

How Does Workplace Monitoring Effect the Gender Wage Differential?

**Analysis of the Annual Survey of Hours and
Earnings and the 2004 Workplace Employment
Relations Survey**

Rhys Davies and Richard Welpton,
Micro-data Analysis and User Support
Office for National Statistics

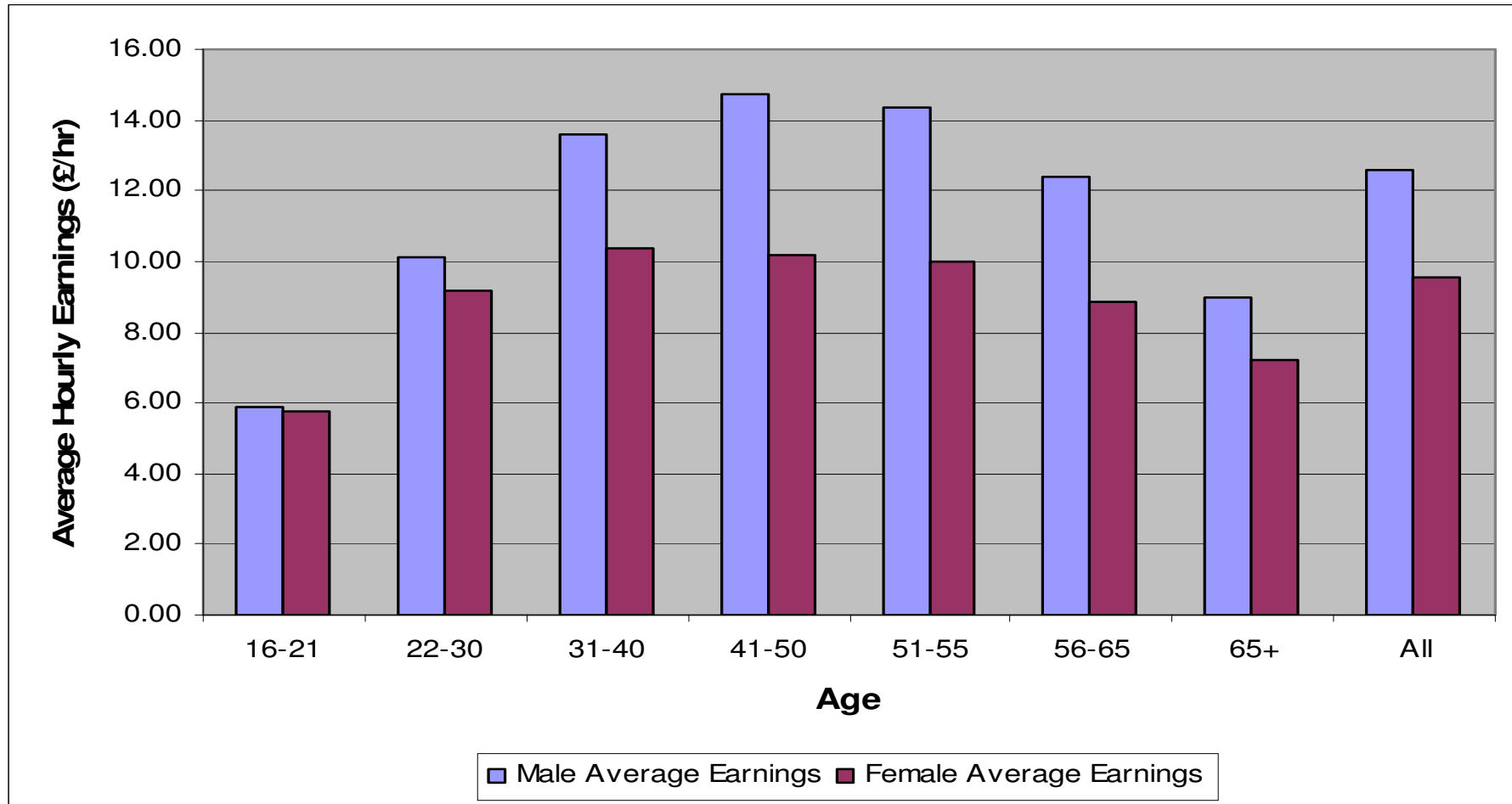
Outline

- Reasons for the gender pay gap
- Merging ASHE and WERS
- WERS and gender monitoring
- Analysis of WERS and matched data
- Summary

