	M	T
Predicted Difference	0.125	0.146	0.174	0.110	0.144	0.176	0.173	0.205	0.233	0.125	0.153	0.178
Characteristics	0.070	0.083	0.108	0.065	0.089	0.110	0.116	0.134	0.157	0.065	0.085	0.102
(%)	55.6	57.2	62.5	58.9	61.9	62.7	67.2	65.4	67.4	51.8	55.6	57.2
Coefficients	0.056	0.062	0.065	0.045	0.055	0.066	0.057	0.071	0.076	0.060	0.068	0.076
(%)	44.4	42.8	37.5	41.1	38.1	37.3	32.8	34.6	32.6	48.2	44.4	42.8
Earnings Discrimination	<b>5.7</b>	<b>6.4</b>	<b>6.7</b>	<b>4.6</b>	<b>5.6</b>	<b>6.8</b>	<b>5.9</b>	<b>7.3</b>	<b>7.9</b>	<b>6.2</b>	<b>7.0</b>	<b>7.9</b>
(%)												

*Breakdown of Characteristic Component*

Education	-0.010	-0.012	-0.014	-0.006	-0.007	-0.009	-0.004	-0.005	-0.006	-0.008	-0.010	-0.010
Experience	0.041	0.048	0.069	0.036	0.046	0.053	0.049	0.057	0.073	0.042	0.052	0.058
Job Tenure	0.015	0.014	0.009	0.002	0.001	0.001	0.014	0.011	0.008	0.009	0.008	0.008
Qualifications	-0.013	-0.011	-0.011	-0.012	-0.013	-0.010	-0.007	-0.008	-0.008	-0.015	-0.014	-0.016
Marital Status	0.001	0.001	0.001	0.001	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.000
Industry	0.011	0.016	0.006	0.021	0.034	0.037	0.029	0.034	0.039	0.028	0.032	0.033
Public Sector	-0.018	-0.014	-0.001	-0.007	-0.005	-0.001	0.000	0.003	0.007	-0.012	-0.010	-0.004
Number of Employees	0.005	0.004	0.004	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Year	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002
Occupation	0.035	0.035	0.042	0.028	0.031	0.035	0.032	0.038	0.041	0.019	0.023	0.030

The previous report used a broader occupation group specification; therefore the comparison of these results with those of the present report becomes more difficult, as the same occupation groups would need to be used for the estimates to be comparable. Despite this fact it can be noted that earnings discrimination estimates have all decreased across all regions and all distributions since the 1990s (see Blackaby *et. al*, 2001). This could be due to the more detailed occupation groups used for the decomposition, but it may also imply that an actual reduction in discrimination has taken place.



**Table 2.7b Earnings Decompositions Including Occupational Controls, 1996-99**

	Wales			Scotland			SE of England			Rest of England		
	B	M	T	B	M	T	B	M	T	B	M	T
Predicted Difference	0.153	0.161	0.188	0.160	0.192	0.220	0.163	0.194	0.231	0.173	0.203	0.231
Characteristics	0.081	0.090	0.096	0.083	0.094	0.103	0.091	0.103	0.110	0.093	0.104	0.112
(%)	53.0	55.6	51.3	52.0	48.9	46.7	55.9	53.4	47.5	54.1	51.1	48.7
Coefficients	0.072	0.071	0.092	0.077	0.098	0.118	0.072	0.090	0.121	0.079	0.099	0.118
(%)	47.0	44.4	48.7	48.0	51.1	53.3	44.1	46.6	52.5	45.9	48.9	51.3
Earnings Discrimination	<b>7.5</b>	<b>7.4</b>	<b>9.6</b>	<b>8.0</b>	<b>10.3</b>	<b>12.5</b>	<b>7.5</b>	<b>9.4</b>	<b>12.9</b>	<b>8.2</b>	<b>10.4</b>	<b>12.5</b>
(%)												

*Breakdown of Characteristic Component*

Education	-0.020	-0.020	-0.021	-0.016	-0.017	-0.016	-0.006	-0.007	-0.008	-0.013	-0.014	-0.016
Experience	0.065	0.066	0.074	0.067	0.074	0.077	0.043	0.057	0.067	0.060	0.065	0.076
Job Tenure	-0.000	0.000	0.001	0.003	0.002	0.002	0.006	0.005	0.004	0.003	0.003	0.003
Qualifications	-0.004	-0.008	-0.010	-0.003	-0.004	-0.001	0.006	0.004	0.003	-0.002	-0.001	0.000
Marital Status	0.006	0.006	0.006	0.008	0.008	0.008	0.006	0.006	0.007	0.006	0.006	0.006
Industry	0.056	0.054	0.060	0.031	0.031	0.036	0.029	0.028	0.023	0.043	0.041	0.040
Union	-0.000	-0.000	-0.000	-0.002	-0.002	-0.001	0.000	0.000	0.000	-0.001	-0.001	-0.001
Public Sector	-0.023	-0.017	-0.019	-0.007	-0.007	-0.007	-0.007	-0.004	-0.001	-0.016	-0.011	-0.007
Number of Employees	0.006	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.003	0.003	0.003
Year	0.000	0.000	0.001	-0.000	-0.000	-0.000	0.000	0.000	0.000	0.000	0.000	0.000
Occupation	-0.007	0.004	0.001	-0.002	0.006	0.002	0.012	0.012	0.014	0.010	0.013	0.009

### **Discrimination and the average hourly gender pay gap**

In Table 2.8a and 2.8b, the amount of the difference in *average* hourly earnings between women and men (see Tables 2.1a and 2.1b) which can be explained by discrimination is presented. This method has the advantage that it avoids the problematic issue of using predicted earnings rather than actual earnings, as in Tables 2.6a, 2.6b, 2.7a and 2.7b. However it also renders impossible the measurement of earnings discrimination for either above average, or below average earners. Despite this fact, it does represent a transparent measure of earnings discrimination which can be easily interpreted.

In Tables 2.8a and 2.8b, the two rows each report the results excluding and including occupational controls from the estimated earnings equation. As previously outlined, the most appropriate measure of the level of earnings discrimination can be found between the pairs of estimates for each region. The largest absolute difference can be found in Scotland, where controlling for the differing distribution of workers across occupations reduces the estimated earnings discrimination by 3.6 percentage points from 8.9 to 5.3 per cent.

**Table 2.8a Estimated earnings discrimination for average individuals, 2005-08**

	Wales	Scotland	South East England	Rest of England
Earnings Discrimination (no occupational controls)	9.1	8.9	10.3	9.7
Earnings Discrimination (with occupational controls)	6.3	5.3	7.3	7.1

Table 2.1 revealed that women in Wales (as well as in the rest of Britain) receive lower average hourly earnings than men. Tables 2.7a and 2.7b indicate how much of these average differences can be explained by the different treatment of women relative to men in the labour market, i.e. how much of the difference in wages can be explained by discrimination. In Wales, earnings discrimination is found to be in between 6.3 per cent and 9.1 per cent, subject to the inclusion or exclusion of occupational controls. It can be seen, therefore, that in between just under a third and just under half of the gender pay gap in Wales (which was found to be of 19.5 per cent – see table 2.9) is due to gender discrimination in the labour market.

This level of discrimination is found to be one of the lowest in the country, except for Scotland, where earnings discrimination appears to be the lowest in Britain. In fact, the estimates from table 2.8a show that women in Wales are only slightly disadvantaged relative to women elsewhere. In the South East of England for instance, where earnings discrimination is estimated to be between 10.3 and 7.3 per cent, it is apparent that women are

more disadvantaged than in Wales. Therefore it can be said that even though some level of earnings discrimination may exist in Wales, other regions in the UK appear to suffer higher levels of earnings discrimination.

**Table 2.8b Estimated earnings discrimination for average individuals, 1996-99**

	Wales	Scotland	South East England	Rest of England
Earnings Discrimination (no occupational controls)	9.6	10.2	10.5	11.1
Earnings Discrimination (with occupational controls)	9.0	10.1	10.4	10.7

Comparing results with Blackaby *et. al*, 2001, it can be seen that the largest absolute difference in estimated earnings discrimination including and excluding occupational controls could be found for Wales. Including occupational controls decreased earnings discrimination from 9.6 to 9.0 per cent. This is much smaller than the reduction resulting from including the controls, found in the present report, of 3.6 percentage points.

Although the difference between including and excluding occupational controls has increased since the 1990s, it can still be noted that earnings discrimination facing average female workers has decreased overall. Blackaby *et. al*, 2001 noted that Wales had the lowest earnings discrimination in Great Britain. It can be seen that for the period running from 2005 to 2008, female workers in Wales still have a low amount of earnings discrimination

compared to their English counterparts, however Scotland now has the lowest estimate of earnings discrimination facing the average female worker in Britain.

## **2.7 Segregation and the hourly gender pay gap**

It is also possible that the higher level of observed wages for men is due to the segregation of male and female workers in the labour market. For instance, the average level of male hourly earnings in the LFS were 19.5 per cent higher than the average level of female hourly earnings in Wales, however, if the distribution of men and women across occupation and industry would be the same, this gap would be reduced by 7.1 percentage points (see table 2.9). It can be seen that removing segregation in the labour market would, in Wales, increase earnings, and therefore reduce the gender pay gap, more than removing discrimination would (as this only reduces the gap by 6.3 percentage points).

