IZA DP No. 31

Persistence and the German Unemployment Problem: Empirical Evidences on German Labor Market Flows

Christoph M. Schmidt

February 1999

Persistence and the German Unemployment Problem: Empirical Evidence on German Labor Market Flows

Christoph M. Schmidt

Discussion Paper No. 31
February 1999

IZA

P.O. Box 7240
D-53072 Bonn
Germany

Tel.: +49-228-3894-0
Fax: +49-228-3894-210
Email: iza@iza.org

ABSTRACT

Persistence and the German Unemployment Problem: Empirical Evidence on German Labor Market Flows[*]

Using a retrospective monthly calendarium of individuals' major economic activities, this paper characterizes the monthly employment and unemployment rates and the monthly transition intensities between the states of employment, unemployment, and out-of-the-labor-force for the German labor market between January/February 1983 and November/ December 1994. The analysis provides a detailed portrait for demographic cells defined by gender, three age groups, and three education groups. Overall, the German labor market displays a high level of persistence, but important differences exist across demographic groups. By contrast, almost no changes can be observed across time, apart from a drastic decrease of male job finding rates during the early 1990s. When compared to France, the German labor market does not appear to be excessively rigid, although the differences with the fluid US labor market are very substantial.

Christoph M. Schmidt
University of Heidelberg
Alfred Weber Institute AWI
Grabengasse 14
D – 69117 Heidelberg
Germany
Tel.: +49-6221-542955
Fax: +49-6221-543640
email: Christoph.Schmidt@Urz.Uni-Heidelberg.de

Non-technical Summary

The conventional wisdom holds that the German labor market is extremely rigid, regarding aspects as diverse as wage structure, job turnover, and the transition between labor market states. In the past, this was not considered a feature to seriously worry about. In recent years, however, the overall performance of the German economy, once a European model economy, has deteriorated. Most prominently, the share of unemployed workers suffering from long-term unemployment is high. In the current debate, German labor market institutions are given part of the blame for these negative changes, either because institutional rigidities are felt to have increased over time or because they operate in an altered economic environment in which their impact is considered to be more detrimental than before. Generally, the large share of long-term unemployment is taken as evidence for the view that transitions across labor market states do occur only too rarely, particularly when compared to more "dynamic" labor markets such as that of the US. Yet, little is known about the precise structure of unemployment across demographic strata defined by gender, age, or skills, let alone about the structure of transition intensities across labor market states.

Directly addressing this gap, this paper provides baseline evidence for the period 1983 to 1994 on monthly worker flows between three principal labor market states, *employment*, *unemployment*, and *out-of-the-labor force*, accounting for demographic composition across gender, age, and education strata. In the questionnaire used for the collection of the individual-level data, respondents were asked to report their major activity for each month of the preceding year. For the analysis, I have condensed this detailed information on individual activities into three distinct labor market states, *employment*, *unemployment*, and *out-of-the-labor-force*. "Employed" refers to full-time work, part-time work, and vocational training, "unemployed" to registered unemployed, and "out-of-the-labor force" is the residual category. The individual-level data allow us to calculate (i) monthly employment, unemployment and non-participation rates and (ii) monthly transition rates between these states for workers in each demographic cell for each origin month from January 1983 to November 1994, and for each pair of months from January-February 1983 to November-December 1994.

Regarding labor force rates, the German results are drastically different from both the French and the US figures, although within each age group the education profile is similarly steep. Particularly among the young, German workers experience substantially lower unemployment rates, with differences being even more sizeable between German and French rates. For old workers, by contrast, the German figures are much closer to the US unemployment rates than to the French. In a comparison of male and female unemployment rates within each country, it is apparent that French women experience a higher unemployment rate than French men basically across all demographic strata, while US men and women are not very different in terms of their unemployment rate. By contrast, the relative unemployment performance of German women depends critically on their demographic characteristics. The most important results regarding transition intensities in the German labor market were the low rates of job loss and re-employment, the heterogeneity of results across demographic groups, and the intertemporal stability of flow dynamics. During the sampling period, the largest change seems to have been the decline of re-employment rates for male workers, characterizing all age and education strata. Overall, the German labor market does not appear very "inflexible" when compared to France, although differences to the US labor market are large.

The conventional wisdom holds that the German labor market is extremely rigid, regarding aspects as diverse as wage structure, job turnover, and the transition between labor market states. In the past, this was not considered a feature to seriously worry about. In recent years, however, the overall performance of the German economy, once a European model economy, has deteriorated. Most prominently, the share of unemployed workers suffering from long-term unemployment is high. For instance, as of September 1996 (cf. Bundesanstalt für Arbeit 1997) approximately one third of all registered unemployed were unemployed for more than one year, half of those long-term unemployed even for more than two years (of 2.8 million unemployed, causing the aggregate unemployment rate to be 11.1%; 1991 it had been as low as 6.7%).

In the current debate, German labor market institutions are given part of the blame for these negative changes, either because institutional rigidities are felt to have increased over time or because they operate in an altered economic environment in which their impact is considered to be more detrimental than before. Generally, the large share of long-term unemployment is taken as evidence for the view that transitions across labor market states do occur only too rarely, particularly when compared to more "dynamic" labor markets such as that of the US. Yet, little is known about the precise structure of unemployment across demographic strata defined by gender, age, or skills, let alone about the structure of transition intensities across labor market states.

Directly addressing this gap, this paper provides baseline evidence for the period 1983 to 1994 on monthly worker flows between three principal labor market states, *employment*, *unemployment*, and *out-of-the-labor force*, accounting for demographic composition across gender, age, and education strata. This evidence is set into perspective by comparing it to the results of Cohen et al. (1997, henceforth referred to as CLSP) on the French and the US labor markets. It will be demonstrated that both employment and unemployment rates and the transition intensities between labor market states display a remarkable heterogeneity across the population, but only little intertemporal change. Moreover, the German labor market does not appear very "inflexible" when compared to France, although differences to the US labor market are large.

The first section of the paper contains a discussion of German institutions and regulations impacting on the labor market and gives a brief overview of the existing literature on worker flows. The second section provides a description of the data source, the third section presents the results on employment and unemployment rates, and the fourth section analyzes flow intensities

and their intertemporal changes. The fifth section concludes with an outline of the agenda for further research.

1. Insititutional Background & Literature Review

Labor market rigidities are frequently seen as one major obstacle to a satisfactory performance of European economies. Observing the striking contrast between the development over time of European and US unemployment rates and the rise in long-term unemployment in Europe, Siebert (1997) argues that the quest for understanding the roots of this problem should concentrate on the institutional setting in Europe. Particularly during the late 1960s and the 1970s, there were changes in legal norms, income policies and public insurance schemes throughout Europe, leading to a widening tax wedge, more rigid working time, increasing restrictions on layoffs and more generous systems of welfare and unemployment support. Since then, the institutional approaches of the various European economies have diverged.

Siebert identifies four different routes that they have taken since the 1980s, (i) the route taken by the Scandinavian countries - increasing public sector spending at first, then the necessity for a trend reversal in the welfare state, (ii) the "French-Mediterranean model" - abstaining from any comprehensive reform, (iii) the German route - labor market reform of minor degree, and (iv) the approach of the Netherlands and the UK - major reforms of the labor market including the promotion of wage restraint and a restructuring of the welfare state. On the basis of the recent Dutch and British experiences of falling unemployment rates, he concludes that for the remaining European economies a major reform of the institutional arrangements governing the labor market would be the only conceivable strategy for driving down unemployment rates.

A somewhat different perspective is taken by Nickell (1997) who emphasizes the enormous diversity exhibited by European labor markets, both regarding their wage flexibility and their unemployment experience. To assess the arguments surrounding labor market rigidity empirically, Nickell regresses unemployment rates across European economies on summary statistics of labor market rigidities and of the welfare state such as an index of employment protection, a labor standards index, the benefit replacement rate, the duration of benefits, and expenditures on active labor market policies, and on summary statistics of the structure of the systems of wage determination such as union density and union coverage. While some of the variables seem to be partially responsible for the poor unemployment performance within Europe,

he concludes that many labor market institutions commonly being classified as exacerbating labor market rigidity do not lead to a higher unemployment rate.

Among most observers, though, there seems to be a general agreement that the German labor market is "inflexible", with the various elements of the regulatory system impacting on labor demand, labor supply, and on their interaction in the market (see, for instance, Siebert 1997). According to this view, labor demand suffers from a lack of flexibility in working time, a high tax wedge, and the strict regulations regarding layoffs, labor supply is reduced by a generous system of unemployment support and welfare, leading to a poverty trap, and the idiosyncrasies of the system of collective bargaining between unions and employer federations lead to insufficient wage flexibility and wage differentiation.

Despite the general presumption that German labor market rigidities have increased since the early 1970s, it is quite difficult to quantify the strength of regulation. Berger (1998) constructs various indices of regulatory activity, finding a strong rise of labor market regulation from 1970 to the early 1980s and a decline thereafter. This would not seem consistent with regulation being a major determinant of the recent rise in unemployment. Due to changes in the exposure to global markets and due to structural change, it might well be, however, that a somewhat lower formal regulation had a more detrimental impact on the German labor market in the 1990s than the more intense regulation has had in earlier years.

Three aspects of German labor market regulations are discussed in detail below (see, for instance, Berger 1998, Franz 1994, OECD 1994, Siebert 1997, Soltwedel et al. 1990): the system of collective bargaining, the legal environment, and the system of unemployment support. (i) The most important feature of the system of collective bargaining is the "Tarifautonomie": workers and employers possess the constitutional right to organize themselves into union and employer federations and they are guaranteed the right to bargain about wages and working conditions without any government interference. In practice, bargaining proceeds along regional and industry lines, although there might be wage leadership and some hidden coordination. Overall, the bargaining process is thus characterized by a high level of *centralization*.

Bargaining contracts are binding for union members and members of the employer association alike - wages may exceed the web of corresponding minimum wages at the firm level, though. Only in recent years have opening clauses become an issue in the Eastern part of the country. In addition, there is no relative union wage effect: as an empirical regularity, union

members and non-members are paid alike (Schmidt 1994). While it were legally possible, firms would not hire non-union workers at lower pay, because these would simply have to enter the union to receive union pay. Thus, there is a high level of *coverage* by union contracts. Finally, the government can declare a collective bargaining agreement to be *compulsory*, a regulation that affects about one out of five workers. The system of collective bargaining remained stable throughout time, but of course the environment in which it is operating is subject to continuous change.

(ii) Particularly during the late 1960s and the 1970s, legislation strengthened the legal position of unions and individual workers. First, *worker representation* on supervisory boards was increased, giving work councils a stronger role. Second, employees facing a major restructuring in their workplace have to be provided with a *compensation* scheme, thereby increasing firing costs. Third, the late 1960s and the 1970s also witnessed a dramatic change in the way German *labor courts* interpreted employment protection laws (which awarded a high degree of discretion to the courts), also effectively increasing firing costs. In addition, the number of cases in the labor courts increased dramatically (Berger 1998); this figure also rose substantially in the early 1980s, but fell back to the mid 1970s-level since. During the 1980s, the government attempted to enact institutional changes to scale back regulations. For instance, the "Beschäftigungssicherungsgesetz" of 1985 reformed employment protection and allowed for temporary work contracts.

(iii) Unemployment benefits (*Arbeitslosengeld*) are of limited duration (a maximum of almost three years, depending on age and employment record) and linked to previous work income, with a replacement rate that was 63% from 1984 until 1994, and has been 60% since (Hunt 1995). A second layer of income support for the unemployed, *Arbeitslosenhilfe*, is means tested and of unlimited duration, but with 56% (53% since 1994) lower than the corresponding unemployment benefits. Finally, social welfare benefits (*Sozialhilfe*) are also means tested and provided for an unlimited duration; they are neither linked to previous income nor to active search in the labor market, but rather a vehicle to guarantee subsistence. It is quite conceivable that the reservation wage of German workers is relatively high, leading to a moderation of the exit rate from unemployment as compared to a less generous system of income support.

This description of German labor market institutions and regulations and the arguments surrounding their impact notwithstanding, the central questions are of an empirical nature: what

is the transition intensity of German workers between jobs and between the states of employment and unemployment, by how much do these intensities vary across different individuals and over time, and could we identify regulatory activities as a driving force behind such changes? I will argue in the remainder of this section that very little is known about these basic facts for the German labor market.

The analysis of gross worker flows has a long tradition for the US labor market. On the basis of monthly data from the *Current Population Survey* CPS, Clark and Summers (1979) demonstrate that workers who find a job after a short spell of unemployment generally account only for a small share of unemployment, and that almost half of all unemployment spells ends by a transition into non-participation. Also working with the CPS, but using gross flows of workers between employment, unemployment and out-of-the-labor-force which were corrected for classification error by Abowd and Zellner (1985), Blanchard and Diamond (1989, 1990) conclude that the US labor market is characterized by high rates of job creation and job destruction, and by large flows of workers into and out of employment.

In their papers, they offer a conceptual framework for interpreting the dynamic behavior of the levels of employment, unemployment and vacancies and the flows between these states. They find that the amplitude in the fluctuations in the flow out of employment is larger than that of the flow into employment - reduced employment in recessions results more from high rates of job destruction rather than from low rates of job creation. Moreover, flows from non-participation to employment are numerically as important as flows from unemployment to employment. More recently, gross job flows have moved into the center of attention (Davis & Haltiwanger 1990, 1993) and theories of job flows have been developed as the driving force behind gross worker flows over the cycle (Pissarides 1986, 1991, Mortensen & Pissarides 1994).

Little is known about the demographic structure of German labor market flows, however. The available evidence (Boeri and Cramer 1992, Burda and Wyplosz 1994) demonstrates that the worker flows in and out of unemployment are large - in absolute number as well as a percentage of the unemployment stock, and that inflows and outflows move closely together. That is, while inflows into unemployment are known to be countercyclical, it turns out that outflows are countercyclical as well. However, while being very informative, this evidence is based on average data, not on a detailed account of demographic cells. It also refers to annual data and the most recent years are not documented. The analysis in this paper will address these aspects explicitly.

In the absence of any self-evident standard separating a "flexible" from an "inflexible" labor market, one of the most promising strategies for an assessment of the characteristics of a labor market is the comparison across countries. This is the avenue taken by CLSP in their work on the French labor market. For their analysis of French labor market flows, they use data from the 1990 wave of the French *Enquête Emploi*, a yearly labor force survey that provides retrospective monthly information on employment status during the preceding year - quite similar to the GSOEP data used here. To compare these results to the US, they also use information from the 1989 CPS. The analysis in this paper utilizes the information given in CLSP to widen the perspective into a comparison across all three labor markets.

2. Data on German Labor Market Flows

In this analysis, I use individual-level data representative for West Germany between 1983 and 1994, drawn from sample "A" of the *German Socio-Economic Panel* GSOEP. The GSOEP is a panel survey of individuals that started in 1984 and provides one annual survey wave each year, yielding 12 waves of data by 1995. Sample "A" of the GSOEP covers individuals above age 15 in households headed by a native German (or by foreigners not originating in one of the five major sending countries, Greece, Italy, Spain, Turkey and Yugoslavia). As a consequence, the individuals in sample "A" are predominantly native Germans; this sample is commonly referred to as the "West German Sample" of the GSOEP.

