

Destabilization and Destandardization: For Whom?

The Development of West German Job Mobility since 1984

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Abstract

We contribute to the long-standing debate about the supposed “destabilization” and “destandardization” of employment biographies by analyzing how the job-shift patterns of West German workers changed between 1984 and 2008. Using data from the German Socio-Economic Panel, we study changes in the rates of (upward) within-firm and between-firm mobility as well as the risk of employment exit and analyze the associated trends separately by gender, education, labor-force experience, firm size, and sector. We document a considerable and pervasive reduction in the rate of (upward) within-firm moves. The reduction is stronger for men, and particularly steep for the employees of large companies and for those with limited labor force experience. We interpret these findings as evidence of a decline in internal labor markets and of the increasing difficulties faced by labor-market entrants. A second major result of our analysis is that rates of between-firm mobility and employment exit have risen primarily for low-educated men and women.

Keywords: labor market, mobility, social inequality

Destabilization and Destandardization: For Whom? The Development of West-German Job Market Mobility since 1984

1 Introduction

The thesis that employment biographies have been subject to destabilization and destandardization in recent decades has been circulating in both social scientific and public debate for a considerable time now. According to the advocates of this thesis, various developments at the macro and meso levels have undermined the predictability of employment careers and increased the risk of unemployment and involuntary changes of employer. Although this “destabilization and destandardization thesis” (Mayer et al. forthcoming) has been subject to intensive empirical scrutiny in recent years, our knowledge of the actual development of employment biographies on the German labor market remains limited in many respects.

Our study, which is based on data from the German Socio-Economic Panel (SOEP), aims to remedy this by focusing on two particular aspects of this issue. First, in addition to the probability of *between-firm changes* and *employment exits*, we also consider the probability of *within-firm changes*, which often due to data limitations were not taken into account in most previous studies. The only exception, of which we are aware, is the study by Diewald and Sill (2005), which is also based on data from the SOEP, yet whose window of observation ends in the year 2000. The scant empirical evidence for the development of within-firm mobility processes is particularly regrettable because the destabilization thesis is often linked with a supposed dismantling of internal labor markets and the curtailment of within-firm career prospects (Cappelli 1999). According to this view, declining rates of (upward) within-firm mobility constitute the within-firm counterpart of the increase in involuntary external job shifts.

Our second contribution is that our analysis is geared more systematically towards the *social structuring of labor market mobility* than previous studies. Following Carroll and Mayer’s (1986) classical study, in addition to individual employee characteristics, we also take two important employer characteristics into account: firm size and sector. The systematic analysis of group-specific developments enables us not only to undertake a differentiated examination of the theses on the development of employment biographies, it also promises information on the contribution of labor market processes to the now well-documented increase in wage and income inequality since the mid-1990s (Giesecke and Verwiebe 2008; Krause 2008; OECD 2008).

Our article is structured as follows: we begin by discussing the most important theses on the development of labor-market mobility in Germany and contrast them with the findings from empirical research. In the second section, we describe the data and present the methodological details of our analyses. The third section presents our empirical findings. We conclude with a summary and discussion of our most important results.

2 Theoretical background and current state of the research

In international comparison, the German labor market has long stood out for its high level of employment security (Blossfeld et al. 2006). The employment biographies of male employees, at least, were characterized by long periods of employment with the same firm and a low risk of layoff; compared to many other countries, career advancement often occurred within firms and was less frequently achieved through changes of employer.

Approaches from the sociology of work and economic sociology, such as the theory of the “varieties of capitalism” (Hall and Soskice 2001), cite not only the political regulation of employment – for example the high level of employment protection – in their explanations of this high rate of job security in Germany: the welfare state, the education system and industrial relations are seen as the other main components of a complex institutional arrangement that promotes long-term relationships between employers and employees and thus product-market strategies which build on the career- and firm-specific human capital of employees. Without sufficient employment security and within-firm career prospects, employees would not be willing to acquire firm-specific qualifications which are of little benefit on the external labor market. From the employer’s perspective, in turn, employees with such qualifications represent important assets that cannot be easily replaced and should not, therefore, be dispensed with rashly. Hence, in the ideal-typical case, both parties develop an interest in the continuation of the employment relationship over the course of its existence.

However, this description of employment relations and biographies was always more applicable to certain groups of employees than to others: i.e. it applied to men more than women, to university graduates and skilled workers more than to unskilled or semi-skilled workers, to employees in manufacturing industry more than employees in the services sector, and to the employees of large firms more than those working for small and medium-sized businesses. More significant in relation to the topic addressed by our study is, however, the fact that a number of developments at macro and meso levels have been argued to undermine long-term exchange relationships between employers and employees and to have, therefore, led to a destabilization and destandardization of employment biographies (more detailed discussions of the effects of these and other developments on employment biographies may be found *inter alia* in Blossfeld et al. 2007; Struck 2006; Struck et al. 2007). The Europeanization or globalization of competition has resulted in greater fluctuations in demand and increased pressure to adapt. At the same time, state-owned enterprises, which previously operated in protected competition-free environments, are now exposed to more intensive competition as a result of (partial) privatization (Schwartz 2001). Moreover, general technological change is accelerating innovation cycles and therefore increasing the demands made of employees. In addition, the growth in the services sector has increased employment in firms that are characterized by flat hierarchies and less dependent on firm-specific human capital than firms in the manufacturing sector. Institutional changes, for example the extension of the options for temporary work contracts, have simultaneously created the legal preconditions for the expansion of “atypical” employment (Sesselmeier 2007). Finally, it is sometimes argued that the willingness of employees to commit to a particular employer in the long term may have declined due to educational expansion and the increasing workforce participation by women (on this point, cf. also the findings of Mayer et al. 2010).

Whereas many authors expect dramatic changes in employment biographies as a result of these developments, empirical research on German labor market mobility has so far demonstrated minor destabilization tendencies at most. Thus various studies show that there has been little or no decline in employer tenure over recent decades. Based on the IAB (Institute for Employment Research) employment sample, Erlinghagen and Knuth (2004) even note a slight increase in employer tenure between 1976 and 1995. Based on the same data, a more recent study by Struck et al. (2007) notes a certain decline in employment stability between 1975 and 2001; however, the authors themselves state that “it [appears] exaggerated to evaluate the increased mobility in the labor market as a *radical structural change*” (p. 304, own translation, emphasis in original text). A SOEP-based study by Bergemann and Mertens (2004) for the period from 1984 to 1999 indicates a decline in

median tenure from 9.4 to 7.5 years for male employees, while the corresponding values for females are approximately 5.5 in both years.

However, when considered in isolation, the development of employer tenure is not a particularly meaningful indicator, for at least two reasons. First, this perspective is uninformative about changes in *within-firm* career opportunities, an issue that is particularly important because authors like Cappelli (1999) view a dismantling of internal labor markets as a core element of the overall trend towards destandardization. Internal labor markets are understood here as more or less binding institutional arrangements, typically found in larger firms, which offer employees comparatively clear career prospects. In this context, “clarity” means that employees may expect within-firm promotion on the fulfillment of certain (minimum) requirements. To this extent, internal labor markets represent one of the central institutions for the production of employment security and ordered, subjectively predictable, and upward-oriented career progressions (Doeringer and Piore 1985). Therefore, they institutionalize precisely the long-term exchange relationships that are supposedly undermined by the aforementioned developments. Hence, an important contribution of our study consists in the systematic examination of the development of within-firm changes. To our knowledge, the only quantitative-empirical study previously carried out for (West) Germany on the development of within-firm mobility in the recent past is that by Diewald and Sill (2005; cf., also, however, the important qualitative study by Köhler et al. 2007). In accordance with the thesis on the decline of internal labor markets, Diewald and Sill demonstrate a decline in within-firm promotions which arose, in particular, in the second half of the 1990s.

The second reason why an exclusive focus on employer tenure falls short is that the nature of the transitions at the end of an employment relationship is of major significance. It is known from the empirical literature, for example, that a large proportion of between-firm changes are voluntary and associated with improvements for the employees.¹ This is reflected in a pro-cyclical progression of the rate of change (Rothe 2009; Struck 2006): changes of employer are most common in periods of economic prosperity because attractive offers from other employers accumulate, with a kind of multiplier effect arising in the logic of “vacancy chains”. To the extent that they reflect increased chances for voluntary (upward) mobility, higher rates of employer changes could probably be viewed as desirable. Diewald and Sill’s study (2005), however, does not support such a positive interpretation: According to their estimates, the proportion of all between-firm changes between 1985 and 2000 involving upward advancement (i.e. an increase in gross income of at least ten percent) declined from almost 60 percent to just over 20 percent according to their estimates.

