



RUHR

ECONOMIC PAPERS

Julia Bredtmann
Sebastian Otten

Getting What (Employers Think) You're Worth

Evidence on the Gender Gap in Entry Wages
among University Graduates

Imprint

Ruhr Economic Papers

Published by

Ruhr-Universität Bochum (RUB), Department of Economics
Universitätsstr. 150, 44801 Bochum, Germany

Technische Universität Dortmund, Department of Economic and Social Sciences
Vogelpothsweg 87, 44227 Dortmund, Germany

Universität Duisburg-Essen, Department of Economics
Universitätsstr. 12, 45117 Essen, Germany

Rheinisch-Westfälisches Institut für Wirtschaftsforschung (RWI)
Hohenzollernstr. 1-3, 45128 Essen, Germany

Editors

Prof. Dr. Thomas K. Bauer
RUB, Department of Economics, Empirical Economics
Phone: +49 (0) 234/3 22 83 41, e-mail: thomas.bauer@rub.de

Prof. Dr. Wolfgang Leininger
Technische Universität Dortmund, Department of Economic and Social Sciences
Economics – Microeconomics
Phone: +49 (0) 231/7 55-3297, email: W.Leininger@wiso.uni-dortmund.de

Prof. Dr. Volker Clausen
University of Duisburg-Essen, Department of Economics
International Economics
Phone: +49 (0) 201/1 83-3655, e-mail: vclausen@vwl.uni-due.de

Prof. Dr. Christoph M. Schmidt
RWI, Phone: +49 (0) 201/81 49-227, e-mail: christoph.schmidt@rwi-essen.de

Editorial Office

Joachim Schmidt
RWI, Phone: +49 (0) 201/81 49-292, e-mail: joachim.schmidt@rwi-essen.de

Ruhr Economic Papers #218

Responsible Editor: Thomas K. Bauer

All rights reserved. Bochum, Dortmund, Duisburg, Essen, Germany, 2010

ISSN 1864-4872 (online) – ISBN 978-3-86788-250-7

The working papers published in the Series constitute work in progress circulated to stimulate discussion and critical comments. Views expressed represent exclusively the authors' own opinions and do not necessarily reflect those of the editors.

Ruhr Economic Papers #218

Julia Bredtmann and Sebastian Otten

**Getting What (Employers Think)
You're Worth**

**Evidence on the Gender Gap in Entry Wages
among University Graduates**

RUHR
UNIVERSITÄT
BOCHUM **RUB**

 **RWI**

Bibliografische Informationen der Deutschen Nationalbibliothek

Die Deutsche Bibliothek verzeichnet diese Publikation in der deutschen Nationalbibliografie; detaillierte bibliografische Daten sind im Internet über:
<http://dnb.d-nb.de> abrufbar.

ISSN 1864-4872 (online)
ISBN 978-3-86788-250-7

Julia Bredtmann and Sebastian Otten¹

Getting What (Employers Think) You're Worth – Evidence on the Gender Gap in Entry Wages among University Graduates

Abstract

Since the early 1970s, wage differentials between men and women have attracted the research interest of labor economists. However, up to now empirical evidence on gender differentials of labor market entrants and the determinants of their starting wages is scarce. To fill this gap, we make use of a unique dataset on graduates in economics from a large representative German university, to investigate whether – even for such a homogeneous group of labor market entrants – a gender gap in earnings exists. Concentrating on a highly homogeneous sample limits the problem of unobserved heterogeneity, which results in an overestimation of the unexplained component of standard decompositions analyses. The results reveal that women's entry wages are significant lower than those of their male counterparts. Blinder-Oaxaca decompositions suggest that the major part of this gap remains unexplained by gender differences in observable characteristics.

JEL Classification: J16, J31, J71

Keywords: Entry wage; gender wage gap; decomposition; university graduates

October 2010

¹ Both RWI and Ruhr-Universität Bochum. – The authors are grateful to Thomas K. Bauer, Katja Görlitz, Katharina Lindenbaum and participants at seminars at RWI for helpful comments and suggestions. We also thank Manfred Lösch and the team of the Chair of Quantitative Analysis at the Ruhr University Bochum for providing the data. Sebastian Otten gratefully acknowledges financial support from the German Science Foundation (DFG) through the program SPP 1169 “Flexibility in Heterogeneous Labor Markets”. All remaining errors are our own – All correspondence to Julia Bredtmann, Ruhr-Universität Bochum, Chair for Empirical Economics, 44780 Bochum, Germany, E-Mail: julia.bredtmann@rwi-essen.de.