**Table 2.9 Estimated segregation share of the average pay gap, 2005-08**

	Wales	Scotland	South East England	Rest of England
Pay Gap	19.5	19.9	27.2	22.0
Discrimination	6.3	5.3	7.3	7.1
Segregation	7.1	6.9	5.6	6.6

Table 2.8 demonstrates that the effect of segregation is stronger in Wales than in the other regions. For instance, the removal of segregation across industry and occupation would only reduce the gender pay gap by 6.9 per cent in Scotland, which is still higher than the low estimates found for South-East England at 5.6 per cent and the rest of England at 6.6 per cent. These are all found to be lower than in Wales, where segregation accounts for 7.1 per cent of the gender wage gap.

## **2.8 The impact of part-time work on pay differences**

In earlier sections of this chapter, the extent of female earnings disadvantage, as well as the part of the gender pay gap due to discrimination for full-time employees, has been evaluated. As can be seen in Table 2.1, women working part-time have lower average hourly earnings

than their full-time counterparts. In this section a separate earnings equation method is used to examine the extent of this pay gap which is due to a *part-time earnings disadvantage*. The results given are achieved using the same set of controls as for Tables 2.6a and 2.6b (including occupational controls).

**Table 2.10 Part/Full-time Earnings Decompositions Including Occupational Controls, 2005-08**

	Wales			Scotland			SE of England			Rest of England		
	B	M	T	B	M	T	B	M	T	B	M	T
Predicted Difference	0.180	0.183	0.196	0.201	0.203	0.191	0.252	0.253	0.247	0.207	0.213	0.222
Characteristics	0.152	0.164	0.181	0.154	0.173	0.179	0.173	0.187	0.197	0.152	0.171	0.189
(%)	84.5	90.0	91.9	76.7	85.2	93.8	68.8	74.0	79.8	73.5	80.0	85.0
Coefficients	0.028	0.018	0.016	0.047	0.030	0.012	0.079	0.066	0.050	0.055	0.043	0.033
(%)	15.5	10.0	8.1	23.3	14.8	6.2	31.2	26.0	20.2	26.5	20.0	15.0
Part-time share	<b>2.8</b>	<b>1.8</b>	<b>1.6</b>	<b>4.8</b>	<b>3.1</b>	<b>1.2</b>	<b>8.2</b>	<b>6.8</b>	<b>5.1</b>	<b>5.6</b>	<b>4.4</b>	<b>3.4</b>
(%)												

*Breakdown of Characteristic Component*

Education	0.005	0.005	0.007	0.009	0.011	0.013	0.019	0.022	0.025	0.015	0.018	0.019
Experience	-0.011	-0.015	-0.018	-0.014	-0.013	-0.015	-0.022	-0.027	-0.034	-0.016	-0.018	-0.020
Job Tenure	0.002	0.001	0.002	0.009	0.009	0.008	-0.003	-0.004	-0.004	0.002	0.002	0.002
Qualifications	0.020	0.024	0.023	0.019	0.019	0.015	0.018	0.019	0.021	0.019	0.021	0.025
Marital Status	0.000	0.000	0.000	-0.001	-0.002	-0.002	-0.001	-0.002	-0.004	-0.001	-0.001	-0.002
Industry	0.026	0.026	0.029	0.021	0.021	0.026	0.025	0.023	0.027	0.018	0.017	0.018
Public Sector	0.007	0.005	0.002	0.000	0.000	0.000	-0.001	0.000	0.001	0.000	0.000	0.000
Number of Employees	0.010	0.009	0.011	0.005	0.007	0.004	0.024	0.024	0.020	0.014	0.012	0.009
Year	-0.005	-0.004	-0.005	-0.003	-0.002	-0.002	-0.003	-0.003	-0.004	-0.002	-0.001	-0.002
Occupation	0.098	0.113	0.130	0.108	0.122	0.132	0.118	0.135	0.148	0.101	0.121	0.140



As was expected, women working part-time clearly have lower wages than those working full-time. The first row showing the ‘predicted difference’ reveals an overall part-time earnings disadvantage, which in Wales is found to be between 19.7 per cent for bottom earners and 21.7 per cent for top earners. Two factors can explain an important part of this difference. Firstly, women who work part-time tend to be employed in lower status and lower paid industries and/or occupations. Secondly, women who work full-time tend to be more educated and hold higher qualifications than their part-time counterparts. For example, over half the predicted pay gap is due to the fact that women tend to work in lower paid occupations. The effect due to the fact that women work in lower paid industries is still substantial, although smaller, causing 14.4 per cent of the predicted pay gap. Qualifications also have a small but substantial effect on the predicted pay gap accounting for an additional 11 per cent.

Even though the full-time and part-time work-forces have substantial differences among them, it can be seen that women working part-time have an earnings disadvantage compared to women working full-time. For women earning the median wage, Wales presents the lowest part-time disadvantage in Britain at only 1.8 per cent. The disadvantage is particularly large in South-East England at 6.8 per cent compared to 3.1 per cent in Scotland and 4.4 per cent in the rest of England. Therefore it can be observed that a woman working shorter hours, be it by choice or constraint, faces different earnings opportunities than her full-time counterpart. It may be important to point out that the nature and cause of this disadvantage in Wales is not thought to be any different from the nature and cause of the disadvantage in other regions of Britain.

## **2.9 What happened between 2007 and 2008?**

In this section, a tentative comparison between 2007 and 2008 is made between Wales and Great Britain. It has been found in the ASHE that the gender pay gap had increased in Wales between these years whereas it had decreased in Great Britain. The LFS however, as can be seen in Table 2.11 below, shows the opposite<sup>10</sup>. It can be seen the gender pay gap has decreased across the earnings distribution between 2007 and 2008 for Wales. On the other hand, the gender pay gap in Great Britain has increased across the distribution in that same period.

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<sup>10</sup> It should be noted, as outlined earlier, that the definitions of earnings in the LFS and in the NES are not the same; therefore any comparisons between statistics derived from these surveys must be treated with caution. This is partly due to the fact that LFS collects earnings data each quarter throughout the year, whereas ASHE only collects it once a year (In April).

**Table 2.11 Comparison of 2007 and 2008 decompositions**

	Wale~2007			Wale~2008			UK_2007			UK_2008		
	B	M	T	B	M	T	B	M	T	B	M	T
Predicted Difference	0.175	0.185	0.221	0.054	0.094	0.121	0.134	0.164	0.194	0.141	0.172	0.201
Characteristics	0.091	0.115	0.137	0.036	0.044	0.073	0.078	0.099	0.120	0.088	0.103	0.122
(%)	52.4	62.1	61.9	67.5	46.6	60.0	58.6	60.3	61.7	62.1	60.2	60.9
Coefficients	0.083	0.070	0.084	0.017	0.050	0.048	0.055	0.065	0.074	0.054	0.068	0.079
(%)	47.6	37.9	38.1	32.5	53.4	40.0	41.4	39.7	38.3	37.9	39.8	39.1
<b>Earnings Discrimination</b>	<b>8.7</b>	<b>7.3</b>	<b>8.8</b>	<b>1.8</b>	<b>5.1</b>	<b>5.0</b>	<b>5.7</b>	<b>6.7</b>	<b>7.7</b>	<b>5.5</b>	<b>7.1</b>	<b>8.2</b>
<b>(%)</b>												

*Breakdown of Characteristic Component*

Education	-0.005	-0.005	-0.006	-0.010	-0.008	-0.008	-0.007	-0.009	-0.010	-0.007	-0.009	-0.010
Experience	0.036	0.050	0.051	0.039	0.045	0.062	0.045	0.051	0.066	0.050	0.058	0.066
Job Tenure	0.008	0.010	0.007	0.010	0.011	0.012	0.010	0.009	0.007	0.010	0.009	0.008
Qualifications	-0.013	-0.008	-0.006	-0.013	-0.020	-0.023	-0.012	-0.013	-0.014	-0.015	-0.014	-0.014
Marital Status	-0.001	0.000	-0.001	0.002	0.001	0.001	0.000	0.000	0.000	0.002	0.002	0.002
Industry	0.027	0.025	0.042	0.010	-0.003	0.005	0.026	0.032	0.030	0.028	0.034	0.038
Public Sector	-0.024	-0.014	-0.015	-0.013	-0.012	-0.005	-0.010	-0.003	0.006	-0.007	-0.004	0.001
Number of Employees	0.002	0.002	-0.002	-0.001	0.003	0.003	0.002	0.002	0.003	0.001	0.001	0.001
Occupation	0.061	0.055	0.066	0.013	0.027	0.026	0.024	0.028	0.031	0.027	0.027	0.031

The estimates of earnings discrimination in Wales have also decreased across the distribution. For instance, in Wales, earnings discrimination facing bottom earning full-time female workers has decreased most from 8.7 to 1.8 per cent. For middle-earnings females, over the same period, earnings discrimination has been reduced from 7.3 per cent to 5.1 per cent and for top earners, from 8.8 to 5.0 per cent. In Great Britain over the same period, earnings discrimination has increased over almost the entire earnings distribution; only the bottom quarter of earners see earnings discrimination decrease by a small 0.2 percentage points. For middle-earners, it can be seen that the estimate of earnings discrimination rises from 6.7 to 7.1 per cent, and for top-earners from 7.7 to 8.2 per cent. These are small increases however it is still important to note that these are nevertheless increases in earnings discrimination over the period.