A second prediction frequently associated with the pessimistic destabilization thesis is that the exits into unemployment have become more frequent. Studies which distinguish between exits with and without employment interruptions have indeed found somewhat clearer traces of destabilization among West German men. Based on data from the German Life History Study (GLHS), Kurz et al. (2006) demonstrate an increasing risk of unemployment for this group. Based on the SOEP data, Bergemann and Mertens (2004) also observe an increase in exits into unemployment for men with longer tenure (> 12 months) and a decline for men with

¹ As a rule, there is no information available on the (in)voluntary nature of firm exits. Hence, Erlinghagen (2005), for example, measures this phenomenon indirectly on the basis of the reasons given for firm exits (e.g. termination of employment by the employer or employee). Hackett (2009) classifies changes that are accompanied by a long interruption in employment as involuntary and changes without breaks in employment as voluntary, and demonstrates that the latter are accompanied by gains in income. In our analyses of upward and downward moves, we focus on changes in earnings (similar to Carroll/Mayer 1986 and Diewald/Sill 2005).

shorter lengths of service. In contrast, according to the same study, the frequency of exits into unemployment for female employees remained unchanged over the course of time. Given these gender-specific trends, the empirical findings are less clear when women and men are analyzed together: Diewald und Sill (2005) observe a certain increase in the unemployment risk on the basis of the SOEP data while Struck et al. (2007) observe no such risk in their evaluation of the IAB employment sample.

In contrast to these previous studies, our analysis considers all exits into non-employment rather than just those that result in (registered) unemployment. In this way we aim to avoid possible distortions due to major labor market reforms that merged the of unemployment and social assistance in Germany in early 2005. These changes in social security law resulted in the overestimation of the risk of unemployment towards the end of the study period as compared with previous years. In order to guarantee the comparability of our empirical results with those of earlier studies, in additional sensitivity analyses, we analyzed the extent to which the central conclusions relating to the development of non-employment risk also apply to exits into unemployment.

In addition to the use of current data and the explicit consideration of within-firm changes, our study complements the previous research by focusing on variation in mobility trends by gender, educational level, labor-market experience, firm size and sector. A detailed study of group-specific mobility patterns – so far carried out only by Erlinghagen (2004,2006a) and, in part, by Diewald and Sill (2005) – is theoretically relevant, because it can help to differentiate between more and less plausible versions of the destandardization thesis: the thesis of shrinking internal labor markets, for example, suggests that one should observe greater destabilization tendencies among the employees of larger companies. The at most limited trend towards destabilization on the aggregate level may also hide more significant changes for certain disadvantaged groups of employees. Finally and relatedly, our focus on group-specific trends also speaks to social policy concerns because it can provide information about groups with particular labor market problems and about the contribution of labor market processes to the increase in the inequality of wages, incomes and other employment opportunities. We now conclude this section with a more detailed explanation of the (assumed) mobility trends associated with the five characteristics considered.

Gender. The German labor market continues to be characterized by significant gender inequalities. For example, differences in the remuneration of men and women can be observed when male and female employees carry out the same professional activities in a company (Gartner and Hinz 2009). In addition, limited public childcare services and the fiscal promotion of the (male) breadwinner model increase the likelihood of a partial or complete withdrawal of women from the labor market (Lewis 1992). However, in recent years, it has been possible to observe a significant increase in both the educational attainments and labor-force participation of women as compared with those of men. These developments raise the question as to whether and to what extent the employment biographies of women and men have converged in relation to the mobility patterns observed here. Empirically, the findings of Bergemann and Mertens (2004) and of Erlinghagen (2004,2006a), for example, point to a degree of convergence in the career patterns (cf. also Grunow 2006). In order to be able to identify gender-specific mobility patterns and different trends within these patterns, we carried out all of the analyses separately for men and women.

Education. By considering different educational groups, we are able to address the contested question whether the suggested destabilization tendencies primarily concern low-qualified workers or more or less pervade all educational levels. As noted, for example, by Kurz et al.

(2006), both views have been advanced in the literature: Thus authors like Beck, Giddens, Castells, and Sennett expect destabilization to be just as strong or even stronger among higher educational groups or social classes (cf. the critical discussion in Goldthorpe 2002). On the other hand, there are good reasons to suspect that existing inequalities have been preserved or even reinforced, as technological progress and the “off-shoring” of routine activities to low-wage countries have reduced the demand low-skill workers. Breen (1997) provides another rationale for expecting stronger destabilization trends among the low-skilled: Employees whose activities require firm-specific qualifications and are difficult to monitor, would have to continue to be motivated with long-term within-firm employment and promotion prospects. Hence the victims of the increased pressure for adaptation are primarily those employee groups that can be easily replaced and whose employment biographies were already unstable prior to the advent of the described developments. This thesis can also be further intensified on the basis that the division into core and non-core workers may have become even more acute in recent years. The empirical evidence available on the mobility trends of different educational groups up to now (Diewald and Sill 2005; Erlinghagen 2004,2006a) is contradictory and generally unreliable.

Labor market experience. By comparing labor-market entrants and persons with longer labor market experience, we trace a second possible dividing line between core and marginal employees. In general, there are many reasons to suspect that labor-market entrants are more strongly affected by flexibilization tendencies than employees with more experience (Bukodi et al. 2008; Mills and Blossfeld 2005). The differences should be particularly prominent when, as is the case in the German labor market, the positions of the experienced employees are safeguarded by a comparatively high level of dismissal protection. Erlinghagen’s (2004,2006a) finding that the employment stability of young people declined in the 1990s appear to provide empirical confirmation of this link. The observation of a clear increase in the use of fixed-term contracts for younger employees (Gebel und Giesecke 2009) would also prompt the expectation of changes in the mobility patterns of labor-market entrants.

Firm size. The size of a company - in terms of its number of employees - is of particular interest with regard to the thesis that internal labor markets have been scaled back: for obvious reasons, a “critical mass” of employees is necessary for the institutionalization of an internal labor market, hence such arrangements are only created in larger firms in the first place and can only be dismantled there too. The results of earlier studies on decreased employment mobility (Erlinghagen 2006a; Erlinghagen und Knuth 2004) and on the increased use of fixed-term employment contracts (Giesecke und Groß 2002) in large firms, already point to the advent of such a trend in the 1990s. In addition, firm size can also be considered a rough proxy variable for working in (former) state company. Therefore, in accordance with Schwartz’s (2001) line of argument, possible destabilization tendencies in large firms could also be related to the restructuring and privatization of state companies, for example the German postal office, the German railway company or urban utilities.

Sector. Finally, the comparison of career patterns based on economic sectors should provide information as to whether the mobility trends are primarily a result of growing service sector employment or whether job security and career prospects are also declining *within* each economic sector. The fact that tenure tends to be shorter in services than in manufacturing, for example, has been demonstrated for Germany by Struck (2006), among others. If the proportion of employment in the service sector increases, based on this compositional change alone, an overall increase may be expected in changes of employer or exits into unemployment. Developments in the public service, which is characterized by a particularly high level of employment stability for core workers and a simultaneously higher risk of

unemployment for non-core workers with fixed-term contracts (e.g. Giesecke 2006), are also of interest in this context. Constant pressures to reduce costs may have further deepened this divide, with corresponding consequences for the job-shift pattern in this area.

3 Data and analysis strategy

Data

Our empirical analyses are based on the German Socio-Economic Panel (SOEP). We focus on the (group-specific) probability of experiencing one of three events - a within-firm job change, a change of employer or an exit into non-employment - between the interview in a base year t (1984-2007) and the interview in the subsequent year $t+1$ (1985-2008). For all three transition types, we examine the proportion of the respondents who were employed at the time of the interview in a base year t and reported one of the three types of change in the following $t+1$. Parts of the analysis also consider the change in earned income between t and $t+1$ so as to be able to differentiate between upward, downward and lateral within-firm and between-firm changes.² Our evaluation is restricted to respondents who were resident in West Germany in both t and $t+1$. Due to the special structural conditions affecting the East German labor market from 1990 onwards, the consideration of mobility processes there would require a separate analysis, which, for reasons of space, we cannot carry out in this article.

Whereas exits into non-employment can be recorded through the surveyed employment status in $t+1$, information on within-firm and between-firm job changes comes from a set of questions on career changes that has been administered to GSOEP respondents since survey year 1985. The question used here basically relates to job changes that occurred at some point after beginning of the year prior to the survey, hence the corresponding information is available from the year 1984. Because the surveying of career changes relates to the entire period from the beginning of the year prior to the survey (and not, for example, to the period since the last survey), it is possible that the same change may have been reported in both t and $t+1$. To avoid such duplicate counts, our analyses only take into account those changes what can be clearly dated to a time between the surveyed months in t and $t+1$.³ The recorded changes and the question formulation hardly changed over the period under consideration. The most significant change consists in the fact that up to and including 1993 several changes of position may have been recorded but only the last change was recorded after 1994. To obtain comparable results, we also take only the latest change for the survey years up to 1993 into account in the following analyses.⁴

As discussed above, we are primarily interested in group-specific rather than aggregate mobility patterns. As already explained at the end of the preceding section, we conducted all analyses separately for men women. Moreover, we subdivide male and female employees

² Upward moves are defined here as changes associated with an increase in real monthly gross earnings of over ten percent; downward moves are defined as changes associated with a decline in earnings in excess of five percent.