1 Introduction

Gender wage differentials are identified as a major social and economic problem in industrial countries, since they do not only disadvantage women in regard to current wages, but also lead to gender differences in lifetime earnings and pensions, thereby causing a higher poverty risk for older women (Zaidi, 2010). Over the last decades, equal pay legislations have been enacted in several countries, limiting employers' possibilities of discriminating against women. Nevertheless, even today women earn significantly less than men (see e.g. Blau and Kahn, 2003; OECD, 2008). While numerous studies analyzed the magnitude of the wage differential between men and women¹, reliable evidence on the part of the gender pay gap that can be attributed to discrimination is scarce. The main difficulty in explaining the gender pay gap is to separate the discrimination part of the wage differential from the part that results from differences in human capital endowment, occupational segregation and attitudes towards career development and promotion between men and women.

The common method applied when analyzing gender wage differentials is a Blinder-Oaxaca decomposition that decomposes the total gender wage gap into an "explained", i.e. arising from differences in characteristics, and an "unexplained" component (Blinder, 1973; Oaxaca, 1973). The central idea behind this approach is to compare the wages earned by women with those of comparable men. However, this method is potentially liable to misspecification due to differences in the supports of the empirical distributions of individual characteristics for females and males. In case of heterogeneous samples, there are combinations of individual characteristics for which it is possible to find males in the labor force, but not females, and vice versa. The Blinder-Oaxaca decomposition fails to recognize these gender differences in the supports by estimating earnings equations for all individuals without restricting the comparison only to those males and females with comparable characteristics. This problem results in an overestimation of the unexplained component of the wage gap (Nopo, 2008).

A way to address this problem is to concentrate on a homogeneous sample to analyze wage differentials between men and women. As it has been documented that women are confronted by substantial wage penalties for childbearing, a part of the literature (see e.g. Gerhart, 1990; Carvajal *et al.*, 2000) concentrates on the gender wage differential of labor market entrants, in order to eliminate wage differences that can be attributed to women's career interruptions or part-time employment after childbirth. Moreover, investigating the determinants of and the gender inequality in entry wages is of major economic inter-

¹Extensive surveys of literature can be found in Cain (1986), Altonji and Blank (1999), and Weichselbaumer and Winter-Ebmer (2005).

est, since evidence suggests that an individual's wage at labor market entry also affects the subsequent evolution of employment and wages (Oreopoulos *et al.*, 2008; Bachmann *et al.*, 2010).

Analyzing current and starting salaries of high-skilled employees in a large, private U.S. firm hired between 1976 and 1986, Gerhart (1990) finds that women's wages are significantly lower compared to men's. For Germany, Braakmann (2008) and Görlitz and Grave (2010) investigate the gender differential in entry wages. Both studies use data from a representative survey among German university graduates obtaining their degree between 1996 and 1997. Applying standard Blinder-Oaxaca decompositions, Braakmann (2008) finds that women earn 25 percent less than men at their first job, of which 80 percent can be attributed to differences in endowments between men and women. This result is consistent with Görlitz and Grave (2010), who apply standard ordinary least-squares regressions to explain the graduates' entry wages and find a gender gap of more than 5 percent. However, by looking at a heterogeneous population – graduates from several universities in different fields of study – these studies are not able to identify an unbiased gender wage gap. Although most studies control for a variety of explanatory variables (e.g. field of study) they are not able to address the problem of gender-related pre-market sorting due to unobserved heterogeneity, since the characteristics affecting students' choice of university and major are not observable. To address this problem, Fuller and Schoenberger (1991) and Carvajal *et al.* (2000) concentrate on students in a single field of study graduating from one particular U.S. university. Both find an overall gender wage gap of roughly 7 percent.

The following analysis contributes to the existing literature in several ways. First, we follow Fuller and Schoenberger (1991) and Carvajal *et al.* (2000) and focus our analysis on a homogeneous group of entrants into the German labor market, thereby filling the gap of empirical evidence for Germany. Second, using a unique dataset of economic students graduating from a particular university that contains detailed information on the graduates' course of study, their additional qualifications and their transition from university to the labor market, we can provide further evidence on the determinants of entry wages. To our knowledge, such detailed information is used for the first time. Third, we expand the existing literature on the gender wage gap in entry wages by applying Blinder-Oaxaca decompositions that separate the gender wage differential into an explained and an unexplained part.

Our results reveal that even for a homogeneous group of graduates in similar fields of study, women's entry earnings are almost 7 percent lower than those of their male counterparts. Moreover, the major part of this gap cannot be explained by differences in

observed characteristics between men and women, but remains unexplained. While the explained component is usually referred to as an endowment effect, the interpretation of the unexplained residual is ambiguous. Although it is often interpreted as a measure of discrimination, it might be due to unobserved factors as well. However, by concentrating our analysis on a highly homogeneous group, differences in unobservables between the sexes are limited in our sample. Hence, we regard our results as being a relatively good indicator for gender discrimination of high-skilled workers in the German labor market.

