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by

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No. 1999-02



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XII



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COMPARISONS IN GENDER WAGE DIFFERENTIALS AND DISCRIMINATION BETWEEN GERMANY AND THE UNITED KINGDOM

BY MICK BROOKES, TIMOTHY HINKS AND DUNCAN WATSON^{*#}

ABSTRACT

Due to the lack of consistent data, direct and robust comparisons of cross-country labour markets have been virtually impossible. This study uses a new panel data series that controls for inconsistencies, thus overcoming this problem. This study estimates gender wage differentials and gender discrimination in the German and United Kingdom labour markets. Panel estimates are used to identify general wage differences between the two countries, with cross-sectional comparisons undertaken to identify changes that have occurred between 1991 and 1993, that are consistent with known labour market policies. It is found that gender wage differentials are greater in the UK than Germany with employer discrimination against females attributed with the majority of the difference in both countries.

(JEL Codes: J160, J400, J700)

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[#] The authors wish to thank IRISS at Ceps/Insead for financial and academic support.

I INTRODUCTION

Since the early 1970s the wage gap between males and females has come under increased scrutiny by Western governments, including the United Kingdom (UK) and Germany. In order to combat apparent gender (and race) discrimination in the UK labour market, government introduced the 1970 Equal Pay Act (EPA). Whilst the Act prohibits any form of wage discrimination against both males and females, in reality the majority of people it affected were female. Following the EPA was the Sex Discrimination Act (SDA) of 1975, designed to be wider reaching than the EPA. As well as focussing on wage discrimination, the SDA covered “discrimination by employers in recruitment, in all aspects of their treatment of existing employees and when terminating employment”, (Department of Trade and Industry (DTI), Employment Legislation, Section 3, 1999). This countered both occupational discrimination and gender discrimination in internal labour markets (see Becker, 1971: Doeringer and Piore, 1971). The Act did not focus just on employers, with trade unions, employment agencies and training bodies (including apprenticeship schemes) also having to conform to the SDA or face prosecution.

A problem with the EPA was that employers evaluated which jobs were similar or what is termed ‘work rated equivalent’. These evaluations were open to abuse on the employers’ behalf. They could feasibly underpay females relative to males by claiming the job-specifics were different, when in reality they were very similar. Not until 1984 was this loophole in the EPA addressed following the intervention of the European Court of Justice that argued independent experts should be allowed to undertake ‘work rated equivalent’ evaluations so as to diminish employer discrimination. The SDA too suffered from similar problems. For a woman to suffer from direct discrimination, it had to be proved that she had been treated differently to a “hypothetical man in similar circumstances” (The British Council, 1999). Women dismissed from work for being pregnant failed to win cases of unfair

dismissal since equivalent males did not exist. Not until 1992 were such dismissals deemed unlawful following a judgement by the European Court of Justice.

Anti-discrimination legislation in Germany can be traced to the equal opportunity legislation prior to 1975, and equal pay legislation in 1980 (Whitehouse, 1992). Similar to the EPA and SDA in the United Kingdom, employees were to be paid according to the principle of equal value. As in the UK equal value was determined by job evaluation conducted by employers' but also independent experts so as to reduce the scope for direct employer discrimination against females (See Bertelsmann and Rust, 1995). In order to further combat gender discrimination German governments since the early 1980s have implemented an affirmative action policy in the public sector. Essentially job reservation policies for female workers, three principal enforcement strategies have been adopted to ensure its success. Firstly, flexible quotas, which give preferential treatment to women over equally qualified men in employment and promotion decisions in those areas where under-representation is deemed to exist. A more contentious policy is that of strict quotas, where a percentage of positions for females are reserved despite the possibility of equally/better qualified males being a better job-match. The final strategy of equity plans, produced by employers to address any under-representation of females, is the least prescriptive employment policy.

