

Eberharter, Veronika V.

Working Paper

The intergenerational transmission of occupational preferences, segregation, and wage inequality: Empirical evidence from three countries

SOEPPapers on Multidisciplinary Panel Data Research, No. 506

Provided in Cooperation with:

German Institute for Economic Research (DIW Berlin)

Suggested Citation: Eberharter, Veronika V. (2012) : The intergenerational transmission of occupational preferences, segregation, and wage inequality: Empirical evidence from three countries, SOEPPapers on Multidisciplinary Panel Data Research, No. 506, Deutsches Institut für Wirtschaftsforschung (DIW), Berlin

This Version is available at:

<https://hdl.handle.net/10419/68170>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

SOEPpapers

on Multidisciplinary Panel Data Research

SOEP – The German Socio-Economic Panel Study at DIW Berlin

506-2012

The Intergenerational Transmission of Occupational Preferences, Segregation, and Wage Inequality—Empirical Evidence from Europe and the United States

Veronika V. Eberharter

SOEPpapers on Multidisciplinary Panel Data Research at DIW Berlin

This series presents research findings based either directly on data from the German Socio-Economic Panel Study (SOEP) or using SOEP data as part of an internationally comparable data set (e.g. CNEF, ECHP, LIS, LWS, CHER/PACO). SOEP is a truly multidisciplinary household panel study covering a wide range of social and behavioral sciences: economics, sociology, psychology, survey methodology, econometrics and applied statistics, educational science, political science, public health, behavioral genetics, demography, geography, and sport science.

The decision to publish a submission in SOEPpapers is made by a board of editors chosen by the DIW Berlin to represent the wide range of disciplines covered by SOEP. There is no external referee process and papers are either accepted or rejected without revision. Papers appear in this series as works in progress and may also appear elsewhere. They often represent preliminary studies and are circulated to encourage discussion. Citation of such a paper should account for its provisional character. A revised version may be requested from the author directly.

Any opinions expressed in this series are those of the author(s) and not those of DIW Berlin. Research disseminated by DIW Berlin may include views on public policy issues, but the institute itself takes no institutional policy positions.

The SOEPpapers are available at
<http://www.diw.de/soeppapers>

Editors:

Jürgen **Schupp** (Sociology, Vice Dean DIW Graduate Center)
Gert G. **Wagner** (Social Sciences)

Conchita **D'Ambrosio** (Public Economics)
Denis **Gerstorff** (Psychology, DIW Research Director)
Elke **Holst** (Gender Studies, DIW Research Director)
Frauke **Kreuter** (Survey Methodology, DIW Research Professor)
Martin **Kroh** (Political Science and Survey Methodology)
Frieder R. **Lang** (Psychology, DIW Research Professor)
Henning **Lohmann** (Sociology, DIW Research Professor)
Jörg-Peter **Schräpler** (Survey Methodology, DIW Research Professor)
Thomas **Siedler** (Empirical Economics)
C. Katharina **Spieß** (Empirical Economics and Educational Science)

ISSN: 1864-6689 (online)

German Socio-Economic Panel Study (SOEP)
DIW Berlin
Mohrenstrasse 58
10117 Berlin, Germany

Contact: Uta Rahmann | soeppapers@diw.de

The Intergenerational Transmission of Occupational Preferences, Segregation, and Wage Inequality - Empirical Evidence from three Countries

Veronika V. EBERHARTER

University of Innsbruck, Department of Economics,
Universitaetsstrasse 15/3, A-6020 INNSBRUCK, Austria,
e-mail: veronika.eberharter@uibk.ac.at

Based on longitudinal data (CNEF 1980-2010) the paper analyzes the structuring effects of individual and family background characteristics on occupational preferences, and the influence of occupational segregation on gender wage differentials in Germany, Great Britain, and the United States. Notwithstanding the country differences concerning welfare state regimes, institutional settings of the labor markets, and family role patterns, the results confirm the hypotheses of the intergenerational transmission of occupational status, and occupational segregation. The decomposition analysis shows that gender wage differentials are mainly determined by structural differences in the occupational distribution.

Key words: occupational segregation, occupational choice,
intergenerational occupational mobility, wage differentials,

JEL-Classifications: J24, J31, J62, J90

Acknowledgements: The author wishes to thank the participants of the 10th International Socio-Economic-Panel User Conference in Berlin, June 28-29 2012, for valuable comments and discussions. The shortcomings and errors remain the author's as usual.

1. Introduction

The neoclassical human capital approach offers a rational choice based explanation of labor market participation, occupational choice, and income profiles. Earnings are positively related to labor productivity, which is determined by the human capital variables education and on-the-job-training. Persons decide their occupational choice, and income profiles in (i) maximizing the discounted present value of potential lifetime earnings, (ii) entailing the lowest training costs, and (iii) offering the lowest discounted present value of expected earnings forgone due to unemployment (Becker, 1964; Mincer, 1974; Boskin, 1974). Gender differences in labor market behavior and earnings are explained by the women's anticipated individual lifetime preferences (Blackwell, 2001; Budig and England, 2001; Hakim, 2002; Karlin et al., 2002; Blau and Kahn, 2006; Blau and Kahn, 2007). Women attune their labor market supply and their occupational choice to reconcile family and paid work (Becker, 1981; Simon, 1995; O'Reilly and Bothfeld, 2003). Momentary or sustained dropouts from the labor force or disruptions of labor market participation, and reductions of working hours augment the depreciation of the human capital stock, reduce labor productivity, and induce occupational segregation, limited opportunities for career progression, and wage inequalities (Blau and Kahn, 2000; OECD, 2000ff.; Williams, 2000; Jacobs and Gerson, 2001; Karlin et. al., 2002).

The intergenerational transmission of occupational preferences provides an explanation of the continuing persistence of gender differences in occupational choice, occupational segregation, and gender differentials in economic and social status (Lentz and Laband, 1983; Lentz and Laband, 1989; Laband and Lentz, 1992; Dunn and Holtz-Eakin; 2000; Escriche, 2007). Individual labor market behavior reflects individual attitudes, preferences, and social skills acquired during the socialization when growing up. Parents continue to influence the employment behavior of their children directly through genetic endowment, social connections, and wealth, and indirectly through their investment in the education, and influencing the children's attitudes to school subjects. The parent's educational attainment as well as their economic and social position may shape the children's taste and perception of what is an appropriate educational and professional career (Constant and Zimmermann, 2003; Hertz, 2004; Black et al., 2005).

