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Welfare State Stabilization of Employment Careers: Unemployment Benefits and Job Histories in the United States and West Germany

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Abstract

Economic job search theory offers two complementary predictions about the effects of unemployment benefits on job search outcomes among unemployed workers. By raising workers' reservation wages, unemployment benefits should contribute to both prolonged spell duration and improved post-unemployment job quality.

In contrast to many previous empirical studies that have addressed the negative benefit effect on duration only, the current paper jointly addresses the causal effect of unemployment benefits on both unemployment duration and post-unemployment job quality. Based on discrete-time event history methods and U.S. and German panel data for the 1980s and 1990s, the paper establishes empirical support for both types of benefit effects in both countries. Hence, the effect of unemployment benefits on employment careers is more appropriately described as career stabilization induced by welfare state provision of job search resources. Against some prolongation of unemployment spells, unemployment benefits effectively enable workers to maintain previously accumulated human capital by fostering adequate reemployment in terms of earnings, occupations, or job duration. Consistent with this view, unemployment benefits turn out as particularly effective in preventing severe losses in post-unemployment job quality, but also in terms of maintaining job quality among high-skill workers. Through these effects of benefits on job histories, cross-national differences in welfare state generosity also assume an important role in explaining U.S.-German differences in terms of unemployment dynamics.

Zusammenfassung

Die ökonomische Suchtheorie macht zwei komplementäre Vorhersagen über die Einflüsse auf die Dynamik von Arbeitslosigkeit, die aus den Ansprüchen an die Arbeitslosenversicherung erwachsen. Wenn die Anspruchslöhne bei Arbeitnehmern angehoben werden, ist davon auszugehen, daß die daraus erwachsenden Ansprüche an die Arbeitslosenversicherung zu einer verlängerten Dauer der Arbeitslosigkeit und zu einer besseren Qualität der anschließenden Beschäftigung beitragen.

Im Gegensatz zu vielen bisherigen empirischen Studien, die nur den negativen Effekt der Dauer der Arbeitslosigkeit betrachten, wird in diese Analyse der kausale Zusammenhang der Ansprüche an die Arbeitslosenversicherung *sowohl* auf die Dauer der Arbeitslosigkeit *als auch* auf die Qualität der an die Arbeitslosigkeit anschließenden Beschäftigung einbezogen. Auf der Basis ereignisanalytischer Modellschätzungen und amerikanischer bzw. deutscher Paneldaten für die 80er und 90er Jahre werden beide Effekte, die durch die Ansprüche an die Arbeitslosenversicherung ausgelöst werden, empirisch nachgewiesen. Der Effekt,

den diese Ansprüche auf den weiteren Beschäftigungsverlauf haben, lässt sich angemessener beschreiben als die Stabilisierung von Erwerbsverläufen, erzielt durch wohlfahrtsstaatliche Transferleistungen zugunsten einer Stärkung der Ressourcen bei der Suche nach einer neuen Beschäftigung. Trotz einer gewissen Verlängerung der Dauer von Arbeitslosigkeit fördern die Unterstützungszahlungen während der Arbeitslosigkeit die Arbeitnehmer eindeutig bei der Erhaltung früher erworbenen Humankapitals, indem sie eine adäquate (bzgl. Einkommen, Tätigkeiten, Beschäftigungsdauer) Wiederbeschäftigung begünstigen.

Passend zu dieser Sichtweise läßt sich feststellen, daß die aus der Arbeitslosigkeit herrührenden finanziellen Transferzahlungen besonders geeignet sind, tiefgreifende Verschlechterungen bei einer der Arbeitslosigkeit folgenden Beschäftigung zu vermeiden; gleiches gilt bezüglich der Erhaltung der Qualifikation von Hochqualifizierten. Im Zusammenhang mit diesen Auswirkungen auf die Beschäftigungsverläufe erklären die - hinsichtlich der Großzügigkeit der wohlfahrtsstaatlichen Regelungen - bestehenden Unterschiede in Deutschland und den USA in erheblichem Maße die Unterschiede bei den Arbeitslosigkeitsdynamiken in beiden Ländern.

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Introduction

The welfare state is a historically unprecedented achievement regulating economic life in modern societies. All modern welfare states seek to guarantee competitive product markets, maintain regulatory minimum standards in labor markets, and, most importantly for sociological analyses, seek to provide material security to individuals affected by economic hardship. Through different kinds of entitlements, benefits and transfers that compensate individuals for different life-course risks, welfare states in fact provide substantial financial buffers against adverse consequences of events like unemployment, ill health, or old age, which also contribute to reduce income fluctuations and economic inequalities within modern societies more generally (e.g. Rainwater et al. 1986; Mitchell 1991; McFate 1995; DiPrete and McManus 1996, 2000; McManus and DiPrete 2000; Gallie and Paugam 2000).

While a by now substantial body of research documents such economic stabilization effects working directly through welfare state transfers in the short-run, there is much less evidence on more indirect welfare state effects on labor market behavior and individual job histories in the longer run. Hence while sociologists have extensively studied the stratification of labor market careers (e.g. Logan 1996; Eliason 1995; Kalleberg and Mastekaasa 1998), the relation between structural change and individual job histories (DiPrete 1993; DiPrete and Nonnemaker 1997; DiPrete et al. 1997), but also the role of institutional differences in education and training systems (cf. Müller and Shavit 1998; Kerckhoff 1995; Allmendinger 1989), the discipline has so far been fairly silent on potential relationships between welfare state policies and labor market careers. Only recently, studies like Stier et al. (2001) have attempted to provide direct evidence of effects of family policy on female labor force participation, papers compiled in Gallie and Paugam (2000) have assessed cross-national differences in unemployment dynamics in different welfare state regimes, and DiPrete et al. (2001) have addressed the relationship between labor market regulation and the structure of labor market dynamics in Sweden and France. DiPrete et al. (2001) in particular have also stressed the necessity to evaluate the effects of welfare state institutions with longitudinal micro data, as several of their predictions about the structure of labor markets as deduced from the current macrosociological welfare state literature have not been borne out by their micro data in the case of France.

In contrast to the paucity of respective research in sociology, studies interested in the relation between welfare state policies and labor markets have been regularly conducted in economics, on both the macro, but increasingly also on the micro level of individual workers. Based on job search theory and its derivatives, mainstream economists have in fact adopted a fairly critical view on the interaction between welfare states and labor markets. In particular with

respect to the core welfare state functions of providing transfers in order to compensate for current income losses, economists have been likely to point out potential disincentive effects of doing so. Upon closer inspection, however, it seems that many economists tend to misrepresent the basic predictions of their own models. Rather than simply inducing worker slackness and reduced search efforts, most basic job search theory predicts that by raising workers' reservation wages, the additional unemployment duration induced by welfare state transfers will be productive insofar as it is supposed lead to increases in post-unemployment job quality. Burdett (1979) has referred to this effect by seeing welfare state transfers as a *search subsidy*, allowing workers to sustain the potentially more difficult search for relatively more adequate jobs over some period of time. If respective transfer effects were established empirically, a more appropriate view of the relation between welfare states and labor markets would actually be that welfare states' stabilizing effects do not only pertain to income fluctuations in the short run, but also encompass more long-term effects in the sense of stabilizing individual employment careers more generally. If so, then cross-national differences in welfare state policies are also likely to assume a much more prominent role in explaining cross-national differences in labor market dynamics than currently assumed in most stratification studies.

Against this background, the current paper uses U.S. and German panel data to empirically assess the nature and magnitudes of unemployment benefit effects on employment careers. As welfare states in the U.S. and Germany differ considerably in terms of the generosity of their UI systems, the comparative analyses will additionally allow to address whether and how UI benefit effects on job histories differ between the restrictive U.S. benefit system and the more liberal German regulations, but also whether and to which extent any effects of UI benefit provision contribute to explain empirical U.S.-German differences in unemployment dynamics. To begin with, the causal hypotheses offered by economic job search theory will be briefly reviewed in the following section. This review will also be supplemented by a review of empirical studies on the issue. A separate section of the paper will then be devoted to discuss the data sources and statistical models used in this study, before presenting the results gained from both descriptive and multivariate event history analyses. The final section of the paper summarizes the findings and discusses their broader implications for sociological research on labor market dynamics.

1. Benefit effects on employment careers: a survey

As has long been recognized in both sociology and economics, individual job histories are driven by the interplay of opportunity structures and worker choices. Labor markets are the arena of matching workers and jobs (Sørensen and Kalleberg 1981), and hence matching models will in general be the most adequate theoretical framework for such two-sided decision processes underlying observable labor market dynamics (Logan 1996). To arrive at a basic understanding of the effects of unemployment benefits on job histories, however, an even simpler, one-sided job search framework will be fully sufficient. Given that welfare state transfers provide additional financial resources to workers in the first place, it is reasonable to evaluate welfare state effects on job histories primarily by elaborating the ways in which these resources are likely to affect workers' labor market behavior. It is important to note that this is not equivalent to assuming that worker choices are the primary determinant behind the duration of unemployment spells, or labor market dynamics more generally. Rather, applying search theory to the problem at hand basically assumes that the effect of welfare state transfers is to provide additional resources to workers affected from economic hardship, so that any welfare state effect on job histories should primarily occur through enabling workers to make different labor market choices than absent welfare state support. Whether or not employer behavior also responds to such features of the institutional environment will not be addressed in the following, although respective changes might be thought to actually reinforce any potential welfare state effect on worker behavior.