In the questionnaire, respondents were asked to report their major activity for each month of the preceding year. For the analysis, I have condensed this detailed information on individual activities into three distinct labor market states, *employment*, *unemployment*, and *out-of-the-labor-force*. "Employed" refers to full-time work, part-time work, and vocational training, "unemployed" to registered unemployed, and "out-of-the-labor force" is the residual category, comprising among others schooling, military service, maternity leave, and retirement. That is, the survey wave of year, say, 1990 provides us with knowledge of the respondents' labor market state in each month from January 1989 to December 1989, and with information on gender, age, and educational achievement as of survey time in 1990. Retrospective information from the GSOEP has been used for the analysis of the West German labor market by Steiner (1994 and 1997) in the estimation of hazard rate models, and for East Germany by Lechner (1998) and Wolff (1998).

To construct data on monthly flows, I have extracted retrospective information on individuals' labor market state from the GSOEP for the months January/February 1983 to November/December 1994, that is for 143 pairs of adjacent months. Regarding demographic information, the analysis explicitly distinguishes individuals in 18 gender-age-education cells, with three age groups, 16-24, 25-49, and 50-64, and three education groups, *low*, *medium*, and *high*. CLSP also chose to partition the working-age population into three age groups 16-24, 25-49, and 50-64; this is exactly the partition chosen in this paper. They do, however, distinguish four levels of education. The first level, *low*, corresponds to workers with no diplomas in France and to high school dropouts in the US. In this paper, the education of German workers with only a low or medium secondary schooling degree (Hauptschule or Realschule) is considered to fall into the *low* category.

In CLSP the education level *medium* comprises workers who have not reached the *baccalaureat* in France and workers who finished high school in the US, whereas the third education level, *high*, corresponds to French workers who have the *baccalaureat* only and to American college dropouts. In this paper, Germans who either have a high secondary schooling degree (*Abitur*) or any form of formal post-secondary education other than university or technical college, for instance a vocational training course, are categorized as having *medium* education, thus combining the second and third education levels of CLSP. Finally, French workers with more than two years after the *baccalaureat* and US workers with a *bachelor* or higher are categorized by CLSP as having a *very high* education. This category directly compares to the category *high* in this paper which comprises German workers with any degree from a technical college (*Fachhochschule*) or a university - that is, no students who merely passed the intermediate examinations (*Vordiplom* or *Zwischenprüfung*) are counted as highly educated here.

The sample distribution of demographic characteristics is displayed for reference purposes in Appendix Table 1. Starting originally from approximately 4000 women and 3800 men in each monthly sample in 1983, the sample size deteriorates due to attrition to 2800 and 2700, respectively, in the monthly samples of 1994. Only slightly more than 50% of the individuals are in the core age group 25-49, the old claim a higher population share among the remaining individuals. There is a high disparity in the education distribution across genders: less than 20% of males are observed having only *low* education, but one third of the women.

The individual-level data allow us to calculate (i) monthly employment, unemployment and non-participation rates and (ii) monthly transition rates between these states for workers in each demographic cell for each origin month from January 1983 to November 1994, and for each pair of months from January-February 1983 to November-December 1994. Within a single year, underlying sample sizes could only vary because of non-response, whereas panel attrition affects the data on December-January transitions. Because of the concentration on monthly transitions, problems of non-response in any particular month should not affect calculations in another pair of months: All individuals whose labor market activity is not being observed in the second month of each pair of months are omitted from the transition rate calculations, but these individuals are not omitted from the calculations for other months where they display valid responses.

In the remainder of the paper, I concentrate on the graphical representation of the derived time series of estimated monthly employment and unemployment rates and of monthly transition rates between 1983 and 1994, and summarize estimated average labor force and transition rates and their associated standard errors over four sub-periods (1983-85, ..., 1992-94) in transition matrices. The figures for monthly transition rates are seasonally adjusted by using a 12-month moving average filter to smooth the data. Particular emphasis in the discussion is on the transition from employment to unemployment and from unemployment to employment.

3. Labor Force Status: Employment and Unemployment Rates

Results on employment rates and unemployment rates are presented in Tables 1 to 8. The presentation of the empirical analysis follows a systematic pattern: Monthly information is used to estimate employment and unemployment rates for men and women separately, for each of the 9 demographic cells distinguished by the age-education interaction, for the two coarse partitions of the sample (by age and by education) and for the male or female population as a whole. These calculations are performed for all 143 months in the sampling period January 1983 to November 1994.

Denote the relevant fractions of workers in any demographic cell in the sample in month t who are employed (as a fraction of the population) or unemployed (as a fraction of the active population) as $p_e(t)$ and $p_u(t)$, respectively. These empirical employment and unemployment rates are the ML estimates of average rates in this demographic stratum, with associated variances $((p_e(t) (1 - p_e(t))) / n(t))$ etc., where $n(t)$ denotes the observed number of all individuals in month

t for employment rates and the observed number of active (employed or unemployed) individuals in month *t* for unemployment rates. That is, all estimated rates of coarse demographic strata are weighted (by population shares) averages of the rates estimated for the finer partition of the cells. Since each monthly sample is taken to be independent, this derivation disregards the panel structure of the data, and the estimated standard errors may be biased downward.

To document the relevant levels and their heterogeneity across population strata, the first two tables report the average rates across time for all demographic cells, for the two coarse partitions of the population and for all workers taken together in the form of cross-tabulations. In addition, intertemporal developments of these rates are reported in Tables 3 and 4 for the coarse partitions of the working-age population across skill and age levels, and for the working-age population as a whole, by distinguishing four three-year sub-periods 1983-85, 1986-88, 1989-91, and 1992-94. Finally, in Tables 5 to 8 the results for Germany are put into perspective by comparing them to the results for France and the US from CLSP.

Table 1 concentrates on the demographic composition of employment rates. On average, approximately 80% of male German workers aged 16 to 64 were employed in any given month during the sampling period 1983 to 1994, and slightly more than 50% of the women. There is a large variation in employment rates across detailed demographic groups, though; it is even more pronounced for men. Particularly large disparities in employment arise across age groups. Many young men still invest in their human capital - almost every second young man is not employed. Employment rates are of almost equal size for young women. At the other end of the age spectrum, early retirement apparently reduces the ranks of active old workers. Only slightly more than 70% of men and only a little over a third of old women were employed in a typical month during the sampling period. By contrast, the employment rate of middle-aged workers (25-49) is over 90% for men and over 60% for women.

A similarly distinct profile can be observed across skill groups, albeit with a peak at the high end instead of at the medium range. The female profile is shaped like the male profile, but by some 20 percentage points on a lower level than for males. Averaging across age groups, in a typical month during the sampling period, 90% of males with a university degree were employed, but only 80% of the medium-skilled and even only 60% of the low-skilled male workers. Within detailed age-education cells, there is some additional variation beyond these

average age and education profiles. For instance, over 70% of highly educated women in the core age group are employed, but only less than one third of the low-skilled old women.

Table 2 provides a similar baseline analysis for unemployment rates. Over the sampling period, male and female unemployment rates have, on average, been approximately 4% and 5%, respectively. These average figures hide a substantial heterogeneity across demographic cells. The performance in the young and the old age group is significantly worse, for both men and women. Even more drastic is the profile in education for men; during the sampling period, low-skilled workers faced more than twice the unemployment rate as the average male worker and even four times as high as highly educated men. For women, the education-unemployment rate profile is falling with increasing education as well, but this profile is much less pronounced. Among the men, the low-skilled workers of medium age and also those in the oldest age group, among the women the young unskilled and the old medium skilled display a particularly high unemployment rate. For both genders, it is the high-skilled workers whose low unemployment rates paint a particularly favorable picture.

Overall, when compared to the figures in the official statistics, the unemployment rates reported here appear quite low; several factors seem to be responsible for this phenomenon. First, the sample only covers native West Germans. Immigrants display a substantially worse educational distribution than native workers (e.g. Schmidt 1997); in addition, it is conceivable that immigrants have a somewhat higher unemployment rate across all demographic strata. Similarly, the large numbers of ethnic German immigrants who arrived after the collapse of the communist regimes in Eastern Europe were likely to experience unemployment after their arrival in Germany - they are also not covered by the GSOEP sample "A". Second, by contrast to the procedure of the German Statistical Office, it is the population of *all* employed workers, including the self-employed, that - together with the registered unemployed - forms the denominator of the calculations in this paper. Third, there may be data problems such as selectivity or recall bias. The discussion of the last point will be deferred to the end of the paper.

Table 3 documents the development of employment rates over time by distinguishing four three-year subperiods, 1983-85 to 1992-94. The fifth column serves for comparison purposes - these are the figures in the margins of Table 1. For men, employment rates increased slightly over the sampling period, whereas for women the increase was more substantial, from approximately 49% to approximately 58%. There is substantial heterogeneity across demographic cells, though,

with a sharp distinction of male and female employment rates. While the development of the female figures is likely to be predominantly shaped by participation issues, the male figures typically vary only by a few percentage points over time.

The employment rates of young male and female workers displayed a strong upward trend during the first three sub-periods, 1983-85 to 1989-91, from approximately 51% to 59% and from approximately 54% to 64%, respectively, but fell thereafter, by approximately 4 and 6 percentage points, respectively. At a substantially higher level and with lower volatility the same intertemporal pattern emerges for middle-aged men; for old men employment rates fell slightly over the sample period. By contrast, there is a continuous upward trend in the employment rates of middle-aged and old women.

Low-educated male and female workers share with young workers the intertemporal employment rate profile of a rising rate during the first three sub-periods and a decrease in the last period 1992-94. By contrast with the middle-aged and old women who display a persistent and remarkable increase throughout, very little intertemporal fluctuation can be observed for the medium-aged and old male workers. At first glance, the decline towards the end seems particularly troublesome for young unskilled workers, but their declining employment rates may of course capture an increase of the investment into human capital among the young.

This deterioration of the labor market position of workers in the last sub-period 1992-94 is even more apparent from the unemployment rates documented in **Table 4**. Again, the fifth column documents the average over the 1983-94 period for comparison purposes. For men and women, the same overall development can be observed, from 4.5% to 2.9% and even from 6.2% to 3.8% during the first three sub-periods, and then a sharp rise to 4.0% and 5.1%, respectively. At different levels and with different volatilities, this intertemporal profile characterizes all demographic cells, with the exception of old workers. Old women already displayed a sharp rise of their unemployment rates between 1983-85 and 1986-88, by approximately 2 percentage points. There is also a large discrepancy in volatilities: unemployment rates for female workers are slightly more volatile than those of men, but it is in particular the young workers whose unemployment rates fluctuate substantially during the sampling period.

To emphasize this point, **Figures 1(a)** and **1(b)** display the monthly unemployment rates of young and old workers, respectively. Clearly, the unemployment rate of young workers underwent much larger changes during this period. For comparison, note that the growth rate of

11

GNP was positive during all years in the sampling period except 1982 and 1993, and that economic growth was particularly strong during the period from 1988 to 1991 (Statistisches Bundesamt 1997). Moreover, the average figures displayed in the tables hide substantial seasonal variation, particularly for young and low-skilled workers, less so for old workers. This point is emphasized by **Figure 1(c)** which displays the monthly unemployment rates of workers with a low education.

On the basis of these results, it is now possible to describe the German labor market in comparison with other labor markets. **Table 5** replicates the results of CLSP on the demographic composition of the total labor force. Calculations in CLSP were for the 1989/1990 period, the German results reported in this table refer exclusively to the 1989-91 period. In all three countries, this time period was the time of a business cycle peak. The differences in the sample partition regarding education make a direct comparison across countries somewhat difficult; this problem is solved here by condensing the information of CLSP into three education strata.

The table demonstrates that the German labor force comprises a high share of young workers when compared to France (16.5% vs. 10.9%), although with 17.9 % the share of young workers in the labor force is even higher for the US. Neither the French nor the US labor force contains such a large share of old workers as the German labor force (18.9% and 17.3%, respectively, vs. 21.4%). Correspondingly, with 62.1% the fraction of medium-aged German workers is comparatively low, whereas the shares of workers in this core age group were 70.3% for France and 64.7% for the US.

The table proceeds to present the educational composition within each age group in the labor force for these three countries. That is, the three entries for each country and age group always sum up to 100%. Given the difficulties in comparing education systems, and given the particular choices made to condense educational information in these three samples, one would expect large discrepancies across countries. Indeed, the vast majority, almost 70%, of German workers is considered as having *medium* education, but only slightly below half of the French and approximately 60% of the US labor force. The share of German workers with a *high* education is comparatively low, only 12.1% compared to 15.7% for France and 23.0% for the US.

One should not overemphasize these differences, however, since the sample definitions required German workers to graduate from technical college or from a university to be classified as highly educated. Similarly, the low share of German workers with a *low* education (only 18.6%

as compared to 35.9% for the French labor force) is mainly a consequence of the definitions used in the empirical analysis. The cross-country differences in educational composition are confirmed in the labor force core of the 25-49 year olds. In all three countries, relatively few young workers are highly skilled - a consequence of the large duration of advanced curricula. A similar observation holds for German and French old workers, but not for old Americans - the share of highly skilled US workers exceeds the corresponding European shares by a factor of two.

One of the central results of CLSP was the fact that at a time of a business cycle peak, 1989 in the US and 1990 in France, while the French aggregate unemployment rate exceeded the US rate by a factor of two (10.2% vs. 5.5%), the male medium-age workers performed quite similarly in both countries, particularly the low-skilled (10.8% in both countries) and workers in the top education category (2.6% vs. 2.4%). **Table 6** compares these figures to the 1989-91 German unemployment rates reported in the previous tables, again condensing the educational partition into three categories. Overall, the German results are drastically different from both the French and the US figures, although within each age group the education profile is similarly steep.

Particularly among the young, German workers experience drastically lower unemployment rates, with differences being even more sizeable between German and French rates. For old workers, by contrast, the German figures are much closer to the US unemployment rates than to the French. In a comparison of male and female unemployment rates within each country, it is apparent that French women experience a higher unemployment rate than French men basically across all demographic strata, while US men and women are not very different in terms of their unemployment rate.

By contrast, the relative unemployment performance of German women depends critically on their demographic characteristics: female unemployment rates are higher than that of males among the young low-skilled, but lower among the medium-aged and old low-skilled. Finally, in a comparison between Germany and the US, it is apparent that young German women have a lower, but old German women - if not highly educated - have a higher unemployment rate.

When they were phrasing their analysis in terms of non-employment rates, CLSP derived a remarkable similarity between the French and US figures for women in the core age group 25-49. **Table 7** addresses this finding, again condensing the CLSP figures. For men, there is a large similarity between the French and German non-employment rates; by contrast, the US non-employment rates in this core age group are much larger for low-skilled and medium-skilled

workers. German women perform quite differently from women in the other two countries, however. Non-employment rates are relatively low among the low-skilled (43% vs. 48.1% for France and 53.8% for the US, respectively), but high among women with at least a medium education (35.9% vs. approximately 28%, and 26.6.% vs. approximately 18% for medium-skilled and high-skilled core-age women, respectively).