The outline of the paper is as follows. The next section presents the underlying data as well as descriptive statistics. In section 3, the method used in the empirical analysis is described and estimation results are discussed. Section 4 concludes.

2 Data

This study focuses on university graduates to explore the gender wage differential in entry wages for high-skilled workers. In order to analyze a homogeneous group of labor market entrants, we restrict the scope of our survey to business and economics students. With almost 19 percent of all students being enrolled in this subject, business and economics is the most popular field of study in Germany for both males and females (Statistisches Bundesamt, 2010).

Differences among universities (e.g. regarding their reputation, localization or networking) affect graduates' entry earnings and therefore the segregation of students to universities. This choice may also be influenced by gender (Carvajal *et al.*, 2000). To avoid the problems associated with this choice, we use data from a single university, the Faculty of Business and Economics at the Ruhr University Bochum, eliminating inter-gender earnings differentials caused by differences in the graduation institute. The Ruhr University Bochum is a public university with one of the biggest faculties of business and economics in Germany located in the Ruhr area, the most densely populated area in Germany.

Every year, about 200 students achieve a diploma in business and economics (equivalent to master degree). Since 1994, alumni graduating in the summer term are contacted one year after graduation and asked for answering a short questionnaire. The survey contains questions regarding the graduates' socio-demographic factors (age, gender), their course of study (subject-related semesters, fields of specialization, intermediate diploma grades, diploma thesis grades, diploma grades), additional qualifications (e.g. internships, semester abroad etc.), their transition from university to the labor market (number of applications/interviews, waiting period till labor market entry), and their current em-

ployment situation (entry wage, working time, job specification, industry, firm size). Graduates who didn't answer the questionnaire within two month are contacted again. The response rate ranges from 40 to 55 percent, resulting in more than 600 observations over 13 years.² Concentrating on employed persons and excluding individuals with missing information on at least one of the variables used in the empirical analysis leads to a final sample of 576 graduates. To verify the representativeness of the sample, we compare our data with official statistics of the whole population of students graduating at the faculty. T-tests for differences of means show that the two populations do not differ significantly with regard to grades, age and gender. Therefore, we are able to reject the problem of sample selection.

Table 1: Descriptive Statistics

	All		Male		Female		t-value for diff. in means
	mean	sd	mean	sd	mean	sd	
Socio-demographic/study characteristics							
Female	0.29	(0.45)	–	–	–	–	–
Age	26.95	(1.91)	27.23	(1.87)	26.26	(1.83)	5.52***
No. of semesters	11.57	(2.31)	11.67	(2.33)	11.31	(2.22)	1.62
Focus on Management	0.76	(0.43)	0.77	(0.42)	0.73	(0.44)	1.10
Focus on Economics	0.10	(0.30)	0.09	(0.29)	0.10	(0.30)	–0.21
Other focus	0.13	(0.34)	0.12	(0.33)	0.16	(0.37)	–1.49
Diploma thesis degree	2.32	(0.73)	2.33	(0.74)	2.30	(0.71)	0.55
Final grade	2.62	(0.52)	2.66	(0.51)	2.52	(0.55)	2.94***
Additional qualifications during study							
Internship in foreign country	0.16	(0.37)	0.15	(0.36)	0.19	(0.39)	–0.89
Semester abroad	0.17	(0.37)	0.15	(0.36)	0.20	(0.40)	–1.32
Work experience before or during study	0.33	(0.47)	0.34	(0.48)	0.28	(0.45)	1.42
Student assistant	0.05	(0.23)	0.05	(0.23)	0.05	(0.23)	0.13
Job characteristics							
Working hours	46.36	(7.24)	46.82	(7.59)	45.27	(6.18)	2.52**
Annual gross wage (in 1,000€)	40.33	(6.89)	41.23	(6.80)	38.14	(6.63)	5.10***
<i>Occupation</i>							
Research (promotion)	0.08	(0.27)	0.08	(0.27)	0.08	(0.28)	–0.10
Auditing/tax consultancy	0.20	(0.40)	0.18	(0.38)	0.25	(0.43)	–1.94*
Accounting	0.04	(0.21)	0.04	(0.19)	0.06	(0.24)	–1.07
Controlling	0.11	(0.31)	0.12	(0.33)	0.08	(0.28)	1.36
Consulting	0.04	(0.19)	0.04	(0.19)	0.04	(0.20)	–0.14
Management	0.17	(0.38)	0.20	(0.40)	0.11	(0.31)	2.47**
Marketing	0.04	(0.20)	0.04	(0.20)	0.04	(0.20)	0.14
Trainee	0.07	(0.25)	0.04	(0.21)	0.12	(0.33)	–3.17***
Other	0.24	(0.43)	0.26	(0.44)	0.21	(0.41)	1.19
Time till 1st job							
No waiting time	0.40	(0.49)	0.43	(0.50)	0.33	(0.47)	2.11**
1 to 2 months	0.20	(0.40)	0.18	(0.39)	0.25	(0.43)	–1.78*
3 to 6 months	0.27	(0.44)	0.26	(0.44)	0.27	(0.45)	–0.20
More than 6 months	0.13	(0.34)	0.12	(0.33)	0.15	(0.35)	–0.66
Observations	576		408		168		

Note: – Significant at ***: 1% level; **: 5% level; *: 10% level.

