



Working Paper

Trends in Gender Disparities at the School to Work Transition in Germany

Comparing the Labor Market Entry of Young
Men and Women between 1984 and 2005

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Editorial Note:

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Abstract

This paper examines the labor market entry of low- and medium-qualified men and women using representative longitudinal data from the German Socio-Economic Panel. By identifying four consecutive entry cohorts, we analyze trends in gender differences with respect to the duration until they find their first job between the years 1984 and 2005, a period marked by a further increase in young women's educational attainment and continued growth of the service sector. Both developments should benefit women with a lower education more than men in the same group in terms of smooth labor market integration. Results from discrete event history analyses show that today these women indeed find their first job faster than men. However, this is not due to an improvement in young women's chances to find employment, but to deteriorating employment prospects of men leaving the educational system. Our results indicate (1) that women in general are better equipped for the competition for low- and medium-skilled jobs as they have increased their educational attainment more than men, and (2) that the decline of male-dominated occupations in production has led to increased job competition for men, which prolongs particularly low-skilled men's transition from school to work.

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1. Introduction

Research on the integration of young people into the labor market generally emphasizes the importance of individual educational attainment for a smooth transition from school to work (Breen et al. 1995, Shavit & Müller 1998). A high qualification level minimizes the risk of unemployment and is the foundation for further career advancement. At the same time, the value of education at labor market entry essentially depends on a country's structural and institutional context determining supply and demand regarding specific qualifications (Gangl 2002). An oversupply of highly qualified workers might lead to downward competition with less skilled individuals. Additionally, even labor market entrants with a relatively high educational attainment may face difficulties in finding a job if they have acquired vocational qualifications in an occupation that is in decline as a result of structural changes in the labor market.

Against this background, the growing educational attainment of women during the last few decades together with a continuous shift in the occupational structure from male-dominated jobs in production to jobs in the service sector with a high proportion of women should lead to increasing advantages for female relative to male labor market entrants. Surprisingly, little empirical evidence is available as to whether women were able to transform these theoretical advantages into an actual improvement in finding their first job. From a gender perspective, it is important to examine differences between men and women with respect to the school-to-work transition, since a smooth integration into the labor market has long-lasting positive consequences for the work career (e.g. Korpi et al. 2003, Blossfeld et al. 2006, Blossfeld & Hofmeister 2006). In that sense declining gender disparities in terms of the school-to-work transition are an important prerequisite for a further decrease in gender inequality in the labor market.

In this paper we investigate trends in gender disparities with respect to the transition from school to work in Germany between 1984 and 2005. Whereas most previous research on young people's labor market integration relies on cross-sectional data, we apply a dynamic analytical framework based on detailed longitudinal microdata to evaluate the timing of labor market entry. Moreover, we focus on the transition rates from education to work of men and women with low and medium secondary education only. For this group of labor market entrants, as compared to graduates from higher education, changes in the occupational structure have been particularly gender-biased over the last few years. Whereas the number of jobs in semi-skilled and skilled manual occupations in industry and the crafts, which were traditionally dominated by men, rapidly declined, the number of jobs predominantly occupied by women expanded, e.g. in public administration, health care, or the private services. Moreover, tightened economic conditions accompanied by growing unemployment since the 1980s are likely to affect school leavers with low and medium education first and most severely, especially those without vocational qualifications (Reinberg & Hummel 2006).

Our results indeed indicate a narrowing of the gender gap in terms of the timing of labor market integration of school leavers from low and medium secondary education. However, the main reason be-

hind this process appears to be a deterioration of men's job search prospects, rather than an improvement of the situation of women. Before turning to our empirical findings in more detail, the following two sections provide the theoretical background for our analysis and introduce our data and statistical approach. In the final section we summarize the main findings and draw some general conclusions.

2. Theoretical background

2.1 Secondary education, vocational training, and labor market structure in Germany

Germany's system of secondary education is commonly described as both highly stratified and standardized (Allmendinger 1989). After leaving primary school around the age of 10, children are channeled into one of three different tracks of secondary schooling, depending on their previous performance. The highest-ranking track, the *Gymnasium*, takes nine years to complete and is the only track that enables graduates to enter higher education directly. Alternatively, *Gymnasium* leavers can enter vocational training. Low and medium secondary education, i.e. *Hauptschule* and *Realschule*, are attended until grade 9 and 10 respectively.¹ Graduation from these schools is considered as a prerequisite for entering vocational training, although there is no formal restriction.

The dominant approach to vocational training in Germany is a dual system of schooling and on-the-job training in the form of in-firm apprenticeships (Blossfeld 1992, Müller et al. 1998). Purely school-based vocational training has gained some importance in recent years and is disproportionately often taken up by young women, because occupations in the service sector and health care are often trained at schools only. Still, it is only of minor importance compared to dual training (Hartung & Janik 2006). Similarly to secondary education, the training system is marked by a high degree of segmentation and standardization. There are around 400 different programs for which worker representatives, chambers of trade and industry, and the state collectively set up curricula, examination procedures, and other requirements (Soskice 1994). Generally, school leavers have to apply for apprenticeships in the same way they later apply for regular jobs. Some apprenticeships, e.g. in more demanding intermediate technical and administrative occupations, require at least *Realschule* graduation. Training usually takes 2 to 3 ½ years.

The system of vocational training has important implications for the structure of the labor market as a whole (Marsden 1990, Scherer 2005). As employers are actively involved in the design of training programs, they have detailed knowledge about the skills of trainees. Accordingly, they have rather specific expectations of potential workers and favor those whose training comes closest to the requirements of a given job. This causes employers to often employ young people who completed training in

¹ Although there are differences between the several German federal states in the curricula of each track, the formal requirements to attain the respective certificates are comparable.

their firms, thus fostering a smooth labor market transition. Alongside with these advantages, the system also has potential disadvantages. Former trainees are limited in their choice of jobs at least in the beginning of their work career, as their training only qualifies them for a number of similar occupations.²

As a consequence of the widespread recognition and approval of vocational qualifications, chances of labor market entrants without vocational training are rather small in the competition for well-paid jobs. In the last 20 years, a vocational training certificate has been the minimum entrance ticket into stable employment. Within the vocational system, the mismatch between nearly constant numbers of low-educated school leavers and rising requirements of training firms has been growing, aggravated by a general scarcity of training slots (Seibert & Kleinert 2009). Thus, school dropouts and *Hauptschule* leavers often end up in a series of active labor market measures without a chance to enter an apprenticeship or stable, non-precarious employment.