As explained in the analysis of table 2.6a, in the bottom panel of the above table, it can be seen that some characteristics contribute toward the male earnings advantage, and some characteristics serve to reduce the female disadvantage.

In Wales, the characteristics serving to increase male advantage are experience, job tenure, industrial sector and occupational group. This is consistent with the findings from table 2.6a. These variables however have changed between 2007 and 2008: the male advantage has decreased substantially over the earnings distribution within industrial sectors and occupational groups, whereas the effects of experience and job tenure change relatively mildly; in no one particular direction for experience, but increasing slightly for job tenure. At the same time, other variables serve to reduce the extent of the female earnings disadvantage, such as education, qualifications and working in the public sector. The extent of the reduction

caused by each variable has also varied over the period, with education and qualifications increasing their effect on the reduction in female disadvantage over the earnings distribution. On the other hand, the effect on the reduction of the female disadvantage of working in the public sector has decreased.

In Great Britain, the characteristics serving to reduce female disadvantage, similarly to Wales, are education, qualifications, and working in the public sector. Over the period, none of these present a substantial change, showing that between 2007 and 2008, there has been no change in the effect these may have on the female earnings disadvantage. At the same time, the characteristics contributing to the male earnings advantage are, again similarly to Wales, experience, job tenure, industrial sector and occupational group. It can be noted that the only effect which has changed somewhat substantially over the period is the effect of the industrial sector of employment, which has served to increase the male earnings advantage over the period. This may be explained by an increase in the clustering of men and women into different industries in Great Britain, but also in Wales.

Overall, in Great Britain, it can be seen that the increased female disadvantage evident in the increasing pay gap is due to the change in the effect that occupational group, and to a lesser extent industrial sector, have on the male advantage. From the analysis of the above table it can be said that this is the most significant reason why the gender pay gap has worsened over the period for Great Britain.

**Table 2.12 Evolution of estimated earnings discrimination for average individuals in Wales and UK, 2007-08**

	Wales 2007	Wales 2008	UK 2007	UK 2008
Earnings Discrimination (no occupational controls)	11.4	7.3	9.8	9.9
Earnings Discrimination (with occupational controls)	7.1	5.3	7.1	7.0

Despite this, it can be seen from the above table that for an average full-time female worker the earnings discrimination had increased if working in an average UK region, whereas it had decreased if in Wales. This however, is only true should occupational controls be excluded – when they are included it can be noted that in fact the earnings discrimination facing an average full-time female worker has decreased in both the UK and, more substantially, in Wales.

**Table 2.13 Wales Year on Year Decompositions**

	Wales 2005			Wales 2006			Wales 2007			Wales 2008		
	B	M	T	B	M	T	B	M	T	B	M	T
Predicted Difference	-0.187	0.187	0.185	0.096	0.128	0.174	0.175	0.185	0.221	0.054	0.094	0.121
Characteristics	0.108	0.102	0.119	0.051	0.073	0.112	0.091	0.115	0.137	0.036	0.044	0.073
(%)	57.8	54.2	64.7	53.1	56.5	64.2	52.4	62.1	61.9	67.5	46.6	60.0
Coefficients	0.079	0.086	0.065	0.045	0.056	0.062	0.083	0.070	0.084	0.017	0.050	0.048
(%)	42.2	45.8	35.3	46.9	43.5	35.8	47.6	37.9	38.1	32.5	53.4	40.0
<b>Earnings Discrimination</b>	<b>8.2</b>	<b>9.0</b>	<b>6.7</b>	<b>4.6</b>	<b>5.7</b>	<b>6.4</b>	<b>8.7</b>	<b>7.3</b>	<b>8.8</b>	<b>1.8</b>	<b>5.1</b>	<b>5.0</b>
(%)												
<i>Breakdown of Characteristic Component</i>												
Education	-0.009	-0.016	-0.024	-0.009	-0.012	-0.017	-0.005	-0.005	-0.006	-0.010	-0.008	-0.008
Experience	0.045	0.057	0.067	0.046	0.048	0.080	0.036	0.050	0.051	0.039	0.045	0.062
Job Tenure	0.018	0.015	0.018	0.019	0.016	0.015	0.008	0.010	0.007	0.010	0.011	0.012
Qualifications	-0.012	-0.011	-0.010	-0.010	-0.005	-0.007	-0.013	-0.008	-0.006	-0.013	-0.020	-0.023
Marital Status	0.001	0.001	0.004	0.001	0.000	0.000	-0.001	0.000	-0.001	0.002	0.001	0.001
Industry	0.057	0.044	-0.001	0.006	0.012	0.003	0.027	0.025	0.042	0.010	-0.003	0.005
Public Sector	-0.023	-0.019	0.005	-0.028	-0.011	-0.003	-0.024	-0.014	-0.015	-0.013	-0.012	-0.005
Number of Employees	0.007	0.007	0.013	0.004	0.001	-0.002	0.002	0.002	-0.002	-0.001	0.003	0.003
Occupation	0.025	0.023	0.047	0.022	0.024	0.043	0.061	0.055	0.066	0.013	0.027	0.026

The evolution of the estimates of earnings discrimination between 2007 and 2008 can be explained by two possible factors: it could be the result of an actual evolution in the estimates, or it could be a consequence of the small number of observations for Wales in any particular year, therefore a longer time span is presented in the above table. As can be seen, in 2007, the importance in occupational groups explaining the female earnings discrimination increased dramatically, only to fall back to the ball-park values of the comparatively low estimates from 2005 and 2006. This leads us to believe that it is possible that a particularly low number of observations in this year for Wales may have influenced the estimate of earnings discrimination and therefore explain at least part of its evolution between 2007 and 2008. However, it might also be likely that we are in fact looking at an actual increase in the effect of occupational grouping on the male advantage in earnings in 2007, which is then checked by the recession in 2008, and falls back to similar levels.



**Table 2.14 Estimated earnings discrimination for average individuals in Wales year on year, 2005-08**

	Wales 2005	Wales 2006	Wales 2007	Wales 2008
Mean Difference in log earnings	0.175	0.143	0.186	0.090
Earnings Discrimination (no occupational controls)	8.6	8.1	11.4	7.3
Earnings Discrimination (with occupational controls)	6.8	5.9	7.1	5.3

Table 2.14 shows the earnings discrimination facing an average full-time female worker in Wales year-on-year between 2005 and 2008. As can be seen, earnings discrimination peaked in 2007, only to fall back in 2008 to an even lower level than in 2006. This pattern is more discernible here than in table 2.13, where the estimates of earnings discrimination for bottom, middle and top earners seem to have a higher volatility over the period.

Also, it may be pertinent to note that over the period, the direction and magnitude of the change in the average worker's earnings discrimination is not very similar to that of the middle-earning worker's earnings discrimination (as can be seen in Tables 2.13 and 2.14 above). This reveals that the effect of the change between 2007 and 2008 did not affect the

earnings distribution in a normal way, implying an issue with the number of observations, as mentioned above.

**Table 2.15 UK Year on Year Decompositions**

	UK 2005			UK 2006			UK 2007			UK 2008		
	B	M	T	B	M	T	B	M	T	B	M	T
Predicted Difference	0.145	0.168	0.185	0.130	0.164	0.196	0.134	0.164	0.194	0.141	0.172	0.201
Characteristics	0.084	0.101	0.114	0.075	0.094	0.117	0.078	0.099	0.120	0.088	0.103	0.122
(%)	58.0	60.4	61.8	57.7	57.0	59.4	58.6	60.3	61.7	62.1	60.2	60.9
Coefficients	0.061	0.067	0.071	0.055	0.071	0.080	0.055	0.065	0.074	0.054	0.068	0.079
(%)	42.0	39.6	38.2	42.3	43.0	40.6	41.4	39.7	38.3	37.9	39.8	39.1
<b>Earnings Discrimination</b>	<b>6.3</b>	<b>6.9</b>	<b>7.3</b>	<b>5.6</b>	<b>7.3</b>	<b>8.3</b>	<b>5.7</b>	<b>6.7</b>	<b>7.7</b>	<b>5.5</b>	<b>7.1</b>	<b>8.2</b>
(%)												