The paper analyzes the explanatory power of individual and family background characteristics on occupational choice. Additionally, it focuses on the impact of occupational segregation on gender earnings differentials in Germany, Great Britain, and the United States. We start from the hypotheses, that occupational preferences are transmitted between generations, and that the impact of individual and family background characteristics differs concerning the existing welfare state regime (Esping-Andersen, 1990), the institutional settings of the labor markets, the educational systems (Trappe et al., 2004), and the family role models in a country. The liberal welfare state regime in Great Britain and the United States is characterized by a strong individualistic self-reliance. The public philosophy is grounded on the idea of opportunity reflecting individual efforts, which indicates an open, liberal and dynamic social system. The distributional consequences of the market forces are accepted. The state reacts only in case of social failures, the transfers are modest and the rules for entitlement are very strict. The labor market is flexible, the labor market policies offer less protection for workers, and do little to ameliorate market-based risks and incentives. The conservative-corporatist welfare state regime in Germany is typified by publicly provided higher education, health care, welfare, social insurance, national assistance, and old age pensions. The government policies insure against market-based risks, protect those who are unable to succeed in the market place, but partly preserve traditional role models. The labor market policy ensures a high degree of employment stability, and social policy is designed to guarantee income equality (Hall and Soskice 2001, Gornick and Meyers 2003, Dustmann 2004).

The paper is organized in four sections. Section 2 reports the data base and the methodological issues. In section 3 the empirical results are discussed. Section 4 concludes with a summary of findings and a discussion of policy implications. We discuss the implications for the stability of gender segregation and policies aimed at alleviating gender inequality.

2. Data

The empirical analysis is based on data from the German Socio-Economic Panel (SOEP), the British Household Panel Survey (BHPS), and the US Panel Study of

Income Dynamics (PSID), which were made available by the Cross-National Equivalent File 1980–2010 (CNEF 1980-2010) project at the College of Human Ecology at Cornell University, Ithaca, N.Y..¹ The SOEP started in 1984 and contains a sample of about 29,000 German individuals, including households in the former East Germany since 1990. The BHPS and the PSID are similar in structure to the SOEP in the way individuals and households are followed and in the type of information that is collected. The BHSP started in 1991. The wave 1 panel consists of some 5,500 households and 10,300 individuals drawn from 250 areas of Great Britain. Additional samples of 1,500 households in each of Scotland and Wales were added in 1999, and in 2001 a sample of 2,000 households was added in Northern Ireland, making the panel suitable for UK-wide research. Starting in 1980, the PSID contains an unbalanced panel of about 40,000 individuals. After 1997 the PSID data are available biyearly. The surveys track socioeconomic attributes of the members of a given household, such as age, gender, marital status, educational level, labor market participation, working hours, employment status, occupational position, income situation, as well as household size and composition. The samples are representative of households and individuals in all years of the panel, not accounting for immigration. The income variables are measured on an annual basis and refer to the prior calendar year.

The data do not provide a sufficiently long time horizon to observe parents and children at identical life cycle situations, but allow monitoring socioeconomic characteristics, employment and occupational status, earnings situation of children living in the parental household and when becoming members of other family units. The data can be used to draw inferences about the effects of being exposed to different life situations in the parental household on the economic and social situation as young adults.

We analyze the economic and social situation of children living in the parental household and as adults in their own households. 'Parents' are adults with marital status 'married', or 'living with a partner', and co-resident with persons indicated as 'children'. The sample is restricted to children aged 14 to 20 years, co-resident with their parents in 1987-1993 (United States), in 1988-1994 (Germany), and in 1991-

¹ For a detailed description of the data bases see Burkhauser et. al. (2001).

1997 (GB). The young adults are at least 24 years old when we observe their economic and social situation in 2005-2009 (Germany), in 2003-2007 (USA), and in 2004-2008 (GB) in their own household unit. We exclude persons in full-time education. The selection process leads to a sample 2,128 persons out of the children's generation in the former West Germany, because the SOEP does not cover former East German households until the reunification in 1989. The US sample considers 2,585 women and men. Due to the organization of the British Household Panel Survey, we observe 1,840 British women and men.

A major factor that will lead to changes in the quality of mobility data is that response rates tend to decline over time and so the representativeness of mobility tables derived from survey data may worsen. For labor income variables highly determine survey-attrition we follow Fitzgerald et. al. (1998a, 1998b) to construct a set of sample specific weights to address to the non-random sample attrition bias, that do not account for attrition in general, but for attrition among the particular groups under study We estimate a probit equation that predicts retention in the sample (i.e being observed as an adult) as a function of pre-determined variables measured during childhood. Presuming that the samples are representative when the children are still children we construct a set of weights

$$w(z, x) = \left[\frac{\Pr(A = 0; z, x)}{\Pr(A = 0; x)} \right]^{-1} \quad (1)$$

where x denotes the parental income as primary regressor, and z is a vector of covariates to predict attrition, indicated by $A=1$. Thus $w(z,x)$ will take higher values for people whose characteristics z make them more likely to exit the panel before their adult income can be measured. The variables considered in z are the gender, and the parental age and educational attainment as well as their squares. We suppose these variables to affect the attrition propensities, to be endogenous to the outcome, that is to have an effect on the children's income as adults conditional on the parental income. The weights $w(x,z)$ are multiplied with the parental household weights, which yields a set of weights that apply to the household of the children as adults. The parental household weights are assumed to capture the attrition effects and the weights, $w(z,x)$, compensate for subsequent non-random attrition.

3. Methodology

3.1. Occupational Segregation

The literature on occupational segregation distinguishes between horizontal and vertical occupational segregation. Vertical occupational segregation is concerned with the “glass ceiling” for women to access managerial jobs. Horizontal segregation concerns the unequal gender distribution in the occupations. A traditional approach to quantify occupational segregation is to classify the occupations according to the proportion of women. “Typically female” occupations feature a proportion of women of 60 percent and more, “integrated” occupations are characterized by a well-balanced gender-ratio, and “typically male” occupations show a proportion of women of at most 35 percent (Heintz et al., 1997).

Segregation indices consider structural differences between the occupations and indicate the portion of the employees who must be relocated to reach a desired gender-ratio. The dissimilarity index (Duncan and Duncan, 1955)

$$D = \frac{1}{2} \sum_{i=1}^N |m_i - f_i| \quad (2)$$

with m_i (f_i) the proportion of men (women) in occupation i , and $\sum_{i=1}^N m_i = 1$,

$\sum_{i=1}^N f_i = 1$, indicates the portion of employees who must change the occupation to produce a sex-ratio of 50:50 in each occupation. The dissimilarity index is sensitive to the number of observation units (N) and the aggregation level, which might pose problems in cross section comparisons. The change of the index value in two particular years might be due to a change of the gender-ratio in the occupations or to a change of the relative weight of the occupation.