2.2 Finding the first job – a theoretical model

Modeling the transition process from education to work has to take account of the job searcher's decisions and actions on the one hand and those of the employer on the other hand (Sørensen & Kalleberg 1981, Coleman 1991, Logan 1996). The observed matching of a particular worker to a particular job can be understood as the most suitable outcome for both actors, given their respective opportunity structure and preferences. From the school leaver's perspective, a desirable job provides adequate returns to educational investments in the past in terms of salary, working conditions, or promotion opportunities. For every job offer encountered, the applicant has to decide whether it meets his or her demands or whether it appears more promising to continue the search, even at the cost of unemployment. Similarly, employers will keep rejecting applicants until they find a worker who promises to be the most productive in a given position and to require the least additional training. Hence, a prolonged transition process may be the consequence of employers being dissatisfied with a school leaver's qualification or a worker being unhappy about the quality of the positions currently offered in the market. However, as the search duration for jobs and applicants increases, the likelihood for an adequate match becomes smaller, because the best workers and jobs in the market will already be taken.

Given the lack of previous work experience, qualifications obtained in the educational system are obviously a school leaver's most important resource in the competition for the best jobs, be it as a means to actually increase one's productivity or as a signal of general motivation, ability, and thus low potential training costs (Arum & Shavit 1995, Breen et al. 1995, Shavit & Müller 1998). More specifically, it is the level of education *relative* to that of other labor market entrants that leads to a successful transition from school to work, as this determines an individual's position in the labor queue (Thurow 1975).

² There is some empirical evidence from Germany that changing the occupation an individual was trained in is beneficial in some cases. Thus, dual training seems to impart not only occupational and firm-specific qualifications, but also general human capital. In general, however, the wages of individuals who continue to be employed in their original occupation are higher than they are for those who change their occupation after training (Fitzenberger & Spitz 2004).

Still, the extent to which education actually yields adequate returns depends on the number of applicants with particular credentials as well as on the demand for these credentials among employers. The supply of applicants with certain educational certificates is influenced by the degree of educational expansion a country has experienced. With all other factors being equal, educational expansion implies a gradual devaluation of educational certificates, as their use for employers to effectively discriminate between applicants diminishes once they become widespread. As a result, school leavers from the lower end of the educational system can be expected to experience more and more difficulties with respect to labor market entry in the course of educational expansion.

The demand for certain educational credentials, on the other hand, depends on a country's occupational structure. Two different mechanisms can be expected to operate here. Firstly, a shift towards technologically advanced and knowledge-based occupations entails a heightened demand for education above compulsory levels and potentially sets off devaluation processes triggered by educational expansion (Penn et al. 1994, Müller 2001). Occupational upgrading may worsen the labor market integration chances of low-educated school leavers, since jobs with low levels of education are not in demand anymore. Secondly, in countries such as Germany, Austria or the Netherlands, which offer occupation-specific training as part of their educational system, changes in the relative importance of occupational sectors go beyond an effect on the demand of general education. Because occupational mobility is limited after having completed training, graduates from programs in expanding sectors are likely to encounter favorable conditions as opposed to those trained in occupations with a stagnating or declining number of jobs, even if their formal education is at the same level.

The demand for qualifications is also determined by cyclical economic changes. Empirical evidence suggests that unemployment risks might depend even more strongly on the general economic conditions than on structural changes. Tightening markets are likely to lead to downward competition. Again, this will affect the least qualified labor market entrants most severely (Goubert & Heylan 1996, Gangl 2002, van der Velden & Wolbers 2003, Reinberg & Hummel 2006).

2.3 Education, occupational change, and gender disparities at labor market entry in Germany

How do the above considerations affect gender disparities at labor market entry? An attempt to answer this question needs to compare the educational attainment of young men and women in recent years and evaluate gender-specific trends in the development of the occupational structure. Table 1 shows the percentage of men and women from four birth cohorts who have graduated from the three tracks of secondary school together with the percentage of school dropouts in 2005.³ While women had attained medium secondary education more often than men even in the first cohort, they surpassed men in completing higher secondary education beginning with the birth cohorts 1975–1980. Furthermore, the proportion of women dropping out of school or attaining only low secondary educa-

³ Unfortunately, there are no official data for each individual West German birth cohort. Additionally, the data do not allow for a differentiation between first educational degree and certificates attained later in life.

tion decreased more than that of men. If we look only at individuals below higher secondary education, around 60 percent of women graduated from medium secondary schools in all cohorts, compared to only around 50 percent of men. Over and above these growing advantages of women, the importance of secondary-school certificates has grown over the last few decades. First, the educational expansion resulted in increased competition for apprenticeship positions. Second, occupational upgrading led to rising skill requirements in the labor market (Müller 2001, Reinberg & Hummel 2006, Schubert & Engelange 2006). Therefore we expect women's advantages in educational attainment to lead to increasing chances for them to find a first job relative to men.

No comparable official data is available that allows us to trace the development in the proportion of graduates from low and medium secondary schools who attained vocational training. However, previous research (Hartung & Janik 2006) using a panel study of German firms shows that around 44 percent of West German entrants into vocational training programs in 2005 were female, a figure equivalent to the overall proportion of women in the labor force. At the same time, women constitute half of the graduates from vocational training. Thus, women appear to be more successful than men in completing a training program once they have entered it. These results further strengthen the notion that women have caught up with and may even outperform men in vocational training, resulting in a smoother labor market integration.

Similar to other modern economies, Germany displays a high and nearly constant degree of gender segregation in the labor market, i.e. the concentration of men and women in specific occupations, resulting from the gender division of labor in market work (Reskin 1993, Reskin & Bielby 2005). This may be the result of both gender-specific human capital investments and cultural norms defining which jobs are 'appropriate' for men and women and thus influencing the occupational choices of school leavers as well as the hiring decisions of employers. Due to the strong occupational principle of the German training system, young women are channeled into different fields of training and study than men (for overviews cf. Smyth 2005, Seibert 2007), and segregation is reproduced in the labor market by the strong link between trained occupation and placement (Solga & Konietzka 2000, Trappe 2006). Thus, changes in the occupational structure affecting the demand for workers in male-dominated occupations differently than in female-dominated occupations have necessarily consequences for gender disparities at labor market entry. Figure 1 depicts the development of the share of the total of employees working in the three most important male-dominated and the four most important female-dominated employment sectors⁴ in East and West Germany between 1991 and 2005.⁵ It becomes immediately evident that over this time period the relative importance of the male-dominated sectors as employers decreased, whereas female-dominated sectors increased their share of total employees. As a result, the latter might have been able to absorb a higher number of labor market entrants. Since

⁴ These sectors together encompass around 70 percent of all employees in each year. Other sectors are either not clearly dominated by one gender (e.g. finance or real estate), are very small (e.g. mining or private services) or cannot be entered without a tertiary degree (e.g. education). None of the sectors included in the OECD data changed from being male-dominated to being female-dominated or vice versa between 1991 and 2005.