In their paper, CLSP conclude that the bulk of the unemployment rate differential between France and the US originates from a higher female rate - some 3.3 percentage points of the overall difference of 4.7 percentage points in favor of US workers are explained by the larger unemployment rates of French women. Very little of this contribution by female differences is due to composition effects, whereas for male workers composition and within-group differences each account for about half of their contribution to the overall French-US differential of approximately 1.4 percentage points.

Here the differential between French and German unemployment rates of approximately 5.3 percentage points for men and 9.1 percentage points for women, and between US and German unemployment rates of approximately 2.9 percentage points for men and 1.3 percentage points for women, respectively, is decomposed into a *composition effect* and a *within effect* according to the decomposition equation

$$u^F - u^D \quad = \quad \sum_j u_j^F \left(w_j^F - w_j^D \right) + \sum_j w_j^D \left(u_j^F - u_j^D \right),$$

where superscripts F and D stand for France (or, alternatively, the US) and Germany, respectively, u are unemployment rates and w are labor force weights, and j is the index of age-education cells. This decomposition is performed separately for each gender.

Table 8 demonstrates that the average differential is mainly explained by differences within demographic cells, and that composition effects even favor French and US women in this comparison. That is, if German labor force shares were used to weight unemployment rates within female age-education cells, the French and the US unemployment rates would have been even higher than actually observed. Again, one should take these results with a grain of salt, since the overall level of unemployment rates calculated from the GSOEP sample seems quite small when compared to official figures from the Statistical Office. Nevertheless, the results qualify somewhat the impression arising in CLSP that for the labor force core of medium-aged and medium-educated workers we should expect US-European differences in employment and unemployment performance to be quite small.

4. Transition Intensities: Labor Market Flows

The results on monthly transition intensities between the states of employment, unemployment, and non-participation are presented in Tables 9 to 20. The presentation of the empirical analysis again follows a systematic pattern: information on adjacent months is used to estimate transition intensities to the three destination states employment, unemployment and non-participation, conditional on the state in the origin month, that is, there are nine transition intensities for each month and demographic cell. These calculations are performed for men and women separately, and within a gender for each of the 9 demographic cells distinguished by the age-education interaction, for the two coarse partitions of the sample (by age and by education) and for the population as a whole for all 143 origin months in the sampling period January 1983 to November 1994. Given an initial state, the three transition intensities to the destination state always sum to unity.

Denote the fraction of employed workers of any demographic cell in the sample in month t who are observed in month $t+1$ to be employed, unemployed, and not participating, as $p_{ee}(t)$, $p_{eu}(t)$, and $p_{en}(t)$, respectively. These empirical transition rates are the ML estimates of transition probabilities in the population, with associated estimated variances $((p_{ee}(t)\,(1 - p_{ee}(t)))\,/\,n_e(t))$ etc., where $n_e(t)$ denotes the observed number of employed individuals in month t. For unemployed and non-participating individuals as of origin month t who are observed in one of the three different states in the subsequent month, the corresponding empirical transition rates are $p_{ue}(t)$, $p_{uu}(t)$, and $p_{un}(t)$ for unemployed, and $p_{ne}(t)$, $p_{nu}(t)$, and $p_{nn}(t)$ for non-participants, respectively. Estimated standard errors are derived accordingly.

Taken together, the empirical transition rates form a 3 x 3 transition matrix for each demographic cell and month. In each month, we thus have 18 observations for each empirical transition matrix, one for each demographic cell. All estimated transition intensities of coarse demographic strata are weighted (by population shares in the origin state) averages of the intensities estimated for the finer partition of the cells. Since each monthly sample is taken to be independent, this derivation also disregards the panel structure of the data, and the estimated standard errors may be biased downward. In some months, we may not observe workers in all origin states and all demographic cells. Appendix Table 2 demonstrates that for instance among the few highly-skilled young men and women, in the vast majority of the 143 months no one was

unemployed. It was then impossible to calculate the corresponding transition rate from unemployment to any other state.

To document the relevant levels of these transition intensities and their heterogeneity across population strata, in Tables 9 to 13 the average transition intensities across time are reported together for all demographic cells, for the two coarse partitions of the population and for all workers taken together in the form of cross-tabulations. Out of the 9 possible transitions, these tables omit all direct transitions such as employment-employment and also the non-participation-unemployment transition. In addition to these average figures, in Tables 14 to 18 intertemporal developments of these intensities are reported for the coarse partitions of the working-age population across skill and age levels, and for the working-age population as a whole, as in section 3 by distinguishing four three-year sub-periods 1983-85, 1986-88, 1989-91, and 1992-94. Finally, the results derived here are compared in Tables 19 and 20 to the results of CLSP on France and the US, following basically the table setup in CLSP.

To summarize the results for the West German sample, rates of job loss are small, there are large differences across gender, age and education cells for most of the transition intensities; re-employment rates are also small, with a large comparative advantage for men; finally, women have a much larger chance to enter non-participation from unemployment (3.1% vs. 2.0% for men). In the comparison to the labor market transitions of French and US workers, the German figures position themselves between the two other markets, but they are closer to the French results.

Transitions from Employment

In the average pair of months in the sample period, approximately 0.4% of employed male and female workers went into unemployment (**Table 9**). As for the employment and unemployment rates in section 3, the average figures are hiding a substantial heterogeneity across demographic cells. There is a distinct age profile (approximately 0.9% to 0.3% for men), with drastically higher job loss rates for young workers. Whereas young workers display approximately triple the employment-unemployment transition rates as old workers, for medium-aged and old workers the transition intensities from employment to unemployment are quite close.

Similarly, for male workers the transition intensities from employment to unemployment decline significantly with rising education (approximately 0.6% to 0.2% for men), with steps of

16

0.2 percentage points. For women, this profile is essentially flat around 0.4%. Young women and men of medium education have a high transition rate from employment to unemployment, highly-skilled medium-aged men and old men and women move disproportionately rarely from employment to unemployment.

Employment to non-participation transitions (**Table 10**) are a much larger component of job loss than transitions into unemployment for both male and female workers, but clearly more drastically for women. In a typical month during the sampling period, approximately 1.0% of employed men and 1.6% of employed women leave employment; transitions to non-participation account for 0.6 percentage points for men and 1.2 percentage points for women. A very pronounced age profile characterizes this transition for men, with very low rates of 0.3% for the medium age group, a high rate of approximately 0.7% for old workers, and even slightly more than 1.8% for young workers. It is quite conceivable that these are mainly individuals leaving a job to take up additional schooling or military service. Almost no medium-aged male worker leaves employment to give up labor market participation. Among old workers, we might expect a sizeable share to move into retirement each month, even in the absence of any economic downturn.

Across education groups, low-skilled men are most likely, by approximately 0.9% each month, to move from employment to non-participation, and there is a distinctly falling education profile. For women, both age and education do not play such a decisive role for the transition from a job to non-participation. Overall their rate is about double that of men, but no distinct age or education profile can be derived.

Transitions from Unemployment

On average, during the sampling period more than 9% of all unemployed German men left unemployment to take up employment (**Table 11**). With almost 7%, the female re-employment rate is approximately two thirds of the male rate. The high average figure for both men and women is mainly driven by the young (more than 14% for men and more than 11% for women) and by medium-aged (almost 11% for men and approximately 7% for women) workers, whereas the old workers lag behind drastically. The monthly re-employment rate is as low as 3% for old men and even only somewhat above 1% for old women.

By contrast, the education profile is upward sloping, albeit with more moderate increments, ranging from slightly under 7% to almost 12% for men and from over 5% to approximately 10% for women. The young and medium or highly educated workers perform particularly well in terms of hiring rates, the combination of being old and medium educated apparently leads to a dispropotionately dismal re-employment performance.

A large share of those workers who exit from unemployment to non-participation instead of employment might be *discouraged workers*. As an empirical regularity, even after long periods of joblessness will most men find non-participation to be a relatively unattractive option (recall that "unemployed" here refers to being registered as unemployed). By contrast, many women do not choose to participate in the labor market despite their earnings potential, and those who are employed may opt out of the labor market when falling into unemployment. Thus, it is no surprise that in a typical month the average female transition rate from unemployment to non-participation exceeds with slightly over 3% that of men which is approximately 2% (**Table 12**).

Whereas there is no remarkable age profile in the female transition rates whatsoever, for medium-aged men it is substantially smaller than for the young and the old. Young male workers - who may exit unemployment to acquire additional human capital - and old men - who may opt for participation in an early retirement scheme - exit the labor market from unemployment at the same rate as women, over 3% per month.

Non-participation to Employment

Relatively few male workers do not participate in the labor market; this holds particularly for men of core working age 25-49, and for medium-skilled and highly skilled workers. Once being out of the labor market (**Table 13**), with approximately 3% per month men also return to the labor market with higher intensity than women for whom this transition rate, in an average month during the sampling period, is only 1.7%. The entry from non-participation to employment should be relatively easy for individuals finishing some type of formal educational investment, for instance for high-skilled university graduates; it should be very difficult for old workers and those who moved into the ranks of the non-participants during a spell of non-employment. There is a clear profile in age and in education for both genders, quite in line with this reasoning; young women with high education display a particularly large transition intensity.

Intertemporal Developments

After the discussion of the levels, this section details the intertemporal chances in the average observed monthly transition rates in sub-periods 1983-85 to 1992-94. The individual figures in Tables 14 to 18 are displayed for all men and all women, and - separated by gender - for individual age groups and individual education groups. Age-education interactions are not presented. Again, of the nine possible transitions only five are addressed, again starting with the transitions from employment to unemployment and to non-participation, followed by the transition from unemployment to employment and to non-participation, and ending with the transition from non-participation to employment. To summarize, rates of job loss haven't changed much over time, but re-employment rates have dropped significantly after 1991, particularly for men (average from about 10% to 7.5% in 1992-94) and across all education groups, albeit more moderately for the core age group.

Across all demographic groups with the exception of low-skilled males one can observe the same intertemporal pattern of employment-to-unemployment transitions (**Table 14**). After a protracted decline of job loss rates during the 1980s, there was an increase in job loss probabilities in the 1992-94 period, albeit only to long-term average levels. That is, the period 1989-91 was a period of particularly low job-loss rates. These developments are displayed graphically in **Figures 2(a)** to **2(c)** for selected demographic groups, young workers, old workers, and workers with low education. These monthly time series are seasonally adjusted by calculating a 12-month moving average filter. The Figures confirm the uniformity of the intertemporal pattern across demographic groups and emphasize the larger volatility of the rates of young and low educated workers.

No clear intertemporal pattern can be observed for the transition from employment to non-participation (**Table 15**); it is continuously the largest component of job loss. There is faint evidence for a small rise between the second sub-period 1986-88 and the third 1989-91. This rise is only pronounced for the young (a rise from 1.6% to 2.3% for men and from 1.1% to 1.4% for women) and for the low-skilled (an increase from 0.9% to 1.1% for men and from 1.2% to 1.5% for women, respectively). The only substantial decrease in the transition rate from employment to non-participation occurs for old women after the 1983-85 period (from 1.5% to 1.1%).

Table 16 documents the intertemporal developments of transition rates from unemployment to employment. In the aggregate, these transition rates are stable or even slightly

improving for both men and women, but experienced a substantial drop in the last sub-period. Within individual demographic strata, one can observe sizeable intertemporal change. The pattern is relatively stable across male strata, young and highly-skilled workers even display an increasing re-employment rate between the 1986-88 and 1989-91 period. All men share the experience of a worsening record towards the last sub-period 1992-94.

The various female strata display much more heterogeneity. Young women have hiring rates similar to young men, both in terms of magnitude and in the development over time, but the transition rates of middle-aged women even increase towards the last sub-period. The diversity of the developments across female education strata is also remarkable. For instance, the hiring rates of low-educated women already started to deteriorate after 1986-88, but at that time they were up by some 20% from their 1983-85 value.

These developments are displayed graphically in **Figures 3(a)** to **3(c)** for the same selected demographic groups, young workers, old workers, and workers with low education, with the figures also being seasonally adjusted. As for employment-unemployment transitions, the Figures confirm the uniformity of the intertemporal pattern for males and - again - emphasize the larger volatility of the rates of young and low educated workers.

Tables 17 and **18** display the intertemporal development of unemployment-to-non-participation transitions and of non-participation-to-employment transitions, respectively. It is difficult to detect any pattern of significance in these figures, apart perhaps from the changes between the 1989-91 and 1992-94 periods in Table 17 for old workers and medium-skilled workers.

International Comparison

Table 19 reports job loss rates, that is the sum of the transition rates from employment to unemployment and to non-participation. The setup of the table follows CLSP, again condensing their information to three education groups for France and the US. Taken together as rates of job loss, the German figures are in the neighborhood of the French figures reported in CLSP, although they do exceed those figures slightly for males and substantially for females. The job loss rates of US workers exceed both the German and the French rates drastically. Recall that the transition to non-participation was continuously the largest component of job loss during the

sampling period, but that changes in job loss rates over time are driven by fluctuations of the transitions into unemployment.

There are large differences in the French-German comparison across gender, though. In most age-education cells, French and German men have job loss rates that are very close in magnitude. This holds particularly for the core age-education cell of medium-aged and medium-educated men. The only male group for whom the French job loss rates are higher are the young with low education. Young low-skilled and medium-skilled French women also experience a relatively high job loss rate - we find a substantially higher job loss rate for German women in all other groups.

CLSP report monthly hiring rates for France of approximately 6% for men and 5% for women. **Table 20** replicates these results for France and the US, appropriately condensing the education groups into three groups, and compares them to the corresponding results for Germany. In all demographic cells, German re-employment rates are, on average, larger than those of French workers, but also substantially smaller than those of US workers. Overall, monthly unemployment outflow is almost 10% for men and over 7% for women. The corresponding figures for US workers are 29.4% and 23.8%, respectively.

In a more detailed comparison within age groups, it is apparent that for young men and women and for high-skilled medium-age men, the re-employment rates of German workers are within reach of the US rates, whereas German rates are far closer to the low French rates for old workers and low-skilled medium-age workers. Moreover, in a comparison of core-age women, French and German workers look very similar. In sum, while German workers are, on average, more successful in terms of exiting unemployment to employment, this discrepancy is driven by only a few selected demographic groups.

5. Agenda

The results presented in this paper provide a baseline account of monthly transition intensities across labor market states for German men and women, for the period 1983 to 1994 and for a detailed set of demographic groups. Most important results were the low rates of job loss and re-employment, the heterogeneity of results across demographic groups, and the intertemporal stability of flow dynamics. During the sampling period, the largest change seems to have been the decline of re-employment rates for male workers, characterizing all age and education strata.