Against that background, economic job search theory offers a convenient framework to discuss the effects of welfare state transfers, or indeed any alternative income sources available to workers, on workers' job search outcomes (cf. Mortensen 1986; Lippman and McCall 1976a, 1976b; Burdett 1979; but see e.g. Halaby 1988; Montgomery 1992 for alternative sociological applications). What makes job search theory an apt candidate in this case is that it provides a stringent partial theory of the determinants of worker search behavior while abstracting from many features of both labor market structures and employer behavior at the same time. As sociologists are typically well aware, while allowing for very detailed explorations of benefit effects on worker choices, this very same feature of course renders job search models a very incomplete and largely unsatisfactory theory of labor market dynamics more generally.

Unemployment Insurance benefits and workers' job search behavior

Applied to the issue of effects of unemployment benefits on job search outcomes, job search theory offers two complementary predictions (cf.

Mortensen 1986, 1990; Lippman and McCall 1976a, 1976b; Burdett 1979). In essence, *the job search argument is that through lowering the opportunity cost of job search which implies rising worker reservation wages, unemployment benefits contribute to both prolonged spell duration and improved post-unemployment job quality*. Based on an optimal stopping model borrowed from dynamic programming theory, the reservation wage is the core element of job search models: in particular, workers' reservation wages index the threshold of job offers that rational workers will be ready to accept. In basic sequential search models satisfying the reservation wage property, workers' optimal decision rule turns out as simple as that: after setting their reservation wage, workers should search for job offers and accept the first one that passes the reservation wage threshold. Stated less technically, the model assumes that workers have certain expectations about job quality required to stop searching. These expectations are formed by workers weighting the expected gains from continued search, notably the likelihood of finding better offers, against the value of accepting the current job offer and any additional costs workers would incur if continuing to search. Evidently, the term reservation *wage* should not be taken too literally, but rather understood as an index of job quality potentially comprising different job features like wages, job stability, occupations, hours of work or any other feature that seems relevant to workers.

In search models, the effect of welfare state transfers, or indeed any alternative income source, is then to lower the opportunity cost of job search since additional income will raise the value of staying unemployed relative to a situation absent welfare state transfers. Lower opportunity costs of job search, however, will also imply rising reservation wages among unemployed workers, i.e. workers will tend to look for higher-quality jobs before stopping search. Microeconomic theory thus clearly stipulates welfare state effects on job histories beyond mere income stabilization in the short run: in fact, by relieving immediate financial pressures on unemployed workers to a certain extent, welfare state transfers are likely to allow workers to achieve improvements in their post-unemployment job outcomes. The mechanism behind this effect is that welfare state benefits will be used as a *search subsidy* (Burdett 1979), sustaining job search over the (additional) time needed to find relatively more adequate reemployment rather than immediate employment. Hence, at the price of some prolongation of search duration, *a side effect of decommodification achieved by welfare state transfers should be a stabilization of employment careers in the medium- and maybe even longer run*. By basic job search theory, workers are expected to use welfare state benefits *productively*, i.e. by trading some additional search time for improvements in subsequent job quality.

To see this more formally, consider the effects of UI benefits in the context of the most basic economic job search model. Given a constant job offer arrival rate *ë* of offers being drawn from a wage offer distribution *F(w)*, a discount rate *i*

at which workers discount future income streams, and workers' current non-employment income *b*, job search theory derives a reservation wage w^* at which the expected present value of rejecting an offer and continuing to search exactly equals the expected present value of accepting the current job offer net of search costs *c*. Optimal worker decision-making is guaranteed if workers accept the first job offer exceeding w^*. The reservation wage w^* effectively acts to truncate the wage offer distribution from below, and hence indexes the fraction of job offers considered unacceptable by workers. Unemployment benefits *b* come into play as being positively related to the reservation wage w^*, i.e. workers covered by UI benefits are assumed to require higher wages upon reemployment. If observable reemployment rates *r* are given by

(1) $$r = \lambda \times \left[1 - F(w^*)\right],$$

i.e. the product of offer arrival rates ë and the probability that workers will find a given job offer acceptable, it is easy to see that reemployment rates will tend to fall with rising reservation wages, as implied by

(2) $$r'(w^*) = -\lambda f(w^*) < 0 \ .^{1}$$

At the same time, the mean of the truncated wage distribution will be

(3) $$E(W \mid W \geq w^*) = \int_{w^*}^{\infty} w f(w \mid w \geq w^*) dw > \int_{-\infty}^{+\infty} w f(w) dw = E(W) \ ,$$

which is unequivocally larger than the mean of the non-truncated wage distribution *F(w)* under mild restrictions on the shape of the wage offer distribution. In sum, job search theory thus implies two *complementary* predictions about the relation between welfare state transfers and unemployment dynamics: by reducing the opportunity cost of search, transfers first induce workers to raise their reservation wages, and thus to search for relatively more adequate reemployment. By ignoring the lower tail of the wage offer distribution, however, this occurs against workers foregoing available job opportunities in the low-wage sector. Hence, the improvement in job quality achieved by welfare state transfers is likely to come at the price of prolonged spell duration.

Empirical studies

Sociological studies of unemployment dynamics have mostly focused on the stratification of unemployment dynamics in terms of the life-cycle, gender, race,

[1] Note that this has the additional implication that benefit effects on reemployment rates are stronger in more dynamic labor markets, characterized by higher levels of ë. With respect to the U.S.-German comparison this implies a prediction of larger negative benefit effects in the more dynamic U.S. labor market.

class, or labor market sectors and segments (DiPrete 1981; Schervish 1981, 1983; Sørensen 1987; Gallie et al. 1994; Russell and Barbieri 2000; Layte et al. 2000), or on the relation between unemployment and macroeconomic cycles or longer-run structural changes (Schervish 1983; DiPrete 1993; DiPrete and Nonnemaker 1997; DiPrete et al. 1997). Only few studies have attempted to address institutional effects on unemployment dynamics, with DiPrete et al. (2001) and the studies compiled in Gallie and Paugam (2000; cf. Layte et al. 2000; Bernardi et al. 2000 in particular) being notable recent exceptions. While DiPrete et al. (2001) are mostly interested in evaluating contrasting predictions from welfare state theory, labor market regulation perspectives, and educational sociology in a comparison of job dynamics in France and Sweden, the large comparative study conducted by Gallie and Paugam (2000) is even closer to the interests of the current paper as it deliberately focuses on the relations between welfare regimes and various aspects of unemployment dynamics. So while both DiPrete et al. (2001), Layte et al. (2000) and Bernardi et al. (2000) find evidence of labor market regulation and employment protection affecting unemployment and job dynamics, there are some observations on direct effects of welfare states that are unique to the Gallie and Paugam (2000) volume. In particular, the Gallie and Alm (2000) chapter reports tentative evidence that while unemployed workers in more generous Scandinavian welfare states are no less attached to the work force in general, they seem to be less inclined to compromise on job features required upon reemployment. Also some results by Layte et al. (2000) on Swedes' lower propensity to enter low-skill occupations after unemployment spells might be indicative of actually lower scar effects in more generous welfare regimes.

Against their many virtues, the studies compiled in Gallie and Paugam (2000) suffer mainly from being macrocomparative in character, thus allowing for only very indirect inferences to institutional differences as the main cause of any unresolved cross-national differences in the empirical models. To achieve more direct evidence on institutional effects, the current study will thus rather follow the strategy of DiPrete et al. (2001:245f.) who assessed the effects of labor market regulation in part by comparing French and Swedish workers on indefinite contracts to workers on fixed-term contracts in the two countries, which enabled them to stringently infer the expected association between more flexible contracts and higher levels of job dynamics. The current study will extrapolate this strategy to the case of unemployment insurance as the key welfare state transfer to the prime-age work force.

Of course, respective studies have since long been conducted in empirical labor economics, where dozens of papers have attempted to establish the relation between unemployment insurance and unemployment dynamics (cf. Atkinson and Micklewright 1991 as a review of theoretical issues; Devine and Kiefer 1991; Pedersen and Westergård-Nielsen 1993; Machin and Manning 1999 for reviews of the empirical literature). And indeed, most econometric

analyses of unemployment duration have concluded that unemployment benefits tend to lower reemployment rates among the unemployed. Respective robust evidence has been obtained for a number of countries over the past decades, covering the U.S. (e.g. Meyer 1990; Katz and Meyer 1990; Fallick 1991), but also European labour markets (e.g. Hunt 1995; Hujer and Schneider 1996; Steiner 1997 for Germany; Carling et al. 2001 for Sweden, or Narendranathan et al. 1985; Narendranathan 1993; Arulampalam et al. 1995 for UK data). On the other hand, the effects are typically found to be fairly small in magnitude, except among particular sub-populations like male youth during the school-to-work transition (e.g. UK study Narendranathan 1993). Among the core, prime-age work force, however, worker differences in education and skills, but also the effects of changing labor market conditions are certainly relatively more important for explaining the duration of unemployment spells in most if not all empirical specifications. Still, there seems to be consistent evidence of at least some welfare state effects on labor market dynamics.

