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Kathrin Leuze • Alessandra Rusconi

# Should I Stay or Should I Go?

## Gender Differences in Professional Employment

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

Contact: Uta Rahmann | urahmann@diw.de

# Should I Stay or Should I Go?

## Gender Differences in Professional Employment

Kathrin Leuze, Alessandra Rusconi

Wissenschaftszentrum Berlin für Sozialforschung (WZB),
kathrin.leuze@wzb.eu, rusconi@wzb.eu

## Abstract

Occupational sex segregation is a persistent source of social inequalities. The increasing participation of women in tertiary education and rising female employment rates, however, have given hope that gender inequalities will decline as a result of growing female opportunities for high skill employment in the service sector, e.g. the professions. This paper asks whether such optimistic accounts are justified by comparing male and female professional career trajectories in Germany. Our main assumptions hold that, even today, strong gender differences continue to exist between public and private sector professions, which are further aggravated by different forms of family commitment. Overall, our analyses demonstrate that even among highly qualified men and women, important patterns of sex segregation are present. An initial horizontal segregation between public and private sectors brings about "equal, but different" career prospects, which in the phase of family formation turn into vertical segregation, promoting "different and therefore unequal" labor market chances.

**Key words**: professions, sex segregation, labor market outcomes, family formation, tertiary education, Germany

## Zusammenfassung

Berufliche Geschlechtersegregation ist weiterhin eine wichtige Ursache von Geschlechterungleichheiten. Allerdings gibt die zunehmende Beteiligung von Frauen an tertiärer Bildung und am Arbeitsmarkt Anlass zur Hoffnung, dass Geschlechterungleichheiten abnehmen könnten. Denn Frauen haben heute bessere Chancen, in hochqualifizierten Dienstleistungsberufen, sogenannten Professionen, zu arbeiten. Dieser Beitrag fragt, ob solche optimistischen Annahmen berechtigt sind, indem er männliche und weibliche Erwerbstätigkeit in Professionen in Deutschland untersucht. Wir nehmen an, dass auch heute noch stark ausgeprägte Geschlechterunterschiede zwischen Professionen im öffentlichen und privaten Sektor bestehen, die durch geschlechtsspezifische familiäre Verpflichtungen verschärft werden. Unsere empirischen Untersuchungen zeigen, dass auch unter hochqualifizierten Männern und Frauen eine hohe Arbeitsmarktsegregation existiert. Eine anfänglich horizontale Segregation zwischen dem öffentlichen und privaten Sektor bewirkt einen „gleichen, aber unterschiedlichen" Berufseinstieg. Zu dieser horizontalen Segregation kommt in der familienintensiven Phase eine vertikale Segregation hinzu, was „unterschiedliche und dadurch ungleiche" Arbeitsmarktchancen von Männern und Frauen begünstigt.

**Keywords**: Professionen, Geschlechtersegregation, Arbeitsmarkterträge, Familienbildung, tertiärer Bildungsbereich, Deutschland

# Contents

# Introduction

One of the most striking features of recent decades has been the persistent upward trend in female employment across Europe. In Germany there has also been a continuous rise of female labor force participation rates: from 46.2 percent in 1970 to 66.1 percent in 2004 (Bothfeld et al. 2005, tables 3.A.1a, c). When looking for explanations of increasing female employment rates, rising educational levels among women are often considered one of the main factors. In Germany, for example, the share of women with a tertiary education degree rose from 2 percent in 1971 to 14.5 percent in 2004 (Rusconi and Solga 2007: 313).

Both trends – rising female tertiary graduation rates in combination with increased female labor market participation – often lead to the positive assessment that gender inequalities in the labor market might eventually decline, at least among the highly qualified (Charles 2005; Estevez-Abe 2005). Across Europe, women with tertiary-level education were more than twice as likely to be in employment in 2005 as compared to women with only lower-secondary level education or below (European Commission 2006, 54, 55). Yet even within the group of the highly-skilled men and women, strong occupational sex segregation persists, though mainly horizontally.[1] Among higher education degree holders, women are now increasingly working in specific professional areas associated with education, health, social sciences and some business-related professions, but they continue to be underrepresented in many professional areas such as engineering and ICT (Fagan et al. 2005).[2]

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1 Occupational sex segregation has received much attention in recent years in order to account for the persistence of gender inequalities in the labor market. It has become common to focus on two kinds of occupational segregation: vertical and horizontal segregation. Vertical segregation refers to the under-representation of women in high-status high-wage occupations and their overrepresentation in low-status low-wage occupations. Horizontal segregation refers to the under-representation of women in specific occupational fields or sectors of the economy and their overrepresentation in others, constituting typically male and female occupations. Today, both forms of sex segregation persist in virtually all countries (United Nations 2001). So far, empirical literature has often dealt with vertical sex segregation between high-skilled/high-wage and low-skilled/low wage jobs, showing that female employment is heavily concentrated in the latter (Fagan et al. 2005; Rubery et al. 1999). But sex segregation also persists at the level of high-skill/high-wage occupations.

2 In addition, vertical segregation can also be found within the same professional occupation. For example, among German health and education professionals, men earn almost 30 per cent more than women, and among German business professionals, the gender wage gap amounts to more than 40 per cent (Fagan et al. 2005, 21). Also, highly skilled women are underrepresented relative to men in occupations like legislators, senior officials or managers (European Commission 2006, 62, 65) .