The means and standard deviations of the variables of interest for the whole sample as well as separated by gender are presented in Table 1. In addition, the last column of Table 1 contains the t-values for the difference in means between male and female graduates. The sample includes 408 men and 168 women, resulting in a female share of

²It has to be mentioned that due to data unavailability we do not have any observations for the years 1996 and 1997.

29 percent. The reported average age differs significantly with about 27 years for men and 26 years for women. This difference might most likely be explained by men being liable for compulsory military or civil service in Germany (the length declined from 15 to 9 month over the sample period). Three-quarter of the graduates specialize in management related subjects (e.g. accounting, finance), whereas the choice of focus does not differ significantly between men and women. The same applies to the number of subject-related semesters (half-year terms in Germany) and the diploma thesis degree. The average final grade, however, differs significantly between the sexes, with 2.66 for men and 2.52 for women.³ Furthermore, significant gender differences in weekly working hours appear. As shown in many studies before, women tend to work less hours in the market compared to men, e.g. by reason of a traditional division of labor within their partnerships (Bredtmann, 2010). The overall mean in annual real gross salaries reported by graduates amounts to 40,330€, with men earning 41,230€ and women earning 38,140€ on average. This reveals a significant gender wage gap of 3,090€ or 7.5 percent. In part, the earnings differential might be explained by differences in the occupational choice between the sexes: While the proportion of graduates choosing a job in the field of management is significantly higher for men, women are more likely to start their career as a trainee. Beyond that, no difference in occupational choice between men and women exists. Lastly, concerning the waiting time till the first employment relationship after graduation, it becomes obvious that men are more likely to take up a job directly after graduating.

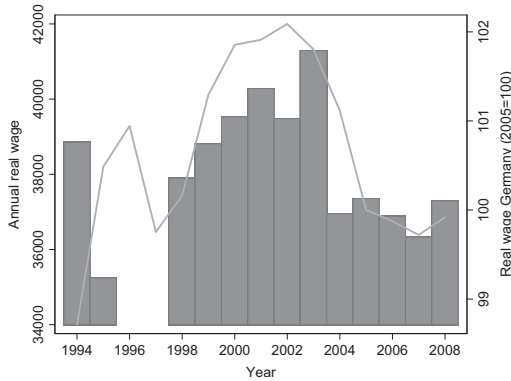


Figure 1: Graduates' entry wages over time
Source: Statistisches Bundesamt (2009) and own calculations.

To get a picture of the development of wages over time, Figure 1 shows the mean of the graduates' real entry wages by year. As a reference, the growth in real wages in

³Note that the grades run from 1.0 as the best grade to 4.0 as the minimum passing grade.

Germany during the survey period is also displayed. With the exception of 2002 entry wages increased steadily from 1998 to 2003. The slight decline in wages in 2002 might be a consequence of the crisis on the stock markets in the middle of 2001, exacerbated by the terrorist attacks on the United States on September 11. As a consequence of the beginning of the Iraq War in 2003, which led to a worldwide economic downturn, graduates' earnings fell by about 10 percent in 2003. After 2004, entry wages stabilize on a considerably lower level. Figure 1 also shows that the development in wages of graduates included in the sample is in accordance with the development in wages for all German workers. The respective correlation coefficient between the wage growths amounts to 0.64. Excluding the first two years of the sample, the correlation coefficient even increases to 0.88.

3 Empirical framework and results

The main question addressed in this paper is whether a gender gap in entry wages for a homogeneous group of high-skilled workers exists. In order to answer this question, the following Mincer-type wage regression is estimated,

$$W_i = \alpha + \beta' S_i + \delta' Q_i + \gamma' J_i + \eta' D_i + \mu' T_i + \epsilon_i \quad (1)$$

where W_i is the log annual real gross income of individual i in the first job at labor market entry, S_i is a vector of socio-demographic and study characteristics, Q_i a vector of qualifications obtained during study, J_i a vector of job characteristics, D_i a set of dummy variables for the duration of the waiting time till labor market entry and T_i year dummies. ϵ_i is an independent normally distributed stochastic error term. In order to identify gender differences in the wage determinants, equation (1) is additionally estimated separately for men and women. The results of the OLS regressions are presented in Table 2.