In a comparison of these results with results for French and US workers, German workers had a substantially lower unemployment rate than both. Non-employment rates were relatively similar for French and German workers and so were rates of job loss and hiring rates. The similarity was largest among core labor force groups, whereas differences were mainly driven by workers outside the core, young workers, women and the highly-skilled. US workers experience drastically higher job loss rates and also substantially higher re-employment rates than both German and French workers.

The German unemployment rates reported here appear quite low; it was argued in section 3 that several factors are responsible for this phenomenon. First, the sample only covers native West Germans whose favorable educational composition should lead to a lower unemployment rate than if immigrants had been included. Second, the denominator of the unemployment rate calculations is formed by *all* employed workers in a demographic cell. Third, there may be data problems such as recall bias or selectivity. Classification errors have played a major role in the literature on gross flow data from the outset. Early contributions were Abowd and Zellner (1985) and Poterba and Summers (1986), a more recent analysis of classification error in CPS data is offered by Poterba and Summers (1995).

Various forms of classification error may plague the retrospective GSOEP data. Specifically, individuals may have experienced a transition to unemployment but report it for the wrong month. Then the unemployment rate for this month will be overestimated, that of the correct month of entry will be underestimated. On balance, this will not be detrimental for the calculation of unemployment rates, if there is no concentration of the mis-classified entries in a particular month. Such *heaping* effects do seem to exist in retrospective calendar data, though. For instance, Kraus and Steiner (1998) explicitly model heaping to the months of December and January with the GSOEP data for West Germany.

The respondent may also report a transition into unemployment that never occurred, correcting the mistake during the next period. Then, transition intensities between both states are artificially inflated, and for the month in question, the estimated unemployment rate is biased upward. Finally, due to negligence respondents may omit brief spells of unemployment from their retrospective record, thus leading to an underestimate of the unemployment rates and of the transition rates into and out of unemployment. Analyzing the retrospective calendar data of the GSOEP East, Wolff (1998) concludes that such "forgotten unemployment" is a substantial

phenomenon for East Germany. The extent to which the current analysis was subject to problems of classification error should be explored in further work.

Finally, it might well be that the panel data used here capture a particularly "stable" part of the population, in the sense that the fact of being observed throughout most of the sample period on one hand and employment rates and re-employment success on the other are systematically positively related. Such a pattern could not be tackled by a simple weighting according to "exogenous" observable characteristics (gender, age, education) alone; this problem should also be addressed in future research. Nevertheless, as it stands, the evidence presented in this paper qualifies the notion of the German labor market being too rigid and provides the quantitative baseline for further discussions of this issue.

References

Abowd, J. and A. Zellner (1985) Estimating Gross Labor Force Flows, *Journal of Economic and Business Statistics*, **3**, 254-283.

Berger, H. (1998) Regulation in Germany. Some Stylized Facts About its Time Path, Causes, and Consequences, *Zeitschrift für Wirtschafts- und Sozialwissenschaften*, **118**, 185-220.

Blanchard, O. and P. Diamond (1989) The Beveridge Curve, *Brookings Papers on Economic Activity*, **1989:1**, 1-76.

Blanchard, O. and P. Diamond (1990) The Cyclical Behavior of Gross Flows of Workers in the US, *Brookings Papers on Economic Activity*, **1990:2**, 81-155.

Boeri, T. and U. Cramer (1992) Employment Growth, Incumbents and Entrants: Evidence From Germany, *International Journal of Industrial Organization*, **10**, 343-363.

Bundesanstalt für Arbeit (1997) *Strukturanalyse 1996. Bestände sowie Zu- und Abgänge an Arbeitslosen und offenen Stellen*, Nürnberg.

Burda, M. and C. Wyplosz (1994) Gross Worker and Job Flows in Europe, *European Economic Review*, **38**, 1287-1315.

Clark, K. and L. Summers (1979) Labor Market Dynamics and Unemployment: A Reconsideration, *Brookings Papers on Economic Activity*, **1979:1**, 13-60.

Cohen, D. A. Lefranc and G. Saint-Paul (1997) French Unemployment: A Transatlantic Perspective, *Economic Policy*, **25**, 267-291.

Davis, S. and J. Haltiwanger (1990) Gross Job Creation and Destruction: Microeconomic Evidence and Macroeconomic Implications, *NBER Macroeconomics Annual*, **5**, 123-168.

Davis, S. and J. Haltiwanger (1993) Gross Job Creation, Gross Job Destruction and Job Reallocation, *Quarterly Journal of Economics*, **107**, 819-863.

Franz, W. (1994) Chancen und Risiken einer Flexibilisierung des Arbeitsrechts aus ökonomischer Sicht, *Zeitschrift für Arbeitsrecht*, **25**, 439-462.

Hunt, J. (1995) The Effect of Unemployment Compensation on Unemployment Duration in Germany, *Journal of Labor Economics*, **13**, 88-120.

Kraus, F. and V. Steiner (1998) Modelling Heaping Effects in Unemployment Duration Models - With an Application to Retrospective Event Data in the German Socio-Economic Panel, *Jahrbücher für Nationalökonomie und Statistik*, **217**, 550-573.

Lechner, M. (1998) *Training the East German Labour Force*, Heidelberg: Physica-Verlag.

Mortensen, D. and C. Pissarides (1994) Job Creation and Job Destruction in the Theory of Unemployment, *Review of Economic Studies* , **61**, 397-415.

Nickell, S. (1997) Unemployment and Labor Market Rigidities: Europe versus North America, *Journal of Economic Perspectives*, **11**, 55-74.

OECD (1994) *The OECD Jobs Study*, Paris.

Pissarides, C. (1986) Unemployment and Vacancies in Britain, *Economic Policy*, **3**, 499-559.

Pissarides, C. (1991) *Equilibrium Unemployment Theory*, Oxford: Basil Blackwell.

Poterba, J. and L. Summers (1986) Reporting Errors and Labor Market Dynamics, *Econometrica*, **54**, 1319-1338.

Poterba, J. and L. Summers (1995) Unemployment Benefits and Labor Market Transitions: A Multinomial Logit Model with Errors in Classification, *The Review of Economics and Statistics*, **77**, 207-216.

Schmidt, C.M. (1994) The Relative Wage Effect of German Unions, *CEPR Discussion Paper* No. 918.

Schmidt, C.M. (1997) Immigrant Performance in Germany: Labor Earnings of Ethnic German Migrants and Foreign Guest-Workers, *The Quarterly Review of Economics and Finance*, **37**, 379-397.

Siebert, H. (1997) Labor Market Rigidities: At the Root of Unemployment in Europe, *Journal of Economic Perspectives*, **11**, 37-54.

Soltwedel, R. et al. (1990) *Regulierungen auf dem Arbeitsmarkt der Bundesrepublik*, Tübingen.

Statistisches Bundesamt (1997): *Volkswirtschaftliche Gesamtrechnungen, Fachserie 18, Reihe 1.3: 1996 - Hauptbericht*, Wiesbaden.

Steiner, V. (1994) Labour Market Transitions and the Persistence of Unemployment - West Germany 1983 - 1992, *Discussion Paper* No. 94-20, ZEW Mannheim.

Steiner, V. (1997) Extended Benefit-Entitlement Periods and the Duration of Unemployment in West Germany, *Discussion Paper* No. 97-14, ZEW Mannheim.

Wolff, J. (1998) Errors of Recall and Retrospectively Collected Unemployment Spell Data of the German Socio-Economic Panel-East, in: *Selected Topics in Unemployment Duration in two Economies in Transition: East-Germany and Hungary*, Ph.D. thesis, European University Institute, Florence.

Unemployment Rates: Age 16-24
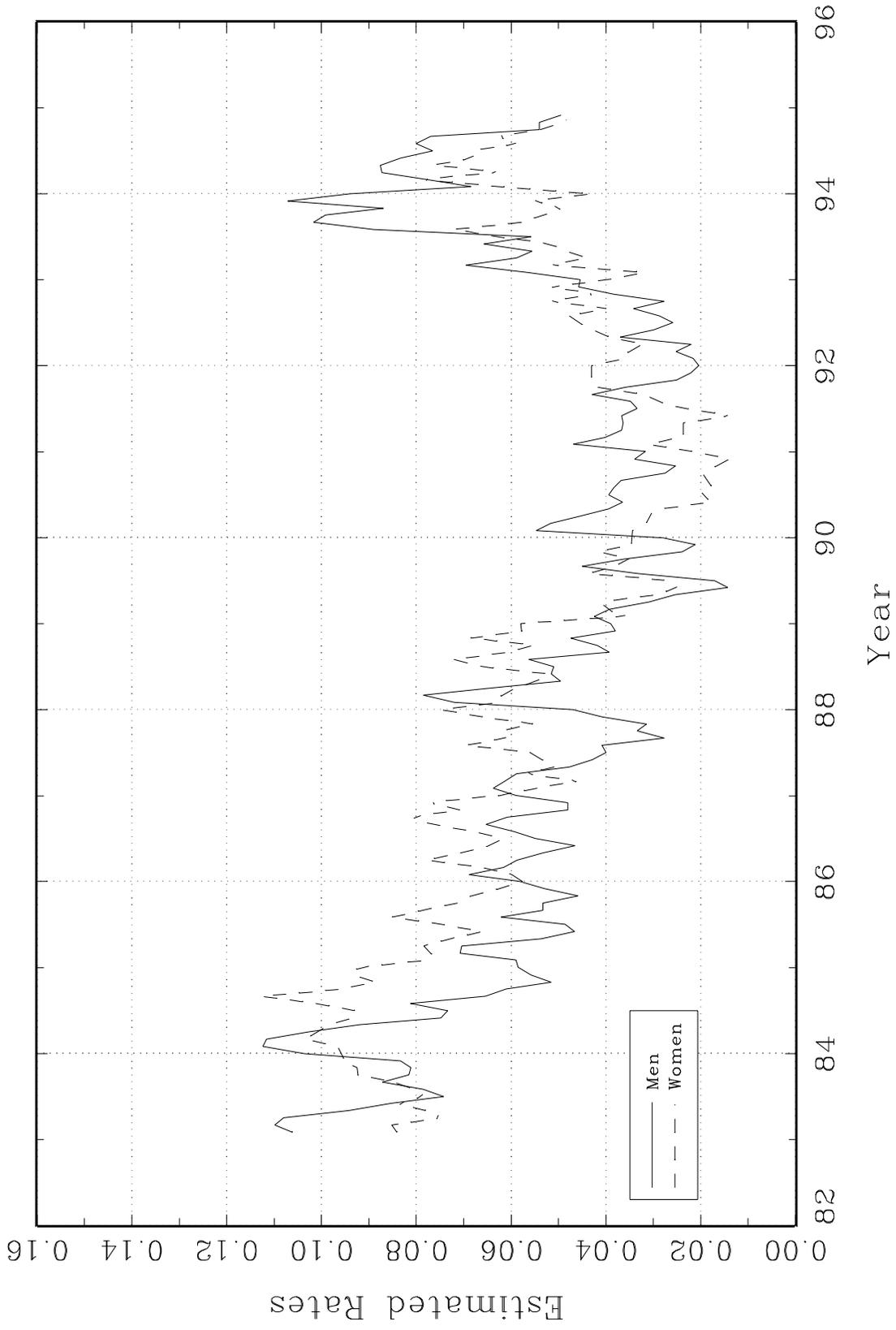
Unemployment Rates: Age 50-64
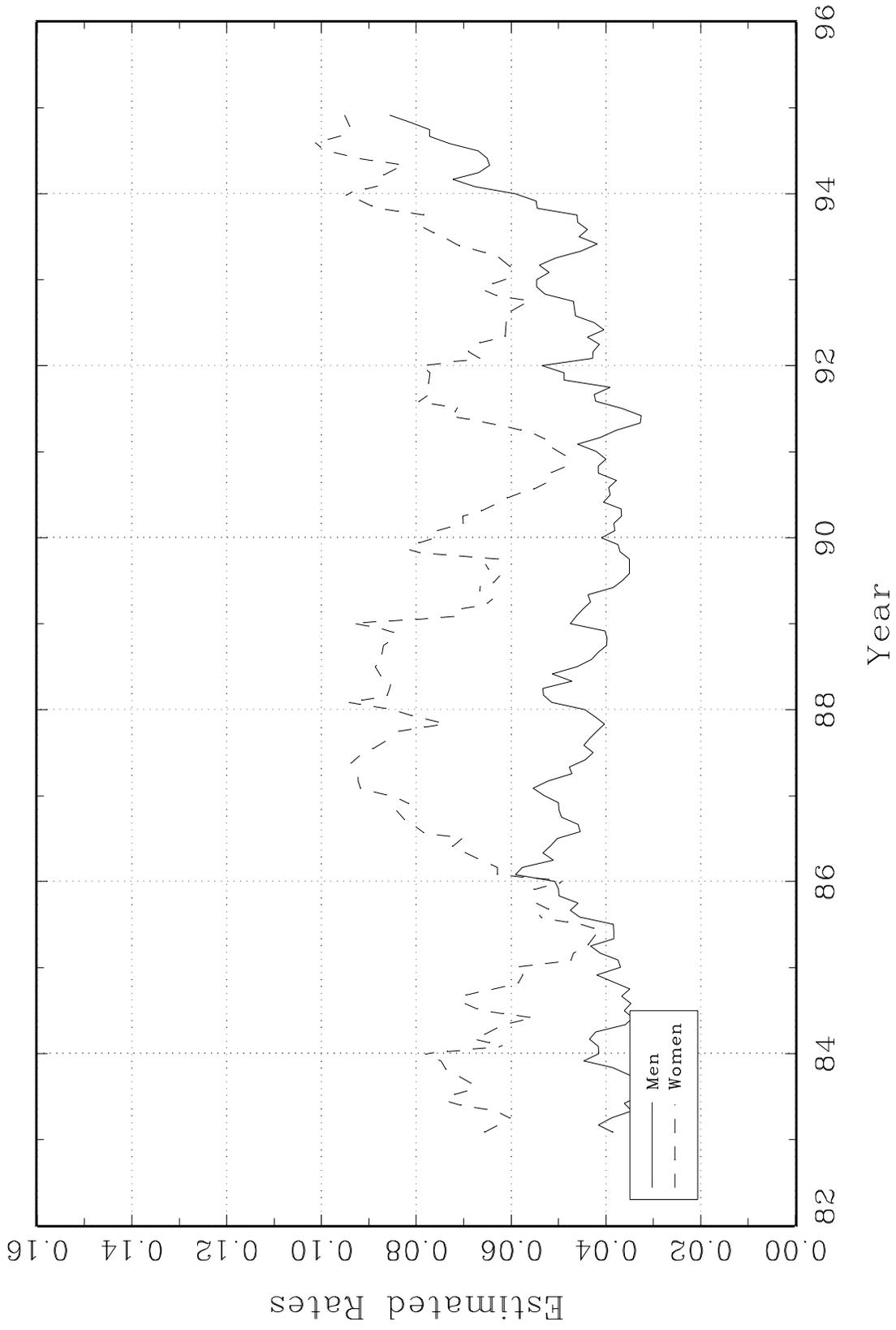
Unemployment Rates: Low Educ.