The question is whether such horizontal occupational segregation among highly skilled women and men means "equal, but different", i.e. does not translate into gender inequalities in the labor market, or whether the opposite, "different and therefore unequal" holds true. When theorizing the effects of occupational sex segregation for gender inequalities, is has been argued that vertical segregation in specific measures women's disadvantage in the labor market (Blackburn and Jarman 2006). By exclusively looking at highly skilled women and men in professions, we have the chance of excluding as much vertical segregation as possible in order to assess the implications of horizontal sex segregation for gender inequalities in the labor market. Our main assumption holds that particularly the fact that professions are highly segmented into public and private sectors should have implications for the gendered development of career trajectories. But the sex-typing of fields of study and gendered care arrangements should also matter in this regard. In the following, we develop a theoretical framework based on the concept of internal labor market segmentation that helps to explain differences in the career prospects of public and private sector professions. By making reference to the societal roles of caretaking and moneymaking, we will show how institutional and individual constraints (re)produce horizontal sex segregation between public and private spheres and its consequences for women's and men's (un-)equal access to and participation in the labor market.

# Theoretical Framework

## Labor Market Segmentation and the Public-Private Order of Professions

Professions can be defined as occupations with a high exclusivity of their knowledge base systematically delineating a specific occupational domain (Abbott 1988; Brater and Beck 1981). Structured professional training forms the prerequisite for entry into the profession, based on which the specific fields of activity become exclusively reserved for the members of a professional group. Yet, beyond these common characteristics, the labor market of professionals is not a homogenous one. Professions differ horizontally as regards the economic sector, whether they are public or private sector professions. In the following, we want to theoretically assess why the segmentation in public and private sector professions offers distinct career prospects based on the concept of internal labor market segmentation.

The theoretical notion of labor market segmentation implies that the labor market is divided in several segments, all of which offer specific career prospects, while mobility between the segments is restricted (Althauser 1989; Althauser and Kalleberg 1981; Kalleberg and Sorensen 1979). Early work on labor market segmentation identified a dual structure consisting of primary and secondary jobs. The former ones offer high status positions, high wages and good career prospects, while the latter tend to offer low wages, with poorer working conditions and little chance of advancement (Doeringer and Piore 1971; see Kalleberg and Sorensen 1979 for a discussion). From a gender perspective, the notion of a dual labor market structure can be used to explain vertical sex segregation, since women are disproportionately distributed into secondary jobs at the beginnings of their careers due to discriminatory mechanisms (Bulow and Summers 1986; Doeringer and Piore 1971; Snyder et al. 1978).

However, the main difference between public and private sector professions does not refer to the dual structure of labor markets; rather, it can be related to the theoretical differentiation between internal and external labor market segments, both of which can be found in the primary segment. External labor markets function in line with the "pure" market logic, where allocation and mobility processes are controlled directly by mechanisms of labor demand and supply (Kerr 1954). Internal labor markets, in contrast, are defined as "an administrative unit within which the market functions of pricing, allocation, and often training are performed. It is governed by a set of institutional rules which delineate the boundaries of the internal market and determine its internal structure" (Doeringer 1967, 207). Recruitment from the external labor market ideally takes place only once, when external applicants are employed for a restricted number of specific "entry-jobs". Thereafter they pursue their careers at least partly protected from market competition. Internal labor markets therefore offer

long-term security through stable positions and foreseeable career prospects and protect the investments in human capital for both employers and employees (Doeringer and Piore 1971; Doeringer 1967).

Public sector employment has been identified as the prototype of firm-internal labor markets (Becker 1993; Blossfeld and Becker 1988). Professional employment in state administration is strongly associated with highly protected labor arrangements, i.e. with explicitly defined "ports of entry" at the lower end of the job hierarchy, stable employment relationships, high protection against unemployment, calculable promotion schemes based on seniority entitlements, and an almost complete closure of higher level positions from the external labor market (OECD 2002). Professions in the public sector, such as judges, teachers, or medical doctors working in hospitals, thus have the potential to ensure stable and calculable career prospects. At the same time, this highly regulated work environment has inflexible payment schemes and does not allow for high upward mobility even in times of economic upturns. These lower chances of upward mobility set an upper limit to monetary and status returns for life-time employment.

Compared to internal labor market arrangements, private sector professions offer a lower institutional protection of career trajectories. Many professions have become increasingly diverse, challenging the traditional perception of professions as invariably high status, well paid, and associated with stable and secure work settings (Branch McBrier 2003, 1202). Even though professional certificates also constitute a means for social closure, private sector professionals, such as lawyers, engineers, or business professionals, cannot rely to the same extent on the existence of entry-port occupations as in the public sector. Instead, they face more competition for recruitment and career progression from the external labor market throughout their careers. If professionals are self-employed, such as pharmacists or self-employed medical doctors, the risks of market competition are even aggravated (Lane et al. 2000). Consequently, private sector professionals face a greater risk of "turbulent" career development, also because they have lower institutional safety nets against unemployment or bankruptcy. The positive sides of less institutionalized career trajectories are the higher chances of upward mobility, both in terms of status and monetary returns. The less formalized structure of promotion and payment can more flexibly react to economic booms, often leading to faster upward career and income shifts.

By applying the concept of internal labor market segmentation to the labor market of professionals, it becomes possible to offer explanations for different career prospects in the public and the private sector. So far, the literature on internal labor market segmentation has mainly argued and adopted a gender-neutral perspective[3]; i.e. women and men face equal incentives and disincen-

3 An exception is the study by Jones and Makepeace (1996), who show that in firm-internal labor markets women have to meet more stringent criteria than men for promotion, but their analysis is restricted to the private financial sector. Also,

tives to enter public or private profession. We argue, however, that the public-private segmentation of professional occupations should provide different incentives for men and women to enter and therefore should lead to horizontal sex segregation in the professional labor market. The following section will explore the individual and institutional basis for such gendered career prospects.