³ As a result of adopting this very “conservative” approach, we lose information about changes that took place between t and $t+1$, but were incorrectly dated by the respondents in $t+1$ at a time prior to the interview. As a result, we may slightly underestimate the frequency of within-firm and between firm changes. We also experimented with less conservative approaches which treated changes reported in $t+1$ but dated to a time before the interview in t under certain conditions as misdated and, therefore, as changes to be taken into account. None of these alternative approaches had any significant effect on our main findings.

⁴ Comparisons of the data prior to and after the change in surveying mode did not provide any indication that these approaches gave rise to distortions. Multiple entries were generally very rare in the years up to 1993 – a second change was reported for just approximately three percent of cases with at least one change. A comparison of the temporal trends for the years before and after 1993 also failed to reveal any indications of systematic differences.

according to two individual characteristics - education and labor market experience - and to two employer characteristics: firm size and sector. With respect to education, we differentiate between three groups: persons with at most a basic secondary school leaving-certificate (*Realschulabschluss*) but with no vocational degree qualifications, persons with a vocational degree, and university graduates.⁵ As for labor market experience, we use the information the SOEP's retrospectively collected information on employment histories and differentiate between persons with a maximum of ten years labor market experience and persons with over ten years of actual labor market experience. In the case of firm size we differentiate between firms with fewer than 2000 employees and firms with at least 2000 employees. With regard to economic sector, we distinguish between two private manufacturing, private services, and the public service.⁶

Our analyses include all persons who were between 20 and 55 years of age in the relevant base year; school pupils, apprentices, students and respondents who were participating in occupational retraining courses were excluded from the analysis.⁷ Our final sample comprises a total of 108,537 observations from 17,325 persons. We observe a total of 1,729 within-firm changes, 5,079 employer changes, and 6,118 exits into non-employment.

Analytic strategy

In the first part of our analysis, we present the group- and year-specific probabilities of within-firm and between-firm changes and exits into non-employment in graphic form. To examine whether medium to long term changes in the transition rate can be statistically proven, we also estimate regression models which specify group-specific rate of change as a function of a linear temporal trend. Since mobility patterns depend on the general economic conditions, our models control for economic growth and the gender-specific unemployment rate for West Germany in the base year.⁸

In a second step, we verify the extent to which the observed developments in the mobility patterns can be explained by changes in labor force composition (e.g. increasing proportion of employees in the services sector). We do so by first estimating "counterfactual rates of change" on the basis of year-specific transition models⁹ which simulate the case whereby

⁵ Transitions by persons with a high school diploma (*Abitur*) but without a vocational qualification were not considered separately due to the very low number of cases in this group. However, the information about these persons was taken into account in the estimation of the total rates and the transition models.

⁶ In addition to these characteristics, in some of our transition models we specify a non-linear effect of length of service with the current employer so as to take the temporal dependency of mobility processes into account. The non-linearity is modeled here very flexibly through restricted cubic splines (see also Beck et al. 1998). In addition, the survey month in t and $t+1$ is also controlled in these models to take into account the variation in the surveying times between the individual waves of the SOEP.

⁷ The focus on employees also excludes the observation of persons who are self-employed at survey time t . Changes from dependent employment to self-employment are not excluded, however, although we do not further thematize these transitions in the rest of the study due to their very low frequency (fewer than 0.5 percent of all observations).

⁸ The data on economic growth relate to national accounts produced by the Federal Statistical Office (status: August 2009). The gender-specific unemployment rates are taken from the rates for West Germany relating to members of the civilian labor force published online by the Federal Employment Agency (<http://www.pub.arbeitsagentur.de/hst/services/statistik/detail/z.html>, status on: 2 June 2010).

⁹ In these transition models, the rates of change are specified as dependent on the educational level, labour market experience, firm size, sector, length of service with the current employer, and the survey month (in t and $t+1$). The estimation of the models is carried out in the context of event-data-analytical processes, whereby in the case in question processes for discrete periods are available as the interesting workplace characteristics are only surveyed in the SOEP for the relevant survey time. Because the transition rates are directly estimated in event data analytical models, both logit or probit models and linear probability models can be used in principle. As compared with the maximum-likelihood-based logit and probit models, the linear probability models have the

employee composition remained unchanged 1984. We then estimate regressions similar to the ones for the observed rates, this time with the counterfactual rates a dependent variables to the approach adopted to the observed rates of change, we test – for these counterfactual rates of change in regression models whether it is possible to observe a development trend again taking the economic conditions into account.¹⁰

Third and last, we study how the (net) effects of the characteristics considered here developed over the observation period. The statistical basis for this is provided by our year-specific models: in a multi-level model we again explain the development of the group-specific effects estimated from the transition models through a linear temporal trend while also controlling for economic conditions.¹¹

What these three analytical steps have in common is that the relevant interesting dependent variables (observed or counterfactual rates of change and effects from the transition models) are estimated from the data themselves and, therefore, associated with statistical uncertainty. To take this uncertainty into account, we model the trend analyses using the approach for “estimated dependent variables” proposed by Lewis and Linzer (2005). The starting point of this approach is the assumption that the variable to be analyzed y_t (e.g. rate of change at time t) is estimated with a sampling error u_t and a corresponding standard error $SE(\hat{y}_t) = \sqrt{\text{var}(u_t)}$. This relation, which applies to both the estimated proportions and coefficients from regression models, can be formally represented as:

$$\hat{y}_t = y_t + u_t \quad \text{with } \text{var}(u_t) = \omega_t^2 \quad (1)$$

If, as in our analysis, a link is specified between y_t and a series of explanatory factors through a linear regression model of the form,

$$y_t = \beta_0 + \beta_1 t + \beta_2 GDP + \beta_3 UE + \varepsilon_t \quad \text{with } \text{var}(\varepsilon_t) = \sigma^2 \quad (2)$$

and \hat{y}_t is used instead of y_t , the following model is to be estimated:

$$\hat{y}_t = \beta_0 + \beta_1 t + \beta_2 GDP + \beta_3 UE + u_t + \varepsilon_t \quad (3)$$

The complex error term in equation (3) is heteroskedastic, however, the variances of the individual error components can be determined in such a way that this model can be estimated using a Feasible Generalized Least Squares (FGLS) approach, which uses the weights w_t :

$$w_t = \frac{1}{\sqrt{\hat{\sigma}^2 + \omega_t^2}} \quad (4)$$

advantage of also using information from those groups, for whom no transitions can be observed. Because the predictions of the different models only differ minimally in respect of the estimation of the mean group-specific transition probabilities, we calculate our transition models on the basis of linear probability models.

¹⁰ The counterfactual rates of change are based on the probabilities predicted from applying the year-specific coefficient estimates for the observed employee structure from 1984. This process is similar to the construction logic of counterfactual distributions used in various decomposition methods (see, for example, Blinder 1973; DiNardo, Fortin, and Lemieux 1996; Juhn, Murphy, and Pierce 1993; Oaxaca 1973).

¹¹ We use an approach known as a two-step estimation for the estimation of these multi-level models. The first step involves the year-specific estimation of the coefficients of the transition model so that they can then be used as dependent variables in the second step and explained using level 2 variables – in our case the linear temporal trend and the control variables for the labor market situation. This approach presents clear advantages as compared with the traditional simultaneous estimation processes, especially when the number of cases on the first level is relatively high (Achen 2005). Thus, the two-step process allows a far more flexible model specification as, for example, the effects of *all* level 1 variables can be assumed as varying, something that is often accompanied by numerical instabilities and convergence problems in simultaneous estimation processes. Second, the two-step estimation is based not on the assumption of a bivariate normal distribution of the error terms of both levels as is necessary for the multi-level models estimated using the maximum likelihood method. Third, and finally, the direct estimation of the first-level parameters enables the precise diagnosis of the regressions on the second level. As a result, for example, statistical outliers can be more easily identified.

While ω_t^2 arises from the squared standard error of the estimation of the target parameter y_t , σ^2 can be calculated on the basis of an OLS regression for equation (3) (for a more detailed explanation of this, see Lewis and Linzer 2005: 352). In addition to the procedure suggested by Lewis and Linzer, we apply a variant in the FGLS estimation which uses robust standard errors so as to take heteroskedasticity that has not yet been modeled into account (Cameron and Trivedi 2005).