Interestingly enough, there are few econometric studies that actually evaluate benefit effects on post-unemployment job quality. There is a literature on displaced workers that has focused considerable attention on short- and longer-run scar effects of displacement, yet in terms of institutional effects, most studies have assessed effects of employment protection, advance notice or severance payments (e.g. Ruhm 1994; Fallick 1996). Most of the few available studies on the impact of unemployment insurance (e.g. Blau and Robins 1986; more recently Addison and Blackburn 2000; Belzil 1995, 2000) provide evidence of some small positive effects of UI benefits on post-unemployment earnings and wages (Blau and Robins 1986; Addison and Blackburn 2000), but also on post-unemployment job stability (Belzil 1995, 2000). The study by Addison and Blackburn (2000:39ff.) in particular reports fairly sizeable positive UI effects on wages as soon as the analyses compare benefit recipients to non-recipients rather than testing for effects of replacement ratios among UI recipients. In any event, while the studies are sufficiently varied in their approaches and results, there also seem to be at least some indications of the expected positive UI effects on job quality coming from the microeconomics literature.

2. Data and statistical methodology

To assess the effects of unemployment benefits on employment careers, the current analyses will draw on longitudinal data from U.S. and German panel surveys. In fact, the analytical purpose of this cross-national comparison is at least twofold. First of all, comparative analyses may serve as a particular kind of sensitivity analysis in the sense of allowing to assess the robustness of findings across institutionally and structurally distinct national labor markets. A U.S.-German comparison indeed provides a veritable array of such differences, be it in terms of the dynamics of labor markets (DiPrete et al. 1997; Schettkat 1992; Garibaldi et al. 1997), the extent of labor market regulation (Grubb and Wells 1993; Abraham and Houseman 1993; OECD 1999), the structure of education and training systems (Allmendinger 1989; Müller and Shavit 1998), or last but not least, the structure of welfare states (Esping-Andersen 1990; Mitchell 1991). In terms of the latter, Germany as well as many other Continental European countries offers a much more extensive protection against life-course risks like unemployment, ill health, family disruption or old age than is common in the United States.

The structure of unemployment insurance (UI), which is obviously the key transfer program relevant to the prime-age work force, is in fact a quite instructive example about the nature of such institutional differences. While UI benefit replacement ratios actually differ very little between the United States and Germany (Schömann et al. 2000; Schmid and Reissert 1996; Esping-Andersen 1990), it is benefit eligibility criteria that are considerably stiffer within the U.S. UI system (Grubb 2000). In consequence, actual UI benefit coverage rates among unemployed workers are considerably lower in the United States as compared to a near universal benefit coverage for German workers (Schmid and Reissert 1996).[2] The German welfare state is thus not necessarily more generous in terms of individual benefit amounts, yet much more encompassing in terms of welfare state entitlements.

Seen from this perspective, the U.S.-German comparison raises additional, and also substantively interesting issues. Given that UI benefit coverage rates differ tremendously among American and German workers, the current study provides an opportunity to assess whether potential benefit effects on individual job search outcomes are contingent on institutional features like the relative pervasiveness of social protection. But even more generally, if unemployment benefits actually do generate the presumed impacts on job histories, country differences in terms of welfare state generosity might in fact account for an important part of the empirical differences in unemployment dynamics between

[2] Calculated from cross-sectional samples of unemployed workers, Schmid and Reissert (1996:244f.) give UI coverage rates between 70-80% for West Germany in the 1980s and early 1990s. Based on data for the mid-1990s, Schömann et al. (2000: Appendix 1) arrive at UI coverage rate estimates of 40% in the U.S., and 74% for the unified Germany.

the United States and West Germany. If so, the current study might also contribute to reorient cross-national studies in social stratification and labor market dynamics towards the long-neglected nexus between welfare states and labor market behavior (DiPrete and McManus 2000; DiPrete et al. 2001; Stier et al. 2001; Gallie and Paugam 2000).

Data sources

The current analyses are based on employment history data drawn from the U.S. Survey of Income and Program Participation (SIPP; U.S. Bureau of the Census 1991) and the German Socio-Economic Panel (GSOEP; cf. Wagner et al. 1994; DIW 1999) study. Both studies are household panel surveys representative of each country's residential population, and both surveys provide rich databases on labor markets, employment and job dynamics. Although sharing largely similar interests, both surveys do differ in terms study design. In particular, while the GSOEP design very much follows the design chosen in the Panel Study of Income Dynamics (PSID; Hill 1992) in combining annual interval lengths between interviews with extensive retrospective information on both individual life courses and calendar information on labor market events in the year preceding the interview, the SIPP is based on much shorter four-month intervals between interviews. Also, single SIPP panels have been discontinued after eight to ten interviews, whereas the GSOEP sample (including some sample refreshments) has been continuously followed since its original start in 1984. Against these differences in study design, however, both surveys are likely to represent the most appropriate data sources on (short-run) labor market and unemployment dynamics in both countries that also include a wealth of social and institutional background information (cf. also Witte 1989).

For the purpose of this paper, harmonized data from the combined SIPP Panels 1984, 1986, 1988, 1990, 1992, and 1993, and the West German data from GSOEP waves A-M (samples A+B) has been used to generate monthly employment history information in the 12-year observation window between January 1984 and December 1995. To address the effects of UI benefits on unemployment dynamics in the two countries, the subsequent analyses use an inflow sample of all unemployment spells among displaced workers that were begun during this observation period. Throughout this paper, displaced workers are defined rather loosely as workers having entered unemployment from dependent employment immediately preceding an unemployment spell.[3] Hence, the spell sample drawn here excludes any unemployment spells of both first-

[3] In technical terms, any unemployment spell has been sampled from the two databases if individuals reported to have worked at least up to three months before the start of an unemployment spell. This maximum inactivity gap of two months has been allowed for in order to minimize the impact of late benefit take-up or workers' recall expectations that might result in reporting some time of inactivity rather than active job search behavior.

time entrants to the labor force, but also job search periods of (mostly) women returning to the labor market after career interruptions. The intention behind restricting the analysis to the core work force highly attached to the labor market is to evaluate the effects of UI benefits precisely with respect to those events which UI benefits have been primarily designed to compensate for, namely job losses.

Under these restrictions, the combined SIPP data yield a sample of 24,100 unemployment spells of 21,551 workers that are observed for a total of 98,749 observation months. The smaller GSOEP database still gives a total of 3,251 unemployment spells of 2,264 workers that are observed for a total of 32,498 months. Rates of right-censoring are 17.7% (4,254 spells) in the SIPP, and 11.9% (387 spells) in the GSOEP data. Added to the core spell information, the databases include gender, age, ethnicity, workers' education (including completion of vocational training in the German sample), labor force experience, tenure, occupation, industry and earnings with previous employer as main worker-level characteristics,[4] but also a measure of the quarterly vacancy ratio calculated by the quarterly number of hires over the average number of unemployed in any given quarter as an indicator of aggregate labor market dynamics. Unemployment benefit status is measured time-constant, with benefit receipt being recorded if workers reported receiving UI transfers in any month of the unemployment spell. Compared to properly accounting for the effects of late benefit take-up, temporary benefit disqualification or simple measurement errors, this appeared as the much more robust measure, especially for the purposes of cross-national comparison. The distribution of covariates in the two samples is given in full in Appendix 1 below.

For this spell data, finally, several different outcome measures have been calculated. Different kinds of transitions from unemployment can be distinguished from both the SIPP and the GSOEP data, yet the current analyses will only be interested in destination outcomes in terms of job quality conditional on the incidence of a work exit from unemployment. Six different measures of job quality will be addressed in the analysis, representing the dimensions of earnings, occupations and job stability in two degrees of severity, respectively. More specifically, the six job quality measures used are (a) the incidence of a real earnings loss compared to workers pre-unemployment real earnings level, (b) the incidence of a real earnings loss of at least 20% of workers pre-unemployment real earnings level, (c) the incidence of occupational mobility across two-digit occupations, (d) the incidence of downward status mobility along the Ganzeboom et al. (1992) ISEI occupational status scale, (e) the

[4] Earnings represent real earnings in 1990 U.S. prices, with German earnings data being adjusted by respective 1990 purchasing power parities after being deflated. Occupation and industry classifications have been standardized at the level of 12 occupations and 6 broad industries, and separate analyses not reported in this paper have also been run using the Ganzeboom et al. (1992) ISEI occupational status measure.

probability of entering a job lasting less than six months, and (f) the probability of entering a job lasting less than twelve months.

Statistical models

Being interested in the structure of labor market flows between unemployment and employment, the statistical analyses of the paper are most naturally based on event history methods (e.g. Blossfeld and Rohwer 1995; Petersen 1995; Tuma and Hannan 1984; Lancaster 1990). Thus, the subsequent analyses will address the hazard rate of leaving unemployment into employment as the key dependent variable. In an event history framework, the hazard rate *r(t)* is defined as

$$(4) \qquad r(t) = \lim_{\Delta t \to 0} \frac{\Pr(t \le T < t + \Delta t, T \ge t)}{\Delta t},$$

representing individuals' instantaneous propensity to leave unemployment at spell time *t*, conditional on the fact that no such event has taken place up to spell time *t*. As the following analyses will apply a discrete-time approach based on monthly spell data (cf. Allison 1982), equation (1) becomes the probability of exiting unemployment for paid work within the next monthly interval *t*+1, given that workers have stayed in unemployment until spell time *t*. Also, basic statistical theory on event history analysis tells that knowledge of *r(t)* is sufficient to deduce several alternative representations of the unemployment duration distribution, including the duration distribution *f(t)* itself, but more importantly also the cumulative duration distribution *F(t)* and the survivor function *G(t)* = 1-*F(t)* (Petersen 1995; Tuma and Hannan 1984; Lancaster 1990).