## Individual and Institutional Constraints of Un-gendered Professional Careers

Previous research shows the existence of widespread horizontal sex segregation among field of studies (e.g. Charles and Bradley 2002; Smyth 2005). In Germany, 70 percent of language and humanities students in 2005 were female, while their share was only 37 percent in natural sciences and 20 percent in engineering (Statistisches Bundesamt 2007, 27). Such different choices of fields of studies are often attributed to gender-specific socialization (England 2005; Jacobs 1989), which reproduces stereotypes of what is typically masculine (e.g. analytic thinking for mathematics or life sciences), and what is typically feminine (e.g. nurturing for human sciences or education) (Jacobs 1995). But it also concerns socially constructed gendered expectations regarding the division of labor within the family (England and Li 2006; Ware and Lee 1988): Anticipating their role as primary caregivers, women avoid enrolling in fields of study that lead to professions perceived as being incompatible with family life, e.g. in the private sector. Men foresee their role as primary breadwinner and thus avoid enrolling into devaluated female subjects.

Horizontal segregation among fields of study goes hand in hand with "gendered" labor market prospects, whereby typically 'female' subjects are not only less rewarded on the labor market (e.g. Reimer and Steinmetz 2007; Reskin and Padavic Irene 1994; Smyth 2005), but also regarding work/life balance. In general, graduates from typically 'male' fields of study have better chances on the labor market than those holding typically female degrees; however, female graduates in 'male' subjects face greater difficulties in actually obtaining a job (Janshen and Rudolph 1987; Minks and Filaretow 1996; Schreyer 2000). These different chances of professional success in 'male' subjects are argued to be related to the private life situation rather than to objective criteria of achievement. Normative expectations on professional commitment that demand an exclusive identification with the occupation, such as long and unpredictable working hours and frequent absences from home, hinder any engagement outside the occupation and endorse the traditional male breadwinner model, particularly in

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Huffman (1995) shows that, due to sex segregation, women have significantly lower chances of obtaining positions with supervisory power than men and concludes that internal labor markets do not necessarily lead to equal opportunities for men and women. However, his focus is on firm-internal labor market segments, while we focus on public and private sectors.

the private sector (Haffner 2007). Thus, professional careers in 'male' subjects/occupations demand and result in a 'male' work-centered biography – especially in the private sector. Individuals with other (female) types of biographies who are not able or willing to follow such work-dominated lifestyles face the risk of being excluded or hindered in their careers. This is supported by the so-called 'statistical discrimination', according to which employers often expect even highly-qualified women to be less career-oriented, less productive and more likely to reduce (or even quit) their professional engagement for the benefit of their family than men (England 2005; Konrad and Cannings 1997; Reskin and Padavic 1994). On the basis of such expectations, they are uneager to hire and promote women or more likely to offer them untypical and precarious employment positions (e.g. Petrongolo 2004; Thornley 2007). As a result, men and women occupy different hierarchical levels and functions, and the proportion of women decreases at every step up the career ladder.

Finally, the presence of children is known to diminish women's career chances. On the one hand, as soon as career/family conflicts arise, traditional gendered expectations might be revitalized and even couples who started out as equal partners often turn to a traditional division of labor within the family (Levy and Ernst 2002; Schulz and Blossfeld 2006). This shift reproduces socially constructed and institutionally embedded gendered expectations according to which mothers should accommodate family needs, whereas fathers should ensure the financial resources of the family (e.g. Hardill and van Loon 2007). On the other hand, there is wide evidence that the presence of childcare facilities is of crucial importance as institutional means to enhance (female) labor market participation: Women can realize and negotiate with their partners their own employment and career only if they are able to externalize childcare and housework (Kirner and Schulz 1992; Stephens 1999; Swiss and Walker 1993). Consequently, female employment is challenged when childcare is not available, when the price is too high, or when availability or opening hours are inadequate (Hertz 1986). Compared across Europe, Germany, along with Austria, Greece, Italy, and Spain score quite unfavorably with a public and private childcare coverage rate below 10 percent for children under the age of three (Plantenga et al. 2008). The inadequacy of childcare services reproduces institutionalized gendered expectations that conceive and depend upon mothers as primary caregivers. As result, women reduce – at least temporarily – their employment and careers. Yet, any work interruption or working hours reduction entails the risk of a more or less permanent professional setback since career requirements, such as age standards, are often based on male (full-time) continuous careers and biographies (e.g. Fuchs et al. 2001; Swiss and Walker 1993). In order to avoid career/family conflicts, another strategy is to renounce to or postpone having children (Hoff et al. 2002; Swiss and Walker 1993). In Germany this is a strategy more frequently followed by highly qualified women (Huinink 1995).

## Hypotheses

There are a number of reasons why highly skilled women and men may face differing constraints and incentives to be employed in public or private sector professions. Due to the more protected career prospects offered by public sector professions, we assume that this labor market segment is particularly attractive for women. Their anticipated primary responsibility for family matters makes it likely that after graduation women will seek employment more often in public professions. Also for public sector professionals, the inadequacy of childcare services should make women reduce their working hours or even opt out of the labor market (at least temporarily). However, the highly standardized and sheltered career structure in public sector professions should diminish the risks associated with work interruption following parental leave or working hour reduction, since the structure of international labor markets ensures that skill investments are not lost, even after phases of economic inactivity. This means that also during the family intensive life phase, female employment chances are likely to be higher in public than in private sector professions.