4 Results

We now present the results of our empirical analyses on the development of job mobility patterns since 1984. Figure 1 conveys an initial impression of the frequency of the individual types of change and their development over time. Taking the results for male employees first, it emerges that, overall, within-firm change is considerably less common than employer change and exits into non-employment. At the beginning of our study period, the probability of within-firm change was approximately three percent and it declined over the course of time – a first indication in support of the thesis of the dismantling of internal labor markets. This finding is substantiated by the results of the regression model (see Table 1): even when macro-economic climate is controlled for, the decline is highly significant and estimated at approximately 0.08 percentage points per year ($p < 0.01$). The dismantling of internal labor markets is also reflected in the reduction of internal promotion opportunities (Table A1 in the Appendix). In contrast to Diewald and Sill (2005), however, we observe a considerably smaller decline in the proportion of internal promotions in respect of all internal changes from about 37 to about 26 percent (Table A2 in the Appendix). The proportion of male employees who changed employer over the course of the study period fluctuates between a good three and six and a half percent. In line with expectation, the probability of employer change is higher during economic booms than in years characterized by sluggish economic performance or recession. As is confirmed by the regression models, it is not possible to identify a clear time trend on this level of aggregation (Table 1) and this holds true when we consider upward or downward changes separately (Table A1). Employment exits follow an anticyclical course and are somewhat less common than employer changes for male employees. It is not possible to identify a clear temporal trend from Figure 1, however there is an (almost) significant decline in the exit rate (b: -0,05; $p < 0.1$) when the economic situation – which was particularly positive at the beginning of the study period – is taken into account (Table 1).¹²

The mobility trends for female employees do not differ all too significantly from the developments observed for male employees in relation to within-firm and between-firm changes. The decline in the rate of within-firm changes is less marked for female employees but also highly significant in statistical terms (b: -0,04; $p < 0.01$). Because the corresponding rate was below that for the men at the beginning of the study period, convergence occurred here at a lower level over the course of time.¹³ Clear gender differences emerge, however, with respect to employment exits which are far more common among women as they also include career interruptions for family reasons. The fact that, over time, the exit rate among women follows an inverted U-shape is, perhaps, somewhat surprising. It first increases strongly – with considerable fluctuations – until reaching a high of 11.4 percent in 1993/94 and then declines continuously over the following 14 years, with regression model indicating

¹² For this, as for all of the following analyses of exits into non-employment, we do not reach any qualitatively different conclusions if we alternatively consider transitions into unemployment.

¹³ Interestingly, for female employees, the proportion of within-firm changes accounted for by promotions since the mid-1980s has increased significantly and, at almost 40 percent, exceeds the corresponding figure for men, i.e. around 26 percent (Table A2), since then. At approximately 0.01 percentage points per year, the decline in within-firm promotions ($p < 0.05$) is correspondingly low.

a relatively strong decline of 0.09 percentage points ($p < 0.1$) per year, net of economic growth and the unemployment rate.¹⁴

The year-specific rates of change of our three major educational groups are presented in Figure 2. For men, a clear positive correlation emerges between the probability of within-firm change and educational level. Over the course of time, the probability of within-firm change declines in all three educational groups and – considered in absolute terms, at least – this decline is stronger for men with medium and high levels of education (see also Table 1). For all three educational groups, the reduction in within-firm mobility is reflected in a decline in within-firm promotions (Table A1). Educational differences in the rate of between-firm changes are comparably weak – though it is worth noting that highly qualified employees benefit from employer changes (results not shown). The trend analysis in Table 1 reveals that, whereas it is not possible to demonstrate any trend for men with medium and high levels of education, there has been a clear increase in the probability of employer changes for the low-qualified group ($b: 0.13$; $p < 0.05$). The separate consideration of upward and downward between-firm mobility (Table A1) reveals that downward moves increased more strongly than upward moves, suggesting that a good portion of the increase in between-firm mobility among the low-skilled is involuntary. Turning to exits from employment, we find an unsurprising negative correlation between educational level and the probability of transition to a period of non-employment. More importantly, low-qualified workers appear to lose further ground over the course of time: the regression models indicate an increase in the non-employment risk for employees without vocational qualifications ($b: 0.10$; $p < 0.13$). Hence, there is not the slightest indication that differences between men with and without a vocational degree have diminished, which is what Kurz et al. (2006) find in relation to the risk of unemployment.

The trends in the mobility patterns of female employees are different in at least three respects. First, the decline in within-firm mobility is more evenly distributed across the educational groups. Turning, second, to upward internal moves with considerable earnings gains (Table A1), these declined primarily for female university graduates – while all educational groups were affected among men. Third, while we find a considerable increase in between-firm mobility also among women, the results are more favorable than for men in that a considerable portion of this increase is due to increased upward mobility (Table A1).

Figure 3 examines the question as to whether the career opportunities of labor-market entrants – defined as employees with cumulated labor market experience of fewer than ten years – have deteriorated over the past 25 years. In the case of men, it emerges that labor-market entrants display higher rates of mobility than persons with more extensive labor market experience.¹⁵ All three transition types are more common at the beginning of an employment career. Over time, the probability of within-firm change declines for both groups; cyclically adjusted, the decline is, however, almost twice as large among entrants as among more experienced employees ($b: -0.11$ vs. $b: -0.06$, cf. Table 1). We view this as a clear indication that labor-market entrants face increasing problems in accessing secure and advantageous positions, an interpretation that is bolstered by the fact that male labor-market entrants also experienced a strong reduction in the rate of within-firm promotions ($b: -0.05$, $p < 0.01$, Table

¹⁴ In this particular case, the linear specification of the temporal trend is clearly problematic. We nonetheless chose to maintain it in the interest of a simple and compact presentation.

¹⁵ The reported findings are very similar when we examine potential labor market experience (typically defined as age minus years of education minus six) instead of actual experience. Hence the possible endogeneity of the actual labor market experience – which depends on the previous employment biography – does not appear to pose any problem for our estimates.

A1). In this context, it is worth noting that among labor market entrants the decline in within-firm mobility was not accompanied by an increase in between-firm mobility. It is, in other words, scarcely possible for them to compensate for the poorer within-firm prospects through increased between-firm mobility. In relation to employment exits, finally, we find no considerable differences between labor market entrants and more experienced workers.

The results for women show, first, that both within-firm and between-firm changes were less frequent among female labor-market entrants than among their male counterparts, in particular at the beginning of the study period. This is indicative of the fact that women tend to take positions with limited promotion prospects in the first phase of their careers, or are less likely than men to achieve career advancement by changing employer. Over the course of time, however, we once more observe some convergence of mobility patterns. In the case of within-firm changes, this convergence occurs on a lower level, with the important qualification that within-firm *promotions*, which declined strongly for male labor-market entrants, show little reduction for female labor-market entrants. As opposed to this, between-firm changes among female labor-market entrants increase more strongly over the course of time – there is even a slight decline in promotions among men – however, the trend estimates do not attain traditional levels of significance. Similar to the development for men, the probability of between-firm downward moves increases with time for women with greater labor market experience. However, unlike for the men, the increased risk of downward mobility is not counterbalanced for women by any notable increase in between-firm promotions. Finally, exits into non-employment are far more common among women than men and, in this instance, in the case of female labor-market entrants, in particular. This is largely a reflection of the family-based employment interruptions experienced by these women. Over the course of time, the risk of non-employment is more likely to decline for women with longer labor market experience than for the labor-market entrants, a finding, which continues to apply when alternative exits into registered unemployment are considered (results not presented).

In addition to differences arising from educational level and labor market experience, the mobility patterns of employees also vary significantly on the basis of firm size (Figure 4). Entirely in keeping with the expectations of internal labor markets, it emerges that within-firm mobility is far more common and external mobility more rare among the employees of larger firms. However, a stronger decline in internal changes may also be observed for male employees (b: -0.15; $p < 0.01$, Table 1), hence the differences relating to firm size have declined over time. Within-firm promotions of the employees of large firms are also declining particularly significantly (Table A1). All the more remarkable in this context is the fact that the probability of employer change for this group showed a strong increase over the course of time (b: 0.06; $p < 0.01$). This is an indication of the fact that the employees of large firms are increasingly forced to avail of options for career advancement outside their companies. Finally, our results also show a convergence of the risk of exit into non-employment for the two groups of employees.

Whereas, overall, the development of the mobility patterns of male employees in large firms supports the thesis of the dismantling of internal labor markets, the findings for female employees are less clear in this regard. A decline in within-firm changes can only be confirmed for the female employees of smaller firms. This also applies in relation to internal promotion processes. Similarly, it is not possible to demonstrate an increase in between-firm mobility for the female employees in large firms. Hence, in general, the findings would appear to suggest that the mobility patterns of female employees in large companies tend to be stable.

With regard to the mobility patterns in the private manufacturing and services sectors and in the public service (Figure 5), it emerges clearly from our analysis that the employment situation in the public service is more stable than that in the private sector: both changes of employer and exits into non-employment arise far less frequently in the former. At the same time, the rates of within-firm change tend to be higher in the public service than in the two branches of the private sector considered. Moreover, in line with expectation, the influence of the economic conditions on the rates of change in the public service emerges as being far weaker than that on rates of change in the private sector. However, clear variation arises within the private sector. It emerges that employer changes, in particular, are far more common in the services sector and are subject to stronger cyclical variations than in manufacturing industry. Erlinghagen's (2004: 239) finding to the effect that service jobs are more stable than activities based in manufacturing industry are not, therefore, confirmed by our analysis. If one considers the temporal development of the sector-specific mobility patterns of male employees presented in Table 1, it emerges that within-firm changes in all three sectors are on the decline. In addition to the employees in the private services sector, employees in the public service have also been particularly strongly affected by this development. At the same time, within-firm upward mobility also declined in all sectors (Table A1). In contrast to these developments, it is not possible to observe any sector-specific trends for between-firm mobility. Finally, the results suggest a slightly above-average decline in exits into non-employment for employees in the services sector.