Modeling duration distributions in terms of hazard rates rather than any other equivalent distribution offers the advantage of easy incorporation of censored cases, i.e. ongoing spells of unemployment by the end of the observation window.[5] Also, it is fairly straightforward to address qualitatively different transitions and their determinants by applying a competing-risks framework that represents different transition processes by separate rate equations. In the spirit of these approaches, the subsequent analyses will use a particular competing-risks specification first applied in Petersen's (1988, 1995) analyses of socio-economic attainment processes. More specifically, Petersen (1988, 1995: 500f.) decomposes the destination-specific hazard rates $r_k(t)$ into

$$(5) \qquad r_k(t) \equiv r(t) \times \Pr(D = k, T = t),$$

[5] As the spell samples have been drawn conditional on pre-unemployment status, the samples used here exclude any left-censored or –truncated unemployment spells by definition.

i.e. the product of the overall exit rate *r(t)* and a destination equation predicting the type of exit *k*. In contrast to standard procedures of estimating the destination-specific hazard rates $r_k(t)$ directly, Petersen's decomposition yields a formally equivalent, although more readily interpretable representation of the multiple destination state process if destination states differ in terms of quality rather than underlying causal mechanisms generating the outflow rates. As in Petersen's (1988) own research on socio-economic status mobility, *r(t)* will be interpreted as the arrival rate of acceptable job offers, while the destination equation will determine the job type conditional on the arrival of an acceptable offer. Seen this way, the model also allows to properly disentangle covariate effects on work exit rates from covariate effects on the type of job exit, both of which tend to become conflated in the usual direct specification of destination-specific rates $r_k(t)$.

In Petersen's original formulation, however, the above specification was estimated by a LIML two-step procedure that implies the assumption of independence between the offer arrival rate and the quality of job offers themselves. In contrast to both the original job search model, but also to many segmentation and dual labor market studies (e.g. Sørensen and Kalleberg 1981; Eliason 1995; Lang and Dickens 1988), this essentially amounts to ignore the (allegedly relatively abundant) availability of alternative job offers in the secondary labor market by virtue of model specification. As this assumption appears highly questionable and also theoretically unwarranted in the present context, a more flexible, full-information maximum-likelihood algorithm has been used in the empirical analyses of this paper in order to allow for potential (negative) correlations between offer arrival rates and observable job quality. Given that job quality measures have been discretized, the event history model is based on the bivariate normal distribution $Ö_2$, which defines the probit rate function as

$$(6) \qquad r_{wk}(t) = \sum_{k=0,1} \Phi_2\left(x_w \boldsymbol{b}_w ,\ x_k \boldsymbol{b}_k ,\ \boldsymbol{r}_{wk}\right)^{d_{wk}} ,$$

with $ä_{wk}$ indexing the occurrence of a work exit of job quality *k*. Using the standard setup, this leads to the log-likelihood function to be maximized of

$$(7) \qquad \ln L = \sum_{i}^{N} \sum_{k=0,1} \Phi_2\left(x_w \boldsymbol{b}_w ,\ x_k \boldsymbol{b}_k ,\ \boldsymbol{r}_{wk}\right)^{d_{wk}} \sum_{t=1}^{T_i-1} \Phi\left(- x_w \boldsymbol{b}_w\right)^{1-d_{wk}} .$$

In this setting the parameter vector $â_w$ reflects the effects of covariates x_w on workers' reemployment rates, whereas the second parameter vector $â_k$ represents the effects of covariates x_k on the conditional probability of exiting into jobs of type *k*=1 instead of jobs of type *k*=0. Moreover, the parameter $ñ_{wk}$ reflects any potential (negative) correlation between job quality *k* and offer arrival rates.

Very much as in more standard analyses, the covariate vectors will include measures of workers' skills (education, experience, tenure and earnings in previous job, as well as completion of vocational training for German workers) as well as gender and information on non-white, respectively non-German ethnicity. Duration dependence is accounted for by including a third-order polynomial function in both equations. Additional control variables include occupation and industry dummies, a measure of the quarterly aggregate vacancy ratio, year dummies as well as a 'seam' month variable intended to capture the effects of linking several interview waves into a single event history calendar.[6] Mostly in order to aid the identification of the model, the latter controls have been included in the rate equations only.

The core variable of interest to the current paper is of course the effect of individual UI benefit status on both reemployment rates and post-unemployment job quality. By including this institutional variable into the model equations, the current analyses seek to obtain causal estimates of benefit effects on workers' job histories directly at the level of individual workers. In contrast to traditional macrocomparative approaches applied in earlier stratification studies, this more direct approach promises to enable a much more precise identification of true causal institutional effects on job histories given that the institutional inference will not be biased by the presence of other unobserved institutional or structural differences between countries. In focusing on causal effects at the micro level of individual workers (while ignoring potential macro level or equilibrium effects), such an approach is also likely to provide a conservative estimate of the total effects of unemployment insurance on job histories in the sense of yielding conceptually attractive lower-bound estimates of the impact of institutions (Manski and Nagin 1998). In line with standard practice in the statistical and econometrics evaluation literature (cf. the reviews by Winship and Mare 1992; Winship and Morgan 1999; Heckman and Robb 1985, 1989; Heckman et al. 1999), the paper will establish the causal UI effect by applying a Heckman-type two-stage selectivity correction to allow for "selection on unobservables" in the case of UI eligibility. The estimated probit models for UI treatment are given in Appendix 2.[7] But before turning to discuss the results from these more involved event history models, the following section will first give some core descriptive

[6] The 'seam' month is the final month of calendar information gained within any single interview. Methodological research on both the SIPP and the GSOEP reports artificially increased transition rates in these months as individuals having experienced a certain event during the recall period of the subsequent interview are more likely to date the event back to the start of the recall period.

[7] The estimation results will actually produce only limited evidence of relevant selection on unobservables, as UI benefit effect estimates are substantively robust to the inclusion of the Inverse Mills' Ratio (respective results are available from the author on request). This indicates that readily observable worker characteristics are suitable predictors for UI eligibility, so that concerns for self-selection are much less of an issue than e.g. in the case of evaluations of training programs. Of course, this is precisely what would be expected from both the nature of unemployment insurance and the institutional regulations concerning UI eligibility.

information on unemployment dynamics in the United States and West Germany.

3. Unemployment dynamics in the United States and Germany

Labor market dynamics in general differ substantially between the U.S. and Continental European countries (cf. DiPrete et al. 1997; Garibaldi et al. 1997), and a comparison of reemployment chances among unemployed workers in the United States and West Germany very much conforms to the conventional wisdom in that respect. Even at fairly comparable levels of aggregate unemployment, the underlying experiences of unemployed workers in the two countries have differed considerably over the 1980s and 1990s. As immediately evident from Table 1[8], unemployment duration figures among German workers have well exceeded comparable U.S. figures throughout the period under study. Irrespective of cyclical conditions, median spell durations in the German labor market have typically been about twice the figures common among U.S. workers. Averaging over the 1984-1995 period, median unemployment spell duration has been 2.3 months among U.S. workers, yet amounted to a full 4.8 months among unemployed workers in West Germany. Also, while unemployment duration figures have evolved pro-cyclically in both countries, German duration figures have risen particularly strongly during the recession of the mid-1990s.

Unsurprisingly, differences in reemployment rates are the key component behind these cross-national differences in unemployment duration. In both the United States and West Germany, some 70% of all exits from unemployment are into dependent employment. Only relatively few unemployed workers start up their own businesses, a certain proportion of workers facing difficulties in securing reemployment enter training courses or educational programs, and a sizeable minority of workers is - at least intermittently - withdrawing from the work force. In fact, while the relative proportions of these exit routes have remained stable among U.S. workers, the proportion of German workers exiting unemployment for work has fallen considerably in the 1990s, so that respective figures have closely paralleled U.S. figures by the mid-1990s. But against these well-known findings, Table 1 also provides evidence on remarkable differences in terms of post-unemployment job quality in the two countries which have so far not been documented in the literature. In fact, German workers experience more positive job outcomes than their U.S. counterparts on each of the six different job quality measures.

[8] All tabells and figures in the appendix page 31-41

This differential is relatively slight if it comes to having to face any earnings loss upon reemployment, yet it is certainly pronounced with respect to each of the five other indicators. While about one third of U.S. workers experience earnings losses of more than 20% of their previous earnings levels, the respective figure among West German workers turns out to be as low as 16% (cf. Burda and Mertens 2001 for related results). Also, occupational mobility rates are substantially higher among U.S. workers: almost two thirds of U.S. workers find reemployment in a different two-digit occupation than the one they have been previously working in, and still one third of workers experiences downward status mobility on the ISEI status scale. The respective rates among German workers amount to effectively just half the U.S. figures. The very same country difference is also evident from data on post-unemployment job duration. Unemployed workers typically do not enter stable lifetime employment in neither West Germany nor the United States. Yet while only one quarter of German workers is found to have left the first job after the unemployment spell within six months, and about half of the German unemployed are employed in that job for at least one year, the respective U.S. rates amount to almost 60% of unemployed workers leaving their post-unemployment job within six months, and a full 80% of U.S. workers will have left this first job by the end of the first year out of unemployment. And although West German workers have certainly experienced a deterioration of their economic status since the mid-1980s, most of these marked differences have still held true by the mid-1990s.