Private sector professions are less institutionalized and therefore offer less stable career prospects and entail higher risks, be it in form of external competition, unemployment, or bankruptcy in the case of self-employment. At the same time, lower regulation offers higher profit margins and returns to human capital investment. Due to the higher chances of career mobility, we expect male graduates to seek their first employment more often in private sector professions. In addition, their anticipated primary responsibility for family finances makes it likely that men will try to maximize the monetary returns of their human capital investment by seeking employment in higher paid private sector professions. Since these professions are often based on a 'male' work-centered biography, i.e. any interruption or working hour reduction entails higher risks, we assume that male employment chances in private professions are unaffected by their family situation, even during the family intensive life phase. Individuals (often women) who do not to follow such work-dominated lifestyles, face the risk of being excluded or hindered in their development in private sector professions.

Overall, we can conclude that the public-private order of professions interacts with institutional and individual constraints of un-gendered career prospects and therefore is likely to result in a horizontal segregation between female public professionals and male private professionals. This horizontal differentiation does not necessarily result in gender inequalities; however, restricted upward mobility prospects and lower lifetime incomes in the public sector imply as well that segregation, if only horizontal initially, might aggravate over the life course into labor market inequalities between men and women.

## Data, Variables and Methods

Whether and how labor market segmentation translates into gendered career outcomes is tested by analyzing labor market entry immediately after graduation as well as by examining labor market outcomes of degree holders in the family-intensive life phase. The transition from tertiary education to work is analyzed with the German Socioeconomic Panel (GSOEP). The GSOEP is a longitudinal panel survey of private households in Germany (see Haisken-DeNew and Frick 2005) that includes a large variety of information on labor market positions, educational attainment, and family situation. For purposes of this research, we have selected all respondents who graduated from tertiary education institutions in the years 1984 – 2001 while surveyed by the GSOEP, meaning that a total number of 878 graduates were included in the calculations. For these respondents, transitions to a first professional placement in the public or private sector during the first five years after graduation are analyzed (i.e. waves 1984 – 2005). The analysis of the transition from tertiary education to work is carried out by estimating discrete time piecewise constant exponential models with event history analysis (Blossfeld and Rohwer 1995).[4] Due to the low number of graduates obtaining their tertiary education degree while surveyed by the GSOEP, which becomes even lower for longer career observation periods, statistical modeling of latter career development cannot be carried out by a longitudinal design, but has to use cross-sectional data.[5]

For analyzing the impact of family formation on latter labor market outcomes, we use the German Microcensus, the official representative census on the population living in Germany, in which 1 percent of all households participate. For the analyses at hand, the Microcensus from 2000 has been used, since it contains detailed information on the field of study, which is only available every four to five waves. Moreover, we take into account only the "prime age" in career and family life, i.e. we rule out labor market entry processes and processes of exit from the labor market (due to retirement). From the available data pool, the unit of analysis is every 30 to 49 year-old respondent holding a tertiary

4 The piecewise constant exponential model does not impose too many restrictions on the shape of the hazard function and furthermore has already proven its validity for studying education to work transitions (Falk et al. 2000; Hillmert 2001). Its flexibility stems from the possibility to allow hazard rates to vary between different time periods (Blossfeld and Rohwer 1995).

5 This signifies that, due to the lack of adequate longitudinal data, we cannot observe the same individuals immediately after graduation and during the family-intensive phase as would have been the case with a longitudinal design. In order to carry out meaningful analysis for latter career development, we have chosen a population which most likely has entered the labor market during a similar time period as the graduates surveyed by GSOEP. Nevertheless, the comparison of labor market outcomes after graduation and during the family-intensive life phase cannot be interpreted as representing a life course trajectory.

education degree; a total of 9168 individuals have been included in the analysis. For analyzing employment chances of prime age women and men, we present results of multinomial logistic regressions[6], with professional employment (public/private), non-professional employment and non-employment as dependent variables.

For the analysis of graduate career mobility and labor market outcomes several core variables have been considered (see Appendix A for the distribution of the most important variables in both samples). In the GSOEP, work histories are observed on a monthly basis during the first five years directly after graduating from tertiary education for the first time. In the Microcensus 2000, the job currently held or labor market status is taken into account. The operationalization of the professional labor market segment was based on the ISCO88 3-digit category 200 "Professionals" (see Appendix B). Measurement of public/private sector employment was based on the variables on labor market sectors provided in both data-sets.

Fields of study are included into the models in form of male-dominated (more than 60 percent male graduates), gender-mixed (between 40 and 60 percent male graduates) and female-dominated (less than 40 percent male graduates) fields of study (Smyth 2005), estimated on the basis of the weighted Microcensus 2000 subject distribution. Based on this calculation, Engineering, Science as well as Social Science/Business/Law can be considered male intensive, Health/Welfare and Humanities/Arts as gender-mixed, and Education as female-dominated (see Appendix A). To measure tertiary education attainment, the CASMIN educational classification is applied (see Brauns et al. 1997). In Germany, the CASMIN level of lower tertiary education 3a refers to respondents holding a technical college degree (*Fachhochschul-Diplom*), while the upper tertiary level 3b includes all kinds of university degrees (*Diplom*, *Magister, Staatsexamen, Promotion*).