A decline in within-firm changes can also be observed for female public-service employees. A deterioration in promotional opportunities may also be observed in this area. Despite the decline in within-firm mobility, there was no demonstrable decline in within-firm promotions in the areas of the private sector examined. With regard to exits into non-employment, a stronger decline can also be observed for women in the private sector than in the public service and these differences are far more pronounced for female employees than for their male counterparts. Hence, private-sector female employees experienced a clear improvement in their position as compared with women employed in the public service. It should also be stressed again here that this pattern continues to apply when we only consider the exits into unemployment.¹⁶

The key findings arising from the analyses carried out up to now can be summarized as follows: we find, first, a clear decline in the probability of within-firm change and, in particular for men, of within-firm promotions. This decline is particularly pronounced in the case of the male employees of large firms, for whom we also observe an increase in between-firm change and – in contrast to many other groups – no noteworthy decline in the cyclically adjusted non-employment risk. Similar to Erlinghagen (2004,2006a), therefore, we can demonstrate a decline in the employment-stabilizing effects of firm size as claimed by the thesis of the dismantling of internal labor markets. A second central finding of our analyses is that the mobility patterns of men and women are converging in many respects, not least in relation to within-firm career prospects. Third, the consideration of within-firm job shifts also proves crucial in relation to the developments for labor-market entrants: for this group, we find a clear decline in within-firm changes and promotions which would indicate the presence of increasing problems in the area of career entries. Fourth, we obtained clear proof of increasing educational inequalities in respect of the development of between-firm mobility and the risk of non-employment – and moreover for both genders. Fifth, and finally, the most

¹⁶ However, the decline for women in private-sector industry alone proves significant in this case.

conspicuous observation in relation to sector-specific developments is the fact that women working in the private sector have caught up with their counterparts in the public service.

We would also like to examine whether and to what extent these developments reflect changes in the composition of employees in particular. For example, can the decline in within-firm changes in large companies be explained by the fact that the educational structure of the employees has changed? And can the reported changes in the mobility patterns of labor-market entrants be explained by the fact that this group is increasingly employed in the services sector? To enable a general estimation of the significance of such compositional effects, we consider the developments for so-called counterfactual rates of change (Parts II and III of Table 1). As explained in the section on the stages of our analyses, taking the structure of the 1984/85 sample as a basis, these counterfactual rates of change are based on predicted rates of change which arise from the year-specific transition models. The composition of the employees is kept “constant” in this way while the effects of the characteristics education, labor market experience, firm size, and sector can alter in accordance with the actual developments. Moreover, the models were calculated in two different variants: the results presented in Part II of the tables are based on models which take tenure into account while the Part III tables present the results of models which do not control for tenure.¹⁷

A clear picture emerges from the comparison of actual and counterfactual trends for within-firm mobility among men. The decline in within-firm job shifts cannot be explained for any of the considered groups on the basis of changes in the characteristics of the employers and their activities. This also applies to the development of within-firm promotions (Table A1). Moreover, it is clear that, with the exception of the case of male public-service employees, the decline in internal mobility in the counterfactual scenario is even greater than the rates of change actually observed. Hence, composition effects have tended to slow down rather than intensify the decline in within-firm change. As opposed to this, in the case of changes of employer and exits into non-employment, changes in the employee structure account for a significant proportion of the observed developments. All of the statistically significant trends are clearly weakened when the composition of the employees is kept constant and this weakening tends to be more intensive when we control for tenure with a company. These findings are particularly clear in the case of low-qualified men: when tenure is controlled for in the transition models, the increase in employer changes and the increase in the non-employment risk are considerably lower in the counterfactual scenario (Table 1, Part II). This means that the increase in the transition rates for low-qualified men are largely explained by changes tenure. However, it is worth noting in this context that what we observe here for low-qualified men over time is less of a general decline and far more an increasing dispersion of tenure: whereas tenure tends to increase at the upper end of the distribution, at the bottom end, in particular, it declines significantly (results not shown). Thus, there appears to be an increasing divide in relation to the access to secure positions *within* the group of low-qualified men. Overall, the results for female employees are very similar. Here too, compositional changes have tended to counteract the decline in within-firm changes and they make a considerable contribution to the explanation of the developments in between-firm mobility

¹⁷ The consideration of length of service is supported by the fact that for all three of the mobility types considered here, there is a temporal dependency in relation to length of service with the current employer. As opposed to this, the fact that differences in the length of service between groups simultaneously reflect their varying probabilities of firm exits speaks against the consideration of length of service. Accordingly, in particular when considering between-firm changes and exits into unemployment, the taking into account of length of service has the disadvantage of absorbing, in part at least, the effects of other characteristics (for example, education).

and the decline in exits into non-employment in particular. Compositional effects for the trends in external mobility in low-qualified women are particularly important. Unlike with men, the contribution of tenure is not exceptionally large here.¹⁸

Finally, we examine the extent to which the inequality trends in the mobility patterns can still be demonstrated if – in contrast to the previous analysis – not only the changing effects of the considered characteristics but also the changing composition of the labor force are taken into account. To this end we use multi-level models which examine whether a time trend is demonstrable for the estimated effects from the year-specific transition models, with, again, the economic conditions being controlled for.¹⁹ The results of these models as presented in Table 2 reveal that the overproportional decline in internal changes for medium and highly qualified employees is mainly conveyed through the association between education and sector or firm size: once these characteristics have been controlled for, it is no longer possible to prove any change in the educational differentials. Therefore, within a sector or category of firm size, low-qualified employees are affected by the dismantling of internal changes, including the associated decline in promotional opportunities, to the same extent as persons with medium or high levels of qualification. In relation to exits into non-employment, the results substantiate, however, the earlier finding of increasing educational inequalities – particularly if tenure is not taken into account in the models. This analysis also confirms that within-firm changes and promotions (cf. Table A3) for labor-market entrants have declined more significantly than for individuals with greater labor market experience. Finally, the findings on the effects of the sector and firm size, which were modeled as combined effects (interaction effects), are particularly worthy of note. These confirm, first, that the advantages of employment in large firms are diminishing. Relative to the reference category of employees in small firms in manufacturing industry, we observe indications of a decline in within-company changes for the employees of large firms across all of the sectors. A particularly prominent change in mobility patterns is thereby suggested for the employees of large private service companies, for which between-firm changes and exits into non-employment were also comparatively more frequent.²⁰ It should be stressed here that these shifts in mobility patterns arose independently of changes on the employees' level of education.

As is also the case for men, there are no indications of increased educational inequalities in relation to internal changes for female employees. Significant changes arise, however, for between-firm transitions and exits into non-employment, for which the probabilities of occurrence diverged, in particular, between employees with vocational qualifications and those without such qualifications. In reference to the effects of labor market experience, unlike for the men, the results for women do not support the idea of an intensification of the inequalities in the mobility patterns. This also applies to the development of within-firm and between-firm upward as well as downward moves (Table A3). Finally, with respect to the effects of sector and firm size, as before, there are no indications of an overproportional dismantling of internal (promotion-based) mobility in large firms, including in the services sector, in which significant changes can be observed for men. When education and labor market experience are controlled for, however, there is an indication of an increase in

¹⁸ The increasing dispersion of tenure as described for male employees is absent or very weak in the case of low-qualified women.

¹⁹ For these models too, we calculated one variant incorporating and one variant excluding length of service (see footnote 17).

²⁰ On this point, cf. also the results in Table A3, which do not show such a strong decline in within-firm promotions for this employee group but do reveal a clear increase in between-company promotions in comparison to the reference group.

between-firm mobility in large private-sector firms – but the statistical uncertainty of the corresponding estimates is not in the conventional range ($p < 0.13$ for the trend with large industrial firms). The results for exits into non-employment, in turn, confirm the earlier finding of an overproportional decline in employment exits in the private sector.

4 Discussion

The starting point of this study was the widespread thesis of an enduring change in mobility patterns in the German labor market. According to this view, employment biographies in Germany have been subject to increasing destandardization and destabilization since the 1980s. In order to be able to assess the empirical content of this thesis in greater detail, we focused in our analysis more intensively on group-specific development trends than most of the previous studies. Furthermore, in addition to employer change and exits into non-employment, we were able to consider within-firm job shifts and promotions, and hence also record changes in within-firm career patterns. We would like to highlight three points in particular in the following discussion of our findings.