Given the more direct equal pay/opportunity legislation of Germany relative to the UK, this paper aims to estimate gender wage differentials in the United Kingdom and German labour markets between 1991 and 1993 and decompose these into various discriminatory components that can be interpreted economically. Unlike previous studies that are reviewed in Section II, it will be possible to directly compare female wage gaps in the United Kingdom and Germany. The two countries are chosen because of the perceived international advantage of German women over UK women relative to men (United Nations Development Programme, 1995). The primary obstacle of such a

comparative analysis has been a shortage in consistent data sets, which causes problems of statistical bias in comparing results across countries. Section III introduces the recently conceived PACO data set from the Panel Comparability Project, which allows cross-country comparisons to be made. In Section IV the decomposition models used are introduced, which allow employer/employee discrimination and employer nepotism to be identified. A random-effects panel model is estimated in Section V for 1991-1993 with a discussion of both regression and discrimination estimates. Cross-sectional analyses are then undertaken to identify specific changes (if any) that have occurred in the time frame. The paper also aims to identify whether gender wage differentials and gender discrimination differ in size between the public sector and private sector in the United Kingdom and Germany. This is motivated by successive German governments' support for a policy of affirmative action in the public sector since the early 1980s. In addition the paper considers the effect of the change in the United Kingdom's Sex Discrimination Act in 1992 and the role of insiders compared to outsiders with respect to the wage rate. A summary and conclusion follow in Section VI.

II IMPACT OF EQUAL PAY LEGISLATION AND PREVIOUS EVIDENCE OF GENDER DIFFERENTIALS AND DISCRIMINATION IN GERMANY AND THE UNITED KINGDOM

Decreasing gender discrimination has been a consistent feature of both the UK and German labour markets. In the United Kingdom the gender wage gap declined during the period 1970 to 1977 from 58 per cent of the male wage to 69 per cent (Zabalza and Arrufat, 1985). In the same period relative female employment increased by 1.7 per cent per year, though this reflects increasing part-time employment indicated by the relative employment-relative hours worked gap increase. Evidence for Germany is more limited because of its political unification in 1989. However, studies using West German data indicate a decline as in the UK.

One problem with these conclusions is that in most empirical studies no account is taken of the different experiences of the public sector and private sector. Zabalza and Arrufat (1985) crudely attempted to decompose the UK labour market accordingly, and find that relative employment of females in the private sector increased far less than in the public sector, with the figure actually declining between 1974 and 1976. On an optimistic note they found the overall employment trend between 1950 and 1980 was upwards in the private sector.

To determine the affects of the anti-discrimination legislation on female/relative pay in the UK, Zabalza and Arrufat (1985) undertook a simple time-series analysis. They found that anti-discriminatory legislation increased female relative pay by 19 per cent in the first half of the 1970s, with approximately 75 per cent of this attributed to the years 1974 and 1975, when the EPA and SDA were first fully implemented (*ibid*, p 2).

Chiplin and Sloane (1976, p 739) estimated that gender wage discrimination ranged between 4.1 per cent to 45.2 per cent of the total wage differential in 1974-75, or equivalently 0.6 per cent to 4 per cent of the male wage. This indicates the index number problem with the pioneering work of Oaxaca when deciding which wage structure, male or female, to use. Using the 1971 and 1975 General Household Surveys, Greenhalgh (1980) estimates discrimination against married females declines from 46 per cent of the male wage in 1971 to 36 per cent in 1975. The figure for single women relative to single men also declined from 24 per cent to 10 per cent. Zabalza and Tzannotis (1985) confirm Greenhalgh's findings, calculating gender discrimination as 26 per cent of the male wage in 1975. These studies are consistent with the hypothesis that the EPA and SDA reduced the gender wage differential by a once-and-for-all increase in the wage of females (Ashenfelter and Layard, 1983). Further research by Tzannotos and Zabalza, (1984) and Zabalza and Tzannotos, (1985) indicated that alternative explanations for this relative wage increase, such as deterioration in male

pay, increase in high-status female employment, and sudden changes in demand for female labour relative to male labour, were without foundation. Work by Zabalza and Arrufat (1982, 1985) estimate the discrimination component between married males and females to be far lower than previous studies, finding female discrimination was just 6 per cent of the gender wage differential. This contrasts with the study by Miller (1987) who when using an identical model to that of Zabalza and Arrufat finds women's wages in 1980 would be 14 per cent higher in the absence of discrimination¹. Adopting a more complex probit model, Miller finds that 17 of the 50 per cent natural logarithm wage difference between married females and married males could be attributed to discrimination, or equivalently 13 per cent of the male wage.

Dolton and Makepeace (1986) using cohort data that included actual work experience found that female 1970 graduates interviewed in 1977 would earn 20 per cent more in the absence of discrimination. A similar cohort study by Joshi and Newell (1987) found that females born in 1946 would earn 51 per cent more when 26 years of age and 27 per cent more when 32 years of age, in the absence of discrimination. Wright and Ermisch (1991) found that using actual labour experience or imputed labour experience made no significant difference to estimates of gender discrimination, with the figure hovering around 20 per cent of the male wage level in 1980.