The Relative Earnings of Women and Reasons for the Gender Gap in Pay

- Recent empirical evidence on the pay gap:
 - Walby and Olsen (2002) 17.5%
 - Booth et al (2005) 18.6%
 - Manning and Swaffield (2005) 12%
- Some explanations:
 - Human capital
 - Job search / matching/ family background
 - Psychological

Estimates of the Gender Pay Differential



Source: ASHE 2004

Linking ASHE and WERS

- ASHE
 - Good on: sample size, hours, earnings, pensions
 - Poor on: workplace and individual characteristics
- WERS
 - Good on: workplace and employee characteristics
 - Poor on: data on earnings (banded wages)
- **Result:**
 - **Continuous wage data on individuals, combined with a rich source of information about their employers**

Matching ASHE and WERS

- WERS 2004 included matching question
 - 94% gave consent for matching
- WERS sampling frame based on IDBR
- ASHE sampling frame based on NI
- Unique matching based on IDBR ref numbers and postcodes

Workplaces Matched to ASHE Data

	Frequency	Percentage of total WERS workplaces
Matched to ASHE record	785	34.2
Of those workplaces where there is a match to ASHE		
Number of ASHE Observations		
1	253	32.2
2	128	16.3
3-5	159	20.3
6-10	83	10.6
11-50	152	19.4
51+	10	1.2
Total	785	100

Proportion of WERS Workplaces Matched to ASHE

Workplace Size	Workplaces	% Matched to 1 or More ASHE Observations
1 to 20	571	7.0
21 to 50	425	14.2
51 to 100	301	31.6
101 to 500	584	50.9
501 to 1000	170	64.1
1001+	244	70.1
Total	2,295 (100%)	34.2

Characteristics of Individuals in the ASHE and Matched Datasets

	ASHE 2004	Matched Dataset
Gender (% female)	50.1	51.4
Age (mean)	39.9	40.6
Mean average total hours in pay period (mean)	33.1	33.3
% working full time hours	71.1	75
Average hourly earnings in pay period (mean)	£10.77	£13.14
Employer provided pension (%)	52.5	77.9
Pay set under collective agreement (%)	57.0	82.9
Enterprise employment (IDBR) (mean)	18502	18708
Legal status (IDBR) (%): Private Company	60.5	44.3
Number of observations	166794	5922

Earnings Distributions

Hourly Pay Band	WERS	ASHE	Matched ASHE/WERS
£0 - £5.00	11.84	10.99	4.31
£5.01 - £7.50	27.40	28.40	19.02
£7.51 - £10.00	22.35	20.17	18.44
£10.01 - £12.50	13.56	12.88	16.60
£12.51 - £15.00	7.90	8.68	12.40
£15.01+	16.95	18.88	29.23
Average Earnings	£11.52	£10.77	£13.14

WERS and Gender Monitoring

- WERS asks the following:
 - Do you monitor recruitment and selection by gender?
 - Do you review recruitment and selection procedures to identify indirect discrimination by gender?
 - Do you monitor promotions by gender?
 - Do you review promotion procedures to identify indirect discrimination by gender?
 - Do you review relative pay rates by gender?