First, our findings indicate that there are clear changes in within-firm employment biographies. For men, in particular, and in this instance the male employees of large firms, we were able to demonstrate a significant decline in within-firm job shifts and promotions. These findings would support the observation of a decline in career prospects and security of expectation specifically among those employees who traditionally enjoyed a high level of both of these benefits. One way of reading this finding is that the simple equation whereby increasing pressure for flexibilization on the German labor market irrevocably translates into stronger divisions between “insiders” and “outsiders” does not hold. An alternative and, from our perspective, more plausible reading is that such divisions are also increasing within large firms as a result of the dismantling of internal labor markets. This view would be supported by findings which suggest that large companies, in particular, are driving the development of the peripheral workforce of subcontractors and temporary workers, *inter alia* to provide better protection to their core workforce against the consequences of increasing market fluctuations and other economic uncertainties (e.g. Hohendanner and Bellmann 2006). Young employees with minimal labor market experience are overproportionally represented in this peripheral workforce and we were also able to demonstrate an above-average decline in within-firm (upward) mobility for this group. Even if the decline in within-firm mobility cannot in any way be equated with the complete disappearance of internal labor markets, it does involve a destandardization of within-firm career biographies for large numbers of the employees. It remains to be examined here whether the decline in within-firm promotion opportunities, which often accompanied job changes hitherto, are possibly being compensated for by an increase in promotions that do not involve job changes. Unfortunately, the findings available on this point up to now are unclear (Diewald und Sill 2005), therefore, in our view, this question requires further research.

Second, we are unable to demonstrate any comprehensive destabilization tendencies: following cyclical adjustment, overall, between-firm mobility has increased slightly at most while exits into non-employment actually showed a small decline, particularly in the case of female employees. Against this background, the destabilization thesis, according to which globalization, sectoral change, technological progress, and other developments have prompted a comprehensive decline in employment stability, is not very plausible. Not only are similar empirical findings by other authors (e.g. Erlinghagen and Knuth 2004) supported, theoretical considerations that speak against a far-reaching destabilization of employment biographies are also confirmed. In our view, arguments that explain an interest in long-term exchange

relationships on the part of employers are particularly worthy of attention, although the real core issue here is the (supposed) significance of long-term exchange relationships for the securing of “performance and commitment” (Struck 2006). Our results for the group-specific trends are also informative in this context. While the global destandardization thesis is often linked with the “destructuring thesis” (Erlinghagen 2004), according to which inequalities based on social class or education are becoming less significant, other authors (Breen 1997) argue that it is more likely that existing inequalities will be intensified than eliminated as a result of the increasing demand for flexibility because the potential for flexibility primarily exists among employees with simple activities and low firm-specific human capital. Our findings clearly support this second variant: clear destabilization tendencies can only be demonstrated for low-qualified workers. The latter tended to change employer more frequently and were more often affected by exits to non-employment towards the end of the study period, than at the beginning. Our analyses also show that for low-qualified male employees, in particular, this increase can largely be explained by the decline in tenure. And because tenure is, in turn, declining due to increased external mobility, the rise in often involuntary changes of employer and phases of non- /unemployment carries further risks of destabilization for low-qualified workers group (on these long-term effects of episodes of unemployment, see also Erlinghagen 2004). Another noteworthy observation that emerged from our analyses is that the distribution of the risk of unstable employment is also increasingly unequal *within* the group of low-qualified male employees (Erlinghagen 2006b). The question as to whether and to what extent this polarization is based on processes of cumulative disadvantage (Diprete and Eirich 2006) or can be explained, for example, by cohort effects must remain open here. Overall, however, these findings clearly support the thesis that the deterioration in the employment opportunities of low-qualified persons contribute significantly to the increase in income inequality, which in Germany is mainly characterized by the dispersion in the lower income bracket (OECD 2008). In addition, the observation of increasing polarization within the low-qualified group presents interesting parallels with recent studies, which have also demonstrated a rise in inequality among comparatively narrowly defined socio-structural groups in the USA (e.g. Western et al. 2008).

Third, and finally, our analysis points to a certain convergence in the mobility patterns of men and women. At the same time, our results clearly demonstrate that the gender differences in the mobility patterns remain considerable and, in particular, the gender-specific development trends also differ in many respects. Although we observe certain non-gender-specific trends – in particular the increase in employer changes and exits into non-employment among low-qualified workers – overall, the differences between men and women predominate. This emerged particularly clearly from the analyses of the development of within-firm career biographies, in which we were only able to confirm a considerable and relatively strongly structured decline in internal job changes and promotions for male employees. In our view, these findings demonstrate that empirical studies on employment and job mobility must take into account the gender-specific aspects of the mobility patterns as, otherwise, opposing mobility trends sometimes remain concealed. On a more general level, we also hope to have demonstrated that the detailed examination of group-specific development trends can make a crucial contribution to the debate concerning the empirical content of the destabilization thesis.