⁵ Unfortunately, no adequate data are available for the time before 1991.

gender-specific occupational preferences remained very stable over time (Seibert 2007), a decline in job opportunities in male-dominated occupations should lead to higher competition for jobs, and thus to longer transition periods for men. For women, this should not be the case, provided that the expansion of traditionally female jobs kept up with the increase in female employment rates as a whole.

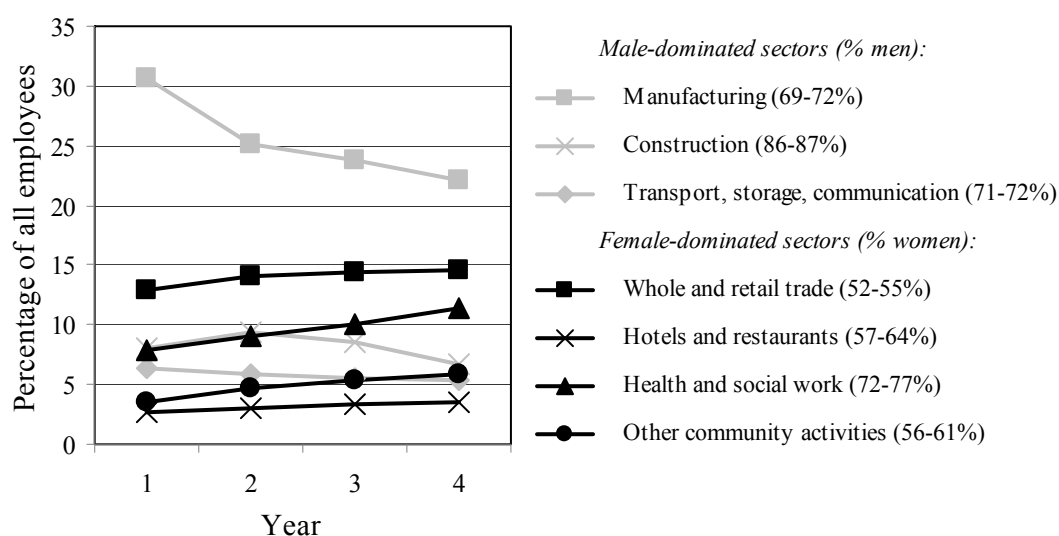
Table 1. Secondary education certificates in Germany by gender and birth cohort, row percentages

Birth Cohort	Low Secondary Education		Medium Secondary Education		High Secondary Education		Dropouts	
	Men	Women	Men	Women	Men	Women	Men	Women
1965–1970	30.71	23.90	33.15	42.45	32.61	29.74	3.44	3.78
1970–1975	27.92	22.09	32.27	39.20	36.00	34.29	3.53	4.27
1975–1980	26.80	19.53	31.06	34.49	38.75	42.14	3.31	3.80
1980–1985	28.09	18.43	34.17	36.30	33.92	41.90	3.45	3.37

Source: Statistisches Bundesamt 2006, authors' own calculations.

To sum it up, women below higher secondary education in Germany increased their educational attainment relative to men. The occupational sectors displaying a high concentration of women gained a larger share of all employees, while male-dominated occupations lost importance as employers. At the same time, these developments improve women's competitiveness in the market. Consequently, both trends should lead to an improvement of women's labor market integration compared to men's if general economic trends and changes in family formation behavior are controlled for.

Figure 1. Development of selected occupational sectors in Germany from 1991 to 2005



Source: OECD Labor Force Statistics, authors' own calculations.

3. Data and statistical modeling

For investigating gender disparities at labor market entry in Germany, we draw on the 1984 to 2007 waves of the German Socio-Economic Panel (GSOEP), a representative longitudinal survey carried out annually since 1984 and located at the German Institute for Economic Research (DIW) in Berlin. Beside a wide range of socio-economic background variables, the GSOEP provides a monthly activity calendar from which school-to-work transitions can be constructed. Our sample includes West German respondents only, because there is no data available from East German respondents before 1990. We defined school-to-work transitions as leaving school or vocational training without returning to any form of education within the next 12 months. This assures that we observe the actual labor market integration rather than a temporary job in between educational activities.⁶ In order to make sure that first labor market integration only is observed, the analysis was limited to young people under the age of 30 who first provided valid calendar data when they were 25 or younger. All subsequent job search episodes after leaving further education were neglected. We then followed the transition process until the individual school leaver entered full-time or part-time employment, dropped out of the survey, or reported other activities, e.g. maternity leave or further education. Overall, we observed 2,247 labor market entrants in 8,885 person-months.

Our main explanatory variables are gender, education, and entry cohort. We created four different educational groups based on information about general and vocational education at the time of labor market entry. The first group contains school dropouts and individuals with low secondary education without vocational training. Individuals with a medium secondary degree, but without vocational training make up the second group. The third and fourth groups consist of labor market entrants with low secondary education and vocational training and with medium secondary education and vocational training respectively. To accumulate a sufficient number of cases for analyzing clear time trends, we divided our sample into four school-leaver cohorts of a similar size. The first cohort left education between 1984 and 1988, the second between 1989 and 1994, the third between 1995 and 2000, and the fourth between 2001 and 2005. Moreover, we control for the annual vacancy ratio⁷ of the federal state the respective labor market entrant resides in as a measure of the general economic cycle between 1984 and 2005. Two variables indicating whether a person is married and has children as well as their interaction with gender are used to account for changes in family formation behavior that might also affect labor market entry. Additional control variables are age and ethnic background.

For the assessment of the effect of structural changes in the labor market on the transition from school to work we opted for an indirect approach because no appropriate measures of occupational change were available for our period of observation. Ideally, we would need a measure for the demand for (unskilled and semi-skilled) labor separately for sectors that typically employ men and women. As we

⁶ Most young men in Germany enter the military service (or alternative non-military national service) for about a year after leaving the educational system for the first time. Before determining the school-to-work transition we deleted all months in service from the activity calendar, so that these were neither considered as part of the 12 months' period mentioned above nor of any job search spell.