Using data sets from the post-1980 period yield far higher estimates of gender discrimination, whilst far lower gender wage differentials. Blanchflower and Oswald (1989) undertook a simple wage regression analysis with gender discrimination estimated by a dummy variable, for seven countries based on data for 1985-87. *Ceteris paribus*, they found that British women suffered the highest discrimination, being underpaid 56 per cent relative to males with the equivalent figure for German

¹ For a critique of Zabalza and Arrufat, see Wright and Ermisch (1991).

women being 46 per cent². Paci and Joshi (1996) estimated full-time female earnings would be 17 per cent higher if discrimination were absent, or equivalently gender discrimination was 8 per cent of the male wage in 1991. Using the 1992-1993 British Household Panel Survey Harkness (1996) estimates gender discrimination for full-time women to be 20 of the 22 per cent logarithmic wage differential. For part-time females the figure is far lower at 14 of a 42.6 per cent wage differential. Consistent with the Harkness study is Black, Trainor and Spencer (1999) who find that gender discrimination may cause 47 of the 56 per cent logarithmic gender wage differential, or equivalently 26 per cent of the male wage in 1989.

Relatively little work has been undertaken with regard to the German labour market, not least because of the massive upheavals that have taken place since the integration of East and West Germany in 1989. Before this date, Gerlach (1987) estimated gender discrimination as a percentage of the male wage to be 9 per cent using a 1981 random sample data set for the Bremen region. Hubler (1991) using cross-sectional data for 1984 to 1986 estimated that discrimination was increasing in Germany to a figure over 38 per cent in 1985. Black, Trainor and Spencer (1999) find that 32 of the 33 per cent wage differential can be attributed to discrimination, whilst in terms of the logarithmic male wage, discrimination is calculated at 16 per cent.

III THE DATA

Data from the Panel Comparability Project (PACO) for 1991 to 1993 is used. This data is unique since it provides harmonised and consistent variables across countries by recoding and regrouping panel data over a variety of countries and so makes cross-country comparisons possible³. The panel sample was reduced from 33,049 (Germany 18,041 the UK 15,008) to 21,300 since the survey is

² This study can be criticised for not considering the sample selectivity bias. Also Black et al (1999, p 453) argue that because Blanchflower and Oswald use potential experience, in the form of age, instead of actual or imputed experience their estimate of returns to experience are biased downwards, and the discriminatory term correspondingly biased upwards.

concerned with employed persons in the 18-65 age bracket. Of this sample 6,984 were German men, 4,938 German women, 4,598 United Kingdom men and 4,780 United Kingdom women. The wage regressions comprise of a education term, potential labour market experience and its square, insider-outsider dummy variables, a part-time dummy variable, number of children, whether the individual is married and year dummies for 1991 and 1993.

The insider variable was defined as an individual who had been employed in the current job for over 5 years. An outsider was an individual who had remained in their current job for less than 2 years, with the base variable being the ‘initiated’ worker with 2-5 years job-specific experience. It was expected that insiders would earn more than outsiders due to a job-specific productivity advantage⁴.

To decompose the gender wage differential for the panel study the ‘pooled’ non-discriminatory wage structure was adopted from Oaxaca and Ransom (1994). This allows wage discrimination to be decomposed into male overpayment and female underpayment, which are consistent with employer nepotism/employee discrimination and employer discrimination respectively. In order to observe changes in discrimination between 1991 and 1993, cross-sectional regressions are undertaken. Using the logit non-discriminatory model of Hinks and Watson (1999), job discrimination is also identified. To isolate the relative importance of the public and private sector, the gender wage differentials of both are decomposed again using the ‘pooled’ model. In this way the analysis allows the characteristics and determinants of the gender wage differentials in both the German and UK labour markets to be identified.

³ The British Household Panel Study (BHPS) and the Sozio-Oekonomisches Panel/Bundesrepublik Deutschland (SOEP) are the respective data sets utilised by PACO and subsequently used in this study.