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Figures and Tables

Table 1. Job mobility by gender

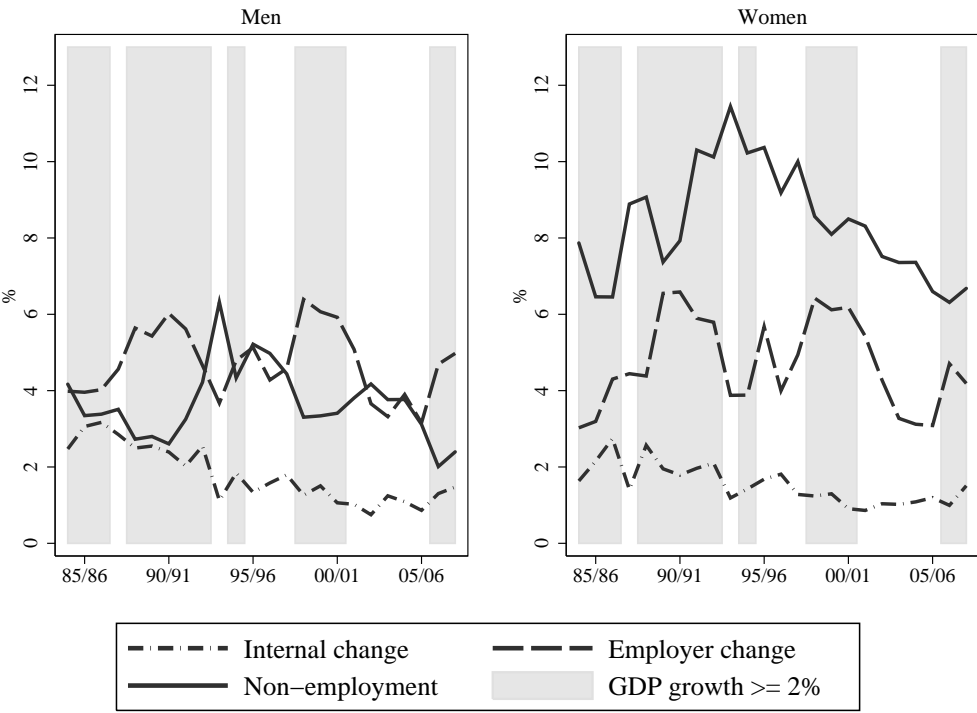


Figure 2. Job mobility by education and gender

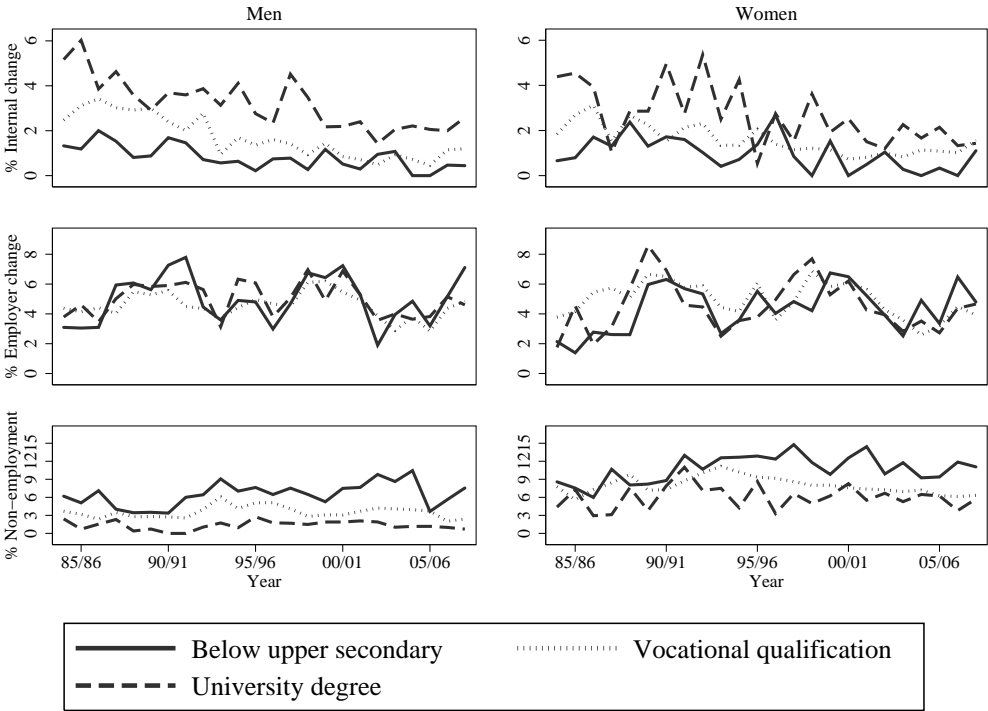


Figure 3. Job mobility by labor-market experience and gender



Figure 4. Job mobility by firm size and gender

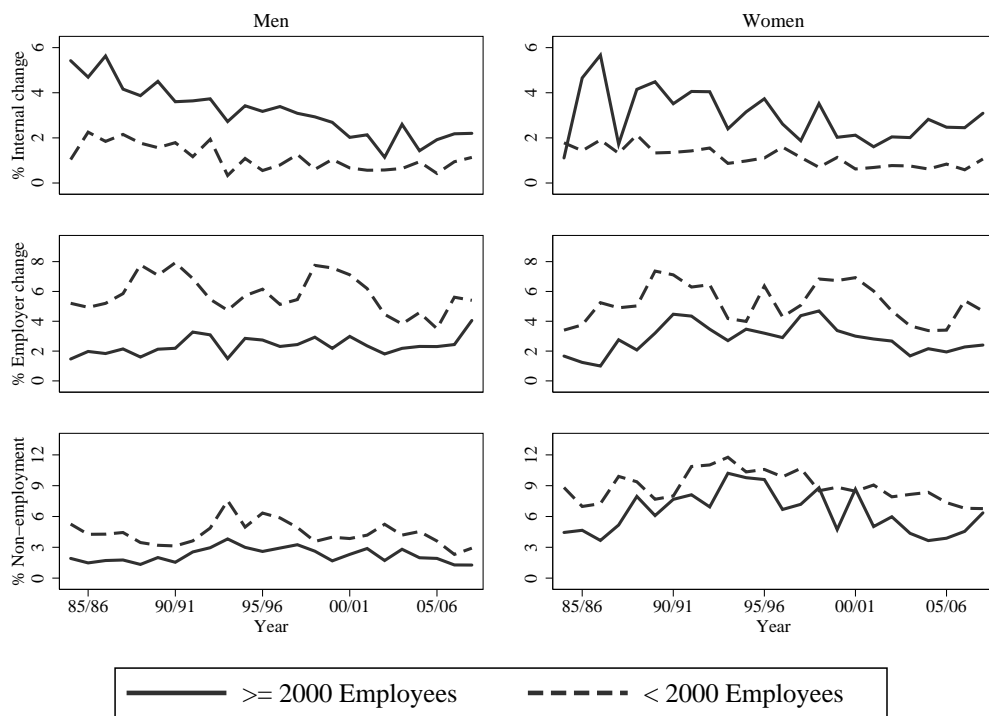


Figure 5. Job mobility by sector and gender

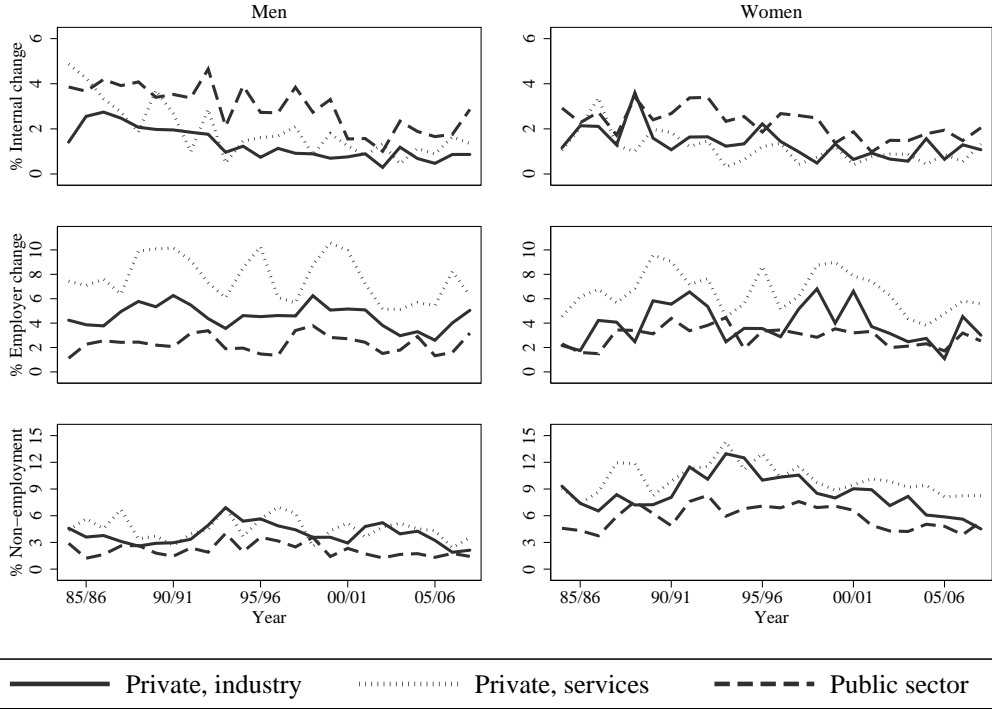


Table 1. Group-specific rates of change – linear time trend

	M e n			W o m e n		
	Internal change	Employer change	Non-employment	Internal change	Employer change	Non-employment
I. Actual rates of change						
Total	-0.08**	0.03	-0.05+	-0.04**	0.01	-0.09+
Education						
Below upper secondary level	-0.04**	0.13*	0.10	-0.04+	0.14**	0.12+
Vocational qualification	-0.10**	0.00	-0.03	-0.05**	-0.04	-0.10*
University degree	-0.12*	0.02	-0.01	-0.05	0.04	0.01
Labor market experience						
> 10 years	-0.06**	0.07**	-0.03	-0.03*	0.04+	-0.05
<= 10 years	-0.11**	0.02	-0.04	-0.05*	0.05	0.00
Firm size						
< 2000 employees	-0.04+	-0.00	-0.08**	-0.04**	0.01	-0.10*
>= 2000 employees	-0.15**	0.06**	-0.01	-0.01	0.02	-0.04
Sector						
Private – industry	-0.06**	0.01	-0.05	-0.04*	0.02	-0.16*
Private – services	-0.09*	-0.03	-0.08*	-0.03	-0.02	-0.11+
Public sector	-0.12**	0.03	-0.04	-0.05*	-0.00	-0.03
II. Counterfactual rates of change – models incorporating tenure						
Total	-0.11**	0.01	-0.03	-0.07**	0.02	-0.04
Education						
Below upper secondary level	-0.08**	0.02	0.03	-0.07*	0.07	0.01
Vocational qualification	-0.11**	0.00	-0.05+	-0.07**	-0.02	-0.09
University degree	-0.14*	0.04	-0.05	-0.09+	0.04	0.01
Labor market experience						
> 10 years	-0.09**	0.02	-0.02	-0.06*	0.02	-0.04
<= 10 years	-0.16**	-0.03	-0.04	-0.08**	0.02	-0.05
Firm size						
< 2000 employees	-0.07**	-0.01	-0.05	-0.07*	0.02	-0.05
>= 2000 employees	-0.18**	0.04	0.01	-0.06	0.03	-0.02
Sector						
Private – industry	-0.10**	-0.00	-0.02	-0.09**	0.03	-0.09
Private – services	-0.16*	0.02	-0.05	-0.06+	0.01	-0.07
Public sector	-0.11**	0.03	-0.04	-0.06+	0.02	0.05
III. Counterfactual rates of change – models excluding tenure						
Total	-0.11**	0.02	-0.02	-0.07**	0.03	-0.03
Education						
Below upper secondary level	-0.08**	0.07	0.08	-0.07*	0.10*	0.03
Vocational qualification	-0.11**	0.00	-0.05	-0.07**	-0.01	-0.08
University degree	-0.14*	0.03	-0.05	-0.09+	0.04	0.00
Labor market experience						
> 10 years	-0.09**	0.04	-0.01	-0.07*	0.03	-0.03
<= 10 years	-0.15**	-0.02	-0.04	-0.08**	0.03	-0.03
Firm size						
< 2000 employees	-0.07**	0.01	-0.03	-0.08**	0.03	-0.04
>= 2000 employees	-0.18**	0.05	0.02	-0.06	0.04	-0.00
Sector						
Private – industry	-0.09**	0.01	-0.00	-0.09**	0.05	-0.08
Private – services	-0.16*	0.02	-0.05	-0.06*	0.03	-0.05
Public sector	-0.11**	0.04	-0.03	-0.06*	0.01	0.04