The estimated coefficients for the year dummies confirm the trend in earnings shown in Figure 1, thus they are not reported here. The results of the regression for the whole sample indicate a significant wage disadvantage of 6.8 percent for female graduates towards comparable males. The magnitude of the gender wage gap is in accordance with the findings of Fuller and Schoenberger (1991) and Carvajal *et al.* (2000) for the U.S. Specializing in a field different from management and economics (e.g. business law or economics engineering) is negatively correlated with future earnings. From the variables including information on additional qualifications obtained during study, going abroad for a semester is found to involve a wage premium of 7.6 percent. For men, however, the respective coefficient is much smaller than for women and significant at a 10-percent-level

Table 2: Determinants of economics students' entry wages

	All		Male		Female	
	mean	sd	mean	sd	mean	sd
Socio-demographic/study characteristics						
Female	-0.068***	(0.02)	-	-	-	-
Age	-0.118	(0.08)	-0.128	(0.08)	-0.028	(0.14)
Age squared	0.002	(0.00)	0.002*	(0.00)	0.001	(0.00)
No. of semesters	-0.005	(0.00)	-0.007	(0.01)	0.008	(0.01)
Diploma thesis degree	-0.021*	(0.01)	-0.016	(0.01)	-0.046	(0.03)
Final grade	-0.008	(0.02)	-0.002	(0.02)	-0.025	(0.04)
<i>Focus (ref.: Management)</i>						
Focus on Economics	-0.042	(0.03)	-0.040	(0.03)	-0.072	(0.07)
Other Focus	-0.058**	(0.03)	-0.041	(0.03)	-0.105	(0.07)
Additional qualifications during study						
Internship in foreign country	0.020	(0.02)	0.001	(0.02)	0.021	(0.03)
Semester abroad	0.076***	(0.02)	0.041*	(0.02)	0.169***	(0.04)
Work experience before or during study	0.035**	(0.02)	0.033*	(0.02)	0.015	(0.04)
Student assistant	0.043**	(0.02)	0.053**	(0.02)	0.001	(0.05)
Job characteristics						
Working hours	0.006***	(0.00)	0.007***	(0.00)	0.007**	(0.00)
<i>Occupation (ref.: Research (promotion))</i>						
Auditor/tax advisor	0.126***	(0.03)	0.121***	(0.04)	0.119*	(0.07)
Accounting	0.174***	(0.03)	0.154***	(0.04)	0.206***	(0.07)
Controlling	0.194***	(0.03)	0.195***	(0.04)	0.223***	(0.07)
Consulting	0.185***	(0.04)	0.210***	(0.05)	0.127	(0.09)
Management	0.150***	(0.03)	0.164***	(0.04)	0.122	(0.08)
Marketing	0.108**	(0.04)	0.148***	(0.05)	-0.040	(0.11)
Trainee	0.105*	(0.06)	0.104	(0.06)	0.036	(0.12)
Other	0.152***	(0.03)	0.209***	(0.04)	-0.016	(0.08)
Time till 1st job (ref: No waiting time)						
1 to 2 months waiting period	0.009	(0.02)	-0.013	(0.02)	0.065	(0.04)
3 to 6 months waiting period	-0.042**	(0.02)	-0.045**	(0.02)	-0.040	(0.05)
More than 6 months waiting period	-0.053**	(0.02)	-0.049*	(0.03)	0.008	(0.06)
Constant	11.754***	(1.01)	11.852***	(1.09)	10.458***	(1.88)
Adj. R-Squared	0.263		0.269		0.176	
Observations	576		408		168	

Notes: - Significant at ***: 1% level; **: 5% level; *: 10% level.

- Robust standard errors in parenthesis.

- Year-dummies are additionally included.

only. Male entry wages are further positively correlated with having obtained work experience before or during study (significant at a 10-percent-level only) and having been employed as a student assistant, while this doesn't hold true for female entry wages. As expected, working hours are positively correlated with wages for both sexes. Regarding individuals' occupation, considerable differences between men and women become obvious. Compared to men choosing an academic career, all other male graduates (except for those working as a trainee) obtain a significant wage premium. For women, however, only being employed in the field of accounting or controlling induces a significant wage premium, while the remaining female graduates do not differ from those staying at university. Since earnings differentials between men and women are nonexistent in the public sector (i.e. for those working at university or scientific institutes), this finding is a further indicator for women's job performance being less rewarded in the labor market. Lastly, the results suggest that male students searching for employment for 3 months or more exhibit significant wage losses compared to those holding a job directly after graduation,

while waiting time is uncorrelated with women’s entry wages.