⁷ I.e. the number of vacant positions per unemployed worker.

control for individual education, cyclic changes of the labor market, and other important determinants of the transition from school to work, the residual effect of the entry cohort will provide some hints as to the consequences of structural changes in the labor market. Nonetheless, for an interpretation of our results one has to bear in mind that we do not conduct a definitive test of our hypotheses regarding the effect of occupational change on gender disparities at labor market entry.

In order to estimate the effect of our independent variables on the transition from school to work we use discrete event history modeling (Allison 2006, Singer & Willett 2003). In this approach, the monthly transition rate $h_{it}(t)$ is defined as the conditional probability that an individual enters employment at time t , given that a transition has not taken place, yet:

$$h_{it}(t) = P(E_i = t | T_i \geq t, x_{it}).$$

The monthly transition rate of the complete sample simply equals the number of respondents who find employment in a given month, divided by the number of respondents who are still looking for a job. Thus, the problem of bias resulting from the exclusion of labor market entrants who are not observed to find a job within their window of participation in the GSOEP (i.e. right-censoring) is solved by taking them into account until they drop out of the sample.⁸ The effects of the vector of determinants x_{it} on the transition rate can be estimated by using a logistic regression model for dichotomous dependent variables (Long 2000), where every month spent searching for employment is treated as a unique observation.⁹ A dummy variable indicating whether a respondent is employed in every respective month serves as the dependent variable. Additionally, we model duration dependence by including a linear term for the current duration of job search as well as its natural logarithm. This specification proved to be a good compromise between theoretical assumptions predicting a decreasing likelihood of finding a job after prolonged job search and the empirical shape of the transition rate.

4. Empirical evidence

In the following, we first estimate trends in gender disparities in terms of labor market entry chances, controlling only for the economic cycle, family formation, age, and ethnicity. This provides evidence as to how fast women in general entered the labor market compared to men over the last 20 years. In the next step, we also control for individual educational attainment as well as for multiple two-way and three-way interactions between gender, education, and entry cohort.¹⁰ With this second model we investigate to what extent changes in the educational composition can explain trends in the differences between men and women with respect to labor market integration. The interactions also allow us to

⁸ In our sample, 8.6 percent of job search episodes are right-censored, with women's spells being censored more often than men's.

⁹ Multiple observations per person are likely to lead to serial error correlation, so that robust standard errors have to be used in order to obtain valid significance tests.

¹⁰ The interpretation of interaction terms in non-linear models in the form of log-odds or odds ratios is associated with a number of problems (Ai & Norton 2003). We follow the statistical literature and calculate discrete change effects and absolute probabilities with their respective confidence intervals to solve these problems.

examine if gender disparities developed differently within the various educational groups. Before we turn to these multivariate results, however, we provide some descriptive evidence on the development of the educational attainment of men and women in our sample as well as the gendered patterns of labor market entry over time.

4.1 Descriptive results

Table 2 shows the distribution of schooling and vocational education for men and women from our four labor market entry cohorts. Similar to the official data from Table 1, we see that in all entry cohorts around 60 percent of women graduated from medium secondary school, whereas only half of the men in our sample did. The advantage of the GSOEP data is that we can also follow the development of vocational training for labor market entrants below higher secondary education. Clearly, both men and women have increased their participation in vocational training. For women, however, this increase was stronger: from 53 percent with vocational training in the first entry cohort to 69 percent in the last. The share of men with completed training grew only five percentage points from 58 percent to 63 percent. Medium secondary education with vocational training increased markedly in particular for women, from 31 percent to 49 percent. In the latest cohort, almost half of the women in the sample belong to this group, compared to only 28 percent of men. At the same time, the share of women in the lowest ranking group, i.e. low secondary education without vocational training, dropped from 31 percent to 15 percent. Men's share in this group also decreased, but merely from 30 percent to 23 percent. Thus, women extended their initial advantages in educational attainment relative to men. It is also noteworthy that the total number of men and women in the sample with low and medium education sank continually throughout the observation period, probably reflecting both sinking birth rates and educational expansion.

Table 2. Educational attainment of German labor market entrants by gender and entry cohort, row percentages

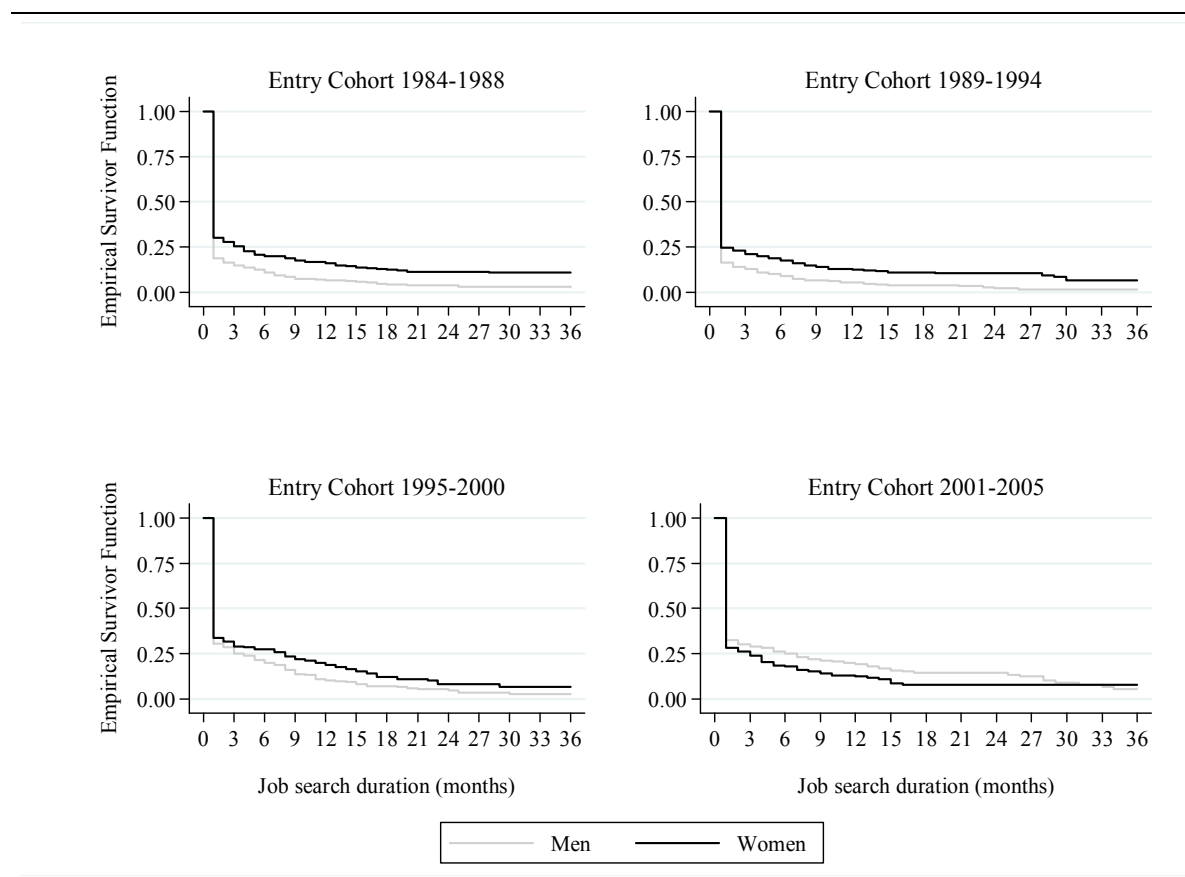
Entry Cohort	Low Sec. Educ. w/o Voc. Train.		Medium Sec. Educ. w/o Voc. Train.		Low Sec. Educ. w/ Voc. Train.		Medium Sec. Educ. w/ Voc. Train.		N of Persons	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Men
	1984–1988	30.26	30.53	11.58	16.53	38.42	21.85	19.74	31.09	380
1989–1994	39.17	30.66	10.68	19.16	30.86	23.00	19.29	27.18	337	287
1995–2000	25.52	21.03	9.62	20.17	39.33	22.32	25.52	36.48	239	233
2001–2005	22.82	15.38	14.56	15.87	34.47	20.19	28.16	48.56	206	208