The Karmel-Maclachlan segregation index (Karmel and Maclachlan, 1988) is denoted a more reliable segregation index, and considers structural differences between the

occupations. It indicates the proportion of employed persons who must be relocated to achieve the gender-ratio of total employment in each particular occupation

$$KM = \left(\frac{1}{N}\right) \sum |M_i - a(M_i + F_i)| = \left(\frac{1}{N}\right) \sum |(1-a)M_i - aF_i| \quad (3)$$

with the total number of employees (N), the proportion of men in total employment (a), and the number of men (women) in occupation i (M_i (F_i)). For a particular year, under zero segregation, the number of (fe)male employees in a particular occupation would be equal to the overall (fe)male share of employment multiplied by the number of employees in this occupation. The absolute difference between the number of (fe)male persons required for zero segregation and the actual number of (fe)male persons in the occupation i, represents the number of (fe)male persons who must relocate to other occupations from this (fe)male-dominated occupation to achieve zero segregation.

The KM-index sums up the gender imbalance in all occupations (k). The contribution of each occupational category to the KM-index is indicated by

$$KM = \sum_k \left(\frac{N_i}{N}\right) \sum_k \left(\frac{|(1-a)M_i - aF_i|}{N_i}\right) = \sum_k \left(\frac{N_i}{N}\right) KM_i = \sum_k KM_i^* , \quad (4)$$

with KM_i denoting the fraction of those employees in occupation i who must relocate across the corresponding occupations, with respect to the sex-ratio in total employment. N_i is total employment in occupation i, and KM_i^{*} indicates the proportion of employees in occupation i that must be relocated to achieve zero segregation.

3.2. Determinants of Occupational Choice

The human capital approach suggests that individuals (i=1,...,N) are rational and maximize their utility when preferring one out of a set of alternative M+1 occupations j (j=0,1,...,M). The preference for occupation j compared to any other occupation maximizes the utility of individual i, which depends on a set of characteristics (X_i) and can be approximated by the linear relation

$$u_{ij} = u(X_i) = X_i \cdot \beta_j + \varepsilon_j, \quad (5)$$

with β_j an $1 \times K$ vector of (unknown) parameters and X_i the i -th observation on the $K \times 1$ vector of explanatory variables. The disturbances ε_j indicate the random error associated with occupation j , which are assumed to be independently and identically distributed as a log Weibull distribution. The estimated equations provide a set of probabilities of $M+1$ occupational choices P_0, P_1, \dots, P_M . We assume that the outcome categories "can plausibly be assumed to be distinct and weighted independently in the eyes of a decision maker" (Mc Fadden 1973) and employ a multinomial logit model (Heckman, 1981; Maddala, 1983). We introduce the response variable Y for occupational choice, which takes the value 1 if $u_{ij} > u_{ik} \quad \forall j \neq k$, and 0 else. The probabilities of $Y=j$ given the covariates X_i are

$$P(Y = j | X_i) = \frac{e^{X_i \beta_j}}{1 + \sum_{k=1}^M e^{X_i \beta_k}}. \quad (6)$$

To remove the indeterminacy in the model we impose the normalization of $\beta_0 = 0$. Because the probabilities sum to one, we need M parameter vectors to determine the $M+1$ probabilities for $j = 0, 1, 2, \dots, M; k = 0, \dots, M; \beta_0 = 0$. The log-odds ratios that an individual i will choose occupation j over occupation k can be written as the natural logarithm of an occupation j to the probability of the reference category k as

$$\ln \left(\frac{P_j}{P_k} \right) = X_i (\beta_j - \beta_k) = X_i \beta_j \quad \text{if } k = 0. \quad (7)$$

The odds ratio P_j / P_k does not depend on the other choices, which follows from the independence of disturbances in the model. The relative risk ratio for the occupational category ($Y=j$) and the predictor variable X_k (rrr_{jk}) equals the amount by which the predicted odds favoring occupation j compared to the predicted odds favoring the reference occupational category ($Y=base$) are multiplied, per one unit increase in X_k , other things being equal

$$rrr_{jk} \cdot \frac{P(Y = j | X_k)}{P(Y = base | X_k)} = \frac{P(Y = j | X_k + 1)}{P(Y = base | X_k + 1)}. \quad (8)$$

Since we have fully specified the density of Y , given X , the estimation of the model is best carried out by maximum likelihood. The resulting estimates are unbiased, consistent, asymptotically normal, and asymptotically efficient. Moreover, the likelihood function is globally concave, ensuring the uniqueness of the ML estimates. The log-likelihood of the model is given by

$$\ln L(\beta) = \sum_{i=1}^N \sum_{j=0}^M n_{ij} \ln P[Y_j = j] = \sum_{i=1}^N \sum_{j=0}^M n_{ij} \ln \left(\frac{e^{X_i \beta_j}}{1 + \sum_{k=1}^M e^{X_i \beta_k}} \right), \quad (9)$$

where n_{ij} characterizes the sum of frequency weights of the observations that belong to the cell corresponding to $Y=j$ at subpopulation i $n_{ij} = \begin{cases} 1 & \text{if } Y_i \in j \\ 0 & \text{otherwise} \end{cases}$, so that for each individual i one and only one of the n_{ij} 's is 1.

3.3. Occupational Segregation and Gender Earnings Differentials

To quantify the contribution of occupational segregation to the gender wage-gap we employ a decomposition approach (Zveglic and van der Meulen Rodgers, 2004). The approach is an extension of the Blinder-Oaxaca decomposition (Blinder, 1973; Oaxaca, 1973) and addresses to the link between the shifts in the relative importance of the occupations and the changes in the relative wages. To evaluate gender wage differentials we employ the mean log wages of men (w_{mi}) and women (w_{fi}) in real terms (2001=100) weighted with the sexual share in occupation i (α_{mi} , α_{fi}) which results to the aggregated gender wage gap in period t

$$W_m - W_f = \sum_i (\alpha_{mi} w_{mi} - \alpha_{fi} w_{fi}). \quad (10)$$

The male/female wage-gap is expressed in natural log points² and can be converted to the gender wage ratio by exponentiating its negative.

² The decomposition procedure can be applied to the aggregated wage gap in absolute terms as well as to the residual wage gap.

The term $\sum_i \alpha_{fi} w_{mi}$ represents the women's overall average wage that would occur if women and men are in average equally compensated in each occupation as men. We add and subtract this term from the right-hand side of equation (10) and get

$$W_m - W_f = \sum_i (\alpha_{mi} - \alpha_{fi}) w_{mi} + \sum_i \alpha_{fi} (w_{mi} - w_{fi}). \quad (11)$$

The term $\sum_i (\alpha_{mi} - \alpha_{fi}) w_{mi}$ expresses the "across-occupations gap" and quantifies the effect of gender differences in the employment distribution across occupations, given male wages in these occupations. This term represents the portion of the gender wage gap that is explained by the women's relative concentration in certain occupations. The term $\sum_i \alpha_{fi} (w_{mi} - w_{fi})$ expresses the "within-occupations gap" and quantifies the effect of gender pay differences within the occupations, given the female occupational structure. The decomposition in equation (11) is a level decomposition because it applies to wages, and the employment structure at a given year.