IV METHODOLOGICAL FRAMEWORK

The standard method used to estimate gender discrimination is to follow a wage decomposition technique pioneered by Oaxaca (1973). This is based on neo-classical labour theory that predicts any wage differential that occurs between males and females is caused by productivity differences, such as differences in human capital inputs. The decomposition technique controls for such explained human capital differences but also isolates the unexplained wage differential that might exist. It is this unexplained component which is interpreted as discrimination.

The logarithmic gender wage differential is given as, $\ln(G_{mf} + 1) \equiv \overline{\ln W_m} - \overline{\ln W_f}$, where $\overline{\ln W_g}$ is the mean of the log of wages for the respective genders, and 'm' and 'f' subscripts denote male and female workers⁵. In order to estimate job discrimination, the proportion of females (p_{if}) and proportion of males (p_{im}) in the public and private sector are included in the decomposition. This means expanding the log differential to, $\ln(G_{mf} + 1) = \sum_i [p_{im} \overline{\ln W_{im}} - p_{if} \overline{\ln W_{if}}]$. Defining \hat{p}_{if} as the proportion of female workers that would be in either the public or private sector, then assuming an identical occupational attainment function to males,

$$\ln(G_{mf} + 1) = \sum_i \overline{\ln W_{im}} (p_{im} - \hat{p}_{if}) + \sum_i \overline{\ln W_{im}} (\hat{p}_{if} - p_{im}) + \sum_i p_{if} (\overline{\ln W_{im}} - \overline{\ln W_{if}}). \quad (1)$$

The first term on the right hand side of Equation (1) represents the explained job difference between males and females. The second term cannot be explained by within-sectoral characteristic

⁴ The returns to being an insider are biased downwards, since those individuals who did not respond to how long they had been employed were designated outsiders. They were not omitted from the sample because of a sample size problem. For a review of insider-outsider theory see Lindbeck and Snower (1988).

⁵ The gender wage differential and subsequent decomposition is performed using logarithms since the log-linear earnings function gives a better fit than the linear earnings function.

differences and represents job discrimination. The final term represents the within-sector gender wage differential. The proportions p_{im} and \hat{p}_{if} are estimated using a logit model, with $\hat{p}_{if} = f(\mathbf{y})$, where \mathbf{y} is a set of independent variables chosen later. The public and private sectors are indexed by i ($i=1,2$). The probability that individual j with a vector of characteristics $z_j = (1, z_{2j}, z_{3j}, \dots)$ will be assigned to sector k is

$$\hat{p}_{kj} = \exp \tilde{\mathbf{b}}_k z_j / \sum_i \exp \tilde{\mathbf{b}}_i z_j,$$

where $\tilde{\mathbf{b}}_i$ is the vector of coefficients corresponding to the public or private sector wage regression. Since the probabilities must sum to unity across all occupational groups they are normalized arbitrarily for computational purposes.

Decomposing the within-sector wage differential by estimating a competitive wage structure allows us to estimate Equation (2),

$$\begin{aligned} \ln(G_{mf} + 1) = & \sum_i \tilde{\mathbf{b}}_{im} (\overline{X_{im}})(p_{im} - \hat{p}_{if}) + \sum_i \tilde{\mathbf{b}}_{im} (\overline{X_{im}})(\hat{p}_{if} - p_{if}) + \\ & \sum_i p_{if} [\tilde{\mathbf{b}}_i^* (\overline{X_{im}} - \overline{X_{if}})] + \sum_i p_{if} [\overline{X_{im}} (\tilde{\mathbf{b}}_{im} - \tilde{\mathbf{b}}_i^*)] + \sum_i p_{if} [\overline{X_{if}} (\tilde{\mathbf{b}}_i^* - \tilde{\mathbf{b}}_{if})]. \end{aligned} \quad (2)$$

where, $\sum_i p_{if} [\tilde{\mathbf{b}}_i^* (\overline{X_{im}} - \overline{X_{if}})]$ represents male productivity advantage in the public and private sectors, $\sum_i p_{if} [\overline{X_{im}} (\tilde{\mathbf{b}}_{im} - \tilde{\mathbf{b}}_i^*)]$ is male overpayment and $\sum_i p_{if} [\overline{X_{if}} (\tilde{\mathbf{b}}_i^* - \tilde{\mathbf{b}}_{if})]$ is female underpayment. The competitive wage structure $\tilde{\mathbf{b}}_i^*$ is estimated using the ‘pooled’ model of Oaxaca and Ransom (1994) based on a weighted matrix composed of the productivity characteristics of