By disaggregating these figures by individual UI benefit status, Table 2 provides some first descriptive evidence on the potential role of the welfare state in accounting for the above findings. There are two relevant pieces of evidence in the table: first of all, the bottom row of Table 2 clearly shows the expected and substantial differences in UI coverage between the German and the U.S. welfare state. While empirically almost 90% of unemployed workers in the German sample have had access to UI benefits, the respective U.S. figures have been as low as 39%. That such differences in welfare state coverage might translate into cross-national differences at the aggregate level is immediately obvious if there is evidence for differences in unemployment dynamics between covered and non-covered workers. And indeed, among both German and U.S. unemployed workers, distinguishing between workers covered by UI benefits and workers who are not reveals striking differences in the set of basic indicators of spell dynamics given in the Table 2.

At a purely descriptive level, workers receiving UI benefits tend to experience longer durations of unemployment spells, yet also show relatively more favorable reemployment outcomes on most measures as compared to workers not eligible to receive benefits. Moreover, the differences between these two groups of unemployed workers are far from trivial empirically. The median spell duration among workers covered by UI benefits in the U.S. is

about 1.5 months longer than among workers without access to UI benefits, and the respective differential among German unemployed amounts to even more than two months. At the same time, workers covered by UI benefits in both countries are somewhat more likely to exit unemployment by taking up paid work rather than by – at least intermittently – withdrawing from the labor market. Conditional on leaving unemployment for work, workers who had received UI benefits during their unemployment spell also tend to show more favorable reemployment outcomes. The evidence is clear-cut with respect to post-unemployment job duration, with covered workers tending to enter more secure jobs upon leaving unemployment. Despite large cross-national differences in overall job stability, rates of entering short-term jobs lasting less than six months differ by more than 10 percentage points between covered and non-covered workers in the two labor markets. If considering the proportion of jobs lasting up to 12 months, the differential between covered and non-covered workers still amounts to about six percentage points among both U.S. and German workers. Conditional on finding a new job, covered workers also experience lower rates of occupational mobility, and lower rates of downward status mobility in particular. The respective differentials in terms of experiencing downward status mobility are favoring covered workers by about 4-5 percentage points, and at least among U.S. workers, rates of occupational mobility among covered workers are about 10% lower than among non-covered workers.

Against these results, descriptive findings on earnings mobility are more conflicting with notions that covered workers may trade off some prolongation of search duration for subsequently improved job outcomes. While there are only slight differences between covered and non-covered workers in terms of experiencing fairly large income losses of at least 20% their pre-unemployment earnings levels, workers covered by UI benefits actually run higher risks of experiencing at least some earnings losses at exiting unemployment. In the United States, covered workers face a 6% higher rate of experiencing an earnings loss as compared to non-covered workers, and this differential amounts to a full 17% to the favor of non-covered workers in Germany. On the other hand, as none of these results has been adjusted for group differences in worker characteristics, all the descriptive estimates provided in Table 2 have of course to be regarded as tentative at best. Given the structure of UI eligibility requirements, it is eventually unsurprising that workers covered by UI tend to have higher levels of pre-unemployment work experience, higher levels of tenure with former employers, and higher pre-unemployment wages and earnings (cf. Appendix 1). To the extent that any of these worker characteristics affect unemployment processes, systematic group differences between covered and non-covered workers in terms of such background characteristics will naturally bias any causal inferences based on simple descriptive statistics. To discuss UI benefit effects on job histories in a more appropriate statistical framework, I now turn to the results obtained for the discrete-time event history models that have been described in Section 2 above.

4. Unemployment benefits and unemployment dynamics

Tables 3 and 4 below have the estimation results from a series of discrete-time bivariate probit event history models that simultaneously address job exit rates and post-unemployment job quality among unemployed workers in the United States and West Germany. For each country, six different models have been estimated, one for each of the six different job quality measures defined in this study. The models themselves control for a wide range of covariates, including worker characteristics like gender, ethnicity, education and labor force experience, but also vacancy ratios in aggregate labor markets and potential additional time trends in reemployment rates. As these covariates primarily serve as control variables in the context of this paper, the respective estimation results will be summarized only briefly here. Also, the results obtained for these variables are mostly standard in the empirical literature on unemployment dynamics (Pedersen and Westergård-Nielsen 1993; Devine and Kiefer 1991; Machin and Manning 1999; Gallie and Paugam 2000; DiPrete et al. 2001). In general, reemployment rates are found to exhibit negative duration dependence, i.e. chances of reemployment tend to fall over the course of unemployment spells. In terms of macroeconomic effects, reemployment rates are also positively related to aggregate labor market dynamics as captured by quarterly vacancy ratios, and relatively more so among German workers (results not shown). At the individual level, education, labor force experience, previous earnings levels and vocational training among German workers all contribute to higher rates of reemployment, while tenure with workers' previous employer tends to lower workers' chances to find new jobs. Also, women and non-white, respectively non-German workers face lower reemployment rates in both countries (results not shown).

At the same time, these covariates are also found to affect job quality conditional on reemployment, although respective results are not always fully consistent in the cross-national comparison. Still, among both U.S. and German workers, higher levels of pre-unemployment earnings imply higher risks of experiencing post-unemployment earnings losses, whereas workers with higher levels of education tend to be better able to avoid earnings losses or short-term jobs on reemployment in both countries. Also, there are some indications that high-experience and high-tenure workers are less likely to accept reemployment involving earnings losses or only short-run employment prospects, but also - at least among German workers - occupational mobility. The evidence is much more consistent across the six specifications as far as duration dependence in job quality is concerned. Here, the results clearly yield *positive* duration dependence in all U.S. specifications, but also for most German models. Hence, unemployed workers apparently increasingly compromise on post-unemployment job quality over the course of unemployment spells in favor of securing reemployment. Indeed, in more theoretical terms, this evidence might be taken to support job search models predicting falling reservation wages as

workers revise their expectations about post-unemployment job quality. Alternatively, one might of course see the results as evidence of increasing skill depreciation over time spent unemployed, which might also lead to a deterioration of attainable job quality over the duration of unemployment spells.

Against this background, the models provide near unequivocal empirical support for the key issue raised here, namely the impact of unemployment benefits on unemployment dynamics. Across all different specifications of job quality measures, but also if compared across countries, the hazard rate estimates consistently establish a substantial and statistically significant negative effect of UI benefits on *both* reemployment rates among unemployed workers and workers' risks of accepting inferior jobs upon reemployment. Hence, *receiving UI benefits tends to both lower job-finding rates among unemployed workers and, at the same time, raises the quality of jobs taken on by workers leaving unemployment*. Interestingly, this finding is robust across job quality being measured in terms of earnings, occupations or job stability. Against some prolongation of unemployment spells, UI benefits thus significantly reduce the risks of workers experiencing earnings losses, occupational mobility and low job security subsequent to leaving unemployment. Basically, this conclusion also seems to be robust in the cross-national comparison between the U.S. and the West German labor market. And although the evaluation of causal UI effects is more involved in this case for both the considerably smaller sample sizes available in the GSOEP and the more encompassing UI coverage among German workers, the results for UI benefit effects in the GSOEP data are remarkably consistent with those established from the SIPP sources.

Again, UI benefits imply lower reemployment rates among unemployed workers, although the magnitude of the difference tends to be smaller than established from the U.S. data. In addition, there is also consistent evidence on positive UI effects on post-unemployment job quality, at least in the models addressing fairly sizeable earnings losses, occupational mobility, downward status mobility and short-run job stability (the UI parameter in the equation for job durations less than six months barely misses the 10% significance level). In contrast, the models with any earnings loss or job stability measured over the first year of employment do not yield substantive UI benefit effects, which might be indicative of UI benefits mostly acting to prevent more severe career implications in the more regulated German labor market.

But in any event, and very much as predicted by the most basic job search model, the frictional unemployment induced by UI benefits is thus productive in the sense that this additional search time generates a pay-off in terms of improved job quality. In the terminology of job search theory, this is precisely the effect described for additional income sources lowering the opportunity cost

of job search, which in turn implies both longer search durations and higher quality of accepted jobs among workers. Apparently, this result is very different from those conveyed by many conventional microeconomic analyses. As the latter have almost exclusively focused on the duration part of the model, these studies have unsurprisingly concluded that UI benefits in particular, but also welfare state transfers more generally, establish severe work disincentives, with unemployed workers substituting time on benefits for time spent in paid work. The more complete model considered here supports a quite different conclusion about the relation between welfare states and labor market dynamics, however. Given that UI benefit provision apparently provides workers with financial resources that allow them to favor adequate reemployment over immediate reemployment, *welfare state transfers primarily appear to affect career stability and continuity in job careers rather than incentives to work per se*. In protecting workers against the threats of earnings losses, insecure jobs and occupational mobility, welfare state transfers would hence be better understood as worker resources that contribute to stabilizing careers and to maintaining workers' previously accumulated human capital and skills.