4. Empirical Results

4.1. Occupational Segregation

The empirical specification of the occupational status is oriented at the ISCO-88 (International Standard Classification of Occupations). We rearrange the occupational categories provided by the database into 7 categories "1 academic/scientific professions/managers", "2 professionals/technicians/ associate professionals", "3 trade/personal services", "4 agricultural/fishery workers", "5 craft and related workers", "6 plant and machine operators/assemblers", and "7 elementary occupations". There is a distinctive ranking of the occupational dimensions, lower-numbered categories offer a higher prestige and a higher social status.

In the children's generation "typically female" occupations are "1 academic/scientific professions/managers" (GER), "2 professionals/technicians/ associate professionals" (USA), and "3 trade/personal services" (GER, GB). In the parents' occupational distribution "typically female" occupations are "2 professionals/technicians/ associate

professionals" (GER, USA), and "3 trade/personal services" (GER, USA, GB). In Germany and Great Britain about 16 percent of the employees in the children's generation should be relocated to reveal the sex ratio in total employment. In both the countries the occupational segregation decreases from the parents' to the children's generation. In the United States occupational segregation increased from 16.6 percent in 1993 to 18.3 percent in 2007. The countries significantly differ with regard to the contribution of the occupations to the overall segregation level. In the children's generation, more than 30 percent of the employees engaged in the occupational categories "4 agricultural/fishery workers", and "5 craft and related workers" (GER, GB), "6 plant and machine operators/assemblers" (USA, GB), and "7 elementary occupations" (USA) should be relocated to get the gender-ratio in total employment. In most segregated categories in the parents' occupational distribution are "6 plant and machine operators/assemblers", and "7 elementary occupations" (GER, USA, GB). (Table 1)

[Table 1 near here]

The contribution of the occupations to the overall segregation level reveals country differences concerning the occupational structure of the parents' and children's generation. In the children's generation the occupational categories "2 professionals/technicians/associate professionals" (USA) "3 trade/personal services" (GER, GB), "4 agricultural/fishery workers" (GER), "5 craft and related workers" (GB), and "7 elementary occupations" (USA) contribute at least 20 percent to the KM-indices. In the parents' generation, the occupational categories "2 professionals/technicians/ associate professionals" (USA), "3 trade/personal services" (GER, GB), "6 plant and machine operators/assemblers" (GER), and "7 elementary occupations" (GER, USA, GB) contribute more than 20 percent to the overall segregation index. (Figure 1)

[Figure 1 near here]

4.2. Determinants of Occupational Choice

The dependent variable of the multinomial logit model considers four aggregated occupational categories "1 academic/scientific professions/managers, professionals/technicians/associate professionals", "2 trade/personal services", "3 agricultural/fishery workers, craft and related workers", and "4 plant and machine operators/assemblers, elementary occupations" (OCC). We observe the occupational choice of the young adults in the years 2009 (GER), 2007 (US), and 2008 (GB). The explanatory variables in X_i contain a set of individual and family background characteristics which are expected to affect the person's probability to prefer a given occupation. We include the human capital variables age (AGE) and education (EDU). Age considers the impact of on the job training on labor market outcome. Educational attainment is measured in school years. We suppose that a higher education enables persons to be engaged in occupations with a higher social status. Additionally, we control for differences in occupational choice by gender (GEN) and marital status (MAR).

We consider the parents' education (EDUp) in 1988 (GER) and 1987 (USA) indicating the direct and indirect effects of parental investments on the children's occupational preferences. In the case of missing values the years of education are set equal to the amount reported in the next year, for it is possible to increase the number of schooling but impossible to decrease it.

We include a dummy variable for the parental income status (STATp), where 1 indicates an income status above the median of the real equivalent household income. We follow the standard conventions and assume that income is shared within families and thus household income is arguably a better measure of the economic and social status than individual income variables (Mazumdar 2005). We use the referred post-government household income variables (pre-government household income plus household public transfers, plus household social security pensions, deducting household total family taxes) from the data bases, thus the results make not allowance for the bias of imputed values (Frick and Grabka, 2005). To consider the family structure we adopt the 'modified' OECD-equivalence scale (Hagenaars et al., 1994) which assigns a value of one to the first household member, a value of 0.5 to each additional adult, and a value of 0.3 to each child. The income

variable is deflated with the national CPI (2001=100) to reflect constant prices. To exclude transitory income shocks and cross-section measurement errors we use 5-year moving averages of the income variable. We introduce the number of children less than 16 years in the parental household (CHILp) to control for the impact of household size on occupational choice.

Finally, we consider the proportion of women (SEGp) in the parents' occupational distribution, and two occupational dummies indicating "academic, scientific and managerial occupations, professional and technical occupations" (OCCF1), and "craft, operating, and elementary occupations" (OCCF2) to capture the intergenerational transmission of occupational preferences. (Table 2)

[Table 2 about here]

Table 3 presents the relative risk ratios and the significance level of the t-ratios for the six unique and distinct comparative occupational choices, indicating $u_{ij} > u_{ik} \quad \forall j \neq k$. The relative risk ratio indicate the change of the relative risk of choosing occupation j over k caused by a one unit change of the independent variable. The t-ratios are the ratios of the estimated coefficients to their estimated asymptotic standard errors, and are asymptotically distributed as $N(0,1)$ under the null hypothesis that the associated coefficients are zero.

The results of the multinomial logit model reveal country differences concerning the influence of individual and family background characteristics on occupational choice. The relative risk ratios of the gender variable are significant and numerically larger than the coefficients of the other variables. Gender significantly affects occupational choice, even when differences in education are taken into account. Assuming that there is a distinctive ranking of the occupations, women more likely prefer occupations providing a higher social status. However, in Germany and Great Britain, women more likely choose traditionally "female" occupations in the category "2 trade/personal services" compared to occupations the category "1 academic/scientific professions/managers, professionals/technicians/associate professionals". Additionally, women more likely prefer occupations in the category "3

agricultural/fishery workers, craft and related workers” compared to typically “male” occupations in the category “4 plant and machine operators/assemblers”, elementary occupations”. Occupational preferences, but also traditional role patterns, as well as the existing laws concerning parental leave and family work reconciliation may inhibit women from accessing certain occupations.

Age significantly influences occupational choice. In the United States, increasing age makes it more likely that persons are engaged in the occupational category “3 agricultural/fishery workers, craft and related workers” compared to other occupations. In Great Britain increasing age makes it more likely that persons are occupied in “4 plant and machine operators/assemblers, elementary occupations” compared to occupations in the category “3 agricultural/fishery workers, craft and related workers”.