The main focus is on sex and its interaction effects, as well as the family structure related to the presence of a partner and his/her qualification, existence and age of dependent children. Control variables are nationality, vocational training in addition to tertiary education, and father's education. Graduation (GSOEP) or residence (Microcensus) in East Germany controls for differences between West and East Germany after re-unification. Also, in the GSOEP the age of graduation was controlled for, while in the Microcensus we control for the age of individuals.

6 Logistic regressions in general have less stringent requirements: they do not assume a linear relationship between the independent variables and the dependent, do not require normally distributed variables, and do not assume homoscedasticity.

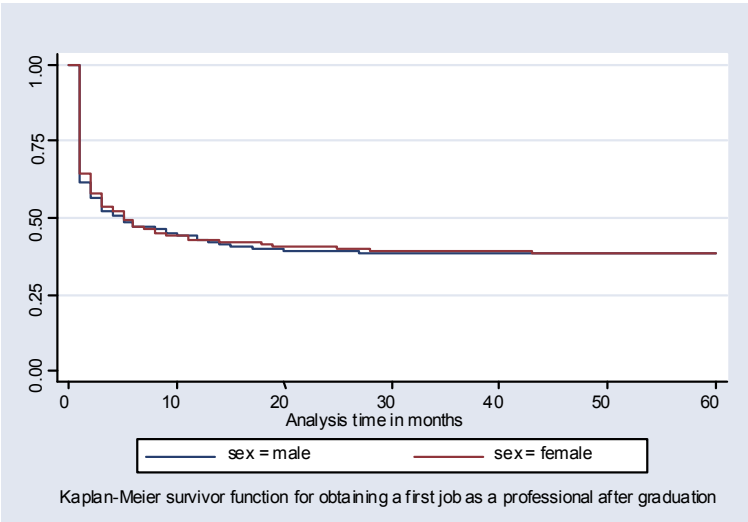
# The Importance of Labor Market Segmentation for Sex Segregation among Professionals in Germany

## Professional Employment Patterns among Women and Men

In order to analyze career trajectories of male and female professionals, we first look at the proportion of graduates who have obtained a professional job within five years after graduation. We then distinguish professional jobs according to the public or private sectors and compare the proportion of newly graduates in professional positions with those who are in the family-intensive life phase.

A rather straightforward representation of the time it takes to obtain a professional placement after graduation is provided by the Kaplan-Meier survivor function, which indicates the share of persons that have made the transition to a first job at any given point of time (Blossfeld and Rohwer 1995). Figure 1 displays the survivor functions of obtaining a professional position as first employment after graduation for men and women. Both curves indicate that entry into a profession takes place at a fast pace. Around 30 percent of graduates have found professional employment during the first month after graduation, and 50 percent during the first half year. Most importantly, no significant differences between female and male survivor functions exist.

*Figure 1: Obtaining a professional job after graduation in Germany*




Log-rank test for equality of survivor functions: chi2 = 0.08, Pr>chi2 = 0.7714

Source: GSOEP, authors' estimations

Thus, initially there is no gender inequality in the duration it takes to obtain a professional position after graduation. Yet, as discussed in the previous sections, professions are situated in different labor market segments and our

analyses show considerable sex differences in the proportion of degree-holders employed in private and public sector professions (see Figure 2). Albeit 60 percent of both female and male graduates have achieved a first job in a professional position within five years after graduation, Figure 2 shows that more men than women have managed to do so in the private sector, while it is the other way around for public sector professions. The proportion of graduates who did not enter the labor market (neither as a professional or non-professional) is very small for both men and women (less than 5 percent), although the share of female non-employed is almost twice as high as the male one. About one third of both female and male graduates are employed in a non-professional occupation.

*Figure 2: Type of employment after graduation and of prime age graduates, by professional sector*


Source: GSOEP, author's calculations Source: Microcensus 2000, authors' calculations

In the family-intensive life phase, sex differences amplify. First of all, considerably more women than men are not employed: in 2000, one sixth of the 30 to 49 year-old women, but only 5 percent of the men do not have job.[7] Second, just as immediately after graduation, men work more frequently in private sector professions than women, while female participation in public sector professions

7 The great majority of both non-employed men and women were previously employed, almost half of them as professionals. Of those former professionals, roughly 60 percent have been working in the private sector. Statistical analysis shows no significant differences between men and women in this regard (results not shown).

is higher than the male one.[8] In summary, from the very beginning male and female access to professional positions in the private and public sector differ. However, sex differences are aggravated in the family-intensive phase.

## Employment in Public and Private Sector Professions after Graduation

In order to examine the transition to public and private sector professions after graduation, two separate single event piecewise constant hazard models were estimated.[9] Put together, they can be interpreted like a competing risk model, where the transitions to non-employment or non-professional employment constitute the reference category.[10] For each transition process, we estimated two models, the first containing the main effect, while the second also reports important interaction effects between sex and family variables or field of study respectively. Since model coefficients are reported as odds ratios, they can be interpreted as relative transition rates to employment, being higher for values above 1 and lower for values between 0 and 1.

In terms of key variables of interest, the estimates show clear evidence of gendered transition processes. All models confirm that women have higher transition rates to public sector professions, while men are more likely to obtain a first professional job in the private sector. However, the main sex effect is only significant for the transition to private sector professions. There, women exhibit around 30 percent lower transition rates than men (model 1). Obviously, the more risky, but also more profitable career structure sets clear incentives for both sexes either for or against a professional job in the private sector. Possibly due to the prospects of more risky career trajectories, employers' discrimination, or the anticipated role as caregiver being incompatible with work-centered

8 If we only take a look at persons in employment, the picture is more similar to the one immediately after graduation: roughly the same percentage of employed men and women work as professionals (around 65 per cent), again men more often in the private and women more often in the public sector. Yet excluding the non-employed means not taking into account the gender divide between employment and non-employment.