As evident from the marginal UI benefit effect estimates presented in Table 5, the implied magnitudes of these institutional effects are far from trivial. To illustrate these, Table 5 contains information on marginal UI benefit effects on different aspects of unemployment processes, calculated at four different points of elapsed spell duration (T=1, 3, 6, and 12 months). Among the different quantities provided, benefit effects on $r(t)$ and $F(t)$ obviously describe the negative impact of UI benefits on unemployment duration. Among both U.S. and German workers, unemployment benefits tend to reduce job finding rates $r(t)$ among the unemployed, which in consequence also implies lower cumulated probabilities $F(t)$ of work exits from unemployment. Apparently, UI effects on unemployment duration are considerably stronger in the U.S. labor market. UI benefits are estimated to lower work exit rates by some 6% points at the beginning of unemployment spells, which is equivalent to a full 30% reduction in outflow rates absent UI benefit coverage. Naturally, this effect translates into respective reductions in the cumulated probability $F(t)$ of having exited unemployment by taking up paid work. According to the model estimates, UI benefit effects imply reductions in $F(t)$ of some 12-14% points by spell months 3 to 6 (equivalent to some 20% reduction in $F(t)$). The comparable German estimates are smaller in magnitudes, with UI benefits lowering work exit rates $r(t)$ by about 1.5% points. As reemployment rates are generally much lower in the German labor market, this amounts to reducing exit rates by about 15%, which leads to lowering $F(t)$ by 4-6% points by spell months 3 to 6 (equaling a 12-14% reduction in $F(t)$).

These effects of UI benefits on reemployment rates are counterbalanced of course by positive UI effects on post-unemployment job quality. In terms of both

earnings, occupations and job stability, UI benefits consistently lower the probability of exiting unemployment into jobs that imply earnings losses, (downward) occupational mobility or subsequently low levels of job security. Evaluated at T=12, i.e. when most workers will already have left unemployment, the implied benefit differentials on job quality measures range between 2% and 9% points among U.S. workers. Effectively, these results imply that UI benefits tend to lower workers' risks of experiencing earnings losses by 14%, and even by 22% for the case of more severe earnings losses. Also, there are sizeable reductions of some 10% in rates of occupational mobility, downward status mobility or in the probability of accepting jobs of less than six months stability. If anything, the respective effect sizes are even larger in the German labor market, at least in terms of those more severe measures where benefit effects could be established in the models. Evaluated again over the first 12 months of unemployment spells, UI benefits are predicted to reduce occupational mobility rates by 12%, rates of downward status mobility by 14%, the probability of fairly severe earnings losses by 9%, and the likelihood of accepting low-stability jobs by still 6% points. Given that German workers face lower rates of experiencing any of these events in general, the relative reductions amount to a sizeable 25% in the case of earnings losses and job duration, 36% in the case of occupational mobility, and a full 45% reduction in the rate of downward status mobility. Compared to the U.S. labor market, UI benefits in the German context thus appear to be even relatively more effective in sheltering workers against more severe career disruptions at the price of a relatively smaller increase in unemployment duration.

In fact, as all specifications imply job offer arrival rates to be smaller in Germany, the result of larger benefit effects on U.S. reemployment rates is consistent with basic predictions from search theory. The mechanism specified in job search models is that, as workers are primarily interested in the upper tails of the offer distribution, workers can afford to require particularly good matches if offers arrive frequently. An alternative explanation might be a purely compositional one, however, if it is argued that a more encompassing benefit coverage might increasingly include low-skill workers who could fairly readily improve on job quality against an only minor prolongation of unemployment spells. In addition, the results for the rate models also point to a second cross-national difference that might warrant future study. In particular, the results obtained for the correlation parameter $\tilde{n}$ point to some interesting structural difference between the two labor markets: interestingly, $\tilde{n}$ is in fact significantly positive as expected in all models but those with job stability as the job outcome measure among the German unemployed. Hence, while it seems to be the case that unemployed workers in both the U.S. and the West German labor market might increase their opportunity sets by accepting lower earnings jobs or jobs in different or lower-status occupations, there seems to be a country difference with respect to the existence of low-duration job opportunities. While the correlation of reemployment rates and low job stability is also positive for U.S.

workers, there is evidence of a negative correlation in the comparable models for German workers. In contrast to the United States, German unemployed thus would apparently not increase their chances of finding jobs by increasingly accepting low-stability jobs. It thus seems, although necessarily very tentative at this stage, that the German employment structure puts heavy restrictions on the availability of low-stability jobs, which might in part also explain lower reemployment rates there.[9]

Benefit effects over spell duration, earnings and skill groups

The above reading of the evidence as welfare state transfers contributing to preserve workers' previously accumulated human capital could be strengthened further if there was evidence of significant non-linearities in the relationship between skill measures and benefit effects, i.e. if benefit effects were particularly effective in protecting skills and earnings capacities among high-tenure, high-skill or high-wage workers. Even absent additional interaction effects between UI benefits and worker characteristics, it is important to realize that a first source of such non-linearities actually lies in the non-linear functional form of the probit model itself. As common also with other non-linear probability models like the logit model, the marginal probability effect of a given covariate depends on the point on the distribution at which the effect is to be evaluated. In general, the covariate's marginal effect on the probability will be largest if evaluated exactly at p=0.5 in both probit and logit models, and diminishing as this baseline probability either falls or increases. In this non-linear context, any covariate *Z* that induces substantial shifts in the dependent variable *Y* is hence also likely to induce varying effect sizes of the causal benefit effect *X* on unemployment dynamics. If *Z* implies considerable changes in *Y*, even a simple main effect of *X* will show varying marginal probability effects if evaluated at different values of *Z*.

A case in point is the "interaction" between workers earnings capacity as measured by previous earnings levels and the effects of unemployment benefits. The models for both U.S. and German workers imply that high-earnings workers are structurally more likely to experience earnings losses upon reemployment. Given that previous earnings levels thus substantially affect the probability of an earnings loss, the non-linear probit functional form implies *varying* effect sizes of the same benefit main effect among workers with

[9] A realist alternative explanation for the negative correlation obtained in the German job duration models might be a drawback of the GSOEP questionnaire design which is likely to imply a severe under-representation of short job spells (of less than one year duration) in data that uses only spell data with complete covariate information on occupation, industry or earnings. In particular, the latter information is not collected on a job-by-job basis, but rather only for the job currently held at the time of the interview. Hence even after (necessarily limited) attempts to substitute and impute such information based on some retrospective questions available, it is unlikely that this design flaw can be fully compensated for.

different earnings capacities. In particular, evaluating the marginal effects in the sample of U.S. workers at pre-unemployment earnings levels of $500, $1000, $2000 and $4000 yields marginal benefit effect estimates of –7.6%, -10.4%, -11.4%, and –10.0%, respectively, on the probability of experiencing an earnings loss of more than 20% the pre-unemployment earnings level. Evaluated at the same points of the earnings distribution, the respective German estimates amount to –2.3% ($500), -5.5% ($1000), -10.0% ($2000), and even –13.7% at $4000, whereas the marginal benefit effect evaluated at the mean earnings level had only been –7.5%. While the case of earnings capacities is particularly instructive due to the strength of the relationship between earnings levels and risks of experiencing subsequent earnings losses, similar non-linear effects will be apparent for any of the covariates involved. Thus, to the extent that levels of education, work experience or job tenure were found to be related to the structure of unemployment dynamics, the non-linear functional form of the probit models themselves already implies (moderately) *reinforced* UI benefit effects among high-skill, high-wage or high-tenure workers.

To evaluate potential non-linearities *beyond* those implied by functional form alone, Table 6 presents additional results from a series of models that include interaction terms between UI benefit status, spell duration, work experience, tenure, earnings, and vacancy levels on the market in both equations of the bivariate probit models. Empirically, there is consistent evidence for some relevant interaction effects at least in the U.S. data, whereas the likelihood-ratio model tests indicate statistically significant improvements in model fit only for three out of the six German models. Across countries, the interaction effect most consistently established is a *positive* one between benefit effects and spell duration. Hence, both the negative effect of UI benefits on reemployment rates and the positive benefit effects on job quality tend to *decline* over spell duration, with workers of different benefit status becoming increasingly similar in their job search behavior.[10] Hence, and again in contrast to the disincentive view of UI effects, while workers on UI benefits apparently attempt to realize a premium in terms of job quality particularly early in unemployment spells, their job search behavior increasingly converges to the behavior of non-covered workers. If workers learn that achieving fully adequate reemployment does not appear to be feasible in the current labor market context, even workers on UI benefits obviously increasingly tend to downwardly adjust their expectations about subsequent job quality levels.[11]

[10] The negative interaction term for benefits and spell duration in the equation for reemployment rates among German workers is in fact the main conflicting finding in this case. The evidence for this effect is not robust to alternative model specifications, however, and is only obtained in the models with earnings as the job quality variable. For both the occupational mobility and the job duration models, the respective estimate is much lower (b=-0.003 and b=-0.001, respectively), and no longer statistically different from zero.

[11] There are two alternative readings competing with the reservation wage argument made here. First, declining differences between covered and non-covered workers might actually

Apart from this effect, there is also some evidence that unemployment benefits tend to be particularly effective in preventing downward status mobility of high-earnings workers, and also have disproportionately strong effects on certain job outcomes among high-tenure workers (job stability among U.S. workers, earnings levels among German workers). For Germany at least, there is also some evidence that benefit coverage tends to reduce occupational mobility rates particularly among high-experience workers. Apart from these effects, there do not seem to be major deviations from the non-linear effects implied in the probit functional form.