Estimated Rates

Year

Men
Women
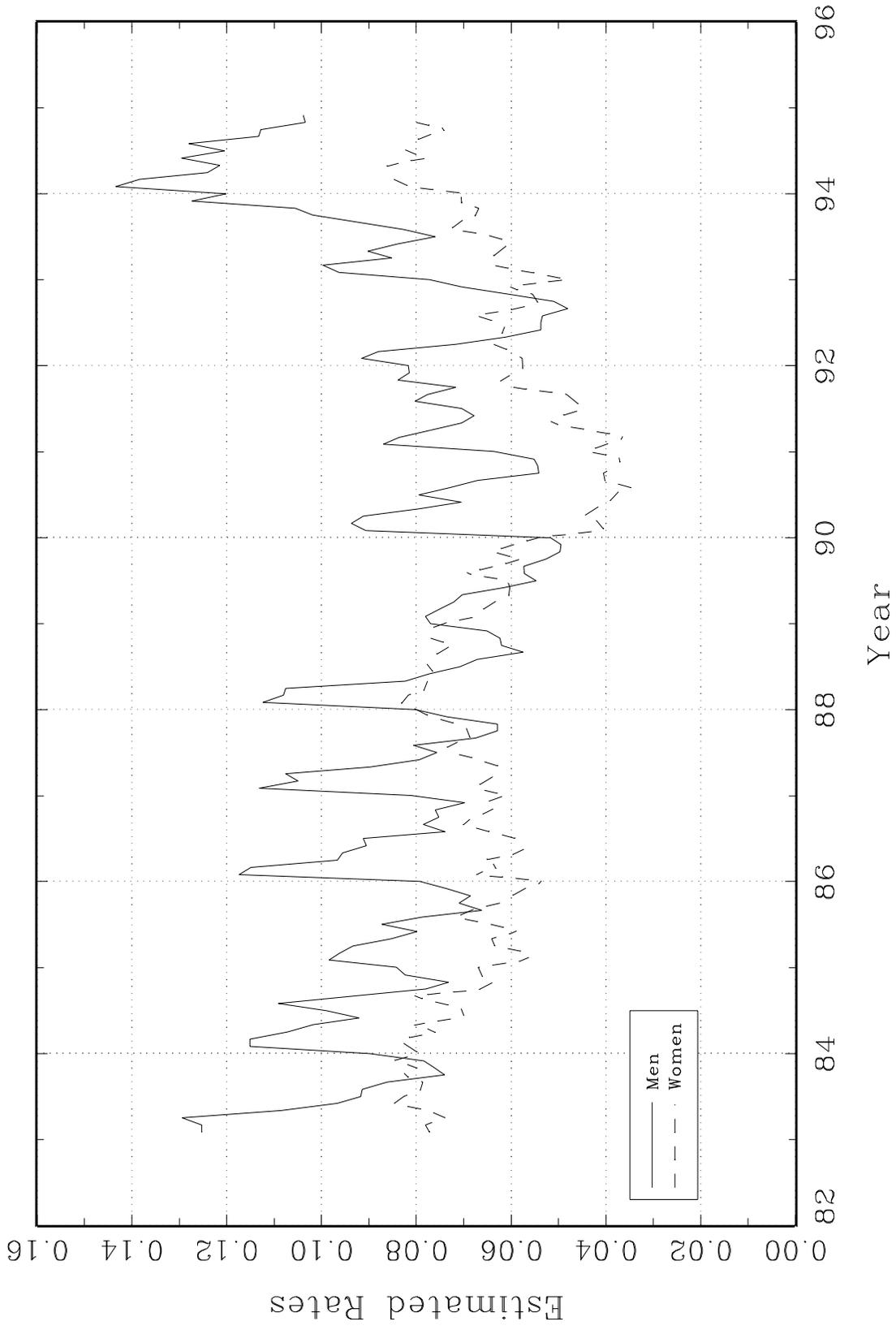
Employment/Unemployment Transitions: Age 16–24
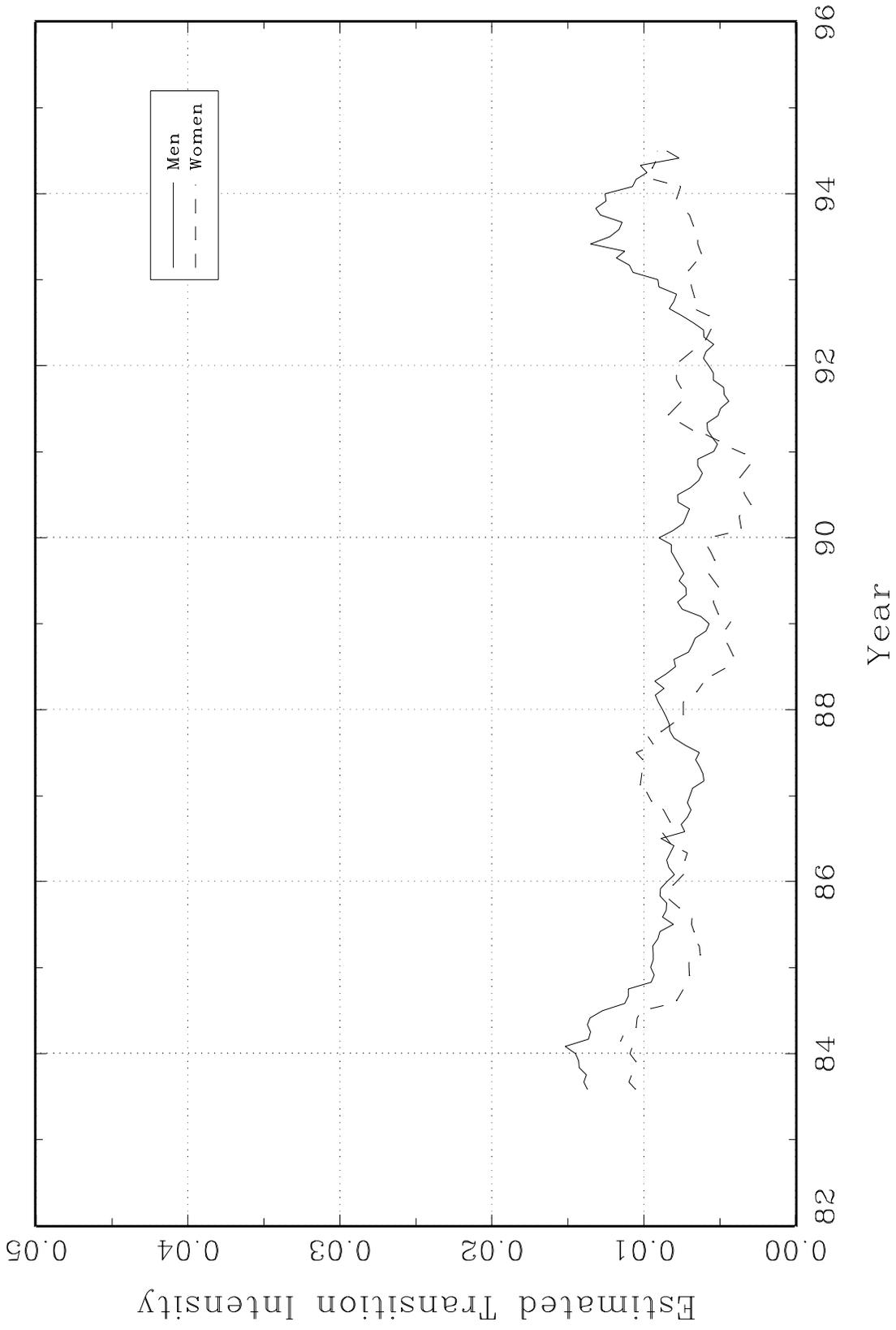
Employment/Unemployment Transitions: Age 50–64
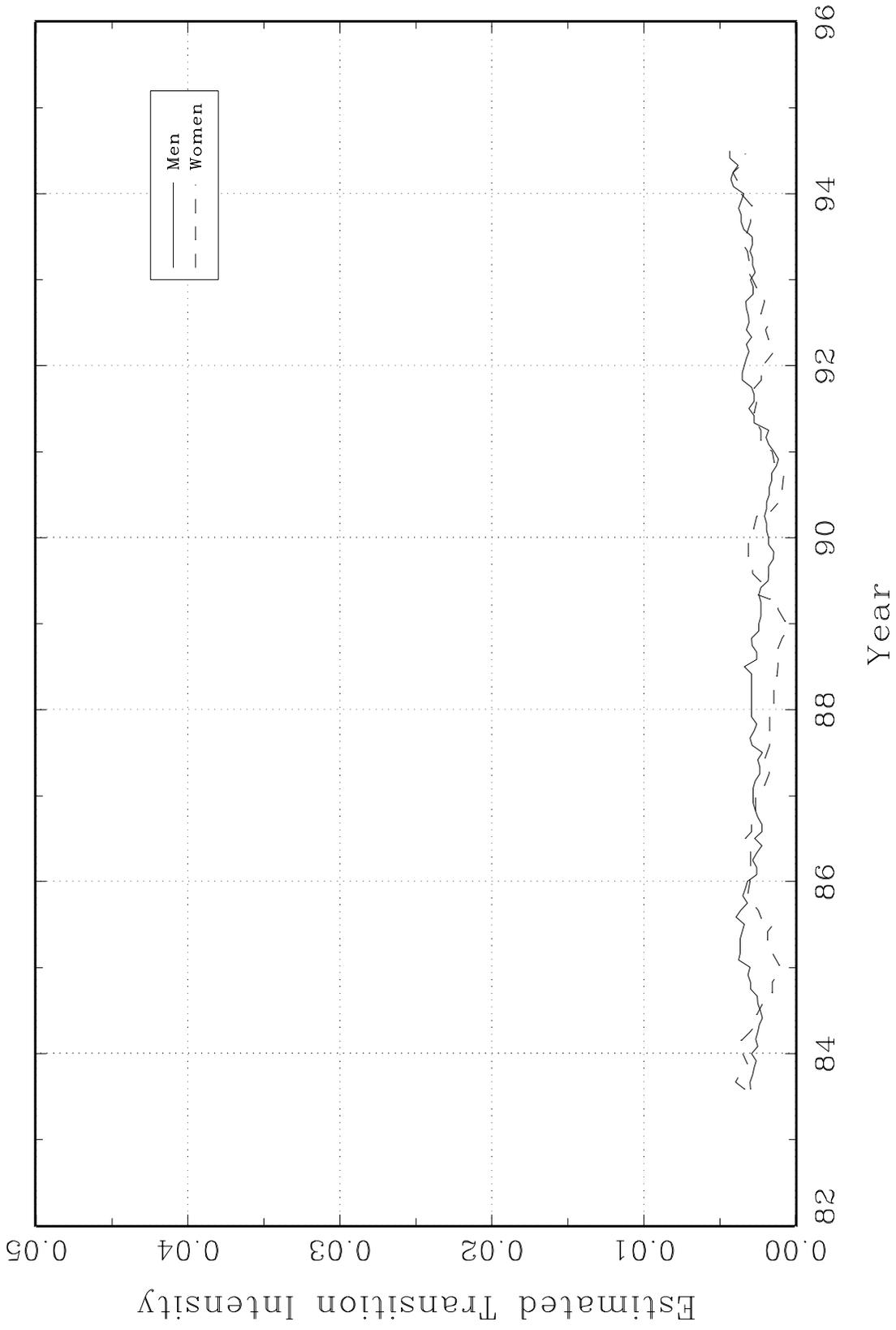
Employment/Unemployment Transitions: Low Educ.
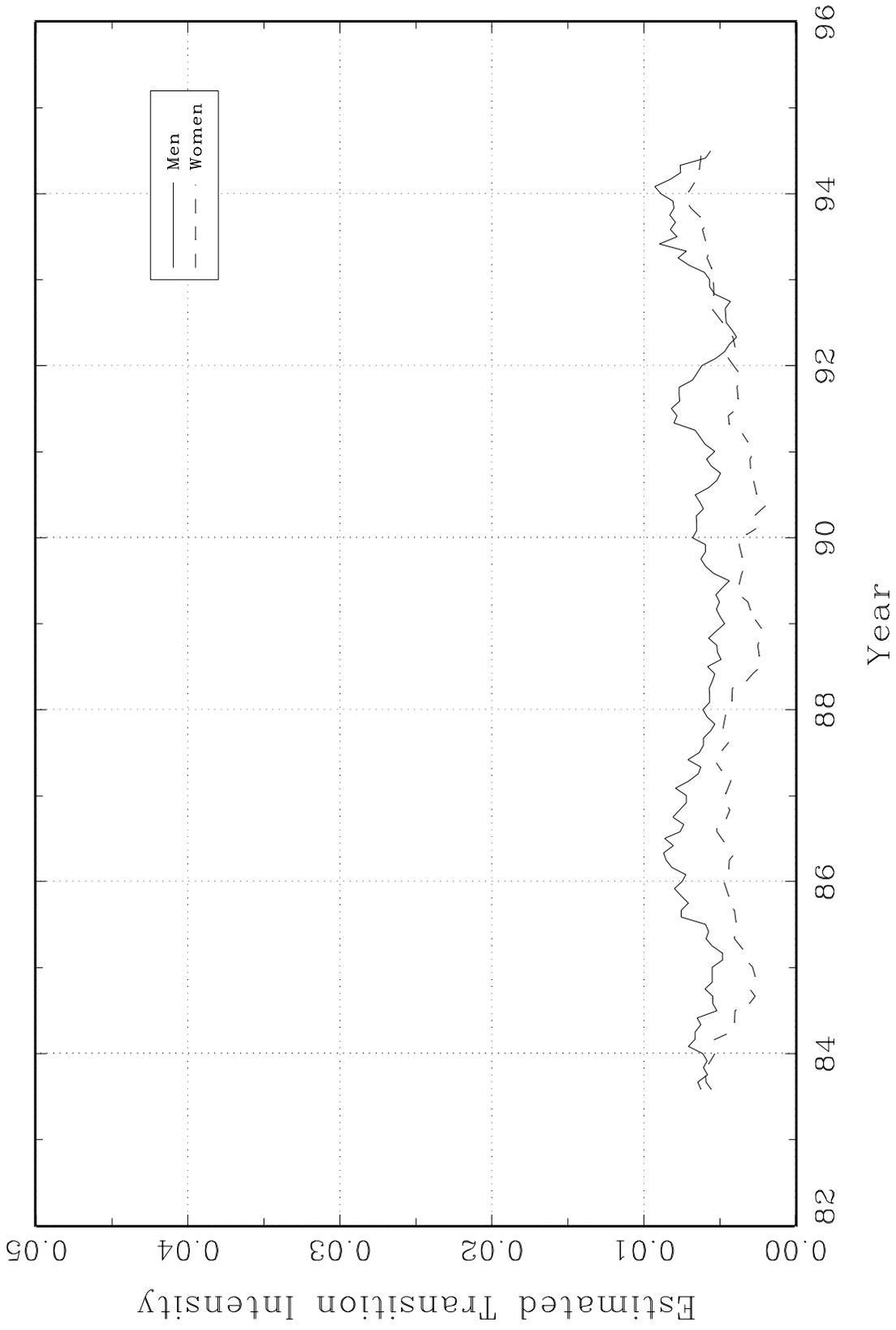
Unemployment/Employment Transitions: Age 16-24
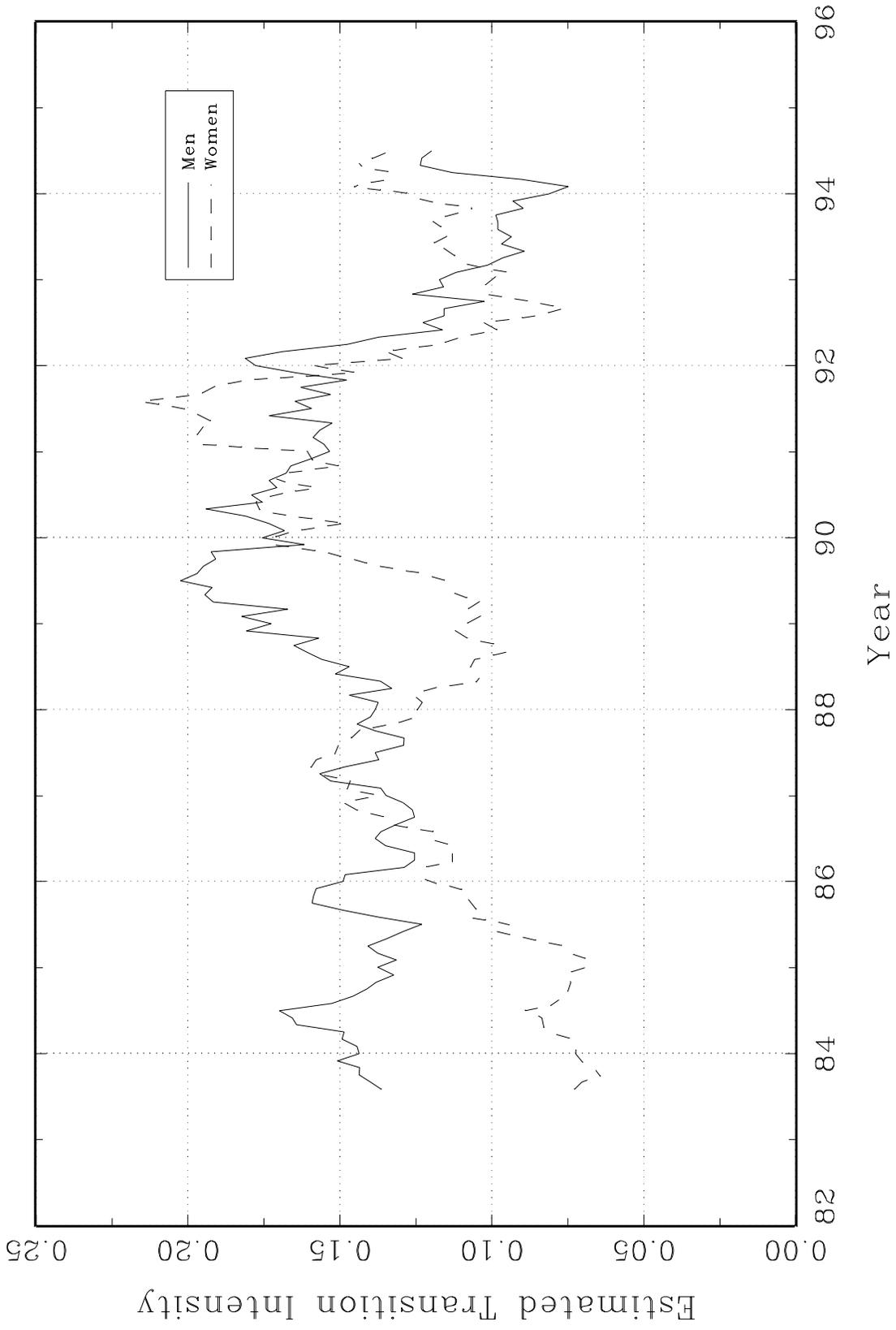
Unemployment/Employment Transitions: Age 50–64