Source: GSOEP 1984–2007, authors' own calculations.

The empirical labor market entry patterns of men and women from the four transition cohorts are shown in Figure 2. As reported in previous research (Hillmert 2002, Gangl 2003, Scherer 2005,

Seibert & Kleinert 2009), labor market entry in Germany is generally smooth. A large majority of educational leavers is employed after only one month of job search in all cohorts, pointing to a frequent occurrence of continued employment of former apprentices in the same firm. It is also evident, however, that labor market integration for the last two cohorts takes longer than for the two cohorts before them. This might be a consequence of tightened labor market conditions in general, but also of increased competition from labor market entrants with higher secondary education, and/or due to a growing scarcity of training places. Regarding gender differences at the transition from school to work it can be seen that men enter the labor market faster than women in the first three cohorts. Only in the first two cohorts is the gender difference significant, and the gender gap decreases in each consecutive cohort. In the last cohort (2001–2005) women even outperform men in terms of the duration until finding their first job. This is a first hint that women were able to take advantage of their better education and that they profited from structural changes in the labor market.

Figure 2. Timing of labor market entry by gender and entry cohort, Kaplan-Meier estimates



Source: GSOEP 1984–2007, authors' own calculations.

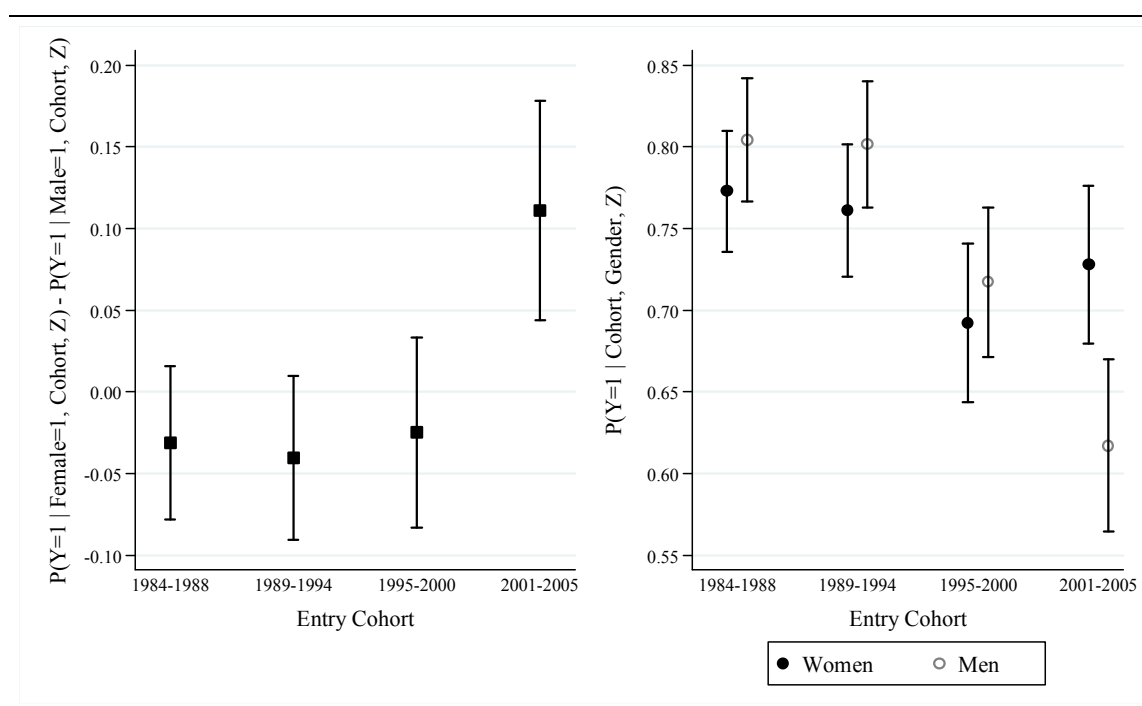
4.2 Multivariate results

In this section we attempt to investigate the causes of the changing gender disparities at labor market entry using multivariate analyses. First, we control for the influence of changes in family formation behavior and the overall economic conditions and we account for shifts in the ethnic composition and

age structure of leavers from low and medium secondary education. In the second step we assess the importance of education to shaping gender disparities at labor market entry by comparing men and women within the four educational groups we defined earlier. A look at the interaction of gender, education, and entry cohort will also provide some evidence as to what extent shifts in the occupational sectors are responsible for changes in gender disparities.

Figure 3 depicts the discrete change effect of gender on the probability to find employment (on the left) as well as the absolute probability to find employment for men and women over the four educational leavers' cohorts (on the right). Both are calculated at the first month after entering the labor market, because this is the time when the large majority of school leavers find their first job. The results basically replicate the descriptive findings from Figure 2 with one important exception: women are not significantly slower than men in finding their first job in the first three cohorts, once family formation behavior, economic conditions, age, and ethnic origin are controlled for. In the last cohort (2001–2005) women are faster than men in finding employment. This effect is significantly different from 0 and also from the effects observed in the three previous cohorts.