In order to gain insights into the sources of the observed gender wage differential among graduates, standard wage decompositions as proposed by Blinder (1973) and Oaxaca (1973) are calculated,

$$\bar{W}_m - \bar{W}_f = (\bar{X}_m - \bar{X}_f)\hat{\beta}_m + (\hat{\beta}_m - \hat{\beta}_f)\bar{X}_f \quad (2a)$$

$$\bar{W}_m - \bar{W}_f = (\bar{X}_m - \bar{X}_f)\hat{\beta}_f + (\hat{\beta}_m - \hat{\beta}_f)\bar{X}_m \quad (2b)$$

where \bar{W}_m, \bar{W}_f are the means of log annual real gross income in the first job at labor market entry, \bar{X}_m, \bar{X}_f indicate the means of the control characteristics, and the $\hat{\beta}_j$ for $j = m, f$ denote the estimated parameters from the separately estimated male and female wage equations. The total wage differential between men and women on the left hand side of equation (2) can be decomposed into an explained part – the first term on the right hand side – and an unexplained part – the second term on the right hand side. The explained part depicts the average difference in observed characteristics between men and women using the male (equation (2a)) and female coefficients (equation (2b)), respectively, as the norm. The unexplained part consists of the difference in the estimated coefficients between the male and female regression weighted by the male (equation (2b)) and female characteristics (equation (2a)). While the explained component is often referred to as an endowment effect, the unexplained residual is usually interpreted as discrimination, although it might be due to unobserved factors as well.

The overall decomposition results using male and female coefficients as weights for the decomposition are presented in the top panel of Table 3.⁴ The total gap in earnings between male and female graduates amounts to 8.69 percent on average. Of this gap, between 15.6 and 27.9 percent respectively can be explained by differences in observed characteristics between men and women. However, regardless of whether male or female coefficients are used as weights, the respective coefficients for the explained part of the gap are not statistically significant at a 5-percent-level. The major part of the gap, i.e. between 72.1 and 84.5 percent, remains unexplained.

In the bottom of Table 3, detailed decomposition results are displayed, where the regressors are subsumed to 9 groups.⁵ The results reveal that 0.011 to 0.012 or between 12.0 and 13.3 percent of the overall wage gap are related to differences in working hours between men and women. If male coefficients are used as weights, i.e. if women were

⁴Estimations are obtained by using the Stata module *oaxaca* by Jann (2008).

⁵Full decomposition results are shown in Table A1 in the Appendix.

Table 3: Decomposition results

	Male coefficients as weights		Female coefficients as weights	
	Coef.	Std. Err.	Coef.	Std. Err.
Total difference	-0.087***	(0.022)	-0.087***	(0.022)
	[100.00%]		[100.00%]	
Explained	-0.024*	(0.013)	-0.013	(0.023)
	[27.88%]		[15.55%]	
Unexplained	-0.062***	(0.021)	-0.073***	(0.019)
	[72.12%]		[84.45%]	
DETAILED DECOMPOSITION				
<i>Explained</i>				
Years	0.001	(0.007)	-0.009	(0.010)
Age dummie	-0.003	(0.007)	0.001	(0.011)
No. of semesters	0.002	(0.002)	-0.003	(0.004)
Grades	0.001	(0.003)	0.005	(0.006)
Focus	-0.002	(0.002)	-0.005	(0.005)
Qualifications	0.001	(0.003)	0.008	(0.007)
Working hours	-0.011**	(0.004)	-0.012*	(0.007)
Occupation	-0.011*	(0.007)	-0.003	(0.011)
Waiting time	-0.002	(0.002)	0.004	(0.005)
<i>Unexplained</i>				
Years	0.003	(0.009)	0.013	(0.008)
Age	1.287	(2.226)	1.284	(2.230)
No. of semesters	0.168	(0.126)	0.173	(0.130)
Grades	-0.127	(0.092)	-0.131	(0.097)
Focus	0.018	(0.023)	0.021	(0.026)
Qualification	0.020	(0.020)	0.013	(0.020)
Working hours	0.019	(0.159)	0.020	(0.165)
Occupation	-0.007	(0.012)	-0.016	(0.013)
Waiting time	-0.006	(0.007)	-0.012	(0.010)
Constant	-1.438	(2.178)	-1.438	(2.178)

Notes: – Significant at ***: 1% level; **: 5% level; *: 10% level.

– Robust standard errors in parenthesis.

paid like men, another 0.011 or 13.0 percent of the difference in log earnings can be explained by different occupations. However, the respective coefficient is significant at a 10-percent-level only. Differences in all other covariates are not statistically significant.