Legend:
- Men
- Women

X-axis: Year (82, 84, 86, 88, 90, 92, 94, 96)

Y-axis: Estimated Transition Intensity (0.00, 0.05, 0.10, 0.15, 0.20, 0.25)
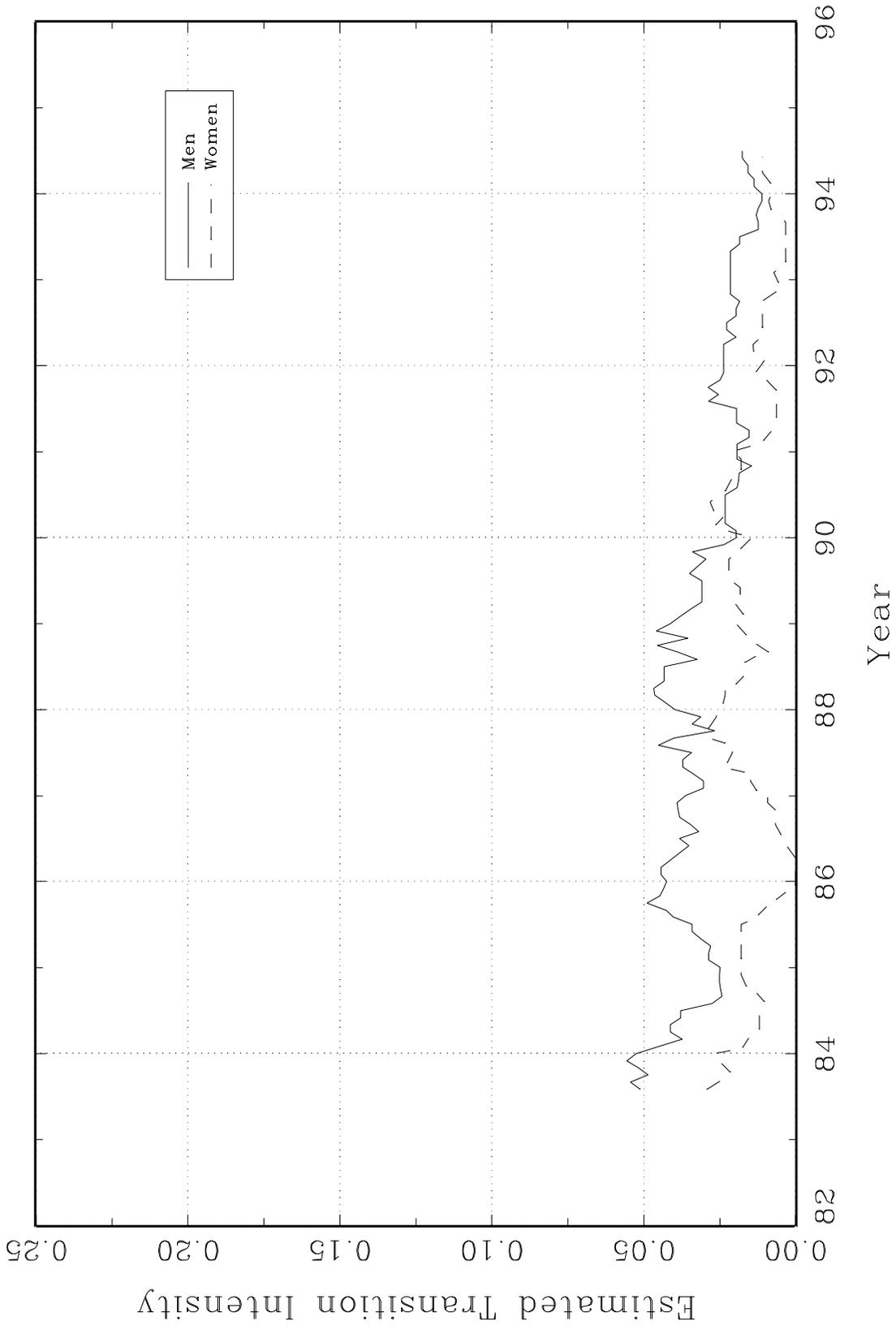
Unemployment/Employment Transitions: Low Educ.
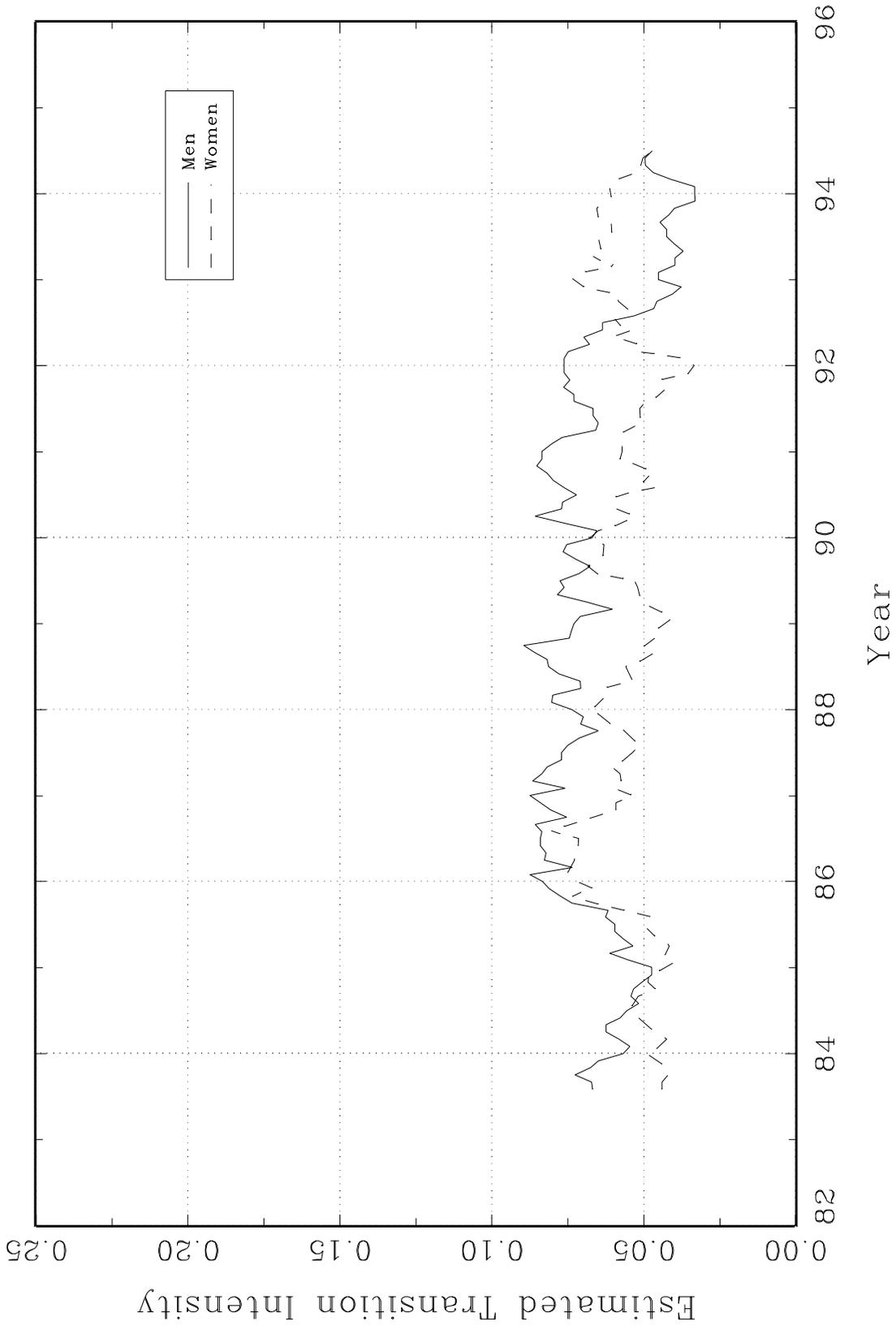
Table 1: West German Employment Rates 1983 - 1994 (%).

Men	Low Educ.	Medium Educ.	High Educ.	All
Age 16 - 24	45.10 (0.24)	64.50 (0.22)	39.48 (1.85)	55.18 (0.17)
Age 25 - 49	83.21 (0.26)	92.61 (0.06)	92.40 (0.13)	91.75 (0.06)
Age 50 - 64	66.62 (0.40)	69.73 (0.16)	83.69 (0.31)	71.15 (0.14)
All	59.50 (0.18)	82.40 (0.07)	89.65 (0.13)	79.37 (0.06)

Women	Low Educ.	Medium Educ.	High Educ.	All
Age 16 - 24	41.67 (0.24)	73.06 (0.21)	60.27 (1.88)	57.94 (0.17)
Age 25 - 49	52.94 (0.22)	61.65 (0.12)	71.76 (0.29)	60.82 (0.10)
Age 50 - 64	31.44 (0.19)	39.28 (0.21)	56.56 (0.68)	36.24 (0.14)
All	41.57 (0.13)	58.90 (0.09)	68.82 (0.27)	53.77 (0.07)

Source: GSOEP 1984-1995. Standard errors in parentheses.

Table 2: West German Unemployment Rates 1983 - 1994 (%).

Men	Low Educ.	Medium Educ.	High Educ.	All
Age 16 - 24	6.32 (0.17)	5.14 (0.12)	4.17 (1.18)	5.59 (0.10)
Age 25 - 49	10.13 (0.21)	2.79 (0.04)	1.49 (0.06)	3.19 (0.04)
Age 50 - 64	9.33 (0.29)	4.09 (0.08)	2.74 (0.15)	4.55 (0.07)
All	8.43 (0.12)	3.37 (0.04)	1.79 (0.06)	3.83 (0.03)

Women	Low Educ.	Medium Educ.	High Educ.	All
Age 16 - 24	7.81 (0.20)	5.09 (0.12)	2.63 (0.78)	6.02 (0.10)
Age 25 - 49	5.71 (0.14)	4.10 (0.06)	4.00 (0.15)	4.39 (0.05)
Age 50 - 64	6.57 (0.18)	8.33 (0.18)	1.85 (0.24)	7.17 (0.12)
All	6.55 (0.10)	4.91 (0.05)	3.67 (0.13)	5.23 (0.04)

Source: GSOEP 1984-1995. Standard errors in parentheses.

Table 3: West German Employment Rates 1983-85 to 1992-94 (%).