Figure 3. Gender differences in terms of the probability to find employment in the first month after labor market entry, discrete change effect of gender and probabilities obtained from Logistic Regression

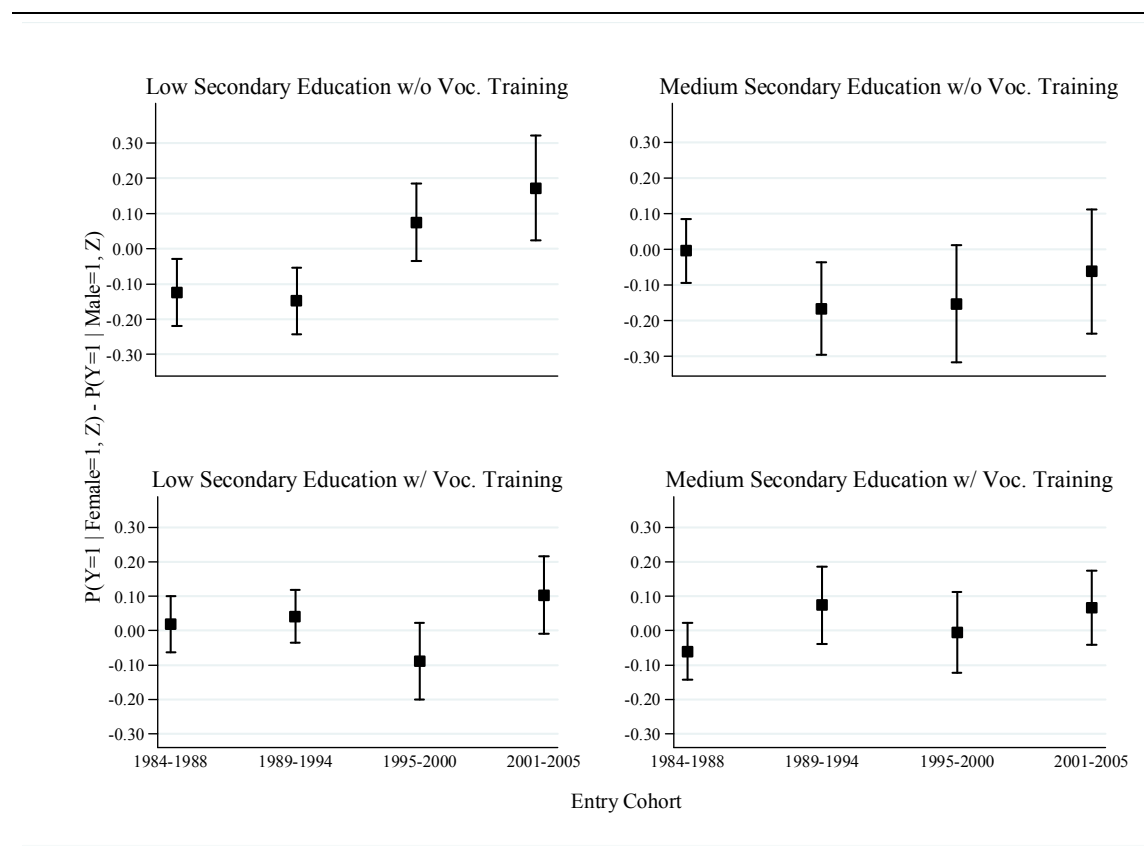


Note: Estimates obtained from Model 1, in Table A 1 in the Appendix. Age and vacancy ratio are held constant at sample mean. Other covariates are held constant at mode (ethnicity=German; children=none, married=no, duration=1).

Source: GSOEP 1984–2007, authors' own calculations.

The absolute probabilities to find employment broken down by gender and cohort reveal that the improvement of women's labor market integration relative to that of men does not result from women entering the labor market faster in each consecutive cohort. Rather, men's prospects for labor market entry have deteriorated more quickly than women's over the four cohorts. Men entering the labor market between 2001 and 2005 took significantly longer to find their first job than their counterparts in the earlier cohorts. Although women show a similar tendency towards prolonged transitions, the differences between the female cohorts are not significant. As other possible determinants are held constant, most importantly the general economic conditions, the prolonged transition process for men is likely to reflect their lower average education, which has further been devalued in the course of growing skill requirements in the labor market and educational expansion.

Figure 4. Effect of gender on the probability of finding employment in the first month after labor market entry, discrete change effects by entry cohort and education obtained from Logistic Regression



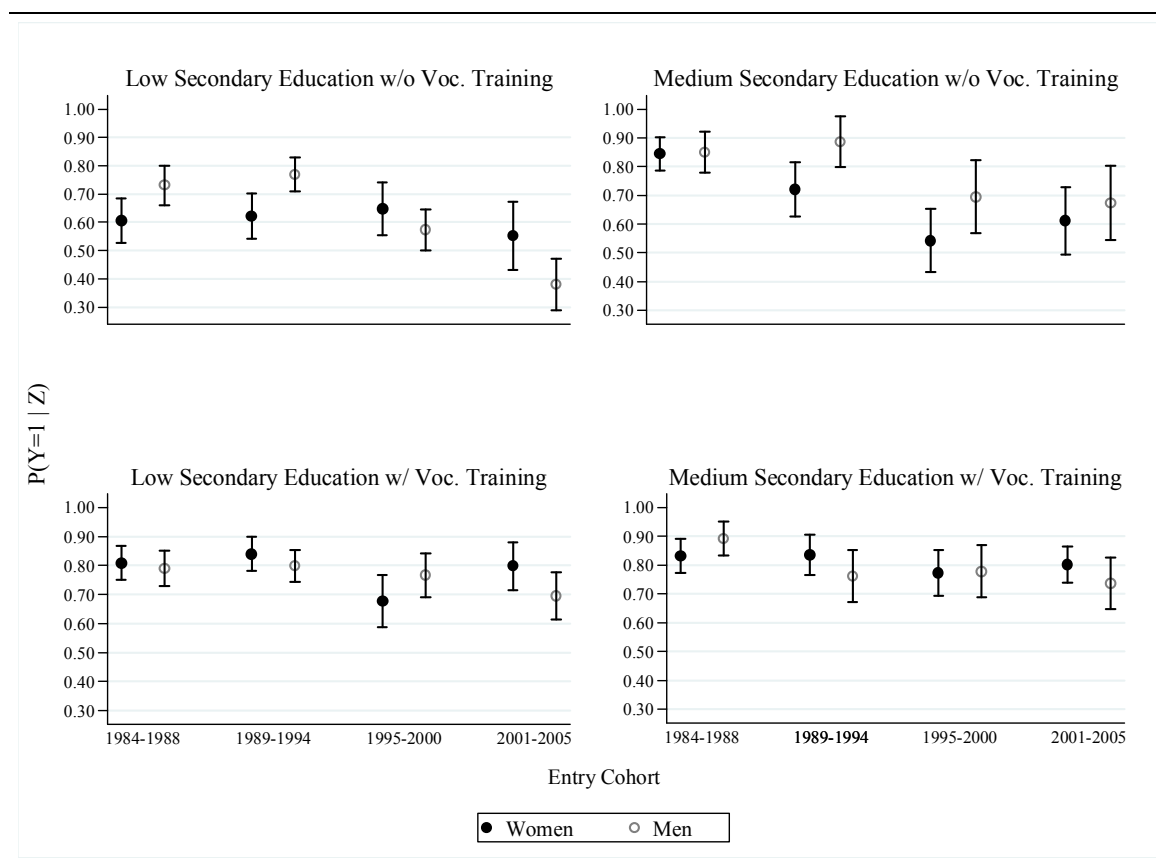
Note: Estimates obtained from Model 2, in Table A 1 in the Appendix. Age and vacancy ratio are held constant at sample mean. Other covariates are held constant at mode (ethnicity=German; children=none, married=no, duration=1).