As mentioned before, we regard our result as an indicator for employer wage discrimination against women. Concentrating on a highly homogeneous group of entrants in the labor market, differences in unobservables between the sexes, that could also account for this gap, are limited. However, there is still some room for unobserved heterogeneity. One reason for men's entry wages exceeding that of women might be that men perform better when bargaining about their entry wage. Furthermore – in anticipation of their future family planning – women might select themselves into lower paid, family-friendly jobs. However, by controlling for the graduates type of job, room for occupational segregation is limited.

4 Conclusion

This paper investigates the determinants of entry wages for a homogeneous group of high-skilled worker using a unique dataset of graduates in business and economics from a large representative German university. The data contain detailed information on the graduates' course of study, their additional qualifications and their transition from university to the labor market. To our knowledge, this detailed information is used in the empirical literature for the first time. The aim of our analysis is to identify whether – even for such a homogeneous group of labor market entrants – a gender gap in earnings exists.

A Mincer-type earnings function indicates the existence of a significant gender wage differential of almost 7 percent. To gain insights into the sources of the observed gender wage differential among graduates, a standard wage decomposition as proposed by Blinder (1973) and Oaxaca (1973) is performed. Our decomposition reveals a significant unexplained gender differential in average entry wages between 6.3 and 7.3 percent. These results are consistent with the existing empirical literature for the U.S. labor market.

The interpretation of the unexplained part of the gender wage differential is ambiguous. Although it is often referred to as a measure of gender discrimination in the labor market, it might be due to unobserved factors as well. However, by concentrating on a highly homogeneous group of workers, i.e. graduates in business and economics from a single university, differences in unobservables between the sexes are limited in our sample. Thus, we regard our results as a relatively good indicator for gender discrimination of high-skilled workers in the German labor market. Nevertheless, since gender wage differentials are not only an issue of pay inequality, but also linked to a number of legal, social, and economic factors which go beyond a “simple” discrimination from the employers' side of the labor market, politicians have to tackle further problems beyond equal pay legislation.

References

- ALTONJI, J. G. and BLANK, R. M. (1999). Race and Gender in the Labor Market. In O. Ashenfelter and D. Card (eds.), *Handbook of labor economics*, vol. 3C, Amsterdam: Elsevier, pp. 3143–3259.
- BACHMANN, R., BAUER, T. K. and DAVID, P. (2010). Labour Market Entry Conditions, Wages and Job Mobility. Ruhr Economic Papers #188.
- BLAU, F. D. and KAHN, L. M. (2003). Understanding International Differences in the Gender Pay Gap. *Journal of Labor Economics*, **21** (1), 106–144.
- BLINDER, A. S. (1973). Wage Discrimination: Reduced Form and Structural Estimates. *Journal of Human Resources*, **8** (4), 436–455.
- BRAAKMANN, N. (2008). Non scholae, sed vitae discimus! - The importance of fields of study for the gender wage gap among German university graduates during labor market entry and the first years of their careers. University of Lüneburg Working Papers in Economics 85.
- BREDTMANN, J. (2010). The Intra-household Division of Labor: An Empirical Analysis of Spousal Influences on Individual Time Allocation. Ruhr Economic Papers #200.
- CAIN, G. G. (1986). The economic analysis of labor market discrimination: a survey. In O. Ashenfelter and R. Layard (eds.), *Handbook of labor economics*, vol. 1, Amsterdam: North-Holland, pp. 693–785.
- CARVAJAL, M. J., BENDANA, D., BOZORGMANESH, A., CASTILLO, M. A., POURMASIHA, K., RAO, P. and TORRES, J. A. (2000). Inter-gender differentials between college students' earnings expectations and the experience of recent graduates. *Economics of Education Review*, **19** (3), 229–243.
- FULLER, R. and SCHOENBERGER, R. (1991). The Gender Salary Gap: Do Academic Achievement, Internship Experience, and College Major Make a Difference? *Social Science Quarterly*, **72** (4), 715–726.
- GERHART, B. (1990). Gender differences in current and starting salaries: The role of performance, college major, and job title. *Industrial & Labor Relations Review*, **43** (4), 418–433.
- GÖRLITZ, K. and GRAVE, B. S. (2010). Determinants of entry wages and wage progression for German university graduates. Mimeo.