males and females⁶. This latter extension of decomposition allows the sources of discrimination to be developed from the Becker (1971) model of discrimination. In Becker's neo-classical model individuals, whether they be employers, employees or consumers, can hold discriminatory 'tastes' against certain people or groups of people⁷. Employee discrimination is characterised by an overpayment to workers, assumed to be male, since they require a financial compensation for working alongside female workers because of their taste for discrimination. Employer nepotism is also characterised by male worker overpayment, with the male employer gaining a greater non-monetary benefit from employing male rather than female workers, which increases the demand for male workers. Finally, employer discrimination is inferred when female workers are underpaid because this provides compensation for the discriminatory employer's non-monetary cost.

V PANEL AND CROSS-SECTIONAL REGRESSIONS AND GENDER WAGE DECOMPOSITIONS

In order to gain more general information concerning the history of individual workers over the period 1991-1993, random-effects panel models (REM) are used for both the United Kingdom and German labour markets. This involves applying generalised least squares techniques to estimate the following relationship for individual i over the time period, t :

$$w_{it} = \mathbf{b}'\mathbf{x}_{it} + \mathbf{l}_i + \mathbf{e}_{it},$$

⁶ Other non-discriminatory wage structures can be found, Cotton (1988), and Neumark (1988).

⁷ Other theories of discrimination developed by Becker include consumer discrimination, government (institutional) discrimination, and market discrimination. Alternative theories of discrimination can be found in Bergmann (1971), Roemer (1979), Phelps (1972), and Lang (1986), with extensions of Becker's work found in Goldberg (1982), and Naylor (1994).

where, w is individual i 's log wage, x is a vector of individual characteristics affecting human capital. Following Greene [1993, p470] we assume $E(I_i) = E(e_i) = 0$. The component, I_i , is an individual-specific term and is constant over time. In our analysis it can be interpreted as unobserved labour quality. The random-effects procedure, therefore, models individual-specific differences and reduces biases in the estimation of gender wage discrimination.

The base model was a married part-time, public sector, 'initiated' worker in 1992. The regression results presented in Table 1 indicate that returns to education differ between the two countries, with males and females in the UK having greater returns than their respective German equivalents⁸. As expected the general labour market experience term affects wages at a diminishing rate for all the samples while the estimates of job-specific experience are consistent with the insider-outsider hypothesis. In the UK outsiders receive a far lower wage than other workers, with males facing a 10 per cent deficit to initiated workers and females a 16 per cent deficit. In Germany the wage differentials are far higher between outsiders and initiated workers, with male (female) outsiders earnings 22 (18) per cent less than initiated workers. When comparing insider and initiated workers between countries, German insiders positively and significantly affect the wage rate. This is not true in the United Kingdom, supporting the view that German insiders' have greater power than UK insiders'. This is expected since Germany has 90 per cent coverage of union collective bargaining compared to 47 per cent in the UK (OECD, 1994: Adnett, 1996).

An unexpected finding was that the returns to part-time workers are positive and significant for German males and females, and for UK males. Only for women in the UK does part-time employment have the expected negative effect on the wage rate. Public sector women in both

⁸ It is acknowledged that the regressions suffer from omitted variable bias. Secondly a self-selection bias occurs which is controlled for in the initial cross-sectional analysis by estimating Lee's (1983) logit selection model.

Germany and the UK earn respectively 14 and 15 per cent more than private sector female workers, a finding contrary to expectation given “the higher degree of flexibility in the pay structure of the (private) sector” (Joshi and Paci, 1998: 73). The German estimate is consistent with the affirmative action policy of German governments since the early 1980s and could well have helped attract more productive females with the guarantee of employment at a fair wage. When separate regressions were undertaken for German females in the private and public sectors this argument was borne out, with returns to education and experience in public sector employment almost double that in the private sector. By comparison both UK and German male workers earn less in the public sector than in the private sector⁹. However, only in the UK is the public sector variable both negative and significant at -25 per cent.

(cf. table 1)

Estimates of returns to being married and having children do not follow any particular pattern. Returns to being married are positive and significant for males and females in the UK, whilst for German females it is negative and significant. This could indicate that marriage increases the wage rate by sending a signal to employers of future stability and reliability in the workplace in the UK compared to Germany. However, the effect of children on the UK female wage is negative and significant, where as for all other samples the returns are insignificant. The UK female result is consistent with employed mothers having smaller work radiuses relative to women without children. This limits the employment area and therefore the wage of employed mothers consistent with a monopsony labour market (Polachek and Siebert, 1993, p.164).