9 Following from the Kaplan-Mayer survivor functions, transition rates to a first professional placement differ most strongly during the first year after graduation, while later on they level off. Therefore, the chosen bands of piecewise constant time intervals are narrow during the first year and are wide thereafter. In total, six different time intervals are differentiated: entry in the first month after graduation, entry in the second or third month after graduation, entry between month four and month six, entry in the second half of the first year, entry in the second year, and entry thereafter.

10 These categories were taken together as one reference category, since the number of graduates not finding employment during the first five years after graduation was too low (< 5 per cent) to constitute a separate category.

biographies, women have lower chances of being employed in the private sector, regardless of type of tertiary education degree obtained, the subject studied, or family constellation.

*Table 1: Transition to first employment as a professional in the public or the private sector*

| | **Transition to private sector profession** | | **Transition to public sector profession** | |
|---|---|---|---|---|
| | **Model 1** | **Model 2** | **Model 1** | **Model 2** |
| Base line (Ref: Entry 1st month) | | | | |
| Entry > 1 month | 0.109*** | 0.109*** | 0.100*** | 0.100*** |
| Entry > 3 months | 0.035*** | 0.035*** | 0.040*** | 0.040*** |
| Entry > 6 months | 0.016*** | 0.016*** | 0.013*** | 0.013*** |
| Entry > 12 months | 0.004*** | 0.004*** | 0.009*** | 0.009*** |
| Entry > 24 months | 0.001*** | 0.001*** | 0.001*** | 0.001*** |
| Female | 0.718** | 0.567* | 1.189 | 0.895 |
| Child < 6 years | 1.019 | 1.190 | 1.147 | 0.764 |
| Married | 0.705** | 0.678** | 1.140 | 1.122 |
| Degree (Ref.: Casmin 3a) | | | | |
| Casmin 3b | 0.713** | 0.715** | 2.987*** | 2.903*** |
| Field of study (Ref.: gender-mixed) | | | | |
| Male-dominated | 1.119 | 0.926 | 0.676*** | 0.561** |
| Female-dominated | 0.461* | 0.397 | 1.557** | 1.864** |
| Interaction terms | | | | |
| Female* child < 6 years old | | 0.469 | | 2.272** |
| Female* married | | 1.095 | | 1.076 |
| Female* male-dominated | | 1.388 | | 0.775 |
| Female* female-dominated | | 1.262 | | 1.367 |
| $Chi^2$ Likelyhood ratio test (df) | 165.3 (13)*** | 167.3 (17)*** | 109.3 (13)*** | 114.4 (17)*** |

Reference category: employed in non-professional employment or not employed, odds ratios,
N=43572 person months (878 persons)
Models control for nationality, father's higher education, vocational training, yearly unemployment rate, graduation age and graduation in East Germany.
Coefficients are significant: * p<0.1, ** p<0.05, ***p<0.01, Source: GSOEP, authors' estimations

The higher transition rates of men to the private sector indicate that men are apparently more often attracted by the higher profit margins and therefore take the risks of higher working hours, less institutional protection, and generally more risky career prospects. This assumption is supported by the influence partnership has on career decisions after graduation (model 2). The interaction terms indicate that non-married men in particular will gain their first employment as private sector professionals, while marriage apparently increases risk aversion. Having young dependent children does not play a role immediately after graduation, so we can only speculate that it is more the anticipation of family foundation that influences the male transition pattern. Next to sex and family structure, the sex-typing of fields of study has an effect as well, even though only a weak one.

The transition to the public sector provides a kind of mirror image as regards explanatory variables. An important difference, however, is that the main sex effect is not significant (model 1). Even though Figure 2 has shown that women exhibit higher participation rates in the public sector than men, the multivariate analysis shows that this is not the case for all women. We find that women with young dependent children have twice as high transition rates when compared to women without children (model 2), which supports the argument related to internal labor markets. Obviously, women in general avoid working in private sector professions, but do not significantly prefer the public sector as compared to non-professional employment, if there is no need arising from their family structure. Most interestingly, male-dominated subjects, such as engineering or science, significantly lower transition rates to the public sector, while the female-dominated subject of education clearly constitutes an important entry certificate to this sector. This relationship is most obvious for men (model 2), but also holds true for women, even though the coefficients are not significant.

We can conclude that after graduation no sex differences exist as regards obtaining professional employment in general. However, the first job placement already shows clear horizontal sex segregation patterns among professionals in the public and private sector. The internal labor market arrangements found in public sector professions predominantly attract women, particularly with young dependent children, but are also attractive for men with female-dominated fields of study. The higher profit margins associated with a more external labor market arrangement in private sector professions obviously attract more men, while women generally are less likely to enter this risky environment. The following analysis will show whether such gendered career arrangements are observable for degree holders in the family-intensive phase as well. It is of interest whether the more sheltered labor market environment of public sector professions does indeed increase female labor market chances in the family-intensive phase, too.

## Employment in Public and Private Sector Professions during the Family-intensive Phase

In order to examine public or private sector professions during the family intensive life phase, two multinomial logistic regressions were estimated. Given that our descriptive results have shown that among 30 to 49 year-old degree holders a gender divide exists also regarding labor market participation, the models presented will have four categories: the risk of being non-employed, holding a private sector profession, or being in a public sector profession are compared to being in non-professional employment (reference category). We estimated two models, the first containing only the main effects, while the second includes important interaction effects. The model coefficients are reported as odds ratios that can be interpreted as relative chance of employment type, being higher for values above 1 and lower for values between 0 and 1.