Men	1983 - 1985	1986 - 1988	1989 - 1991	1992 - 1994	1983 - 1994
All	78.14 (0.12)	79.18 (0.12)	80.47 (0.12)	80.06 (0.13)	79.37 (0.06)
Age 16 - 24	51.37 (0.29)	56.24 (0.31)	59.49 (0.35)	55.13 (0.41)	55.18 (0.17)
Age 25 - 49	91.65 (0.10)	92.07 (0.11)	92.31 (0.11)	90.97 (0.12)	91.75 (0.06)
Age 50 - 64	72.38 (0.26)	71.70 (0.27)	70.45 (0.28)	69.88 (0.29)	71.15 (0.14)
Low Educ.	55.61 (0.32)	60.38 (0.34)	62.71 (0.37)	60.89 (0.41)	59.50 (0.18)
Medium Educ.	82.47 (0.13)	82.43 (0.14)	82.87 (0.14)	81.76 (0.15)	82.40 (0.07)
High Educ.	88.50 (0.26)	89.11 (0.26)	90.07 (0.25)	91.03 (0.24)	89.65 (0.13)
Women	1983 - 1985	1986 - 1988	1989 - 1991	1992 - 1994	1983 - 1994
All	48.80 (0.14)	53.07 (0.15)	56.99 (0.15)	57.92 (0.16)	53.77 (0.07)
Age 16 - 24	53.87 (0.30)	60.49 (0.32)	62.29 (0.35)	55.97 (0.40)	57.94 (0.17)
Age 25 - 49	56.51 (0.19)	58.62 (0.20)	63.76 (0.20)	65.64 (0.20)	60.82 (0.10)
Age 50 - 64	29.16 (0.24)	35.58 (0.28)	39.74 (0.29)	42.61 (0.31)	36.24 (0.14)
Low Educ.	37.11 (0.22)	42.17 (0.25)	45.57 (0.27)	43.89 (0.30)	41.57 (0.13)
Medium Educ.	54.52 (0.18)	57.72 (0.19)	61.39 (0.19)	62.94 (0.19)	58.90 (0.09)
High Educ.	67.82 (0.54)	69.76 (0.54)	69.76 (0.54)	68.01 (0.53)	68.82 (0.27)

Source: GSOEP 1984-1995. Standard errors in parentheses.

Table 4: West German Unemployment Rates 1983-85 to 1992-94 (%).

Men	1983 - 1985	1986 - 1988	1989 - 1991	1992 - 1994	1983 - 1994
All	4.49 (0.06)	3.84 (0.06)	2.85 (0.06)	4.00 (0.07)	3.83 (0.03)
Age 16 - 24	7.54 (0.21)	5.13 (0.18)	3.40 (0.16)	5.84 (0.26)	5.59 (0.10)
Age 25 - 49	3.93 (0.08)	3.17 (0.07)	2.31 (0.06)	3.17 (0.08)	3.19 (0.04)
Age 50 - 64	3.96 (0.13)	4.78 (0.15)	4.02 (0.14)	5.55 (0.17)	4.55 (0.07)
Low Educ.	9.14 (0.24)	8.32 (0.23)	7.00 (0.24)	9.26 (0.30)	8.43 (0.12)
Medium Educ.	4.02 (0.07)	3.28 (0.07)	2.46 (0.06)	3.57 (0.08)	3.37 (0.04)
High Educ.	2.16 (0.12)	1.90 (0.12)	0.93 (0.09)	2.10 (0.13)	1.79 (0.06)
Women	1983 - 1985	1986 - 1988	1989 - 1991	1992 - 1994	1983 - 1994
All	6.16 (0.09)	5.76 (0.09)	3.84 (0.08)	5.05 (0.09)	5.23 (0.04)
Age 16 - 24	8.51 (0.22)	6.34 (0.20)	2.99 (0.15)	5.11 (0.23)	6.02 (0.10)
Age 25 - 49	5.26 (0.11)	4.73 (0.11)	3.23 (0.09)	4.23 (0.10)	4.39 (0.05)
Age 50 - 64	6.07 (0.23)	8.35 (0.26)	6.60 (0.23)	7.61 (0.24)	7.17 (0.12)
Low Educ.	7.17 (0.18)	7.00 (0.19)	5.08 (0.17)	6.79 (0.22)	6.55 (0.10)
Medium Educ.	5.94 (0.11)	5.52 (0.11)	3.45 (0.09)	4.64 (0.10)	4.91 (0.05)
High Educ.	4.23 (0.28)	3.36 (0.25)	3.09 (0.24)	3.98 (0.26)	3.67 (0.13)

Source: GSOEP 1984-1995. Standard errors in parentheses.

Table 5: Labor Force Composition 1989-1991 (%).

Share of age group in labor force				Composition of total labor force by Educational composition			
	Germany	France	US		Germany	France	US
All				High	12.1	15.7	23.0
				Medium	69.3	48.2	60.1
				Low	18.6	35.9	16.7
Age 16 - 24	16.5	10.9	17.9	High	0.4	7.4	7.7
				Medium	61.3	60.0	63.1
				Low	38.4	32.5	29.2
Age 25 - 49	62.1	70.3	64.7	High	15.5	18.5	27.7
				Medium	73.0	51.0	60.6
				Low	11.5	30.6	11.6
Age 50 - 64	21.4	18.9	17.3	High	11.4	10.4	21.7
				Medium	64.8	31.6	55.4
				Low	23.7	58.0	22.8

Source: GSOEP for Germany, Cohen et al. (1997) for France and the US.

Table 6: Unemployment Rates 1989-1991 (%).

Age	Education	Males			Females		
		Germany	France	US	Germany	France	US
Age 16 - 24	High	0.0	8.0	3.3	0.0	7.5	2.4
	Medium	2.9	14.3	8.5	1.8	23.1	8.4
	Low	4.1	27.8	17.4	5.1	39.6	16.4
Age 25 - 49	High	0.8	2.6	2.4	3.6	4.6	2.2
	Medium	2.0	5.2	5.0	2.9	10.0	4.4
	Low	8.1	10.8	10.8	4.2	16.7	10.4
Age 50 - 64	High	1.4	4.0	1.9	0.0	2.9	1.1
	Medium	3.4	6.0	3.2	7.7	10.1	2.6
	Low	10.4	11.1	6.6	6.2	14.3	4.0

Source: GSOEP for Germany, Cohen et al. (1997) for France and the US.

Table 7: Non-Employment Rates 1989-1991.

Age	Education	Males			Females		
		Germany	France	US	Germany	France	US
Age 25 - 49	High	7.1	5.7	5.1	26.6	18.0	18.2
	Medium	6.8	6.6	10.4	35.9	27.9	27.7
	Low	16.6	14.7	24.8	43.0	48.1	53.8

Source: GSOEP for Germany, Cohen et al. (1997) for France and the US.

Table 8: Decomposition of Unemployment Rate Differentials 1989-1991.

Men	Differential	Share of Within-Effect (%)
France-Germany	5.3	87.2
US-Germany	2.9	95.7
Women	Differential	Share of Within-Effect (%)
France-Germany	9.1	115.3
US-Germany	1.3	158.7

Source: see Table 7.

Table 9: West German Labor Market Flows.
Employment to Unemployment 1983 - 1994 (%).

Men	Low Educ.	Medium Educ.	High Educ.	All
Age 16 - 24	0.70 (0.06)	0.97 (0.06)	0.72 (0.51)	0.87 (0.04)
Age 25 - 49	0.61 (0.06)	0.32 (0.01)	0.19 (0.02)	0.32 (0.01)
Age 50 - 64	0.50 (0.07)	0.26 (0.02)	0.17 (0.04)	0.27 (0.02)
All	0.63 (0.04)	0.39 (0.01)	0.19 (0.02)	0.39 (0.01)

Women	Low Educ.	Medium Educ.	High Educ.	All
Age 16 - 24	0.70 (0.06)	0.74 (0.05)	0.00 (0.00)	0.72 (0.04)
Age 25 - 49	0.38 (0.04)	0.32 (0.02)	0.40 (0.05)	0.34 (0.02)
Age 50 - 64	0.21 (0.03)	0.28 (0.04)	0.03 (0.03)	0.23 (0.02)
All	0.42 (0.03)	0.40 (0.02)	0.34 (0.04)	0.40 (0.01)

Source: GSOEP 1984-1995. Standard errors in parentheses.

Table 10: West German Labor Market Flows.
Employment to Non-participation 1983 - 1994 (%).

Men	Low Educ.	Medium Educ.	High Educ.	All
Age 16 - 24	1.50 (0.09)	1.98 (0.08)	4.35 (1.23)	1.81 (0.06)
Age 25 - 49	0.34 (0.04)	0.29 (0.01)	0.30 (0.03)	0.30 (0.01)
Age 45 - 64	0.79 (0.09)	0.75 (0.04)	0.51 (0.07)	0.72 (0.03)
All	0.91 (0.04)	0.59 (0.02)	0.37 (0.03)	0.60 (0.01)

Women	Low Educ.	Medium Educ.	High Educ.	All
Age 16 - 24	1.37 (0.09)	1.27 (0.06)	1.96 (0.69)	1.31 (0.05)
Age 25 - 49	1.25 (0.07)	1.17 (0.03)	1.39 (0.09)	1.21 (0.03)
Age 50 - 64	1.29 (0.08)	1.17 (0.07)	1.85 (0.25)	1.27 (0.05)
All	1.30 (0.05)	1.19 (0.03)	1.47 (0.08)	1.24 (0.02)

Source: GSOEP 1984-1995. Standard errors in parentheses.

Table 11: West German Labor Market Flows.
Unemployment to Employment 1983 - 1994 (%).

Men	Low Educ.	Medium Educ.	High Educ.	All
Age 16 - 24	10.60 (0.86)	17.11 (0.93)	33.33 (13.61)	14.32 (0.65)
Age 25 - 49	5.81 (0.52)	11.98 (0.47)	15.95 (1.49)	10.64 (0.36)
Age 50 - 64	3.93 (0.63)	2.80 (0.34)	3.02 (0.94)	3.11 (0.29)
All	6.83 (0.39)	10.43 (0.32)	11.64 (1.04)	9.43 (0.25)

Women	Low Educ.	Medium Educ.	High Educ.	All
Age 16 - 24	8.78 (0.74)	13.33 (0.81)	9.09 (8.67)	11.25 (0.56)
Age 25 - 49	5.67 (0.57)	6.86 (0.38)	10.63 (1.15)	6.97 (0.31)
Age 50 - 64	1.48 (0.34)	1.35 (0.26)	3.57 (2.48)	1.44 (0.21)
All	5.49 (0.34)	6.89 (0.28)	10.10 (1.08)	6.62 (0.21)

Source: GSOEP 1984-1995. Standard errors in parentheses.

Table 12: West German Labor Market Flows.
Unemployment to Non-participation 1983 - 1994 (%).

Men	Low Educ.	Medium Educ.	High Educ.	All
Age 16 - 24	1.73 (0.36)	4.77 (0.53)	8.33 (7.98)	3.44 (0.34)
Age 25 - 49	0.70 (0.19)	1.10 (0.15)	1.00 (0.40)	0.98 (0.11)
Age 50 - 64	2.44 (0.50)	3.34 (0.37)	2.42 (0.84)	3.02 (0.28)
All	1.40 (0.18)	2.37 (0.16)	1.59 (0.41)	2.03 (0.12)

Women	Low Educ.	Medium Educ.	High Educ.	All
Age 16 - 24	2.86 (0.43)	3.55 (0.44)	9.09 (8.67)	3.25 (0.31)
Age 25 - 49	3.05 (0.42)	3.70 (0.28)	2.52 (0.59)	3.42 (0.22)
Age 50 - 64	2.81 (0.46)	2.35 (0.34)	3.57 (2.48)	2.55 (0.27)
All	2.92 (0.25)	3.34 (0.20)	2.69 (0.58)	3.16 (0.15)

Source: GSOEP 1984-1995. Standard errors in parentheses.

Table 13: West German Labor Market Flows.
Non-participation to Employment 1983 - 1994 (%).

Men	Low Educ.	Medium Educ.	High Educ.	All
Age 16 - 24	3.20 (0.12)	4.51 (0.17)	4.87 (1.06)	3.74 (0.10)
Age 25 - 49	3.73 (0.48)	5.82 (0.25)	8.55 (0.54)	6.14 (0.21)
Age 50 - 64	0.66 (0.13)	0.53 (0.05)	1.02 (0.23)	0.58 (0.05)
All	2.88 (0.10)	2.84 (0.08)	5.33 (0.32)	3.02 (0.06)

Women	Low Educ.	Medium Educ.	High Educ.	All
Age 16 - 24	2.65 (0.11)	4.59 (0.21)	6.98 (1.59)	3.28 (0.10)
Age 25 - 49	1.69 (0.09)	2.02 (0.06)	4.52 (0.27)	2.10 (0.05)
Age 50 - 64	0.39 (0.03)	0.53 (0.04)	1.75 (0.28)	0.49 (0.03)
All	1.35 (0.04)	1.81 (0.04)	3.87 (0.21)	1.70 (0.03)

Source: GSOEP 1984-1995. Standard errors in parentheses.

Table 14: West German Labor Market Flows.
Employment to Unemployment 1983 - 1985 to 1992 - 1994 (%).

Men	1983 - 1985	1986 - 1988	1989 - 1991	1992 - 1994	1983 - 1994
All	0.49 (0.01)	0.37 (0.01)	0.27 (0.01)	0.40 (0.01)	0.39 (0.01)
Age 16 - 24	1.13 (0.05)	0.75 (0.04)	0.63 (0.04)	0.92 (0.04)	0.87 (0.04)
Age 25 - 49	0.40 (0.01)	0.32 (0.01)	0.22 (0.01)	0.34 (0.01)	0.32 (0.01)
Age 50 - 64	0.30 (0.02)	0.25 (0.02)	0.21 (0.02)	0.34 (0.02)	0.27 (0.02)
Low Educ.	0.65 (0.04)	0.63 (0.04)	0.62 (0.04)	0.60 (0.04)	0.63 (0.04)
Medium Educ.	0.49 (0.01)	0.36 (0.01)	0.24 (0.01)	0.43 (0.01)	0.39 (0.01)
High Educ.	0.29 (0.02)	0.17 (0.02)	0.12 (0.02)	0.17 (0.02)	0.19 (0.02)
Women	1983 - 1985	1986 - 1988	1989 - 1991	1992 - 1994	1983 - 1994
All	0.47 (0.01)	0.41 (0.01)	0.28 (0.01)	0.44 (0.01)	0.40 (0.01)
Age 16 - 24	0.84 (0.04)	0.76 (0.04)	0.55 (0.03)	0.69 (0.04)	0.72 (0.04)
Age 25 - 49	0.39 (0.02)	0.34 (0.01)	0.22 (0.01)	0.43 (0.02)	0.34 (0.02)
Age 50 - 64	0.27 (0.03)	0.19 (0.02)	0.20 (0.02)	0.28 (0.03)	0.23 (0.02)
Low Educ.	0.42 (0.03)	0.40 (0.03)	0.33 (0.02)	0.57 (0.03)	0.42 (0.03)
Medium Educ.	0.50 (0.02)	0.43 (0.02)	0.27 (0.01)	0.40 (0.02)	0.40 (0.02)
High Educ.	0.47 (0.05)	0.26 (0.04)	0.18 (0.03)	0.46 (0.05)	0.34 (0.04)

Source: GSOEP 1984-1995. Standard errors in parentheses.

Table 15: West German Labor Market Flows.
Employment to Non-participation 1983 - 1985 to 1992 - 1994 (%).