⁹ Regressions are available on request from the authors.

The dummy variables for 1991 and 1993 are insignificant for the German samples with 1991 significant at the 5 per cent level for employed males in the UK. Conversely, the estimates for UK females are significant with females earning 6 per cent less in 1991 relative to 1992 and 4 per cent more in 1993.

Through decomposing the gender wage differentials using the pooled method of Oaxaca and Ransom (1994) male overpayment, female underpayment and productivity differences can be identified. Table 2 presents the decompositions as part of the logarithmic wage differential, as a percentage of the wage differential and as a percentage of the male wage.

(cf. table 2)

This shows that the female underpayment (FU) term dominates the productivity gap (PD) and the male overpayment (MO) component of the wage differential, suggesting employer discrimination against females is the dominant explanation for the observed wage gap in both the United Kingdom and Germany. If this term could be eliminated then the wage differential as a percentage of the male wage would be reduced to 6 per cent in the UK and 4 per cent in Germany. If male overpayment could be halted then virtually no gender wage gap would exist.

Whilst the panel regressions have given us a general overview of the German and UK labour markets, the next stage of the analysis is to observe changes in discrimination by estimating cross-sectional regressions for 1991 and 1993. To differentiate between job and wage discrimination a logit non-discriminatory model is used and the results of the decompositions for 1991 and 1993 are presented in

(cf. table 3)

The results indicate that job discrimination (JD) and explained job differences (JE) contribute nothing to the gender wage differential in either country. As a proportion of the wage differential, females in the UK and Germany became relatively less productive between 1991 and 1993, with the productivity gap (PD) increasing from 25 per cent to 34 per cent for UK women. The most striking finding from the cross-sectional analysis is the dramatic decline in UK female underpayment (FU) term. As a percentage of the wage differential UK female underpayment falls from 48 per cent in 1991 to 18 per cent in 1993. The equivalent figure for German females is a surprising increase from 40 per cent to 45 per cent. The UK results could be interpreted as a decline in employer discrimination against women, but the sheer magnitude of the fall over just three years indicates that an alternative explanation is required. One possibility is the change to the UK Sex Discrimination Act in 1992 outlawing female dismissal on the grounds of pregnancy, resulting in an increase in female wages. The finding that male overpayment (MO) increases from 33 per cent to 55 per cent between 1991 and 1993 adds further support to this idea. To see where the reduction in UK female underpayment is largest separate decompositions have been calculated for public and private sector workers. From Table 4 it can be seen that German public sector females are underpaid less than their UK counterparts in both 1991 and 1993, with private sector females in both countries facing larger underpayments relative to public sector workers. The decline in the German public sector is consistent with the affirmative action policy adopted in the early 1980s. In both countries gender discrimination dominates the wage gap, with it being worse in the private than public sector. The UK labour market is of more interest here though since female underpayment has declined rapidly in both the public and private sectors, only for male overpayment to increase in the private sector.

(cf. table 4)

V CONCLUSION

The principle aims of this paper were to estimate gender wage differentials and gender discrimination between Germany and the United Kingdom, using newly available consistent data sets over the period 1991 and 1993. The use of this panel data also makes a comparison of the returns to human capital by gender across the countries possible. Using this more general approach allow differences between insiders and outsiders in Germany and the UK to emerge, reflecting the relative strength of the union movement in Germany. The legislative amendment to the UK Sex Discrimination Act in 1992 was also controlled for in the initial panel estimates. To test the robustness of our results cross-sectional estimations were undertaken for the public and private sectors so that job discrimination and wage discrimination could be identified. This also allowed the success of affirmative action policy in the German public sector to be evaluated.

The gender wage differential was found to be larger in the UK than in Germany at 20 per cent of the male wage compared to 9 per cent in the period 1991 to 1993. Decomposing the differential revealed that female underpayment was the dominant component of both labour markets, indicating a possible problem of employer discrimination against females. The more detailed decomposition of this paper over previous studies gave estimates of discrimination far larger than those calculated by Paci and Joshi (1996), but consistent with the findings of Harkness (1996) and Black et al (1999). With regard to cross-country comparisons our estimates for the UK are consistent with those of Black et al (1999) at 20 per cent compared to 26 per cent in 1989. For the German labour market the discrimination term of 8 per cent of the male wage is half as much as that calculated by Black et al (1999) for 1989. Our results are consistent with the findings of the United Nations Report on gender in that the UK suffers from a greater problem of gender discrimination than Germany.