Models control for economic growth and gender-specific non-employment rate in the base year.
 FGLS estimate with robust standard errors (HC3). + p < 0.1; * p < 0.05; ** p < 0.01

Table 2: Time trend of the effects from the linear probability models

	M e n			W o m e n		
	Internal change	Employer change	Non-employment	Internal change	Employer change	Non-employment
I. Models incorporating tenure						
Education (Ref.: Below upper secondary level)						
Vocational qualification	-0.00	-0.02	-0.07	0.00	-0.09*	-0.10*
University degree	-0.01	0.03	-0.08	0.00	-0.00	-0.07
Labor market experience (Ref. > 10 years)						
<= 10 years	-0.05+	-0.10	-0.02	-0.02	-0.02	-0.03
Firm size and sector (Ref. Industry < 2000 employees)						
Industry. >= 2000 employees	-0.09*	0.07	0.06	0.05	0.09	0.06
Services < 2000 employees	-0.00	0.03	0.00	0.05**	-0.01	0.06
Services >= 2000 employees	-0.23+	0.14	0.12*	0.03	0.05	0.05
Public sec. < 2000 employees	-0.01	0.06	0.01	0.01	0.04	0.16*
Public sec. > 2000 employees	-0.09+	0.07	0.04	0.10**	-0.00	0.23**
II. Models excluding tenure						
Education (Ref.: Below upper secondary level)						
Vocational qualification	0.00	-0.06	-0.11	0.00	-0.10*	-0.13*
University degree	0.00	-0.03	-0.12*	0.01	-0.03	-0.08
Labor market experience (Ref. > 10 years)						
<= 10 years	-0.05+	-0.05	-0.01	-0.01	0.03	0.03
Firm size and sector (Ref. Industry < 2000 employees)						
Industry. >= 2000 employees	-0.09*	0.04	0.06	0.04	0.09	0.05
Services < 2000 employees	0.00	0.03	-0.00	0.05**	0.01	0.09+
Services >= 2000 employees	-0.23+	0.13	0.10	0.02	0.08	0.05
Public sec. < 2000 employees	-0.01	0.05	0.01	0.01	0.02	0.14+
Public sec. > 2000 employees	-0.09*	0.05	0.05+	0.10**	-0.02	0.22*

Models control for economic growth and gender-specific non-employment rate in the base year.
 FGLS estimate with robust standard errors (HC3). + p < 0.1; * p < 0.05; ** p < 0.01

Appendix

Table A1. Upward and downward mobility (earnings) – Linear time trends

	M e n			W o m e n		
	Internal promotion	Employer change upwards	Employer change downwards	Internal promotion	Employer change upwards	Employer change downwards
I. Actual rates of change						
Total	-0.03**	0.00	0.02	-0.01*	0.00	0.02
Education						
Below upper secondary level	-0.03**	0.03	0.04+	-0.01	0.07**	0.04+
Vocational qualification	-0.03**	-0.01	0.01	-0.01	-0.03	0.00
University degree	-0.04+	0.00	0.04*	-0.05+	0.02	0.04*
Labor market experience						
> 10 years	-0.02*	0.03+	0.03*	-0.01+	0.01	0.03**
<= 10 years	-0.05**	-0.01	0.02	-0.01	0.03	0.01
Firm size						
< 2000 employees	-0.02*	-0.00	0.01	-0.01*	-0.00	0.02
>= 2000 employees	-0.06**	0.02+	0.02	-0.00	0.01	-0.01
Sector						
Private – industry	-0.03**	-0.01	-0.00	-0.01	0.03	-0.01
Private – services	-0.03+	0.01	0.05*	-0.01	-0.02	0.02
Public service	-0.03**	-0.00	0.02	-0.02*	-0.01	0.02
II. Counterfactual rates of change – models incorporating tenure						
Total	-0.03**	-0.01	-0.01	-0.02**	0.01	0.01
Education						
Below upper secondary level	-0.03*	-0.01	0.00	-0.02+	0.03	0.03
Vocational qualification	-0.03**	-0.01	-0.02	-0.02*	-0.00	0.00
University degree	-0.06**	-0.00	0.00	-0.05+	0.00	0.03
Labor market experience						
> 10 years	-0.02*	0.00	-0.01	-0.02*	0.01	0.02
<= 10 years	-0.06**	-0.04	-0.01	-0.03**	0.01	0.00
Firm size						
< 2000 employees	-0.02*	-0.01	-0.01	-0.02*	0.01	0.02
>= 2000 employees	-0.06**	-0.01	-0.01	-0.03	0.02	-0.00
Sector						
Private – industry	-0.03*	-0.01	-0.02	-0.02*	0.03	0.00
Private – services	-0.07**	-0.00	0.02	-0.02*	-0.00	0.03
Public service	-0.02	-0.01	-0.00	-0.03+	-0.01	0.02
III. Counterfactual rates of change – models excluding tenure						
Total	-0.03**	-0.01	-0.01	-0.02**	0.01	0.02
Education						
Below upper secondary level	-0.03*	0.01	0.02	-0.02+	0.04	0.04
Vocational qualification	-0.03**	-0.01	-0.02	-0.02*	-0.00	0.01
University degree	-0.06*	-0.01	-0.00	-0.05+	0.00	0.04
Labor market experience						
> 10 years	-0.02*	0.01	-0.01	-0.02*	0.01	0.03
<= 10 years	-0.06**	-0.04	-0.00	-0.03**	0.01	0.01
Firm size						
< 2000 employees	-0.02*	-0.01	-0.00	-0.02*	0.01	0.02
>= 2000 employees	-0.06**	-0.00	-0.01	-0.03	0.02	0.01
Sector						
Private – industry	-0.03*	-0.01	-0.01	-0.03*	0.04	0.01
Private – services	-0.07**	-0.00	0.02	-0.02*	0.01	0.04
Public service	-0.02	-0.01	0.00	-0.03*	-0.01	0.02

Models control for economic growth and gender-specific non-employment rate in the base year. FGLS estimate with robust standard errors (HC3). + p < 0.1; * p < 0.05; ** p < 0.01

Table A2. Proportion of within-firm and between firm changes accounted for by upward and downward moves, 1984-2007

	M e n				W o m e n			
	1984-2007	1984-1991	1992-2000	2001-2007	1984-2007	1984-1991	1992-2000	2001-2007
	Within-firm changes							
Upward	32.7	37.2	31.0	26.2	37.4	32.8	40.6	39.4
Downward	19.8	17.6	16.7	27.3	20.3	16.8	21.4	22.9
	Between-firm changes							
Upward	41.1	43.5	41.2	39.0	43.3	47.4	41.1	42.3
Downward	28.6	27.0	27.5	30.9	32.4	27.9	33.2	34.5

Table A3. Time trends of the effects from the linear probability models
Upward and downward mobility

	M e n			W o m e n		
	Internal promotion	Employer change upwards	Employer change downwards	Internal promotion	Employer change upwards	Employer change downwards
I. Models incorporating tenure						
Education (Ref.: Below upper secondary level)						
Vocational qualification	-0.00	0.03	-0.02	0.01	-0.02	-0.03
University degree	0.00	0.03	0.01	-0.01	0.00	0.03
Labor market experience (Ref. > 10 years)						
<= 10 years	-0.03+	-0.07	-0.03	-0.00	0.01	-0.05+
Firm size and sector (Ref. Industry < 2000 employees)						
Industry. >= 2000 employees	-0.02	0.03	0.01	0.01	0.04	0.05
Services < 2000 employees	0.02	0.05	0.05	0.01	-0.03	0.04+
Services >= 2000 employees	-0.03	0.09+	0.10**	0.01	0.01	0.04
Public sec. < 2000 employees	0.02	0.01	0.05+	-0.01	-0.01	0.06
Public sec. > 2000 employees	-0.01	0.03+	0.01	0.01	-0.02	0.03
II. Models excluding tenure						
Education (Ref.: Below upper secondary level)						
Vocational qualification	-0.01	0.02	-0.03	0.01	-0.03	-0.03+
University degree	0.00	0.02	-0.01	-0.00	-0.01	0.02
Labor market experience (Ref. > 10 years)						
<= 10 years	-0.03+	-0.04	-0.01	-0.00	0.02	-0.02
Firm size and sector (Ref. Industry < 2000 employees)						
Industry >= 2000 employees	-0.02	0.02	0.00	0.01	0.04	0.04
Services < 2000 employees	0.02	0.06	0.05	0.01	-0.02	0.04*
Services >= 2000 employees	-0.03	0.08	0.10**	0.01	0.02	0.05
Public sec. < 2000 employees	0.02	0.01	0.05	-0.01	-0.01	0.05
Public sec. > 2000 employees	-0.01	0.02	0.01	0.01	-0.02	0.01

Models control for economic growth and gender-specific non-employment rate in the base year.
FGLS estimate with robust standard errors (HC3). + p < 0.1; * p < 0.05; ** p < 0.01