Men	1983 - 1985	1986 - 1988	1989 - 1991	1992 - 1994	1983 - 1994
All	0.54 (0.01)	0.55 (0.01)	0.69 (0.01)	0.64 (0.01)	0.60 (0.01)
Age 16 - 24	1.52 (0.05)	1.55 (0.06)	2.27 (0.07)	2.14 (0.07)	1.81 (0.06)
Age 25 - 49	0.25 (0.01)	0.24 (0.01)	0.32 (0.01)	0.38 (0.01)	0.30 (0.01)
Age 50 - 64	0.72 (0.03)	0.71 (0.03)	0.74 (0.03)	0.69 (0.03)	0.72 (0.03)
Low Educ.	0.77 (0.04)	0.90 (0.04)	1.11 (0.05)	0.89 (0.04)	0.91 (0.04)
Medium Educ.	0.52 (0.01)	0.53 (0.01)	0.69 (0.02)	0.65 (0.02)	0.59 (0.02)
High Educ.	0.45 (0.03)	0.31 (0.02)	0.30 (0.02)	0.41 (0.03)	0.37 (0.03)
Women	1983 - 1985	1986 - 1988	1989 - 1991	1992 - 1994	1983 - 1994
All	1.22 (0.02)	1.23 (0.02)	1.27 (0.02)	1.24 (0.02)	1.24 (0.02)
Age 16 - 24	1.30 (0.05)	1.13 (0.05)	1.44 (0.05)	1.44 (0.05)	1.31 (0.05)
Age 25 - 49	1.13 (0.03)	1.30 (0.03)	1.25 (0.03)	1.17 (0.03)	1.21 (0.03)
Age 50 - 64	1.47 (0.06)	1.14 (0.05)	1.17 (0.05)	1.29 (0.05)	1.27 (0.05)
Low Educ.	1.22 (0.04)	1.19 (0.04)	1.47 (0.05)	1.35 (0.05)	1.30 (0.05)
Medium Educ.	1.18 (0.03)	1.23 (0.03)	1.16 (0.03)	1.19 (0.03)	1.19 (0.03)
High Educ.	1.55 (0.09)	1.40 (0.08)	1.54 (0.09)	1.40 (0.08)	1.47 (0.08)

Source: GSOEP 1984-1995. Standard errors in parentheses.

Table 16: West German Labor Market Flows.
Unemployment to Employment 1983 - 1985 to 1992 - 1994 (%).

Men	1983 - 1985	1986 - 1988	1989 - 1991	1992 - 1994	1983 - 1994
All	10.11 (0.25)	10.10 (0.25)	9.87 (0.25)	7.33 (0.22)	9.43 (0.25)
Age 16 - 24	14.38 (0.65)	14.43 (0.65)	18.45 (0.72)	10.57 (0.57)	14.32 (0.65)
Age 25 - 49	10.14 (0.35)	11.55 (0.37)	11.46 (0.37)	9.80 (0.34)	10.64 (0.36)
Age 50 - 64	4.03 (0.32)	3.88 (0.32)	2.90 (0.28)	1.75 (0.22)	3.11 (0.29)
Low Educ.	6.20 (0.37)	8.42 (0.43)	7.54 (0.41)	5.04 (0.34)	6.83 (0.39)
Medium Educ.	11.47 (0.34)	10.99 (0.33)	10.58 (0.33)	8.16 (0.29)	10.43 (0.32)
High Educ.	13.86 (1.12)	10.08 (0.98)	16.81 (1.22)	8.36 (0.90)	11.64 (1.04)
Women	1983 - 1985	1986 - 1988	1989 - 1991	1992 - 1994	1983 - 1994
All	6.36 (0.21)	6.83 (0.22)	7.06 (0.22)	6.39 (0.21)	6.62 (0.21)
Age 16 - 24	8.48 (0.49)	12.78 (0.59)	16.94 (0.66)	11.81 (0.57)	11.25 (0.56)
Age 25 - 49	6.36 (0.29)	6.43 (0.30)	7.60 (0.32)	7.92 (0.33)	6.97 (0.31)
Age 50 - 64	1.83 (0.23)	1.55 (0.21)	1.63 (0.22)	0.87 (0.16)	1.44 (0.21)
Low Educ.	4.87 (0.32)	6.04 (0.36)	5.56 (0.35)	5.64 (0.35)	5.49 (0.34)
Medium Educ.	6.72 (0.28)	7.06 (0.28)	7.74 (0.29)	6.31 (0.27)	6.89 (0.28)
High Educ.	11.50 (1.14)	9.66 (1.06)	8.59 (1.00)	10.14 (1.08)	10.10 (1.08)

Source: GSOEP 1984-1995. Standard errors in parentheses.

Table 17: West German Labor Market Flows.
Unemployment to Non-participation 1983 - 1985 to 1992 - 1994 (%).

Men	1983 - 1985	1986 - 1988	1989 - 1991	1992 - 1994	1983 - 1994
All	1.61 (0.11)	1.99 (0.12)	2.40 (0.13)	2.41 (0.13)	2.03 (0.12)
Age 16 - 24	2.21 (0.27)	4.09 (0.37)	4.37 (0.38)	4.67 (0.39)	3.44 (0.34)
Age 25 - 49	0.99 (0.11)	0.59 (0.09)	1.27 (0.13)	1.19 (0.13)	0.98 (0.11)
Age 50 - 64	2.65 (0.27)	2.96 (0.28)	3.15 (0.29)	3.31 (0.30)	3.02 (0.28)
Low Educ.	0.96 (0.15)	1.37 (0.18)	2.07 (0.22)	1.49 (0.19)	1.40 (0.18)
Medium Educ.	1.86 (0.14)	2.17 (0.15)	2.76 (0.17)	3.08 (0.18)	2.37 (0.16)
High Educ.	1.98 (0.45)	3.23 (0.57)	0.00 (0.00)	0.36 (0.20)	1.59 (0.41)
Women	1983 - 1985	1986 - 1988	1989 - 1991	1992 - 1994	1983 - 1994
All	3.71 (0.16)	2.75 (0.14)	3.34 (0.16)	2.76 (0.14)	3.16 (0.15)
Age 16 - 24	3.35 (0.32)	2.04 (0.25)	5.38 (0.40)	3.80 (0.34)	3.25 (0.31)
Age 25 - 49	3.77 (0.23)	3.49 (0.22)	3.60 (0.23)	2.72 (0.20)	3.42 (0.22)
Age 50 - 64	4.27 (0.35)	2.07 (0.25)	2.00 (0.24)	2.29 (0.26)	2.55 (0.27)
Low Educ.	3.60 (0.28)	1.88 (0.21)	3.09 (0.26)	3.16 (0.26)	2.92 (0.25)
Medium Educ.	3.86 (0.21)	3.22 (0.19)	3.52 (0.20)	2.63 (0.18)	3.34 (0.20)
High Educ.	2.65 (0.57)	2.84 (0.59)	3.07 (0.62)	2.30 (0.54)	2.69 (0.58)

Source: GSOEP 1984-1995. Standard errors in parentheses.

Table 18: West German Labor Market Flows.
Non-participation to Employment 1983 - 1985 to 1992 - 1994 (%).

Men	1983 - 1985	1986 - 1988	1989 - 1991	1992 - 1994	1983 - 1994
All	2.85 (0.06)	2.88 (0.06)	3.32 (0.06)	3.08 (0.06)	3.02 (0.06)
Age 16 - 24	3.16 (0.09)	3.70 (0.10)	4.63 (0.11)	3.97 (0.10)	3.74 (0.10)
Age 25 - 49	6.53 (0.22)	5.49 (0.20)	6.20 (0.21)	6.28 (0.21)	6.14 (0.21)
Age 50 - 64	0.63 (0.05)	0.43 (0.04)	0.67 (0.05)	0.60 (0.05)	0.58 (0.05)
Low Educ.	2.59 (0.10)	3.23 (0.11)	3.47 (0.11)	2.23 (0.09)	2.88 (0.10)
Medium Educ.	2.67 (0.08)	2.48 (0.07)	3.20 (0.08)	3.05 (0.08)	2.84 (0.08)
High Educ.	6.01 (0.33)	4.49 (0.29)	3.77 (0.27)	7.41 (0.37)	5.33 (0.32)
Women	1983 - 1985	1986 - 1988	1989 - 1991	1992- 1994	1983 - 1994
All	1.51 (0.03)	1.71 (0.03)	1.90 (0.03)	1.80 (0.03)	1.70 (0.03)
Age 16 - 24	3.53 (0.10)	3.13 (0.10)	3.42 (0.10)	2.89 (0.09)	3.28 (0.10)
Age 25 - 49	1.63 (0.04)	2.16 (0.05)	2.45 (0.05)	2.41 (0.05)	2.10 (0.05)
Age 50 - 64	0.41 (0.02)	0.46 (0.03)	0.59 (0.03)	0.54 (0.03)	0.49 (0.03)
Low Educ.	1.28 (0.04)	1.33 (0.04)	1.62 (0.04)	1.23 (0.04)	1.35 (0.04)
Medium Educ.	1.60 (0.04)	1.83 (0.04)	1.94 (0.04)	1.97 (0.04)	1.81 (0.04)
High Educ.	3.50 (0.20)	4.30 (0.22)	3.80 (0.21)	3.92 (0.21)	3.87 (0.21)

Source: GSOEP 1984-1995. Standard errors in parentheses.

<p align="center">**Table 19: Job Loss Rates 1989-1991 (%).**</p>

Age	Education	Males			Females		
		Germany	France	US	Germany	France	US
Age 16 - 24	High	3.8	1.3	1.3	3.0	1.6	1.9
	Medium	3.1	2.6	6.6	1.8	2.3	6.7
	Low	2.6	3.2	10.9	2.4	3.0	13.8
Age 25 - 49	High	0.4	0.4	1.3	1.7	0.5	2.0
	Medium	0.5	0.5	2.0	1.4	0.7	2.9
	Low	0.9	0.7	5.4	1.7	1.0	5.6
Age 50 - 64	High	0.5	0.5	1.6	1.9	0.5	1.4
	Medium	1.0	0.7	2.6	1.3	0.7	3.4
	Low	1.5	1.2	3.6	1.4	0.9	6.4
Average		1.0	0.5	2.8	1.5	0.8	3.2

Source: GSOEP for Germany, Cohen et al. (1997) for France and the US.

Table 20: Hiring Rates 1989-1991 (%).

Age	Education	Males			Females		
		Germany	France	US	Germany	France	US
Age 16 - 24	High	n.a.	9.7	40.0	n.a.	21.3	50.0
	Medium	20.6	10.9	31.1	28.2	10.0	29.5
	Low	16.2	8.3	26.6	10.6	7.0	24.2
Age 25 - 49	High	22.8	8.2	22.4	8.6	8.4	27.2
	Medium	12.8	7.5	30.8	8.0	6.9	25.2
	Low	5.9	5.3	30.0	5.7	4.2	22.1
Age 50 - 64	High	5.0	3.0	14.8	n.a.	1.5	n.a.
	Medium	2.5	1.5	28.5	1.6	2.0	25.1
	Low	3.4	1.1	36.7	1.6	0.7	16.2
Average		9.9	6.0	29.4	7.1	4.8	23.8

Source: GSOEP for Germany, Cohen et al. (1997) for France and the US.

Appendix Table 1:
Demographic Composition of the GSOEP Sample in %

Men	1983 - 1985	1986 - 1988	1989 - 1991	1992- 1994	1983 - 1994
Age 16 - 24	22.72	22.47	18.87	15.03	20.09
Age 25 - 49	54.65	53.77	55.30	58.80	55.47
Age 50 - 64	22.62	23.76	25.83	26.17	24.44
Low Educ.	18.84	18.52	16.72	14.68	17.36
Medium Educ.	69.10	68.97	69.84	70.64	69.58
High Educ.	12.06	12.51	13.44	14.68	13.07
Age1 / Educ.1	11.02	11.02	8.64	6.32	9.45
Age1 / Educ.2	11.48	11.24	10.17	8.59	10.48
Age1 / Educ.3	0.22	0.21	0.06	0.12	0.16
Age2 / Educ.1	4.83	4.43	4.66	5.39	4.81
Age2 / Educ.2	40.66	39.86	40.62	42.88	40.93
Age2 / Educ.3	9.16	9.48	10.01	10.53	9.74
Age3 / Educ.1	2.98	3.07	3.41	2.96	3.10
Age3 / Educ.2	16.96	17.87	19.05	19.18	18.17
Age3 / Educ.3	2.68	2.82	3.37	4.03	3.17
Women	1983 - 1985	1986 - 1988	1989 - 1991	1992- 1994	1983 - 1994
Age 16 - 24	21.05	20.66	18.36	16.10	19.25
Age 25 - 49	52.77	53.57	54.59	57.14	54.34
Age 50 - 64	26.18	25.78	27.04	26.76	26.40
Low Educ.	37.21	34.78	31.49	28.44	33.36
Medium Educ.	57.12	58.93	61.55	63.68	60.03
High Educ.	5.67	6.29	6.96	7.88	6.61
Age1 / Educ.1	10.08	10.05	8.88	7.41	9.21
Age1 / Educ.2	10.76	10.49	9.37	8.55	9.89
Age1 / Educ.3	0.22	0.11	0.11	0.14	0.15
Age2 / Educ.1	13.33	11.64	9.99	9.71	11.34
Age2 / Educ.2	35.06	36.86	38.97	41.00	37.72
Age2 / Educ.3	4.38	5.07	5.63	6.43	5.29
Age3 / Educ.1	13.81	13.10	12.62	11.32	12.81
Age3 / Educ.2	11.30	11.58	13.20	14.13	12.43
Age3 / Educ.3	1.07	1.10	1.21	1.31	1.16

Appendix Table 2:
Distribution of Invalid Observations (466 of 13728)

Men	Employed	Unemployed	Non-partic.
Age 16 - 24	0	0	0
Age 25 - 49	0	0	0
Age 50 - 64	0	0	0
Low Educ.	0	0	0
Medium Educ.	0	0	0
High Educ.	0	0	0
Age1 / Educ.1	0	0	0
Age1 / Educ.2	0	0	0
Age1 / Educ.3	16	131	18
Age2 / Educ.1	0	0	0
Age2 / Educ.2	0	0	0
Age2 / Educ.3	0	7	0
Age3 / Educ.1	0	0	0
Age3 / Educ.2	0	0	0
Age3 / Educ.3	0	25	0
Sum	16	163	18
Women	**Employed**	**Unemployed**	**Non-partic.**
Age 16 - 24	0	0	0
Age 25 - 49	0	0	0
Age 50 - 64	0	0	0
Low Educ.	0	0	0
Medium Educ.	0	0	0
High Educ.	0	0	0
Age1 / Educ.1	0	0	0
Age1 / Educ.2	0	3	0
Age1 / Educ.3	0	137	24
Age2 / Educ.1	0	0	0
Age2 / Educ.2	0	0	0
Age2 / Educ.3	0	0	0
Age3 / Educ.1	0	0	0
Age3 / Educ.2	0	0	0
Age3 / Educ.3	0	105	0
Sum	0	245	24