The cross-sectional analysis showed that gender wage differentials and gender discrimination were declining in both countries but that it was more rapid in the UK, consistent with the findings of Zabalza and Tzannotis (1985). The decline in the UK was largely due to a dramatic reduction in female wage underpayment in both the public and private sector, and while this may be interpreted as a reduction in employer discrimination, the more likely explanation is the change to the SDA in 1992, outlawing the dismissal of women on grounds of pregnancy.

The panel estimates captured insider-outsider power and job-specific training within the labour market. The expected *a priori* result of insiders' earning more than outsiders' was found in both Germany and the United Kingdom, with insiders' in Germany having greater power than those in the UK. Given trade union collective bargaining covered 90 per cent of the labour market in Germany compared with 47 per cent in the UK during this period, this result is not surprising.

The cross-sectional estimates indicated that job discrimination in Germany, consistent with affirmative action legislation in favour of women, did not effect overall gender discrimination in the country. Whilst it was not possible to directly test the impact of this legislation on the public sector given the data restrictions, the evidence suggested the policy has worked. A widening of the wage gap would appear to act as a signal to highly qualified females to enter the public sector for financial gain, a case borne out by the superior returns to education and experience by public sector females. The certainty of more equitable pay structures and promotional opportunities would also act as an incentive to find employment in the public sector.

Gender discrimination is expected to decline further in both the UK and Germany as wage differentials continue to narrow through both legislative change and structural change to the labour market, favouring women over men. With a more centralised labour market and a continuing

affirmative action policy, Germany is still expected to suffer less gender wage differences and discrimination than the UK. The challenge to both countries though is the reduction of wage differences and discrimination that females encounter in the private sector, a problem that may only be resolved through better legislative enforcement.

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Table 1 Panel Wage Regressions for the UK and Germany, 1991-1993

<i>Variable</i>	United Kingdom				Germany			
	<i>Males</i> <i>Coefficient</i>	<i>Std-err</i>	<i>Females</i> <i>Coefficient</i>	<i>Std-err</i>	<i>Males</i> <i>Coefficient</i>	<i>Std-err</i>	<i>Females</i> <i>Coefficient</i>	<i>Std-err</i>
<i>Education</i>	0.062	0.0032	0.051	0.0039	0.052	0.0030	0.042	0.0041
<i>Experience</i>	0.051	0.0036	0.028	0.0039	0.019	0.0033	0.024	0.0041
<i>Experience</i> ₂	-0.001	0.0001	-0.001	0.0001	-0.0003	0.0001	-0.0004	0.0001
<i>Outsider</i>	-0.103	0.0145	-0.175	0.0175	-0.242	0.0158	-0.193	0.0194
<i>Insider</i>	0.014	0.0172	0.021	0.0214	0.206	0.0166	0.173	0.0208
<i>Part-Time</i>	0.321	0.0442	-0.041	0.0221	0.035	0.0194	0.094	0.0173
<i>Public</i>	-0.032	0.0257	0.143	0.0243	-0.028	0.0144	0.133	0.0158
<i>Married</i>	0.112	0.0233	0.057	0.0241	0.006	0.0162	-0.104	0.0181
<i>Children</i>	-0.014	0.0101	-0.102	0.0125	0.004	0.0064	-0.013	0.0095
<i>1991</i>	0.021	0.0109	-0.063	0.0143	0.015	0.0079	-0.014	0.0107
<i>1993</i>	0.001	0.0111	0.035	0.0145	0.015	0.0082	0.018	0.0110
<i>Constant</i>	0.127	0.0645	0.481	0.0752	1.987	0.0536	1.896	0.0692
<i>Sample Size</i>	4,598		4,780		6,984		4,938	
<i>R</i> ²	0.2396		0.1869		0.2976		0.2174	
<i>Lnwage</i>	1.709		1.372		2.913		2.652	

Table 2 Gender Discrimination for Germany and the United Kingdom, 1991-1993.