The preponderance of positive and significant coefficients of education (GER, US) is congruent with the findings of Schmidt and Strauss (1975), that higher education increases the probability to be engaged in occupations with a higher social prestige. This is true for all occupational combinations except the relative probabilities of occupations in the categories “3 agricultural/fishery workers, craft and related workers” and “4 plant and machine operators/assemblers, elementary occupations”. There is statistical support that marital status affects occupational preferences. To be married, or living with partner increases the probability to be occupied in category “1 academic/scientific professions/managers, professionals/technicians/associate professionals” compared to occupations in the categories “3 agricultural/fishery workers, craft and related workers” (US, GB), and “4 plant and machine operators/assemblers, elementary occupations” (US). In Germany married persons or persons living with partner are less likely engaged in the occupational category “3 agricultural/fishery workers, craft and related workers” compared to all other categories.

The relative risk ratios indicate country differences concerning the impact of family background on occupational choice. In Germany and the United States, the parents’ educational attainment as well as their financial status not significantly affect the occupational preferences of the young adults. In Great Britain, to pass one’s

childhood in low-income parental households makes it more likely to choose occupations in the category "3 agricultural/fishery workers, craft and related workers" compared to occupations in the categories "2 trade/personal services" and "4 plant and machine operators/assemblers, elementary occupations".

In Germany and Great Britain, the number of siblings interfere with equal chances and financial and occupational success: a higher number of children in the parental household increases the relative risk that young adults are engaged in the occupational categories "3 agricultural/fishery workers, craft and related workers" and "4 plant and machine operators/assemblers, elementary occupations" compared to occupations in the category "1 academic/scientific professions/managers, professionals/technicians/associate professionals". In the United States, the number of siblings not significantly affects the occupational preferences of the young adults.

The results confirm the hypothesis of the intergenerational transmission of segregation: persons typically prefer those occupations in which they see their own gender represented. The higher the proportion of women in the parents' occupational distribution, the more likely young adults choose occupations in the category "1 academic/scientific professions/managers, professionals/technicians/associate professionals" compared to occupations in the categories "3 agricultural/fishery workers, craft and related workers" (GER, US, GB), and "4 plant and machine operators/assemblers", elementary occupations" (GB). The higher the segregation level in the parents' occupational distribution the more likely the young adults are engaged in the occupational categories "2 trade/personal services" compared to "3 agricultural/fishery workers, craft and related workers" (GER, US), and in the occupational categories "3 agricultural/fishery workers, craft and related workers" than "4 plant and machine operators/assemblers, elementary occupations" (US, GB).

In Germany and Great Britain, the occupational position of the father exerts a significant influence on occupational choice. Young adults whose fathers are engaged in occupations with high social status more likely choose occupations with a higher social prestige (OCCF1) compared to other occupational categories (OCCF2).

[Table 3 near here]

4.3. Occupational Segregation and Gender Wage Differentials

The evaluation of the gender wage-gap is based on the log hourly wages in 2007 (USA), 2008 (Great Britain), and 2009 (Germany). The aggregated gender wage-gap is significantly lower in Great Britain (16.5 percent) compared to Germany (24.5 percent), and the United States (23.7 percent). In all the countries the Pearson correlation coefficient between the proportion of women and the gender wage-gap is not significant. In Germany and the United States, the occupational categories show positive male/female gender wage-gaps. The gender wage-gap for the occupational categories "1 legislators, senior officials and managers" (GER), "3 agricultural/fishery workers, craft and related workers" (GB), "4 agricultural/fishery workers" (GER, USA), and "5 craft and related workers" (GB) exceeds 30percent. (Figure 2)

[Figure 2 about here]

The decomposition analysis for aggregated occupational categories shows that the gender wage-gap is mainly explained by the employment structure (between occupations effect). In all the countries, the total effects for the occupational categories "3 agricultural/fishery workers, craft and related workers", and "4 plant and machine operators/assemblers" are positive, and composed by positive structural employment effects, and positive wage effects. The negative structural effect of the gender wage-gap in the category "2 trade/personal services" cannot be compensated by the positive income effect. (Figure 3)

[Figure 3 near here]

5. Conclusions

The paper employed data from the CNEF-Equivalent File 1980-2010 to analyze in how far occupational preferences influenced by individual and family background characteristics, and transmitted between generations in Germany, the United States, and Great Britain. suggest The results confirm the hypotheses of the intergenerational transmission of occupational segregation and occupational status. There is only weak statistical support that the country differences concerning the impact of individual and family background characteristics on occupational preferences are due to the different welfare state regimes, institutional settings of the labor markets, educational systems, and family role models in these countries.

- The KM-segregation indices indicate a decreasing segregation level for the children's occupational distribution compared to that of the parents' occupational distribution in Germany and Great Britain, for the US sample the opposite is true. These results may reflect the increasing labor market participation, and changing occupational preferences of women.
- The results of the multinomial logit model confirm the human capital theory. Occupational choice is gender specific, women more likely prefer typically "female" occupations. A higher educational attainment increases the probability to be engaged in occupations with higher social status.
- In all the countries, individual and family background variables significantly influence occupational choice both directly through genetic endowment, social connections, and wealth, and indirectly through education. The parents' educational attainment, their social and economic position as well as their occupational position may shape their taste and perception of what is an appropriate educational and professional career of the children. The parental income status determines the children's access to human capital and educational attainment, which is likely to facilitate the prospects for further climbing up the occupational ladder.
- The results reveal that gender segregation in the parents' occupational distribution, as well as the fathers' occupational status significantly affect the children's occupational preferences.
- In Germany and the United States we find significantly higher gender wage-differentials than in Great Britain. In all the countries, the gender wage gap is

mainly explained by the structural employment effect (between-occupation stratification).

The results corroborate the empirical findings of earlier work (Lentz and Laband, 1989; Dearden et al., 1997; Corcoran, 2001; Escriche, 2007; Hellerstein and Sandler Morill, 2011) of a high intergenerational class persistence, which might reinforce stereotypes, inherited family role models, and a deepening of social inequality across generations. The negative correlation between mobility and inequality implies that strong intergenerational linkages with respect to the level of “prestige” or socioeconomic status may preserve the inequalities of opportunities (Harper and Haq, 1997). Social policy is forced to design efficient measures to prevent the intergenerational transmission of disadvantages. It is necessary to provide support and opportunities essential to a person’s favorable personal and economic development, especially to recognize the potential of education to be a means to advance the social ladder.