- JANN, B. (2008). OAXACA: Stata module to compute the Blinder-Oaxaca decomposition.
- NOPO, H. (2008). Matching as a Tool to Decompose Wage Gaps. *Review of Economics and Statistics*, **90** (2), 290–299.
- OAXACA, R. (1973). Male-Female Wage Differentials in Urban Labor Markets. *International Economic Review*, **14** (3), 693–709.
- OECD (2008). *OECD Employment Outlook 2008*. OECD Publishing.
- OREOPOULOS, P., VON WACHTER, T. and HEISZ, A. (2008). The Short- and Long-Term Career Effects of Graduating in a Recession: Hysteresis and Heterogeneity in the Market for College Graduates. IZA Discussion Paper No. 3578.
- STATISTISCHES BUNDESAMT (2009). *Volkswirtschaftliche Gesamtrechnungen: Inlandsproduktsberechnung - Detaillierte Jahresergebnisse*. Fachserie 18, Reihe 1.4, Wiesbaden.
- STATISTISCHES BUNDESAMT (2010). *Bildung und Kultur: Studierende an Hochschulen - Wintersemester 2009/2010*. Fachserie 11, Reihe 4.1, Wiesbaden.
- WEICHSELBAUMER, D. and WINTER-EBMER, R. (2005). A Meta-Analysis of the International Gender Wage Gap. *Journal of Economic Surveys*, **19** (3), 479–511.
- ZAIDI, A. (2010). Poverty Risks for Older People in EU Countries – An Update. Policy Brief. Vienna.

A Appendix

Table A1: Detailed decomposition results

	Male coefficients as weights		Female coefficients as weights	
	Coef.	Std. Err.	Coef.	Std. Err.
<i>Explained</i>				
Years	0.001	(0.007)	-0.009	(0.010)
Age	0.121	(0.078)	0.027	(0.134)
Age squared	-0.123	(0.076)	-0.026	(0.133)
No. of semesters	0.002	(0.002)	-0.003	(0.004)
Diploma thesis degree	0.001	(0.001)	0.002	(0.003)
Final grade	0.000	(0.003)	0.003	(0.005)
Focus on Economics	-0.000	(0.001)	-0.000	(0.002)
Other Focus	-0.002	(0.002)	-0.005	(0.005)
Internship in foreign country	0.000	(0.001)	0.001	(0.001)
Semester abroad	0.002	(0.002)	0.008	(0.006)
Work experience before or during study	-0.001	(0.002)	-0.001	(0.002)
Student assistant	-0.000	(0.001)	-0.000	(0.000)
Working hours	-0.011**	(0.004)	-0.012*	(0.007)
Auditor/tax advisor	0.009	(0.005)	0.008	(0.007)
Accounting	0.003	(0.003)	0.004	(0.005)
Controlling	-0.008	(0.005)	-0.009	(0.007)
Consulting	0.001	(0.004)	0.000	(0.002)
Management	-0.014**	(0.006)	-0.010	(0.008)
Marketing	0.000	(0.003)	-0.000	(0.001)
Trainee	0.008	(0.005)	0.003	(0.009)
Other	-0.010	(0.008)	0.001	(0.004)
1 to 2 months waiting period	-0.001	(0.001)	0.004	(0.004)
3 to 6 months waiting period	-0.000	(0.002)	-0.000	(0.002)
More than 6 months waiting period	-0.001	(0.002)	0.000	(0.001)
Total	-0.024*	(0.013)	-0.014	(0.023)
<i>Unexplained</i>				
Years	0.003	(0.009)	0.013	(0.008)
Age	2.622	(4.293)	2.716	(4.447)
Age squared	-1.335	(2.081)	-1.432	(2.232)
No. of semesters	0.168	(0.126)	0.173	(0.130)
Diploma thesis degree	-0.070	(0.075)	-0.071	(0.076)
Final grade	-0.057	(0.108)	-0.060	(0.114)
Focus on Economics	-0.003	(0.008)	-0.003	(0.007)
Other Focus	-0.011	(0.013)	-0.008	(0.010)
Internship in foreign country	0.004	(0.007)	0.003	(0.006)
Semester abroad	0.026***	(0.009)	0.020***	(0.007)
Work experience before or during study	-0.006	(0.016)	-0.007	(0.017)
Student assistant	-0.003	(0.003)	-0.003	(0.003)
Working hours	0.019	(0.159)	0.020	(0.165)
Auditor/tax advisor	-0.001	(0.019)	-0.000	(0.013)
Accounting	0.003	(0.005)	0.002	(0.003)
Controlling	0.002	(0.007)	0.004	(0.010)
Consulting	-0.003	(0.005)	-0.003	(0.004)
Management	-0.005	(0.010)	-0.008	(0.017)
Marketing	-0.008	(0.006)	-0.007	(0.005)
Trainee	-0.008	(0.016)	-0.003	(0.006)
Other	-0.047**	(0.020)	-0.057**	(0.023)
1 to 2 months waiting period	0.019*	(0.011)	0.014*	(0.008)
3 to 6 months waiting period	0.001	(0.016)	0.001	(0.015)
More than 6 months waiting period	0.008	(0.009)	0.007	(0.008)
Constant	-1.394	(2.171)	-1.394	(2.171)
Total	-0.063***	(0.021)	-0.073***	(0.019)

Notes: – Significant at ***: 1% level; **: 5% level; *: 10% level.
– Robust standard errors in parenthesis.