1 <i>Country</i>	PD 2 $\tilde{b}_i^*(\overline{X}_m - \overline{X}_f)$	MO 3 $\overline{X}_m(\tilde{b}_m - \tilde{b}^*)$	FU 4 $\overline{X}_f(\tilde{b}^* - \tilde{b}_f)$	5 $\ln \overline{W}_m - \ln \overline{W}_f$
<i>United Kingdom</i>	0.013	0.086	0.239	0.337
<i>% Wage Difference</i>	4	25	71	100
<i>% Male Wage</i>	1	5	14	20
<i>Germany</i>	0.026	0.095	0.140	0.261
<i>% Wage Difference</i>	10	36	54	100
<i>% Male Wage</i>	1	3	5	9

Table 3 **Decomposition of the Gender Wage Differential for the UK and German labour market: 1991 and 1993**

(1) <i>Sector/Year</i>	(2) JE $\sum_i \tilde{b}_{im}(\overline{X_{im}})(p_{im} - \hat{p}_{if})$	(3) JD $\sum_i \tilde{b}_{im}(\overline{X_{im}})(\hat{p}_{if} - p_{if})$	(4) PD $\sum_i p_{im}[\tilde{b}_i^*(\overline{X_{im}} - \overline{X_{if}})]$	(5) MO $\sum_i p_{if}[\overline{X_{im}}(\tilde{b}_{im} - \tilde{b}_i^*)]$	(6) FU $\sum_i p_{if}[\overline{X_{if}}(\tilde{b}_i^* - \tilde{b}_{if})]$	(7) Wage Gap
UK						
1991						
<i>Wage differential</i>	-0.024	0.001	0.093	0.123	0.179	0.372
<i>% male wage</i>	-1.4	0.1	6	7	11	22
<i>% wage differential</i>	-6.3	0.3	25	33	48	100
1993						
<i>Wage differential</i>	-0.018	-0.003	0.099	0.162	0.052	0.292
<i>% male wage</i>	-1	-0.1	6	9	3	17
<i>% wage differential</i>	-6	-1	34	55	18	100
Germany						
1991						
<i>Wage differential</i>	7.01E-05	1.81E-04	0.074	0.101	0.118	0.293
<i>% male wage</i>	0	0	3	4	4	11
<i>% wage differential</i>	0.02	0.001	25	34	40	100
1993						
<i>Wage differential</i>	-0.009	-0.004	0.075	0.075	0.111	0.248
<i>% male wage</i>	-0.3	-0.2	3	3	4	9
<i>% wage differential</i>	-4	-2	30	30	45	100

Table 4 **Gender Wage Discrimination and Decomposition by Sector in the 1991 and 1993 German and United Kingdom Labour Markets**

<i>Country/Year/Sector</i>	$\tilde{b}_i^*(\overline{X_{im}} - \overline{X_{if}})$	$\overline{X_{if}}(\tilde{b}_{im} - \tilde{b}_i^*)$	$\overline{X_{if}}(\tilde{b}_i^* - \tilde{b}_{if})$	$\ln(G_{mf} + 1)$
1991				
<i>Germany: Public</i>	0.108	0.075	0.042	0.225
<i>% Wage Difference</i>	48	33	19	100
<i>% Male Wage</i>	4	3	2	8
<i>Germany: Private</i>	0.056	0.115	0.158	0.329
<i>% Wage Difference</i>	17	35	48	100
<i>% Male Wage</i>	2	4	6	12
<i>UK: Public</i>	0.057	0.112	0.140	0.310
<i>% Wage Difference</i>	18	36	45	100
<i>% Male Wage</i>	3	6	8	17
<i>Private</i>	0.110	0.128	0.199	0.437
<i>% Wage Difference</i>	25	29	46	100
<i>% Male Wage</i>	7	8	12	27
1993				
<i>Germany: Public</i>	0.101	0.063	0.011	0.175
<i>% Wage Difference</i>	58	36	6	100
<i>% Male Wage</i>	3	2	1	6
<i>Private</i>	0.059	0.082	0.169	0.310
<i>% Wage Difference</i>	19	26	55	100
<i>% Male Wage</i>	2	3	6	10
<i>UK: Public</i>	0.044	0.082	0.047	0.173
<i>% Wage Difference</i>	25	47	27	100
<i>% Male Wage</i>	2	4	3	9
<i>Private</i>	0.121	0.194	0.054	0.369
<i>% Wage Difference</i>	33	53	15	100
<i>% Male Wage</i>	7	12	3	22