Unemployment Insurance effects and cross-national differences in unemployment dynamics

As UI benefit coverage was consistently found to generate markedly different unemployment outcomes at the level of individual workers, cross-national differences in welfare state generosity are likely to show substantial impacts on cross-national differences in unemployment dynamics. For straightforward compositional reasons, aggregate unemployment dynamics of West German workers will differ from aggregate U.S. figures because of a larger proportion of German workers having access to UI benefit provision. In consequence, the average German worker will be much more likely in a position to relatively favor adequate reemployment over immediate reemployment – and hence, higher levels of transfer coverage is likely to imply *both* longer spell durations and higher levels of job quality among the average German unemployed. To assess the empirical magnitudes of this effect, a small series of counterfactual simulation analyses were conducted that simulated the effect of substituting the empirical UI eligibility regulations between the two countries. While the technical implementation of the analyses is described more fully in Appendix 3, it might be sufficient to convey the basic idea behind the analyses here. Effectively, the simulations for the U.S. sample attempt to address the extent of change in aggregate unemployment dynamics if, given their characteristics and previous job histories, U.S. workers had the same level of access to UI benefits as common for German workers, and vice versa, the German simulations will address the consequences of stiffening eligibility rules according to empirical U.S. standards. As such, comparing these results to the empirical country differences described in Section 3 above will also give an estimate of the

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result from short UI benefit duration in the U.S., so that workers will tend to become more similar as initially covered workers run out of benefits. While the argument is certainly plausible, the fairly similar evidence for German workers (at least in the first three models) who are mostly covered indefinitely by UI benefits would seem to suggest that there is more to the effect than this institutional explanation. Alternatively, it might of course be that beyond a certain threshold of "legitimate" search unemployment, employers will consider unemployed applicants as "lemons" and will hence be lowering the quality of the job offers to the long-term unemployed, which might also generate an increasing tendency of convergence towards lower levels of job quality.

relative role of welfare state differences in explaining U.S.-German differences in unemployment dynamics more generally.

The results comparing the status quo to the counterfactual estimates are given in Figures 1 and 2 for simulation runs on three selected outcome measures (severe earnings losses, downward status mobility, job duration less than 6 months) on the U.S. and West German samples, respectively. Each panel in the two figures contains the simulation results on two key quantities describing unemployment dynamics implied by the baseline models given in Tables 3 and 4 above: the pseudo-survivor function $G^*(t)$ for work exits on the one hand, and the conditional probability of entering jobs with the attribute in question. Obviously, the more $G^*(t)$ shifts to the left, the higher the underlying reemployment rates, and the shorter the overall duration of unemployment. By the same token, the more the predicted job quality function is shifted upward, the lower the implied post-unemployment job quality. In each of the panels, simulation outcome '1' gives the empirical status quo, i.e. the simulation run under actual empirical conditions. Simulation '2' then signifies the predicted aggregated counterfactual outcomes if UI eligibility rules in the U.S. would become as liberal as the current German rules, and vice versa. In the following, each country's empirical UI eligibility rules are equated with the probit models for UI benefit status (given in Appendix 2), which were also used earlier to generate the inverse Mills' ratio scores to correct for potential selection on unobservables into UI.

As expected, applying these counterfactual eligibility rules significantly boosts UI coverage rates among U.S. unemployed from an empirical 38.8% to an expected counterfactual of 81.8%. In contrast, stiffening the liberal German rules according to the U.S. rules is estimated to imply a drop in UI coverage rates from the empirical 89.2% down to 54.4%. Hence, even as there are cross-national differences in the structure of unemployed workers that also translate into respective differences in UI coverage rates, institutional differences in eligibility rules are apparently the main reason behind the huge U.S.-German differential in terms of benefit coverage rates. And as Figures 1 and 2 aptly illustrate, the effects of such compositional differences do generate considerable repercussions at the level of aggregate unemployment dynamics. In all three simulations on U.S. data, liberalizing strict UI eligibility rules (simulation 2) implies a rightward shift of the pseudo-survivor function $G^*(t)$ and a downward shift on the job quality measure. More extensive UI coverage hence clearly has the effect of increasing both average unemployment spell duration and average post-unemployment job quality. In quantitative terms, German-style liberal UI eligibility conditions are estimated to raise median spell duration by about 0.6 months, while at the same time reducing the probability of experiencing severe earnings losses by some 5%, and the probability of both

downward status mobility and of entering low-stability jobs by about 3% each.[12] The reverse counterfactual prediction in the German case amount to an equivalently slight decline in median spell duration by some 0.6 months due to strict U.S.-style eligibility regulation, accompanied by a 4% increase in the probability of downward status mobility, a 3% increase in the likelihood of experiencing severe earnings losses, and a 2% increase in the probability of entering jobs lasting less than six months.

While hardly spectacular in themselves, relating these figures to empirical U.S.-German differences in the structure of unemployment processes does suggest a considerable role for the structure of welfare states in shaping unemployment processes and post-unemployment job outcomes. Relative to the empirical differences between the two countries, the higher German UI benefit coverage rates alone account for about 14% of the longer spell durations, but also about 15%-26% of lower rates of earnings losses, 18%-24% of lower rates of downward status mobility, and still 6%-9% of lower rates of low-stability employment among West German workers. Both against remarkable country differences in educational systems or the regulation of labor markets, and even absent more involved attempts to trace more indirect welfare state effects working e.g. through the effects of employment protection on the *structure* of unemployed workers (e.g. DiPrete et al. 2001), the direct effects of welfare state generosity on job histories among unemployed workers seems remarkably strong indeed. While certainly not the only relevant explanation for U.S.-German differences in unemployment dynamics, the more generous German welfare state certainly contributes to German workers achieving better post-unemployment job outcomes at the price of some prolongation of unemployment spells. Welfare state transfers thus obviously act as a worker resource in attaining relatively more adequate reemployment outcomes, hence stabilizing and smoothing individual job histories. Through this human capital-preserving function, welfare state transfers are apparently effective in smoothing the consequences of unemployment beyond a merely short-run stabilization of income streams also in the medium- and maybe even longer run.

[12] Note, however, that the duration prediction refers to the pseudo-survivor function based on work exits only, and is hence only indirectly related to actual unemployment duration. As the relative role of non-employment exits was fairly similar in both countries, the cross-national inferences are unlikely to be significantly biased by the more colloquial terminology.

5. Summary and conclusions

Although social stratification analyses and sociological studies of labor markets have since long been interested in institutional influences on labor market dynamics and individual job histories, it has been only very recently that sociologists have seriously taken interest in the relationship between welfare state policies and employment careers. In many respects complementary to recent papers by DiPrete et al. (2001) on the effects of labor market regulation and employment protection on job dynamics, by Stier et al. (2001) on the effects of family policies on women's job histories, or by Gallie and Alm(2000), Layte et al. (2000) or Bernardi et al. (2000) that compared unemployment dynamics in different welfare state contexts, the current paper has focused on the direct effects of unemployment benefits on workers' job histories.

In line with predictions derived from economic job search theory, the paper has in fact obtained empirical evidence that, beyond merely providing transfers compensating for current earnings losses, unemployment benefits also tend to stabilize employment careers in a broader sense. Independently of being measured by earnings, occupational mobility or job stability, workers covered by unemployment insurance tend to achieve better post-unemployment job outcomes than comparable workers not covered by unemployment benefits. In particular, unemployment benefits appear effective in enabling workers to prevent fairly substantial scar effects like severe earnings losses, downward status mobility or having to accept very unstable jobs in order to escape from unemployment. The analyses also stress that this improvement in job quality occurs against some prolongation of unemployment duration. As lower-level jobs are structurally more readily available, a relative improvement in job quality will apparently necessitate longer job search durations. In any event, this additional search time induced by UI benefits appears to be productive in the sense that benefits protect workers' accumulated human capital as well as workers' earnings capacity resulting from these skills. Hence, welfare state transfers contribute to stabilizing employment careers by limiting the scar effects induced by unemployment experiences.

These findings on the role of unemployment insurance have also been remarkably robust in the cross-national comparison between the U.S. and the West German. If anything, there is some evidence that unemployment insurance enhances post-unemployment job quality to an even larger extent in the context of the more encompassing German UI system. Still, the basically similar evidence on benefit effects at the micro level of individual workers implies that welfare state differences between the United States and West Germany will assume an important role in accounting for observable differences in unemployment dynamics in the two countries. If unemployment benefits have stabilizing effects on worker careers, and if UI coverage rates among German unemployed are substantially above those among U.S. workers, then

unemployment dynamics should differ between the two labor markets for simple compositional reasons. And in fact, some straightforward simulation analyses strongly suggest that welfare state differences are an important component in explaining why unemployment durations are longer, yet scar effects as measured by earnings losses, occupational mobility or low job stability are smaller among German unemployed. According to relatively conservative estimates, the direct effects of differences in welfare state generosity amount to account for about 14% of the U.S.-German differential in terms of reemployment rates, between 15%-26% of the country differences in terms of rates of earnings losses and downward status mobility, and still up to 10% of U.S.-German differences in rates of taking up low-stability jobs.