*Breakdown of Characteristic Component*

Education	-0.008	-0.009	-0.010	-0.008	-0.009	-0.011	-0.007	-0.009	-0.010	-0.007	-0.009	-0.010
Experience	0.045	0.057	0.064	0.046	0.053	0.067	0.045	0.051	0.066	0.050	0.058	0.066
Job Tenure	0.009	0.008	0.007	0.010	0.008	0.007	0.010	0.009	0.007	0.010	0.009	0.008
Qualifications	-0.009	-0.010	-0.009	-0.011	-0.010	-0.012	-0.012	-0.013	-0.014	-0.015	-0.014	-0.014
Marital Status	-0.001	-0.001	-0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.002
Industry	0.027	0.031	0.033	0.026	0.029	0.038	0.026	0.032	0.030	0.028	0.034	0.038

Public Sector	-0.008 -0.004 0.001	-0.008 -0.004 0.000	-0.010 -0.003 0.006	-0.007 -0.004 0.001
Number of Employees	0.000 0.000 0.000	0.001 0.002 0.002	0.002 0.002 0.003	0.001 0.001 0.001
Occupation	0.028 0.028 0.030	0.018 0.024 0.026	0.024 0.028 0.031	0.027 0.027 0.031

It can be seen from the above table that there is less volatility in the estimates of earnings discrimination over the UK in general – these stay around more or less constant ball-park values. This may indicate that, without the issue of small sample sizes as is the case for Wales, the earnings discrimination estimates change much more gradually over the years, and seem to stay rather constant over the period (as can be seen above – a change of as little as 1 percentage point does not occur – unlike for Wales). As found above, using small sample sizes results in excessive volatility in the estimates, hence the pooling of data over the four years in the previous analyses.

**Table 2.16 Estimated earnings discrimination for average individuals in UK year on year, 2005-08**

	UK 2005	UK 2006	UK 2007	UK 2008
Earnings Discrimination (no occupational controls)	10.0	9.2	9.8	9.9
Earnings Discrimination (with occupational controls)	6.7	6.9	7.1	7.0

For the average worker in the UK, over the same period, it seems that the only remotely substantial decrease in earnings discrimination facing women working full-time occurred in 2006, and did not persist. However once occupational controls are included, it seems that no substantial changes in the estimates of earnings discrimination can be noted.

It can be said that the main factor which may have contributed to the opposite changes in the estimated earnings discrimination between Wales and the UK in general is the important increase in the effect that mainly occupational grouping but also industrial sector of employment has in explaining the male advantage in earnings in Wales in 2007. Hence the high earnings discrimination estimates for 2007, which then fall back in 2008.

## 2.10 Conclusions

The analysis of the LFS has given us the opportunity to extract a deeper analysis (than using the ASHE) not only of the pay gap due to gender, but also the pay gap due to women working part-time and the reasons for the evolution of the gender wage gap between 2007 and 2008 in the UK and Wales. It has shown that a certain proportion of the wage gap between men and women in Wales is caused by the differences in the hours worked, and the differences in work experience (as women tend to have more breaks than men – usually to look after children). A significant proportion of the gap is also caused by the fact that women and men do not tend to be employed in the same industries. For middle-earners working full-time, it can be seen that as a result of this fact, male workers receive 1.7 per cent higher wages than comparable female workers. The main contributors to this effect, in decreasing order of magnitude, are found to be “Other Services”, “Distribution, Hotels and Restaurants”, and “Manufacturing” sectors. Another large proportion of the wage gap is also caused by the fact that women and men do not tend to be employed in the same occupations. For instance, for middle-earning full-time men, wages are 3.6 per cent higher than for females. Again, the main contributors, in decreasing order of magnitude, are found to be “Managers and Senior Officials”, “Skilled Trades Occupations”, “Process, Plant and Machine Operatives” and “Elementary Occupations”.

However, it is also shown that women have lower average hourly earnings than men with the same characteristics when employed within the same occupation or industry. In Wales, the largest gender pay gap is found in the “Other services” sector, and the smallest significant gender pay gap can be found in “Public Administration, Education and Health”, which tends to be a female dominated sector. With regard to occupations, it can be seen that the gender wage gap is larger for skilled or low-skilled manual workers than non-manual high-earning

occupations; for instance, middle-earning skilled male workers earn 31.5 per cent more than comparable female workers. For low-skilled manual occupations, male middle-earning workers are paid 20 to 22 per cent more than comparable female workers. The lowest gender pay gap caused by occupation of employment can be found in “Administrative and Secretarial” occupations.

This chapter has also attempted to evaluate how much of the gender wage gap can be attributed to discrimination, and how much can be explained by the fact that men and women have differing personal or job characteristics. After controlling for these differing characteristics, it is found that estimates of earnings discriminations are lower in Wales than in the other regions (except for Scotland), with in between 6.3 and 9.1 per cent earnings discrimination facing an average full-time working woman.

It has also been found in this chapter that women working part-time receive lower wages than their full-time counterparts; a female disadvantage of 1.8 per cent is experienced for middle earners in Wales, lower than in the other regions.

In this chapter, it has been observed that full-time working men earn an average wage which is 19.5 per cent above those of comparable women in Wales, slightly lower than for the other comparator regions. Discrimination is estimated to reduce women’s wages by at least 6.3 per cent in Wales (with a maximum of 9.1 per cent). Therefore it can be noted that discrimination accounts for between a third and a half of the gender wage gap in Wales.

Between 2007 and 2008, it seems estimates of earnings discrimination have changed in opposite directions according to the LFS. The reasons for this have been established to be both a small sample for Wales resulting in more volatile estimates, as well as a change in the effects that industrial sector and occupation have on the male earnings advantage.

Finally, it can be noted that estimates of earnings discrimination have decreased since the previous study, despite the possible effects of the recession. As can be seen above, the estimate of 6.3 per cent in Wales is close to the predictions of the Equal Pay Task Force (2001), which predicted 5 per cent lower female wages caused by discrimination for 2006, being eventually wiped out in 2009.

### **3. Recent Migration to, from and within Wales**

#### **3.1 Introduction**

Population migration has many economic and labour market implications, which has led to a substantial growth in the economic analysis of migration in recent years, especially as population movements - in particular from overseas - have increased. Given that the migration of labour is a key component of labour market flexibility, it is a mechanism through which local, regional and national labour market differences can be reduced. Moreover, migration can also affect the population structure of local areas. For example, certain areas may lose a disproportional share of their younger and more educated workers, whilst others may mainly attract retired individuals. These movements can thus affect the current and future prosperity of an area as well as the demand for and provision of local services and amenities.

Population inflows can be the result of areas with high wage levels attracting workers, which can lead to an improvement in economic efficiency since migration can generate wage convergence between areas. Borjas (2001) describes this effect as migration ‘greasing the wheels of the labour market’. Migrants are also likely to be attracted to areas with better job opportunities and this may be even more important during economic downturns as the unemployed are more likely to migrate (Boheim and Taylor, 2002). Whilst in terms of international migration, a growing literature has emerged on network effects (Bauer et al., 2000). Network migration occurs where individuals move to areas with an existing concentration of individuals from their own country, who may assist the process of moving to, and assimilating in, the new destination.



In order to analyse recent migration trends and patterns to, from and within Wales, a starting point of the 2001 Census of the Population is taken. This has been done because the Census provides the most reliable data on migration at the sub-regional level. Census data also provide information on the stock of residents in each area from different countries of origin as well as migration flows in the year leading up to the Census. However migration patterns and numbers, particularly from overseas, have changed dramatically since the time of the last Census. This has particularly been influenced by the accession of new member states to the European Union in May 2004, since when large numbers of Eastern European workers have concentrated in areas across the UK, including within Wales. Therefore, flows of migrants to Welsh Unitary Authorities (UAs), both from other parts of the UK but also from overseas, are examined using data from the post-2001 period. The analysis in this section on migration is completed with an examination of the characteristics of migrants in terms of their age and human capital.

### **3.2 Position at the 2001 Census**

Table 3.1 reports migration rates within Welsh UAs, to the UA from other parts of the UK, from outside the UK and from the UA to elsewhere in the UK.<sup>11</sup> It is noticeable that the Welsh UAs with the highest migration rates in 2001 were those in the rural west and north. Ceredigion in particular had a high migration rate, since it has the highest percentage of its population moving within its boundaries, as well as the highest rate of inward and outward migration to and from other parts of the UK. Cardiff had the second highest migration rate and also attracted the highest percentage of its population of any Welsh UA from overseas. This is not surprising given the capital's relatively diverse population base and local

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<sup>11</sup> The percentage with no previous address is also recorded.