It is apparent that female degree holders have a higher risk of being non-employed and a lower chance of being private sector professionals than men when compared to non-professional employment (model 1). The interaction effects in model 2 clarify that for women both partners and children increase their risk of being out of the labor force, while for men the presence of a partner reduces this risk. Moreover for men, a male-dominated field of study appears to protect from non-employment, which is not the case for women.

With regard to employment in private sector professions, the models reveal that women still have lower chances than men, regardless of their family commitments (models 1 and 2). In contrast, male graduates with small children have a higher chance of being in a private sector profession than childless male graduates. This might indicate that given the prevalent gendered expectations, fathers try to maximize their monetary gains in the private sector where generally higher wages are paid. Interestingly, both male and female degree-holders, whose partners do not hold tertiary education credentials, have lower chances of a private sector profession. This might indicate that couples in which partners have unequal human capital (and thus unequal chances and rewards on the labor market) might be less prone to take on the risks entailed in the private economy. Beside sex and family structures, the fields of study also influence the chances of private sector employment. Yet the effect differs for men and women (model 2): women with female-dominated subjects have a higher chance of being professionals in the private sector than those who studied a gender-mixed subject, while chances for men are higher in gender-mixed fields of studies.

*Table 2: Multinomial logistic regressions on employment status of 30-49 years old degree holders*

| | Not employed | | Profession in private sector | | Profession in public sector | |
|---|---|---|---|---|---|---|
| | **Model 1** | **Model 2** | **Model 1** | **Model 2** | **Model 1** | **Model 2** |
| Female | 3,452*** | 0,933 | 0,630*** | 0,704** | 1,031 | 0,624*** |
| Partner (Ref: no partner) | | | | | | |
| Non-academic partner | 0,579*** | 0,380*** | 0,780*** | 0,816** | 0,750*** | 0,726** |
| Academic partner | 1,064 | 0,502*** | 0,997 | 0,986 | 1,115 | 0,971 |
| Underage children (Ref: no children) | | | | | | |
| Youngest Child < 3 yrs | 3,102*** | 1,775** | 1,309*** | 1,296** | 0,989 | 1,011 |
| Youngest Child 3-9 yrs | 2,079*** | 1,347 | 1,289*** | 1,394*** | 1,086 | 1,194 |
| Youngest Child 10-17 yrs | 0,987 | 0,972 | 0,859* | 0,923 | 0,983 | 1,004 |
| | | | | | | |
| Degree (Ref: Casmin 3a) | | | | | | |
| Casmin 3b | 1,323*** | 1,323*** | 1,575*** | 1,581*** | 2,151*** | 2,137*** |
| Field of study (Ref: gender-mixed) | | | | | | |
| male-dominated | 0,630*** | 0,498*** | 0,552*** | 0,538*** | 0,318*** | 0,244*** |
| female-dominated | 1,150 | 0,898 | 0,341*** | 0,226*** | 2,419*** | 1,599*** |
| | | | | | | |
| Interaction terms | | | | | | |
| Female*Child < 3 yrs | | 2,636*** | | 1,015 | | 1,032 |
| Female*Child 3-9 yrs | | 1,897*** | | 0,759* | | 0,817 |
| Female*Child 10-17 yrs | | 1,081 | | 0,787 | | 0,938 |
| Female* Non-academic parter | | 2,052*** | | 0,760* | | 1,016 |
| Female*Academic partner | | 3,135*** | | 0,973 | | 1,307 |

| | Not employed | | Profession in private sector | | Profession in public sector | |
|---|---|---|---|---|---|---|
| | **Model 1** | **Model 2** | **Model 1** | **Model 2** | **Model 1** | **Model 2** |
| Female*male-dominated | | 1,458 | | 0,984 | | 1,751*** |
| Female*female-dominated | | 1,554 | | 1,995*** | | 2,108*** |
| Improvement of fit (df) | 8583,4*** (48) | 8458,7*** (69) | | | | |

Reference category: employed in non-profession, odds ratios, N=9168
Models control for size of residence, place of residence in East or West Germany, married/unmarried cohabitation, nationality, age of individuals.
Coefficients are significant: * p<0.1, ** p<0.05, ***p<0.01, Source: Microcensus 2000, authors' estimations

With regard to employment chances in public sector professions, sex main effects are again not significant, while field of study seems to be of major importance. Generally, among degree holders who studied gender-mixed subjects, women have a lower chance than men of finding such an employment (model 2).[1] Also, male graduates from male-dominated subjects are much less likely to enter this segment of the labor market, while for both men and women the chances of being in public sector professions are considerably higher when they achieved a degree in a female-dominated field of study. This latter finding might be due to the fact that the majority of graduates in education work as teachers in the public sector. As expected, female employment in public sector professions is not influenced by the presence of children and partner. This implies that those women who remain employed 'in spite' of family commitments have equal chances of working as non-professionals or pursuing a profession in the public sector. In contrast, male degree holders with a less qualified partner are less likely to have a public sector profession than being employed as non-professionals.