Source: GSOEP 1984–2007, authors' own calculations.

We now control for the effect of individual education on labor market entry by including measures of educational attainment as well as multiple two-way and three-way interactions between gender, edu-

cation, and entry cohort in our model (for details see Model 2 in Table A 1, in the Appendix). In Figure 4 we can see the effect of gender on the probability to find employment after one month of search calculated separately for our four educational groups. The results are somewhat surprising: A significant change in gender disparities between cohorts can only be detected for labor market entrants with low secondary education who have not completed vocational training. In this group, women enter the labor market significantly slower than men in the first two cohorts, whereas in the last cohort they are significantly faster than men. In the two groups with completed vocational training, there is no significant difference between women and men regarding labor market entry even in the cohort leaving education between 1984 and 1988. This remains true for all consecutive cohorts with no significant changes in the effects. In tendency, women in the two middle cohorts are even faster in finding a job than men, although the effect is not significant.

Figure 5. Probability of finding employment in the first month after labor market entry by gender, entry cohort, and education obtained from Logistic Regression



Note: Estimates obtained from Model 2, in Table A 1 in the Appendix. Age and vacancy ratio are held constant at sample mean. Other covariates are held constant at mode (ethnicity=German; children=none, married=no, duration=1).

Source: GSOEP 1984–2007, authors' own calculations.

Finally, leavers from medium secondary education without vocational training display a rather odd pattern of gender differences. In the first cohort women are not significantly different from men. For women from the subsequent cohort the differences increase significantly to their disadvantage, only to decrease again in the following two cohorts. However, the results for this group of labor market entrants have to be interpreted with caution as they contribute by far the smallest number of cases, thus increasing the uncertainty of the statistical inferences, as can be seen by relatively large confidence intervals. Overall, the results in Figure 4 suggest that once men and women attain a comparable educational level, there is hardly any difference between them in terms of the timing until they find their first job.

In order to examine the processes underlying the development of gender disparities, Figure 5 finally shows the absolute probabilities to find employment in the first month after leaving education by gender, education, and entry cohort. We see that for men and women with vocational education the likelihood of smooth labor market integration has decreased only slightly and not significantly over the years. Furthermore, labor market entrants without vocational education from the most recent entry cohort partly face a significantly smaller probability of finding a job as quickly as those from the earliest cohort. This is particularly evident for men from the lowest-ranking educational group. The increasing gap between entrants with vocational training and those without suggests that completing vocational training has become more important for a smooth labor market entry over time.

From our results it becomes clear that individual educational attainment goes a long way to explaining women's growing advantages at labor market entry within the group of labor market entrants with low and medium secondary schooling. Over the last 20 years, the already existing gap between women and men regarding education widened even further. In addition, the importance of education for a smooth labor market entry has continued to increase due to rising skill requirements in the labor market as a result of occupational upgrading. Hence, women's higher educational attainment helped them particularly in the later cohorts to enter their first job faster than men on average.

Overall, the results also provide some hints about the consequences of occupational change for gender disparities regarding labor market entry. Evidently, the growing demand for labor in the service sector has not yielded tangible gains for women, as the duration until they find their first job increased in all educational groups. For men, on the other hand, the loss of male-dominated jobs in production over the observation period seemingly affects particularly those labor market entrants with the lowest qualifications. Controlling for general economic trends, education, and other important determinants of the transition from school to work, the employment outlook of low-skilled men without vocational training is rapidly declining. However, these results have to be confirmed by a more direct investigation of the effect of occupational change on the labor market entry of men and women.

5. Summary and conclusion

In Germany, in contrast to most other modern economies, firms in the production sector remained the most important employer for a relatively long time. However, since the mid 1980s employees in the service sector have started to outnumber those in industrial occupations. As a byproduct of this development, many jobs typically occupied by low- and medium-skilled men have been lost, whereas the number of jobs in occupations with a large share of women has grown continually. In addition, educational expansion led to a marked increase in the average educational attainment of the population, particularly that of women. In this paper we investigated how these trends on the macrolevel of society influenced differences in the timing of labor market entry between individual men and women with low and medium secondary education. We expected that women profited from educational expansion and occupational change relative to men, as these trends should have increased both women's competitiveness in the market and the demand for their labor.

Both our descriptive and multivariate results showed that lower educated women today indeed enter the labor market faster than men on average, while they were slightly slower than men until the end of the 1990s. However, this change was not caused by women entering the labor market faster after leaving the educational system, but by a significant deterioration of men's prospects for smooth labor market integration. Further analyses revealed that this is largely due to men's lower educational attainment. Within the same educational group there were hardly any differences between men and women regarding labor market entry, with the exception of the lowest-ranking educational group, graduates from low secondary education without vocational training. In this group, men's initial advantages relative to those of women turned into significant disadvantages in the latest cohort.