**Table 3.1: Migration Statistics for Welsh Unitary Authorities and England, April 2001**

	Pop.	% who are migrants	% moving within the area	% moving in from elsewhere in the UK	% moving in from outside the UK <sup>1</sup>	% with no previous address <sup>2</sup>	% moving out to elsewhere in the UK
Blaenau Gwent	70,064	9.05	6.88	1.40	0.06	0.71	1.79
Bridgend	128,645	9.97	6.70	2.41	0.22	0.65	2.44
Caerphilly	169,519	9.42	6.57	2.09	0.10	0.65	2.05
Cardiff	305,353	15.59	9.20	4.54	0.88	0.96	4.26
Carmarthenshire	172,842	10.50	6.56	3.00	0.24	0.70	2.52
Ceredigion	74,941	18.04	10.08	6.54	0.64	0.78	5.39
Conwy	109,596	11.71	6.91	3.84	0.27	0.69	3.17
Denbighshire	93,065	11.27	6.39	3.93	0.29	0.66	3.51
Flintshire	148,594	9.47	5.64	3.11	0.22	0.50	3.06
Gwynedd	116,843	12.02	7.34	3.66	0.33	0.69	3.46
Isle of Anglesey	66,829	10.02	6.03	3.13	0.27	0.59	3.28
Merthyr Tydfil	55,981	8.40	5.94	1.68	0.12	0.66	2.16
Monmouthshire	84,885	10.75	5.14	4.77	0.25	0.58	4.01
Neath Port Talbot	134,468	9.23	6.40	2.14	0.11	0.58	2.08
Newport	137,011	10.41	6.39	2.97	0.27	0.79	2.67
Pembrokeshire	114,131	12.03	7.68	3.30	0.34	0.72	2.96
Powys	126,354	10.67	6.04	3.73	0.34	0.56	3.40
Rhondda;Cynon;Taff	231,946	9.62	6.72	2.04	0.24	0.62	2.10
Swansea	223,301	12.19	8.10	2.81	0.53	0.74	2.88
Torfaen	90,949	8.48	5.96	1.83	0.08	0.61	2.16
Vale of Glamorgan	119,292	11.21	6.57	3.60	0.49	0.54	3.64
Wrexham	128,476	10.35	6.67	2.84	0.29	0.56	2.38
<b>WALES</b>	2,903,085	11.17	6.99	3.15	0.34	0.68	2.97
<b>ENGLAND</b>	49,138,831	12.24	10.49	0.20	0.73	0.81	0.21

Source: *Census of Population*

Notes: 1. This category includes UK - part not specified and Ireland - part not specified, the Channel Islands and the Isle of Man. 2. ONS note that responses in the 'No usual address one year ago' category were higher than expected. They also note that care needs to be taken when analyzing the migration into England and Wales from outside the UK.

economy. The least dynamic areas in terms of mobility were the Valley UAs of Merthyr Tydfil, Torfaen and Blaenau Gwent.

Table 3.2 provides information from the 2001 Census on the composition of the Welsh population in terms of their country of birth. It shows that around a quarter of the population living in Wales was born outside the country, which is far higher than in the three other

**Table 3.2: Country of Birth of Residents in Welsh Unitary Authorities and Other Parts of the UK, April 2001**

	% born in England	% born in Scotland	% born in Wales	% born in Northern Ireland	% born in Republic of Ireland	% born in other EU Countries	% born elsewhere
Blaenau Gwent	6.39	0.30	92.08	0.10	0.14	0.33	0.66
Bridgend	11.78	0.82	84.69	0.26	0.33	0.62	1.50
Caerphilly	7.75	0.51	89.94	0.18	0.19	0.49	0.93
Cardiff	16.26	0.90	74.95	0.32	0.63	1.47	5.47
Carmarthenshire	16.76	0.64	80.07	0.23	0.37	0.69	1.24
Ceredigion	36.43	0.98	58.58	0.33	0.55	1.13	2.00
Conwy	41.18	1.18	53.96	0.39	0.88	0.81	1.60
Denbighshire	37.85	1.13	57.90	0.37	0.50	0.69	1.56
Flintshire	44.71	1.23	51.14	0.36	0.47	0.87	1.22
Gwynedd	26.55	0.67	69.81	0.26	0.44	0.72	1.55
Isle of Anglesey	28.37	1.12	67.57	0.33	0.73	0.63	1.24
Merthyr Tydfil	6.01	0.46	91.96	0.12	0.24	0.33	0.88
Monmouthshire	33.80	1.36	61.30	0.34	0.40	0.92	1.88
Neath Port Talbot	7.92	0.58	89.49	0.16	0.39	0.47	0.99
Newport	13.43	0.79	81.12	0.26	0.59	0.90	2.91
Pembrokeshire	26.33	1.21	68.72	0.35	0.67	1.09	1.62
Powys	40.62	0.94	55.59	0.26	0.30	0.75	1.54
Rhondda;Cynon;Taff	7.57	0.46	89.92	0.15	0.25	0.59	1.05
Swansea	13.34	0.78	82.07	0.25	0.42	0.95	2.20
Torfaen	11.51	0.72	85.53	0.27	0.40	0.54	1.03
Vale of Glamorgan	18.97	1.29	75.66	0.39	0.41	1.07	2.22
Wrexham	24.46	0.86	71.92	0.30	0.35	0.74	1.37
WALES	20.32	0.84	75.39	0.27	0.44	0.82	1.92
ENGLAND	87.44	1.62	1.24	0.44	0.94	1.41	6.91
NORTHERN IRELAND	3.66	1.00	0.18	91.04	2.32	0.61	1.20
SCOTLAND	8.08	87.13	0.33	0.66	0.43	0.88	2.50

Source: *Census of Population*

countries that make up the UK. In comparison, around 87 per cent of the Scottish and English populations in 2001 were born in those countries, whilst more than 91 per cent of people living in Northern Ireland were born there. The high proportion of the Welsh population who were not born in Wales accords with the relatively high rates of in-migration from the rest of the UK in recent years (Experian, 2008), with the majority of these migrants having been born in England. In particular, over 80 per cent of the Welsh population in 2001 who were born outside the country were born in England. People born outside of the EU contributed the next highest proportion of the non-Welsh born, whilst people born in Scotland, Northern

Ireland, the Irish Republic and the EU each accounted for less than 1 per cent of the Welsh population in 2001. In contrast, a much higher percentage of English residents in 2001 (over 8%) were born outside the UK.

It can also be seen from Table 3.2 that in the UAs located in North East Wales such as Flintshire, Conwy and Denbighshire, the Welsh born only just out-numbered those born outside the country. All of these UAs are close to the English border, and around 40 per cent of the population in each of these areas were born in England. Similar percentages were found in Powys and Monmouthshire, which are again located on the border. However, there was a much lower percentage of immigrants in other UAs in South East Wales such as Newport, Torfaen and Blaenau Gwent. Furthermore, some UAs in the far west of Wales, Ceredigion in particular, also had a relatively high percentage of migrants. Again the majority of those born outside Wales came from England. The cumulative effect of the low migration rates with regards to the South Wales Valleys can be seen by the fact that in these areas between 85 and 92 per cent of the population were born in Wales, which was much higher than the national average. Thus the areas where the proportions born in Wales were lowest were mainly rural areas. Only a small percentage of the population in each of the Welsh UAs were born outside England and Wales, with Cardiff the only part of Wales where more than 5 per cent of its population originated from outside the EU in 2001.

### **3.3 Migration Flows Since the 2001 Census**

Several different datasets will be used to examine recent migration flows to and from Welsh UAs. This is because no single, reliable data source exists on migration at the sub-regional level in the UK. However, improvements have been made in the collection of migration data for the UK over the past decade. Firstly, the National Health Service Central Register

(NHSCR) will be used to investigate movements to and from each UA with regards to other parts of the UK. The NHSCR is based on patients re-registering with doctors after moving so is a relatively complete record of migrants but is a record of all people moving regardless of their motive for doing so. Thus it includes a large number of non-labour market migrants, including the retired, students and dependent children. Similarly, the main source of information on international migration for the UK are the Total International Migration (TIM) estimates. One of the main problems with these data are that given that the figures are based on responses from the International Passenger Survey, the estimates for UAs are subject to quite large variation since most will be based on a very small sample. Both sets of figures relate to mid-year estimates and two time periods are identified since the Census, firstly from mid-2001 to mid-2004 and secondly from mid-2004 to mid-2007.

Table 3.3 shows internal migration flows in each UA. The table indicates that net-migration was positive in the majority of Welsh UAs in each of the periods. However, net in-migration fell in all UAs apart from Bridgend across the two periods. In contrast, the net-outflow from Cardiff and Merthyr slowed down over the two periods. It also went from being positive to negative in Flintshire and Newport and from being negative to positive in Blaenau Gwent. Net in-migration was highest into Carmarthenshire in both periods, although it fell by an average of 600 per annum across the two periods. It was also the only UA to experience a net-inflow of more than 1000 people per annum in the second period, whereas this was true of six UAs in the first period.