Hourly Earnings and Gender Monitoring Procedures

	Male	Female	Male/Female
ASHE/WERS			
Yes	£18.15 (1260)	£12.76 (1207)	142.2
No	£13.06 (1593)	£9.90 (1830)	131.9
WERS			
Yes	£17.35 (1525)	£12.55 (1471)	138.2
No	£12.21 (7161)	£9.67 (8395)	126.3

Identifying the Effects of Monitoring

- Earnings specification:

$$\ln W = \beta_0 + \beta_1 Q_i + \beta_2 \Delta_j + e_i$$

Where:

- $\ln W$ = log hourly wages
- Q_i = vector of personal and workplace characteristics
- Δ_j = gender monitoring interaction dummy variable (one for each question)

Control Variables

<p>Personal characteristics from ASHE</p> <p>Age (7 categories)*</p> <p>Occupation (2-digit SOC2000 categories)*</p> <p>Tenure (six categories)*</p> <p>Hours of work per week (10 categories)*</p> <p>Loss of pay (due to absence)*</p>	<p>Personal characteristics from WERS</p> <p>Age (8 categories)*</p> <p>Tenure (four categories)*</p> <p>Hour of work per week (9 categories)*</p> <p>Trade union member*</p> <p>Ethnicity (six categories)*</p> <p>Highest educational qualification (5 categories)</p> <p>Family status (four categories)</p> <p>Dependent children (four categories)*</p>
<p>Workplace characteristics from ASHE</p> <p>Collective agreement (6 categories)*</p> <p>Employment size (6 categories - IDBR)*</p> <p>Public/private sector *</p> <p>Sector (12 broad industries)*</p> <p>Region (11 categories)*</p>	<p>Workplace characteristics from WERS</p> <p>Sector (10 broad industries)*</p> <p>Region (11 categories)*</p> <p>Size (8 categories, local unit level size)</p> <p>Foreign ownership (5 categories)*</p> <p>Extent of union negotiation (5 categories)*</p> <p>Workplace age (6 categories)</p> <p>Pay setting (8 categories)*</p>

Overall Regression Result

	Data Source	
	ASHE/WERS	WERS
Female	-0.145* (0.014)	-0.175* (0.010)
Obs	5586	18420
R2	0.64	0.36

Selected Regression Results

Coefficient	Data Source	
	ASHE/WERS	WERS
Male - Monitoring	0.087* (0.018)	0.105* (0.023)
Male – No Monitoring	ref	ref
Female – Monitoring	-0.063* (0.019)	-0.076* (0.022)
Female – No Monitoring	-0.138* (0.018)	-0.173* (0.011)
Obs	5586	18420
R2	0.643	0.36

Summary of Gender Differentials in Hourly Earnings

Monitoring and review procedures undertaken		ASHE/ WERS	WERS
Do you monitor recruitment and selection by gender?	Yes	13.1	16.2
	No	17.9	18.5
Do you review recruitment and selection procedures to identify indirect discrimination by gender?	Yes	14.1	17.3
	No	14.8	17.6
Do you monitor promotions by gender?	Yes	13.4	16.0
	No	15.3	17.8
Do you review promotion procedures to identify indirect discrimination by gender?	Yes	19.4	16.9
	No	14.6	17.7
Do you review relative pay rates by gender?	Yes	15.0	18.1
	No	13.8	17.3

Summary

- Female earnings higher in organisations that monitor/review procedures by gender
 - However, so do males and so earnings gap remains
- Caveats
 - Unobservable workplace characteristics associated with monitoring procedures
 - Representativeness
 - Segregation
- Panel data required to established true effectiveness of gender monitoring

Further Applications

- Variety of workplace characteristics
- ASHE as a panel data set
- VML is de facto home for geographically detailed WERS
- Other linking possibilities – e.g. ARD (Forth & McNabb 2007)

"This work contains statistical data from ONS which is Crown copyright and reproduced with the permission of the controller of HMSO and Queen's Printer for Scotland. The use of the ONS statistical data in this work does not imply the endorsement of the ONS in relation to the interpretation or analysis of the statistical data. This work uses research datasets which may not exactly reproduce National Statistics aggregates."