Bearing in mind that we did not include any direct measures of occupational change in our analyses, the latter finding can be interpreted as a consequence of the decline of typically male jobs in production and affiliated occupations, as we control for the general economic cycle throughout our observation period. More specifically, apparently men had to face increasing job competition between 1984 and 2005, which created growing difficulties in finding their first job for market entrants with relatively low educational attainment. This may either be the consequence of downward competition accompanied by the crowding out of the weakest job seekers or simply the result of losing particularly those jobs that were taken by the least skilled workers. In order to gain a more detailed picture of these processes, further research needs to look at changes in the specific jobs held by labor market entrants with different qualifications.

In the case of women, we can conclude that the expansion of female-dominated occupational sectors did not produce absolute benefits, as there is a tentative increase in the duration until their first job is found even for women from the upper end of the educational spectrum. Our results suggest, however, that the growing number of jobs women traditionally entered helped to mitigate negative effects from the competition with an increased number of graduates from upper secondary school. Compared to men, women experienced a less severe deterioration of their employment prospects at labor market entry even in the lowest-ranking educational group. Altogether, our results confirm the view that

women with low and medium education benefited from educational expansion and occupational change regarding the duration until they find their first job, at least in relative terms.

Of course, our strict focus on the timing of labor market entry leaves open several important questions, as it entirely disregards the quality of the first job. For example, it is possible that young women's jobs offer fewer rewards in terms of status, wage or working conditions. It would be equally important to examine gender disparities regarding the opportunities for promotion in the first job. Further research certainly needs to address these issues.

Nonetheless, our findings regarding gender disparities in terms of the duration until the first job is found have several important implications for gender inequality in the labor market as a whole. First of all, the fact that women enter employment quickly means that their labor is highly valued by employers. Moreover, the recent improvements in the case of young women are likely to have a positive impact on their later work career as well and promise to further narrow the gender gap in the labor market. Key factors in this process are the growing educational credentials of women. In fact, men's failure to keep up with the developments in female educational attainment is likely to cause difficulties at labor market also for medium-skilled men, in particular if the tendency to enter male-dominated occupations remains unchanged. To date, there is no evidence pointing towards such a shift in male occupational preferences.

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Appendix

Table A 1. Determinants of the duration until first job, parameter estimates obtained from Logistic Regression, logit coefficients

	Model 1		Model 2	
	b	(SE)	b	(SE)
Female	-0.188	(0.144)	-0.566*	(0.223)
Female*Cohort 89-94	-0.049	(0.206)	-0.143	(0.316)
Female*Cohort 95-00	0.068	(0.199)	0.880**	(0.326)
Female*Cohort 00-05	0.696**	(0.210)	1.265**	(0.381)
Cohort 89-94	-0.017	(0.163)	0.207	(0.239)
Cohort 95-00	-0.482**	(0.151)	-0.700**	(0.220)
Cohort 01-05	-0.935**	(0.156)	-1.487**	(0.260)
Female*Cohort 89-94*Med. Sec. Educ. w/o Voc. Trai.			-0.932	(0.693)
Female*Cohort 95-00*Med. Sec. Educ. w/o Voc. Trai.			-1.500*	(0.608)
Female*Cohort 00-05*Med. Sec. Educ. w/o Voc. Trai.			-1.500*	(0.651)
Female*Cohort 89-94*Low Sec. Educ. w/ Voc. Trai.			0.301	(0.489)
Female*Cohort 95-00*Low Sec. Educ. w/ Voc. Trai.			-1.448**	(0.503)
Female*Cohort 00-05*Low Sec. Educ. w/ Voc. Trai.			-0.834	(0.559)
Female*Cohort 89-94*Med. Sec. Educ. w/ Voc. Trai.			1.120	(0.603)
Female*Cohort 95-00*Med. Sec. Educ. w/ Voc. Trai.			-0.402	(0.606)
Female*Cohort 00-05*Med. Sec. Educ. w/ Voc. Trai.			-0.379	(0.611)
Female*Med. Sec. Educ. w/o Voc. Trai.			0.532	(0.417)
Female*Low Sec. Educ. w/ Voc. Trai.			0.686*	(0.338)
Female*Med. Sec. Educ. w/ Voc. Trai.			0.055	(0.431)
Cohort 89-94*Med. Sec. Educ. w/o Voc. Trai.			0.122	(0.570)
Cohort 95-00*Med. Sec. Educ. w/o Voc. Trai.			-0.206	(0.457)
Cohort 00-05*Med. Sec. Educ. w/o Voc. Trai.			0.480	(0.480)
Cohort 89-94*Low Sec. Educ. w/ Voc. Trai.			-0.148	(0.338)
Cohort 95-00*Low Sec. Educ. w/ Voc. Trai.			0.569	(0.345)
Cohort 00-05*Low Sec. Educ. w/ Voc. Trai.			0.992**	(0.363)
Cohort 89-94*Med. Sec. Educ. w/ Voc. Trai.			-1.155*	(0.457)
Cohort 95-00*Med. Sec. Educ. w/ Voc. Trai.			-0.150	(0.460)
Cohort 00-05*Med. Sec. Educ. w/ Voc. Trai.			0.406	(0.461)
Med. Sec. Educ. w/o Voc. Trai.			0.733*	(0.318)
Low Sec. Educ. w/ Voc. Trai.			0.324	(0.245)
Med. Sec. Educ. w/ Voc. Trai.			1.110**	(0.353)
Duration	0.171**	(0.010)	0.179**	(0.010)
ln(Duration)	-2.478**	(0.069)	-2.416**	(0.069)
Non-German	-0.514**	(0.078)	-0.453**	(0.080)
Age	1.404**	(0.174)	0.940**	(0.181)
Age-squared	-0.031**	(0.004)	-0.021**	(0.004)
Married	-0.158	(0.237)	-0.062	(0.227)
Female*Married	-0.050	(0.285)	-0.213	(0.282)
Children	0.148	(0.299)	0.095	(0.296)
Female*Children	-1.804**	(0.364)	-1.663**	(0.366)
Local Vacancy Ratio	2.422**	(0.577)	2.743**	(0.571)
Intercept	1.242**	(0.121)	0.818**	(0.180)
N-Persons		2,247		2,247
N-Person-Months		8,885		8,885
Log-Likelihood		-2,725.10		-2,651.06

Note: Robust standard errors (in parentheses). Reference categories: male, cohort 84-88, Low Sec. Educ. w/o Voc. Train., German, not married, no children.

*p <.05. **p <.01.

Source: GSOEP 1984-2007, own calculations.