The picture with respect to international migration flows to Welsh UAs is reported in Table 3.4. Net migration from abroad can be seen to have been relatively similar across the two

periods and tends to be more or less in balance in most UAs. Cardiff is a notable exception to this

**Table 3.3: Internal Migration Estimates for Welsh Unitary Authorities, 2001/2-2006/7**

	2001-4: Annual Average			2004-7: Annual Average		
	In-mig.	Out-mig.	Net mig.	In-mig.	Out-mig.	Net mig.
Isle of Anglesey	2,433	2,067	367	2,267	1,967	300
Gwynedd	4,967	4,533	433	4,667	4,533	133
Conwy	5,300	4,100	1,200	4,567	4,000	567
Denbighshire	5,033	3,933	1,100	4,433	3,733	700
Flintshire	4,933	4,667	267	4,400	4,433	-33
Wrexham	3,867	3,433	433	3,567	3,300	267
Powys	5,867	4,400	1,467	5,400	4,500	900
Ceredigion	5,467	4,900	567	5,167	4,900	267
Pembrokeshire	4,367	3,467	900	3,933	3,367	567
Carmarthenshire	6,633	4,700	1,933	6,100	4,767	1,333
Swansea	7,767	7,367	400	7,567	7,400	167
Neath Port Talbot	4,367	3,133	1,233	3,833	3,300	533
Bridgend	3,900	3,200	700	3,867	3,033	833
The Vale of Glamorgan	5,400	4,400	1,000	4,867	4,267	600
Cardiff	15,167	15,833	-667	15,167	15,600	-433
Rhondda, Cynon, Taff	5,800	5,267	533	5,433	5,433	0
Merthyr Tydfil	1,167	1,333	-167	1,233	1,267	-33
Caerphilly	4,467	3,967	500	4,200	4,000	200
Blaenau Gwent	1,467	1,500	-33	1,567	1,467	100
Torfaen	2,267	2,233	33	2,233	2,200	33
Monmouthshire	4,600	3,700	900	4,100	3,733	367
Newport	4,867	4,467	400	4,567	4,733	-167

Source: Office for National Statistics (NHSCR)

Notes: Averages are based on figures that have been rounded to the nearest 100. Information relates to mid-year estimates.

**Table 3.4: International Migration Estimates for Welsh Unitary Authorities, 2001/2-2006/7**

	2001-4: Annual Average			2004-7: Annual Average		
	In-mig.	Out-mig.	Net mig.	In-mig.	Out-mig.	Net mig.
Isle of Anglesey	100	100	0	133	167	-33
Gwynedd	367	267	100	433	300	133
Conwy	267	267	0	267	300	-33
Denbighshire	233	200	33	267	233	33
Flintshire	267	267	0	300	267	33
Wrexham	367	333	33	433	267	167
Powys	267	267	0	300	300	0
Ceredigion	467	267	200	567	300	267
Pembrokeshire	267	167	100	333	267	67
Carmarthenshire	367	433	-67	433	433	0
Swansea	1,433	800	633	1,533	867	667
Neath Port Talbot	100	267	-167	133	233	-100
Bridgend	233	233	0	233	267	-33
The Vale of Glamorgan	533	633	-100	667	600	67
Cardiff	3,533	2,967	567	4,567	2,567	2,000
Rhondda, Cynon, Taff	567	733	-167	767	733	33
Merthyr Tydfil	67	33	33	67	100	-33
Caerphilly	167	367	-200	200	400	-200
Blaenau Gwent	0	0	0	67	100	-33
Torfaen	100	100	0	67	100	-33
Monmouthshire	167	200	-33	200	233	-33
Newport	467	433	33	633	633	0

*Source:* Office for National Statistics (Total International Migration Estimates)

*Notes:* Averages are based on figures that have been rounded to the nearest 100. Information relate to mid-year estimates.



since net in-migration from overseas rose considerably over the two periods, increasing from an average 600 per annum in the first period to 2000 per annum in the second. Net in-migration of more than 100 per annum was also recorded in Gwynedd, Wrexham, Ceredigion and Swansea in the second period. In contrast, Caerphilly was the only UA where net-out migration to overseas was more than 100 per annum. However, the total level of international migration has increased in most UAs. This has occurred because in addition to the increase in immigration, especially from A8 countries, emigration has also increased since 2004, which is consistent with the return migration of Eastern European migrants.

Given the problems associated with the TIM estimates, especially at the regional and sub-regional level, it is important to examine recent migration flows into Wales using other data sources. Data on migrants into the UK has improved in recent years, with the introduction of the Worker Registration Scheme (WRS) in 2004, which just records the registration of new A8 migrants entering the UK to work, and particularly since the release by the Department of Work and Pensions of information on the issuing of new national insurance numbers to overseas nationals. The latter database records all foreign-born individuals registering for a national insurance number (NINo) so covers the paid-employed, self-employed as well as benefit claimants. Therefore it is a more complete database of new migrants to the UK than the WRS. NINo data can also be used to analyse registrations at the sub-regional level, including for Parliamentary Constituency Areas (PCAs) since it is collected on the basis of postcodes. Unfortunately, no information is available on the movement of individuals overseas (other than from the TIM estimates). This is important in the context of international migrants, especially recent arrivals from the A8, many of whom are known to have migrated on a short-term basis (Clark and Drinkwater, 2008).

Table 3.5 reports the average number of NINo registrations made by overseas nationals in each UA in two periods since the 2001 Census. The first period covers from April 2002 to March 2005 and the second from April 2005 to March 2008. It can be seen that the number of registrations has increased in each UA, with the largest growth rates observed for Flintshire, Pembrokeshire and Carmarthenshire. In each of these areas, migration flows increased by more than 200% across the two periods. The smallest percentage increases in migration occurred in the Vale of Glamorgan, which was the only UA to experience less than a 50% rise across the two periods. Cardiff had by far the largest number of migrants, with an average of over 4500 overseas nationals per annum moving there in the second period. The next highest number of immigrants moved to Swansea, although Newport closed the gap quite considerably in the second period. Carmarthen was the only other UA to have received an average of more than 1000 immigrants per annum in the second period. The lowest levels of immigration were generally seen in the valleys, with less than 200 immigrants per annum moving to Torfaen and Blaenau Gwent on average. Immigration onto the Isle of Anglesey has been similarly low.

A more detailed geographical analysis can be undertaken by examining information on PCAs, as displayed in Table 3.6. The table reveals that immigration increased by more than 200% in several PCAs across the two periods. The highest growth rates have been seen in Llanelli, Delyn, Alyn and Deeside, Newport East, Montgomeryshire and Preseli Pembrokeshire. The first of these areas, in particular, has been known to have experienced a large amount of Polish migration since 2004, possibly as a result of the establishment of a migration network. In contrast, immigration increased by less than 50% in Rhondda, Ogmore and Cardiff North. Interestingly, immigration growth rates have been quite variable across different parts of the same locality since inflows increased by 126% in Cardiff Central, which

**Table 3.5: National Insurance Numbers Registrations by Overseas Nationals for Welsh Unitary Authorities: 2002-2008**

	<b>Average: 2002-5</b>	<b>Average: 2005-8</b>	<b>Change</b>	<b>% Change</b>
Blaenau Gwent	73	180	107	145
Bridgend	187	467	280	150
Caerphilly	137	237	100	73
Cardiff	2200	4513	2313	105
Carmarthenshire	353	1090	737	208
Ceredigion	253	483	230	91
Conwy	243	480	237	97
Denbighshire	213	403	190	89
Flintshire	183	707	523	285
Gwynedd	337	687	350	104
Isle of Anglesey	107	187	80	75
Merthyr Tydfil	197	403	207	105
Monmouthshire	133	267	133	100
Neath Port Talbot	110	200	90	82
Newport	460	1277	817	178
Pembrokeshire	183	683	500	273
Powys	210	597	387	184
Rhondda, Cynon, Taff	370	670	300	81
Swansea	703	1333	630	90
The Vale of Glamorgan	217	317	100	46
Torfaen	50	147	97	193
Wrexham	557	1250	693	125
<b>Wales</b>	<b>7470</b>	<b>16567</b>	<b>9097</b>	<b>122</b>

*Source:* Department of Work and Pensions (National Insurance Recording System)

*Notes:* Averages are based on figures that have been rounded to the nearest 10. Information is for financial years and relates to the year of the registration date.

**Table 3.6: National Insurance Numbers Registrations by Overseas Nationals for Welsh Parliamentary Constituency Areas: 2002-2008**

	<b>Ave: 2002-5</b>	<b>Ave: 2005-8</b>	<b>Change</b>	<b>% Change</b>
Aberavon	63	97	33	53
Alyn and Deeside	100	380	280	280
Blaenau Gwent	73	180	107	145
Brecon and Radnorshire	120	293	173	144
Bridgend	160	423	263	165
Caernarfon	87	287	200	231
Caerphilly	77	130	53	70
Cardiff Central	1060	2397	1337	126
Cardiff North	343	473	130	38
Cardiff South and Penarth	523	993	470	90
Cardiff West	373	740	367	98
Carmarthen East and Dinefwr	93	293	200	214
Carm. West & South Pembs	210	530	320	152
Ceredigion	253	483	230	91
Clwyd South	120	230	110	92
Clwyd West	90	140	50	56
Conwy	357	647	290	81
Cynon Valley	60	100	40	67
Delyn	83	320	237	284
Gower	87	187	100	115
Islwyn	40	80	40	100
Llanelli	123	573	450	365
Meirionnydd Nant Conwy	50	140	90	180
Merthyr Tydfil and Rhymney	217	427	210	97
Monmouth	127	253	127	100
Montgomeryshire	87	300	213	246
Neath	43	103	60	138
Newport East	160	583	423	265
Newport West	313	717	403	129
Ogmore	53	73	20	38
Pontypridd	247	493	247	100
Preseli Pembrokeshire	110	377	267	242
Rhondda	43	53	10	23
Swansea East	167	353	187	112
Swansea West	450	790	340	76
Torfaen	50	137	87	173
Vale of Clwyd	187	320	133	71
Vale of Glamorgan	110	210	100	91
Wrexham	457	1063	607	133
Ynys Mon	107	187	80	75

Notes: See notes to Table 3.5.

had more than three times as many immigrants than the next highest PCA in the second period.