In summary, professional chances of 30 to 49 year-old degree holders are indeed strongly shaped by gender and family commitments. Two features appear quite striking. First, the chances of female employment in private sector professions are lower, regardless of their actual family commitments. Second, the risk of non-employment is considerably higher for women who have a partner and children, and this regardless of the type of tertiary education and fields of study. This is also supported by the fact that the non-employed women in our sample report ten times more often than men that they gave up their job due to family responsibilities (42 percent of women versus 3.5 percent of men). However, mothers who are employed despite their family commitments and childless women have equal chances of pursuing public sector professions. Yet since mothers have a higher risk of non-employment, we can conclude that the expected effect of public sector professions, i.e. the shelter of female career trajectories during the family-intensive life phase, is a limited one.

1 The negative effect is confirmed by models with only one interaction term (gender*field of study); data is not shown here, but can be made available by the authors upon request.

## Conclusions

This paper started by discussing the positive assessment that increasing levels of female participation in tertiary education and increased female labor market participation will lead to a decline in gender inequalities in the labor market, at least among the highly qualified. By analyzing professional career outcomes of female and male graduates, we asked to what extent gender equality is a reality today. Based on the theory of labor market segmentation, our main hypothesis was that a public-private order of professions exists, which offers specific career prospects. We assumed that this public-private divide is likely to lead to horizontal sex segregation among professionals due to the institutional and individual constraints men and women face over the course of their careers.

Our empirical results indicate that the public-private order of professions indeed constitutes a gendered order of professions. The less sheltered career arrangement in the private sector is already less attractive for female graduates immediately after graduation, and continues to be so in the family-intensive phase. This indicates that the more external labor market structure of private sector professions offers more typically male career perspectives. In addition, while prime age men have a high employment rate similar to that after graduation, the same is not the case for women. Thus, contrary to our theoretical expectations, the more sheltered internal labor market of public sector professions does *not* provide sufficient protection to overcome the gendered division of labor within the family.

The main reason for horizontal sex segregation between public and private sector professionals immediately after graduation can be attributed to the sex-typing of fields of study rather than the family situation. This is not surprising given the relatively young age of graduates, of whom only a small minority has dependent children. The field of study also shapes gendered career outcomes for degree holders in the family-intensive phase. But in addition, the family situation is decisive for sex segregation among professionals. Most importantly, our findings show that the horizontal divide between public and private sector professionals persists, but in addition vertical sex segregation between employment and non-employment is aggravated due to family commitments. Such vertical segregation carries the risk of producing a 'childcare penalty' in terms of lower income and social rights over the life course (Lister et al. 2007, 134). Cash benefits, such as paid parental leave, address the issue of the right to care, yet such policies neglect the issue of enabling both parents' equal right to work and the long term consequences of reduced (or lacking) employment-related social benefits for the primary care giving parent.

Overall, our analyses demonstrated that even among highly qualified men and women, important patterns of sex segregation exist today. An initial horizontal segregation between public and private sectors brings about "equal, but different" career prospects, which in the course of family formation turn into

vertical segregation, promoting "different and therefore unequal" labor market chances. By introducing a gender perspective to internal labor segmentation theory we can understand the gendered nature of career prospects among male and female professionals. Thus far, optimistic claims that equality in tertiary graduation rates among men and women leads to gender equality in the labor market cannot be confirmed.

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# Appendix

## Appendix A: Sample Description

| | | GSOEP | Microcensus 2000 |
|---|---|---|---|
| Number of graduates | | 878 | 9168 |
| Years of graduation (GSOEP)/ Birth year (MC 2000) | | 1984 – 2001 | 1950-1970 |
| Females | | 40.7 % | 40.9 % |
| Females with children under 6 yrs (GSOEP)/ Females with children under 6 yrs & under 18 yrs (MC 2000) | | 2 % | 21.1 % 53.7 % |
| Non-German | | 8.2 % | 5.4 % |
| Father with higher education | | 26.7 % | --- |
| Vocational training | | 20 % | --- |
| Mean age of graduation (Std. Dev.) | | 28 (4.102) | --- |
| CASMIN 3a | | 34.5 % | 40.8 % |
| CASMIN 3b | | 65.5 % | 59.2 % |
| Humanities/Arts | (gender-mixed) | 9.6 % | 10 % |
| Health, Welfare | (gender-mixed) | 7.7 % | 7.5 % |
| Engineering | (male-dominated) | 26.9% | 28.5 % |
| Science | (male-dominated) | 14.5 % | 11.7 % |
| Soc. Sc., Business, Law | (male-dominated) | 34 % | 24.9 % |
| Education | (female-dominated) | 7.2 % | 17.3 % |

## Appendix B: Professionals according to ISCO88 com

| ISCO88 | MAJOR GROUP 2: PROFESSIONALS |
|---|---|
| 21 | Physical, mathematical and engineering science professionals |
| 211 | Physicists, chemists and related professionals |
| 212 | Mathematicians, statisticians and related professionals |
| 213 | Computing professionals |
| 214 | Architects, engineers and related professionals |
| 22 | Life science and health professionals |
| 221 | Life science professionals |
| 222 | Health professionals (except nursing) |
| 223 | Nursing and midwifery professionals |
| 23 | Teaching professionals |
| 231 | College, university and higher education teaching professionals |
| 232 | Secondary education teaching professionals |
| 233 | Primary and pre-primary education teaching professionals |
| 234 | Special education teaching professionals |
| 235 | Other teaching professionals |
| 24 | Other professionals |
| 241 | Business professionals |
| 242 | Legal professionals |
| 243 | Archivists, librarians and related information professionals |
| 244 | Social science and related professionals |
| 245 | Writers and creative or performing artists |
| 246 | Religious professionals |
| 247 | Public service administrative professionals |