References

- Becker, G.S. (1964): *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education*. Chicago: University of Chicago Press.
- Becker, G.S. (1981): *A Treatise on the Family*. Harvard: Harvard University Press.
- Black, S.E. / Devereux, P.J. / Salvanes, K.G. (2005): Why the Apple Doesn’t Fall Far: Understanding Intergenerational Transmission of Human Capital, *American Economic Review* 95(1), 435-447.
- Blackwell, L. (2001): Occupational Sex Segregation and Part-time Work in Modern Britain. *Gender, Work and Organization* 8(2), 146-163.
- Blau, F.D. / Kahn, L.M. (2000): Gender Differences in Pay. *Journal of Economic Perspectives* 14(4), 75–99.
- Blau, F.D. / Kahn, L.M. (2006): The U.S. Gender Pay Gap in the 1990s: Slowing Convergence, *Industrial and Labor Relations Review*, 60(2), 45-66.
- Blau, F.D. / Kahn, L.M. (2007): The Gender Pay Gap: Have Women Gone as Far they Can?, *Academy of Management Perspectives*, February, 7-23.
- Blinder, A.S. (1973): Wage Discrimination: Reduced Form and Structural Estimates, *The Journal of Human Resources* 8, 436-455.
- Boskin, M.J. (1974): A Conditional Logit Model of Occupational Choice. *Journal of Political Economy* 82, 389-398.
- Budig, M.J. / England, P. (2001): The wage penalty for motherhood, *American Sociological Review*, Vol.66(2), 204-225.

- Burkhauser, R.V. / Butrica, B.A. / Daly, M.C. / Lillard, D.R. (2001): The Cross-National Equivalent File: A product of cross-national research, in: I. Becker/ N. Ott/ G. Rolf (eds.), *Soziale Sicherung in einer dynamischen Gesellschaft*, Frankfurt, 354-376.
- Corcoran, M. (2001): Mobility, Persistence, and the Consequences of Poverty for Children: Child and Adult Outcomes, in: S. Danziger / R. Haveman (eds.), *Understanding Poverty*, Harvard: Harvard University Press.
- Constant, A. / Zimmermann, K.F. (2003): Occupational Choice across Generations, *Applied Economics Quarterly* 49, 299-317.
- Dearden, L. / Machin, S. / Reed, H. (1997): Intergenerational Mobility in Britain, *Economic Journal* 107, 47-66.
- Duncan, O.D. / Duncan, B. (1955): Residential Distribution and Occupational Stratification, *American Journal of Sociology* 60(5), 493-503.
- Dunn, T. / Holtz-Eakin, D. (2000): Financial Capital, Human Capital, and the Transition to Self-Employment: Evidence from Intergenerational Links, *Journal of Labor Economics* 18(2), 282-305.
- Dustmann, C. (2004): Parental background, secondary school, track choice, and wages, *Oxford Economic Papers* 56, 209-230.
- Esping-Andersen, Gosta (1990): *The Three Worlds of Welfare Capitalism*, Cambridge: Policy Press.
- Escrive, L. (2007): Persistence of Occupational Segregation: the Role of the Intergenerational Transmission of Preferences, *The Economic Journal* 117, 837-857.
- Fitzgerald, J. / Gottschalk P. / Moffit, R. (1998a): An analysis of the impact of sample attrition in panel data: the Michigan Panel Study of Income Dynamics, *Journal of Human Resources* 33, 251 - 299.
- Fitzgerald, J. / Gottschalk P. / Moffit, R. (1998b): An analysis of the impact of sample attrition in panel data: the Michigan Panel Study of Income Dynamics, *Journal of Human Resources* 33, 300 - 344.
- Frick, J.R. / Grabka, M.M. (2005): Item-non-response on income questions in panel surveys: incidence, imputation and the impact on inequality and mobility, *Allgemeines Statistisches Archiv* 89, 49-61.
- Gornick, J.C. / Meyers, M.K. (2003): *Families that work – Policies for Reconciling Parenthood and Employment*, New York: Russel Sage Foundation.
- Hagenaars, A. / de Vos, K. / Zaidi, M.A. (1994): *Poverty Statistics in the Late 1980s: Research Based on Micro-data*, Luxembourg: Office for Official Publications of the European Communities.
- Hakim, C. (2002): Lifestyle preferences as determinants of women's differentiated labor market careers, *Work & Occupation* 29(4), 428-459.
- Hall, P.A. / Soskice, D. (2001): Varieties of Capitalism. An Introduction to the Varieties of Capitalism, in: P.A. Hall / D. Soskice (eds.), *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*, Oxford/New York: Oxford University Press, 71-103.
- Harper, B. / Haq, M. (1997): Occupational Attainment of Men in Britain, *Oxford Economic Papers* 49(4), 638-651.
- Heckman, J.J. (1981): Statistical models for discrete panel data, in C.F. Manski / D. McFadden (eds.), *Structural Analysis of Discrete Data with Econometric Applications*, Cambridge, 114-178.

- Heintz, B. / Nadai, E. / Fischer, R. / Ummel, H. (1997): *Getrennte Welten: Ursachen, Verlaufsformen und Folgen der geschlechtsspezifischen Segregation des Arbeitsmarktes*, in: Dies., *Ungleich unter Gleichen: Studien zur geschlechtsspezifischen Segregation des Arbeitsmarktes*. Frankfurt a.M., 16-66.
- Hertz, T. (2004): *Rags, riches and race: The intergenerational economic mobility of black and white families in the United States*, in: S. Bowles / H. Gintis / M. Osborne (eds.), *Unequal chances: Family background and economic success*. Princeton: Princeton University Press.
- Hellerstein, J.K. / Sandler Morill, M. (2011): *Dads and Daughters. The Changing Impact of Fathers on Women's Occupational Choices*, *Journal of Human Resources* 46(2), 333-372.
- Jacobs, J.A. / Gerson, K. (2001): *Overworked individuals and overworked families? Explaining trends in work, leisure, and family time*, *Work and Occupation* 28, 40-63.
- Karlin, C.A. / England, P. / Richardson, M. (2002): *Why do Women's Jobs have Low Pay for their Educational Level?*, *Gender Issues*, 20(1), 3-22.
- Karmel, T. / Maclachlan, M. (1988): *Occupational Sex Segregation - Increasing or Decreasing*, *Economic Record* 64, 187-195.
- Laband, D.N. / Lentz, B.F. (1992): *Self-recruitment in the legal profession*, *Journal of Labor Economics* 10, 182-201.
- Lentz, B.F. / Laband, D.N. (1983): *Like Father, Like Son : Toward an Economic Theory of Occupational Following*, *Southern Economic Journal* 50(2), 474-493.
- Lentz, B.F. / Laband, D.N. (1989): *Why so many children of doctors become doctors*, *Journal of Human Resources* 24, 392-413.
- Maddala, G.S. (1983): *Limited-Dependent and Qualitative Variables in Econometrics*. Cambridge University Press, Cambridge.
- Mazumder, B. (2005): *Fortunate Sons: New Estimates of Intergenerational Mobility in the U.S. Using Social Security Earnings Data*, *Review of Economics and Statistics* 87(2): 235-255.
- McFadden, D. (1973): *Conditional Logit Analysis of Qualitative Choice Behavior*, in: P. Zarembka (ed.), *Frontiers of econometrics*, New York, 105-142.
- Mincer, J. (1974): *Schooling, Experience and Earnings*, New York.
- Oaxaca, R. (1973): *Male-Female Wage Differentials in Urban Labor Markets*, *International Economic Review* 14, 693-709.
- OECD (2000ff.). *World Economic Outlook 1990ff.*, Paris: Paris.
- O'Reilly, J. / Bothfeld, S. (2003): *Regulating working-time transitions in Germany*, in: J.O'Reilly (ed.), *Regulating working-time transitions in Europe*, Cheltenham: Edward Elgar.
- Schmidt, P. / Strauss, R. (1975): *The prediction of occupations using multiple logit models*, *International Economic Review* 16(2), 471-486.
- Simon, R.W. (1995): *Gender, multiple roles, role meaning, and mental health*, *Journal of Health and Social Behavior*, 36, 182-194.
- Trappe, H. / Rosenfeld, R.A. (2004): *Occupational Sex Segregation and Family Formation in the Former East and West Germany*, *Work and Occupations*, 31, 155-192.
- Williams, J. (2000): *Unbending Gender: Why Work and Family Conflict and What to Do about It*. Oxford: Oxford University Press.