### **3.4 Composition of Migration Flows**

Not only is the number of migrants moving into or out of a particular area important but so too are the characteristics of the relevant individuals. In particular, as will be explained, the age and human capital stock of migrants can have an impact on both the current and future performance of the affected areas. In order to identify the characteristics of migrants, two different data sets will be used – the Sample of Anonymised Records (SARs) from the Census to examine the position up to 2001 and the Labour Force Survey (LFS) to update the picture since then.

The importance of age partly relates to the fact that in recent years much debate has focused around the consequences of, and possible solutions to, an ageing population. Increased immigration is thought to be one way in which this problem can to some extent be ameliorated, at least in the short term, since immigrants are typically younger and have higher fertility rates (Zimmermann, 1995). However, a net outflow of younger people from Wales will reduce the working population and increase the dependency ratio and a net inflow of older people can create pressure on particular social services. Therefore not only is the amount of migration important, but also the composition of the flows, as this has implications for the age structure and hence the flexibility of local labour markets. Changes in the age structure of a labour market can influence employment, unemployment and activity rates as well as wage rates and the skills base. It can also affect the ability of labour markets to respond to demand and supply shocks as older workers are seen as being less responsive to change and are also less likely to migrate (Dixon, 2003).

The skill composition of migration can also have an impact on the current and future performance of both sending and receiving areas. Within the receiving area, economic growth can be driven by the accumulation of human capital (Lucas, 1988). On the other hand, the outflow of human capital (i.e. a brain drain) has traditionally been thought to have a detrimental effect on labour exporting areas (Bhagwati and Hamada, 1974). However, more recent studies discuss certain situations where a brain drain can actually confer benefits on sending areas, within the context of international migration (Commander *et al.*, 2004).

The first dataset to be used to analyse the characteristics of Welsh migrants is the SARs, which are random samples of microdata taken from the 1991 and 2001 Population Censuses. Both datasets will be used so that the position over the 1990s can be analysed. The 1991 SARs is a 2 per cent sample of all Census returns, whilst the 2001 SARs is a 3 per cent sample. These are relatively large samples, which are important to obtain an accurate picture. For example, the LFS only collects information on migrants in the Spring quarter and thus would require pooling over a relatively long period to obtain reasonable sample sizes to conduct accurate analysis.<sup>12</sup> Students have been excluded from the analysis because of the large flows by this group. Students were identified in 1991 on the basis of their primary economic position and in 2001 on whether they were a full-time student.

Migrants are defined in the SARs as having changed address in the previous year. In addition to Wales, information is also reported for Scotland for comparative purposes. Thus the SARs can be used to compare the characteristics of migrants into the two countries with those who have moved out to other parts of Great Britain, as well as with migrants moving within each

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<sup>12</sup> It is also difficult to compare the human capital information available in the Census and LFS because differences in responses to the qualifications questions in the two sources (see Heap, 2005).

country and those individuals who have not moved at all.<sup>13</sup> Thus we are able to compare the characteristics of four migrant groups from each country as well as one non-migrant group for 1991 and 2001, as shown in Table 3.7.

The first point to note is that the age and human capital characteristics of movers and non-movers to and from Wales and Scotland have remained relatively stable between 1991 and 2001.<sup>14</sup> The information in the table is also consistent with the selective nature of the human capital model of migration. In particular, migrants tend to be younger and more educated. This even applies to migrants who remain within their country since a half or more of migrants within Wales and Scotland in 1991 were in the 16-29 age group (remember those identified as students have been excluded), compared to just over 20 per cent of non-migrants. In 2001, there was a higher proportion of migrants from the older age groups. Migrants to Wales in particular appear to be getting older. For example, more than 6 per cent of migrants to Wales in 2001 were aged 60-74 compared to less 4 per cent in 1991. In comparison for Scotland, there was a reduction in the percentage of migrants aged over 60 between 1991 and 2001. A higher proportion of 16-29 year olds moved from Wales to other parts of Britain in 2001 compared to those moving from Scotland, although the gap had narrowed from that seen in 1991.

In 1991, there existed a large discrepancy in the educational attainment of the different migrant groups and also some variation between Wales and Scotland. Around three times as many migrants from Wales had higher qualifications (any post-school qualification)

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<sup>13</sup> There is no information on emigrants from the UK in the Census, neither are we aware of any dataset that contains detailed information on the characteristics of the Welsh born living abroad. The Welsh-born living in Northern Ireland have been excluded from the analysis.

<sup>14</sup> Under 16s are excluded because of a lack of information on higher qualifications. The human capital measure is higher qualifications because the 1991 Census only asked questions on post-school qualifications. Higher qualifications are not collected for those 75 and over in 2001 so the over 75s are excluded.

**Table 3.7: Age and human capital characteristics of migrants (in percentages), Scotland and Wales**

	1991						
	Age				Higher Quals	A	
	16-29	30-44	45-59	60-74		16-29	30-44
Non-mover in Wales	20.50	29.38	34.79	15.34	12.23	15.16	30.64
Moved within Wales	55.00	27.66	12.93	4.41	13.71	42.74	34.41
Moved to Wales from other UK	46.29	31.25	18.75	3.71	28.32	34.01	34.21
Moved to Wales from outside UK	42.98	37.72	15.79	3.51	26.32	38.18	42.42
Moved from Wales to other GB	59.16	26.53	9.89	4.42	36.00	53.82	27.51
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Non-mover in Scotland	21.84	30.59	34.03	13.53	13.63	15.80	32.33
Moved within Scotland	49.82	31.75	14.02	4.41	18.69	41.77	37.56
Moved to Scotland from other UK	50.00	34.03	11.82	4.15	31.95	38.17	39.66
Moved to Scotland from outside UK	48.15	38.05	12.46	1.35	37.37	47.16	37.12
Moved from Scotland to other GB	51.23	30.70	14.91	3.16	35.09	51.76	33.57

Source: *SARs*

Note: Data relates to non-students aged 16-74.



compared to non-migrants and migrants within Wales. Furthermore, a lower proportion of migrants to Wales were higher education graduates relative to leavers. A slightly lower percentage of Scottish leavers in 1991 had higher qualifications than their Welsh counterparts, but the gap with entrants from other parts of Britain was smaller, whilst immigrants to Scotland were more qualified than those leaving. Although there had been a general increase in educational attainment between 1991 and 2001, the relative patterns of educational attainment amongst migrant groups remained similar. However, in 2001, a higher proportion of migrants from Scotland were higher education graduates. The educational profile of in-migrants from the rest of Britain was far lower in both countries in 1991 but the profile of immigrants to each country was similar to that of the leavers.

To obtain a more complete picture of age related migration flows and the extent to which a ‘net brain drain’ has occurred over time, country of birth data from the LFS is examined just for Wales.<sup>15</sup> Two periods are examined, from 2002 to 2004 and 2005 to 2007 in an attempt to establish the impact of recent migration flows on the age and human capital stocks of different areas.<sup>16</sup> Table 3.8 firstly presents information on the age distribution for different nationalities and locations. It is noticeable that migrant groups are concentrated in the mid and late age categories. This is particularly the case for the Welsh born in other parts of the UK and the other UK born in Wales, with those aged 60 and over in the former group accounting for a higher percentage than in the latter group. However, whilst the percentage of older Welsh born people living in other parts of the UK remained constant over the two periods, there was more than a 3 percentage point increase in the percentage of other UK born individuals living in Wales amongst the older age group. This suggests that recent

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<sup>15</sup> Information on country of birth within the UK only began to be collected in the LFS from 2001.

<sup>16</sup> Dustmann *et al.* (2008) conduct an analysis of the non-UK born migrants living in Wales using pooled LFS data for 2002-5. They examine the composition of immigrants in terms of their characteristics as well as their labour market outcomes.

**Table 3.8: Age Statistics by Country of Birth and Country of Residence: 2002-4 and 2005-7**

	<b>2002-4</b>			
	<b>0-15</b>	<b>16-29</b>	<b>30-44</b>	<b>45-59</b>
Welsh in Wales	25.16	12.07	19.77	19.30
Other UK born in Wales	13.51	9.21	23.33	25.10
Welsh in other UK	5.86	7.64	22.84	25.25
Non-Welsh in other UK	22.47	11.85	22.52	20.30
Overseas born in Wales	11.28	15.21	29.23	22.56
<hr/>				
	<b>2005-7</b>			
Welsh in Wales	24.74	11.83	19.69	19.26
Other UK born in Wales	11.29	9.71	22.03	24.77
Welsh in other UK	6.54	7.53	23.31	24.21
Non-Welsh in other UK	21.85	12.20	21.94	20.52
Overseas born in Wales	14.18	15.50	29.87	21.17

Source: *LFS*

Notes: Statistics refer to the population excluding full-time students, unweighted data.

migrants to Wales have been disproportionately represented by more elderly individuals in comparison to movements from Wales to other parts of the UK, as implied in the 2001 SARs.