Zveglich, J.E. jr. / van der Meulen Rodgers, Y. (2004): Occupational segregation and the Gender Wage Gap in a Dynamic East Asian Economy, *Southern Economic Journal*, 70(4), 850-875.

TABLES

Table 1: Occupational segregation

O C C	Germany				United States				Great Britain			
	Children 2009		Parents 1994		Children 2007		Parents 1993		Children 2008		Parents 1997	
	%fem	KM- index	%fem	KM- index	%fem	KM- index	%fem	KM- index	%fem	KM- index	%fem	KM- index
1	.275	.213	.434	.013	.609	.120	.583	.086	.576	.086	0.564	.079
2	.542	.054	.606	.185	.693	.204	.631	.170	.532	.042	0.588	.102
3	.724	.236	.641	.220	.581	.092	.596	.058	.781	.291	0.696	.210
4	.385	.103	.374	.047	.265	.224	.236	.258	.145	.345	0.216	.269
5	.114	.373	.337	.084	.350	.138	.507	.173	.030	.460	0.311	.175
6	.169	.318	.121	.300	.138	.351	.105	.385	.117	.373	0.119	.366
7	.548	.060	.143	.279	.160	.329	.181	.363	.390	.100	0.090	.396
total	.488	.164	.421	.195	.523	.183	.489	.166	.490	0.167	0.485	.180

Occupations: "1 academic/scientific professions/managers", "2 professionals/technicians/associate professionals", "3 trade/personal services", "4 agricultural/fishery workers", "5 craft and related workers", "6 plant and machine operators/assemblers", "7 elementary occupations". Source: GSOEP, BHPS, PSID 1980-2010, author's calculations

Table 2: Variable description

Variable	Description
OCC	"1 academic/scientific professions/managers, professionals/technicians/associate professionals", "2 trade/personal services", "3 agricultural/fishery workers, craft and related workers", "4 plant and machine operators/assemblers", elementary occupations".
GEN	gender of the individual: 1 male, 0 female
AGE	Age of the individual
EDU	Educational attainment is measured in school years. In the case of missing values the years of education are set equal to the amount reported in the next year, for it is possible to increase the number of schooling but impossible to decrease it.
MAR	marital status: 1 married, living in partnership, 0 else
CHIL _p	number of children < 16 years in the parental household
EDU _p	Average school years of the parents. In the case of missing values the years of education are set equal to the amount reported in the next year, for it is possible to increase the number of schooling but impossible to decrease it.
STAT _p	Relative income situation of the parental household: 1 real equivalent post-government household income > median, 0 real equivalent post-government household income < median
SEG _F	Proportion of women in the parents' occupational distribution
OCCF1	Father's occupation: 1 "academic/scientific professions/managers"; "professionals/technicians/ associate professionals", else 0
OCCF2	Father's occupation: 1 "craft and related workers"; plant and machine operators/assemblers"; elementary occupations", else 0

Table 3: Occupational choice, relative risk ratios

(a)	$\ln(P_1/P_2)$	$\ln(P_1/P_3)$	$\ln(P_1/P_4)$	$\ln(P_2/P_3)$	$\ln(P_2/P_4)$	$\ln(P_3/P_4)$
GERMANY						
GENDER	.541*	2.174*	2.316	1.559*	4.125*	.641
AGE	.961	1.241	.863	1.129	.899	.696
EDU	1.040*	1.189*	1.084*	1.143*	1.042*	.911
MAR	.837	.050*	.651	.059	.777	1.088*
CHIL _p	.935	.679	1.071	.726	1.145	1.577*
EDU _p	.963	1.027	1.013	1.067	1.053	.986
SEG _p	.765	2.085*	.678	2.955*	.847	.106*
STATUS _p	.810	.575	1.791	.710	1.209	2.112
OCCF1	1.667	.345*	2.557	.116*	1.534	1.982
OCCF2	1.204	1.447*	1.176*	2.018*	1.080*	.039*
LL	-154.855	χ^2	102.87	N 302	Pseudo R2	.249
(b) USA						
GENDER	1.343*	2.995*	1.549*	2.719*	2.089*	2.712*
AGE	.994	.852*	.969	.858*	.972	1.133*
EDU	1.215*	1.682*	1.505*	1.385*	1.239*	.894
CHIL _p	.979	.903	.973	.922	.994	1.078
MAR	.800	1.162	.553*	1.450	.689	.476
EDU _p	1.009	1.022	1.029	1.012	1.019	1.007
SEG _p	1.121	1.929*	1.754*	1.721*	1.565*	.909
STATUS _p	1.237	.665	1.303	.538	1.053	1.958
OCCF1	1.095	1.858	1.362	1.697	1.244	.733
OCCF2	1.401	1.007	1.052	.719	.751	1.045
LL	-649.004	χ^2	249.74	N 1,021	Pseudo R2	.199
(c) Great Britain						
GENDER	.354*	2.834*	1.025*	2.566*	2.899*	1.036*
AGE	1.014	1.021	1.039	1.006	1.024	1.017
MAR	.349*	.567	1.755	1.623	1.888	2.860
CHIL _p	1.066	.905	1.149	.849	1.078	1.271
SEG _p	1.029	1.027*	1.205	1.969*	1.171	.595*
STATUS _p	1.497	.642	1.503	.429*	1.004	2.342*
OCCF1	1.707	1.097	.403*	.406	.149*	.368*
OCCF2	1.357*	1.517*	1.805*	1.963*	1.644	.103
LL	-362.34	χ^2	246.46	N 741	Pseudo R2	.254