Table 3.9 highlights the cumulative impact of the migration of the highly educated from Wales by reporting the highest qualification attained by different migrant groups by place of residence in the UK. It can be seen that a much higher percentage of the Welsh born living in other parts of the UK have higher qualifications than any of the other groups reported in the table in each of the periods. Most notably, the incidence of having a degree was more than three times as high in the second period for the Welsh born living outside Wales compared to those living in the country of their birth.<sup>17</sup> This gap also widened as the percentage with a degree increased by over 3 percentage points for the former group but by less than half of this for the latter group. Moreover, less than 10 per cent of the Welsh born in other parts of the UK had no qualifications in the second period, compared with almost a quarter of the Welsh born living in Wales. The percentage of graduates amongst migrants from other parts of the UK living in Wales did increase over the two periods, but there was almost no change in the percentage with no qualifications. In contrast, the proportion of migrants from outside the UK with degrees fell. This may have been caused by the change in the origin of migrants since the large increase in migration from Eastern Europe brought with it a rise in the percentage stating they had other qualifications - some of which may have been at relatively high levels in their country of origin. These findings therefore indicate that the flow of individuals according to their educational levels leaving Wales is producing a widening of the qualifications gap between the Welsh born living within Wales and those living in other parts of the UK.

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<sup>17</sup> The ONS (2004), using earlier data from the LFS, reported similar findings.

**Table 3.9: Educational Qualifications by Country of Birth and Country of Residence: 2002-4 and 2005-7**

	2002-4				
	No qualifications	Other	GCSE	A Level	Higher
Welsh in Wales	25.66	12.30	22.98	19.76	
Other UK born in Wales	15.24	9.17	21.81	20.55	
Welsh in other UK	11.10	8.94	15.65	18.75	
Non-Welsh in other UK	19.21	13.68	20.74	21.54	
Overseas born in Wales	22.52	21.07	6.54	14.29	
<hr/>					
	2005-7				
Welsh in Wales	23.41	10.58	24.99	20.28	
Other UK born in Wales	15.09	8.02	22.27	19.79	
Welsh in other UK	9.91	6.58	16.49	17.91	
Non-Welsh in other UK	17.76	12.20	21.68	20.86	
Overseas born in Wales	19.62	27.79	7.36	12.81	

Source: *LFS*

Notes: Statistics refer to the population aged 16 and over excluding full-time students, unweighted and unrounded.

By way of comparison, Table 3.10 reports educational attainment by country of birth and residence for the population of working age for 1991 and 2001 using the SARs for Wales and Scotland. The SARs provide a larger sample size and also enables the changes taking place over the 1990s to be examined. The only Welsh migrant group which closed the qualifications gap between 1991 and 2001 was the overseas born in Wales, who experienced a very large increase in the percentage of higher education graduates, equal to 16 percentage points, compared to less than 7 percentage points for the other groups. However, this was not enough to compensate for the migration of the well qualified Welsh born since the gap between the Welsh born living in the rest of Britain and the non-Welsh born in Wales further widened over the inter-Censal period. The 2001 data also contain information on other qualifications and it can also be seen that the Welsh born living elsewhere in Britain had the lowest percentage with no qualifications.<sup>18</sup> Interestingly, a higher percentage of the overseas born and other British born living in Scotland were higher education graduates than the Scottish born living in the rest of Britain in both 1991 and 2001. Therefore, the cumulative ‘net brain drain’ from Wales appears to be a lot more severe than it has been from Scotland. However, if the pattern observed in 2001, when there was a significantly higher percentage of qualified leavers, were to continue then the Scottish position may also deteriorate in the future.

Table 3.11 reveals that there are regional differences in the distribution of the Scottish and Welsh born with higher qualifications living in the rest of Britain. The most noticeable findings are that a remarkable 61 per cent of the Welsh born living in Inner London in 2001

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<sup>18</sup> Drinkwater and Blackaby (2004) report that commuting does not alter the picture in Wales by very much.

**Table 3.10: Education by Country of Birth and Country of Residence (in percentages): 1991 and 2001**

	1991	2001				
	Higher quals	No quals	Level 1	Level 2	Level 3	Level 4/5
Welsh in Wales	10.10	36.62	16.48	19.24	5.18	15.03
Other UK born in Wales	20.06	25.47	14.73	19.33	6.88	25.73
Welsh in other GB	28.51	23.35	11.90	16.86	6.34	35.31
Non-Welsh in other GB	14.04	30.77	18.02	17.79	6.88	20.18
Overseas born in Wales	18.58	29.75	8.51	13.98	7.46	34.13
Scots living in Scotland	12.53	36.83	25.61	13.55	6.79	17.22
Other UK born in Scotland	28.88	20.21	21.32	12.77	7.51	38.19
Scots in other GB	22.72	26.18	12.48	15.59	9.30	29.26
Non-Scots in other GB	13.95	30.49	17.24	18.35	6.76	20.11
Overseas born in Scotland	23.97	31.57	13.56	10.53	6.45	37.88

Source: *SARs*

Notes: Statistics refer to all non-students aged 16-64.

**Table 3.11: Regional Information on Welsh and Scottish Born Individuals living elsewhere in Gr**

	1991					
	% with Higher Quals		Dist. of Higher Quals		% with Higher Quals	
	Welsh	Scots	Welsh	Scots	Welsh	Scots
North	28.13	22.06	1.56	6.86	30.28	27.01
Yorkshire & Humberside	32.92	20.67	4.55	7.08	33.66	27.06
East Midlands	32.41	17.33	5.55	6.41	40.08	25.21
East	30.74	21.21	3.08	3.61	37.83	31.72
Inner London	46.15	31.70	7.03	8.81	60.97	54.90
Outer London	40.11	31.90	9.58	11.24	51.41	40.00
South East	36.35	27.91	27.67	27.42	41.30	33.58
South West	28.79	25.71	16.48	9.03	34.66	29.12
West Midlands	26.02	21.11	12.75	6.86	29.49	24.65
North West	27.08	22.05	8.89	10.06	32.22	25.03
Scotland	29.07	—	2.86	—	39.45	—
Wales	—	22.40	—	2.62	—	30.90
Total	32.19	24.66	100.00	100.00	38.24	31.39

Source: *SARs*

Notes: Some boundary changes took place between 1991 and 2001 such as the East comprising of d  
Statistics refer to non-students aged 16-64 and excludes residents of Northern Ireland.

were higher education graduates, an increase of 15 percentage points over the 1991 figure. A slightly lower percentage of Scots living in the area had higher qualifications but there was also a higher percentage of Welsh born higher education graduates in all other regions, with large differences existing in some, especially the East Midlands, Outer London and the South East. These statistics further emphasise the concerning extent to which there is an uneven distribution of the Welsh born across Britain in terms of their skills.

## **Conclusion**

Wales has witnessed higher levels of international migration in recent years but this has been concentrated in particular areas. This not only includes the cities, especially Cardiff, but also towns in other parts of Wales such as Llanelli and Wrexham, which have seen their immigrant populations expand significantly after the expansion of the EU into Eastern Europe in 2004. In contrast, recent migration flows from other parts of the UK have been fairly stable and net in-migration has even shown some decrease in many UAs. The composition of migration flows can also have a potentially important impact on local economic performance. In particular, the net out-migration of younger individuals and net inflow of older and retired individuals, which results in a further ageing of the population, can have implications for the dynamism of local labour markets. Whilst older workers are less likely to become unemployed once in work, they generally experience longer spells of unemployment and a greater tendency to become inactive than younger workers. They are also less likely to take part in formal education and workplace training. After the age of 25, relatively few individuals gain additional formal qualifications (Dixon, 2003). This can have implications for the flexibility of a local labour market and its attractiveness as a place to invest as these areas will be less able to respond appropriately to demand shocks and



technological change as they become more dependent on older workers to meet developing skill needs (OECD, 1998).

It is also well known that educated people are more likely to migrate. This can partly be explained by those with higher qualifications facing lower psychic costs as they have been to university or met people from different backgrounds and so have already cut some of their ties with their local communities. They also have a greater range of opportunities and higher earning potential. However, although education is conducive to producing a more mobile labour force, Wales has lost a disproportionate share of its highly qualified human capital. This suggests that although the Welsh economy has been relatively successful in creating new jobs, greater attempts should be made to create high-value jobs and to implement development strategies which distribute such jobs across the country in order to retain and attract talented workers. Scotland has tended to attract a larger proportion of highly qualified migrants from other parts of Britain than Wales. Despite evidence from the 2001 Census suggests that, like Wales, there has been a relatively large outflow of the most qualified out of Scotland, this may be reversed by recent initiatives of the Scottish government, such as Fresh Talent, to recruit/retain highly qualified immigrants.

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