NOTE: *indicates significance at the 5percent level in a two-tailed test ($p < 0.05$) SOURCE: GSOEP-PSID 1980-2010, own calculations

FIGURES

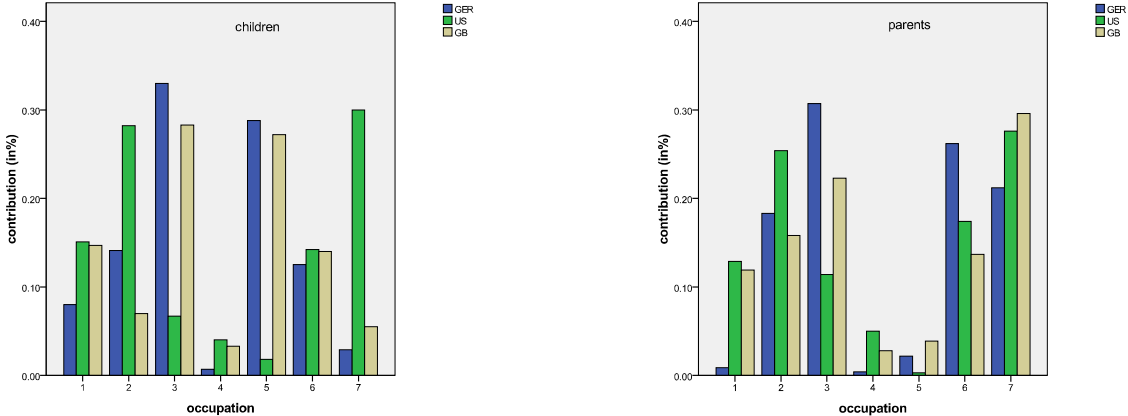


Figure 1: Contribution to the KM-Index
 Occupations: "1 academic/scientific professions/managers", "2 professionals/technicians/ associate professionals", "3 trade/personal services", "4 agricultural/fishery workers", "5 craft and related workers", "6 plant and machine operators/assemblers", "7 elementary occupations".
 Source: GSOEP, BHPS, PSID 1980-2010, author's calculations

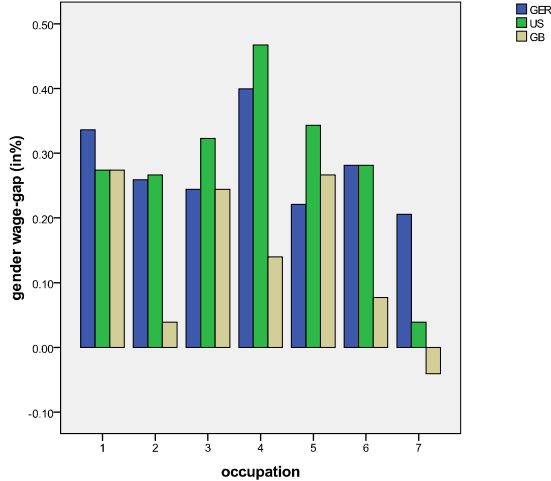


Figure 2: Gender wage-gap: Source GSOEP, BHPS, PSID 1980-2010, author's calculations

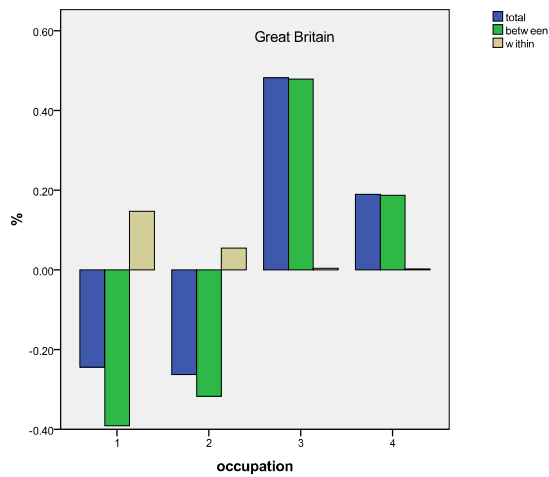
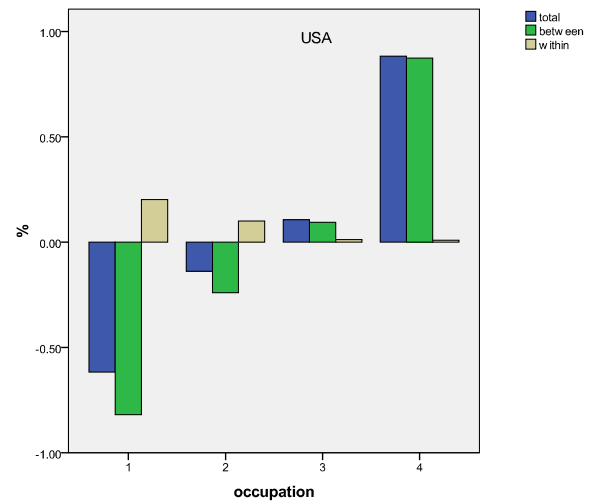
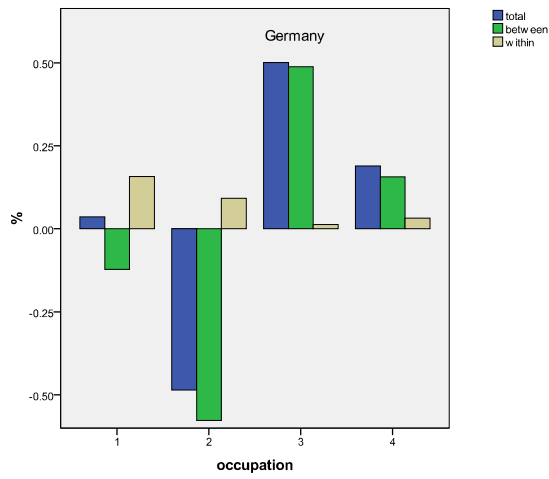


Figure 3: Decomposition of the gender wage-gap: Source: GSOEP-BHPS-PSID 1980-2010, author's calculations. Occupational groups "1 academic/scientific professions/managers, professionals/technicians/associate professionals", "2 trade/personal services", "3 agricultural/fishery workers, craft and related workers", "4 plant and machine operators/assemblers, elementary occupations".