Hence, while the results do point to an important role of the welfare state, they also suggest important additional institutional and structural factors at work that are necessary to incorporate in a fuller account of why unemployment dynamics (and labor market dynamics more generally) differ that remarkably between the United States and West Germany or other European countries. It seems very likely that a more complete account would have to include institutional differences in labor market regulation, as more flexible labor markets have been shown to create higher levels of turnover, and hence higher levels of job opportunity also for the unemployed (e.g. Garibaldi et al. 1997). Also, the institutional structure of education and training systems should have its role to play especially in U.S.-German comparisons, as the high degree of skill specialization occurring through the dual system of vocational training should lead to relatively strong worker interests to maintain occupational continuity upon reemployment even among intermediately qualified workers. And last but not least, some scholars have argued that processes of structural change have been more pronounced in Germany as compared to the United States (e.g. Schettkat 1992), which might also contribute to the observed country differences.

In any event, it seems that a particular advantage of using microdata-based methods of institutional analysis has been that, based on these detailed data, it has been possible to perform the kind of decomposition and counterfactual simulation analyses reported in Section 4 above. Especially through such explicit incorporation of micro-level institutional information into stratification analyses, the precision of inferences about institutional effects should greatly improve both within any single country, but even more importantly so in cross-nationally comparative studies. Against that background, the current paper has hopefully also offered additional tools that should prove useful for bridging the

gap between estimating micro-level models and (comparative) sociologists' macro level concerns in future empirical studies. In any event, these methods appear useful in arriving at rich *quantitative* assessments of the implications of specific institutional arrangements. In the case of welfare state effects

addressed in this paper, the estimates certainly suggest a quite considerable impact.

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Table 1
Unemployment dynamics in the United States and West Germany, 1984-1995

	1984-95	1984-86	1987-89	1990-92	1993-95
			United States		
Stand. unemployment rate	6.32 %	7.13 %	5.58 %	6.46 %	6.13 %
Median spell duration (months)	2.31	2.18	1.93	2.59	2.73
% work exits	0.695	0.705	0.698	0.684	0.693
- thereof: with earnings losses	0.496	0.464	0.507	0.521	0.499
- thereof: earnings loss > 20%	0.356	0.343	0.351	0.369	0.361
- thereof: occupationally mobile	0.639	0.655	0.653	0.603	0.641
- thereof: downwardly mobile	0.331	0.336	0.325	0.328	0.332
- thereof: job < 6 months	0.584	0.614	0.607	0.585	0.546
- thereof: job < 12 months	0.815	0.839	0.888	0.780	0.784
			West Germany		
Stand. unemployment rate	5.94 %	6.87 %	5.98 %	4.55 %	6.36 %
Median spell duration	4.80	5.07	3.61	4.52	5.76
% work exits	0.708	0.748	0.764	0.624	0.673
- thereof: with earnings losses	0.459	0.367	0.447	0.475	0.612
- thereof: earnings loss > 20%	0.160	0.115	0.155	0.154	0.246
- thereof: occupationally mobile	0.333	0.293	0.377	0.391	0.305
- thereof: downwardly mobile	0.164	0.126	0.212	0.215	0.137
- thereof: job < 6 months	0.257	0.223	0.278	0.261	0.271
- thereof: job < 12 months	0.535	0.514	0.548	0.528	0.552

Notes: Occupational mobility is measured across two-digit occupations.
Source: Survey of Income and Program Participation, Panels 1984, 1986, 1988, 1990, 1992, 1993; German Socio-Economic Panel, 1984-1995 data (Waves A-M), weighted data; standardized unemployment rates from OECD (1997).

Table 2
Unemployment dynamics and UI benefit status, 1984-1995

	United States		West Germany	
	with UI benefits	without UI benefits	with UI benefits	without UI benefits
Median spell duration (months)	3.37	1.78	5.10	2.80
% work exits	0.739	0.672	0.712	0.679
- thereof: with earnings losses	0.535	0.472	0.473	0.307
- thereof: earnings loss > 20%	0.373	0.346	0.161	0.153
- thereof: occupationally mobile	0.576	0.676	0.332	0.334
- thereof: downwardly mobile	0.307	0.344	0.161	0.215
- thereof: job < 6 months	0.511	0.628	0.241	0.386
- thereof: job < 12 months	0.774	0.838	0.529	0.590
% workers with UI benefits	0.389		0.892	

Notes: Occupational mobility is measured across two-digit occupations.
Source: Survey of Income and Program Participation, Panels 1984, 1986, 1988, 1990, 1992, 1993; German Socio-Economic Panel, 1984-1995 data (Waves A-M), weighted data.

Table 3
Unemployment dynamics in the United States, discrete-time bivariate probit hazard rate models

	Job exit rate	Job quality					
		Any earnings loss	Earnings loss > 20%	Occupational mobility	Downward status mobility	Job duration < 6 months	Job duration < 12 months
Intercept	-1.273 (.119)**	-4.963 (.209)**	-4.572 (.211)**	-0.716 (.261)**	-1.696 (.246)**	-1.205 (.231)**	0.955 (.339)**
Unemployment benefits	-0.237 (.012)**	-0.314 (.023)**	-0.353 (.024)**	-0.254 (.028)**	-0.169 (.028)**	-0.225 (.025)**	-0.139 (.036)**
Inverse Mills' Ratio	0.004 (.031)	-0.008 (.053)	-0.053 (.055)	0.294 (.057)**	0.133 (.056)**	0.428 (.060)**	0.763 (.086)**
T	-0.033 (.003)**	0.017 (.007)**	0.026 (.008)**	0.116 (.012)**	0.038 (.007)**	-0.004 (.008)	0.016 (.012)
T^2 (x 100)	0.036 (.012)**	-0.095 (.041)**	-0.112 (.042)**	-0.538 (.104)**	-0.133 (.040)**	-0.020 (.050)	-0.006 (.084)
T^3 (x 10,000)	-0.115 (.074)	0.645 (.353)*	0.771 (.364)**	6.490 (2.34)**	0.986 (.350)**	0.031 (.554)	-0.307 (.782)
Schooling	0.021 (.003)**	-0.039 (.006)**	-0.026 (.006)**	0.031 (.006)**	0.026 (.006)**	0.016 (.006)**	-0.043 (.008)**
Labor force experience	0.007 (.002)**	-0.008 (.004)**	-0.011 (.004)**	-0.004 (.004)	0.003 (.004)	0.005 (.004)	0.005 (.005)
Labor force experience² (x 100)	-0.023 (.004)**	0.002 (.008)	0.012 (.008)	-0.008 (.009)	-0.012 (.009)	-0.009 (.009)	-0.008 (.012)
Tenure in previous job	-0.001 ($2e^{-4}$)**	$3.7e^{-4}$ ($4e^{-4}$)	$2.0e^{-4}$ ($5e^{-4}$)	-0.001 ($5e^{-4}$)	$4.3e^{-4}$ ($5e^{-4}$)	-0.004 (.001)**	-0.004 (.001)**
Tenure in previous job² (x 100)	$6.2e^{-5}$ ($8e^{-5}$)	$-3.0e^{-4}$ ($2e^{-4}$)**	$-1.4e^{-4}$ ($2e^{-4}$)	$4.2e^{-4}$ ($2e^{-4}$)**	$6.2e^{-6}$ ($2e^{-4}$)	0.001 ($2e^{-4}$)**	0.001 ($2e^{-4}$)**
Ln(previous earnings)	0.041 (.012)**	0.700 (.032)**	0.612 (.029)**	0.024 (.022)	0.067 (.022)**	0.083 (.022)**	0.192 (.030)**
ρ_{12}		0.599 (.061)**	0.550 (.069)**	0.103 (.084)	0.213 (.082)**	0.533 (.055)**	0.292 (.106)**
Log-likelihood		-45,433	-45,256	-47,269	-46,662	-39,755	-33,667
LR-Test χ^2 (df)		5,096 (38)**	4,309 (38)**	3,199 (38)**	2,606 (38)**	3,169 (38)**	2,911 (38)**
Pseudo-R^2		0.053	0.045	0.033	0.027	0.038	0.041
N (observation months)		85,193	85,193	86,746	85,639	77,657	73,178

Notes: Standard errors in parentheses; statistical significance levels given at **p<.05, and *p<.10. As additional controls, all models include gender, ethnicity, the aggregate vacancy ratio, annual dummies as well as a seam month variable in the rate equation. The rate model estimates given are those obtained in the model for earnings losses.

Source: Survey of Income and Program Participation, Panels 1984, 1986, 1988, 1990, 1992, and 1993.

Table 4
Unemployment dynamics in West Germany, discrete-time bivariate probit hazard rate models

	Job exit rate	Job quality					
		Any earnings loss	Earnings loss > 20%	Occupational mobility	Downward status mobility	Job duration < 6 months	Job duration < 12 months
Intercept	-3.214 (.555)**	-8.778 (1.06)**	-6.585 (1.37)**	-1.814 (1.72)	1.775 (1.98)	-0.254 (1.25)	1.605 (.980)
Unemployment benefits	-0.099 (.058)*	-0.022 (.121)	-0.370 (.149)**	-0.323 (.179)**	-0.483 (.197)**	-0.191 (.122)	0.078 (.102)
Inverse Mills' Ratio	0.340 (.288)	1.311 (.597)**	-0.867 (.951)	1.148 (.905)	0.892 (.999)	0.473 (.584)	0.210 (.499)
T	-0.031 (.006)**	0.014 (.019)	0.060 (.024)**	$4.4e^{-4}$ (.029)	0.020 (.029)	0.095 (.016)**	0.040 (.013)**
T^2 (x 100)	0.034 (.025)	-0.127 (.088)	-0.176 (.102)*	0.027 (.125)	$-4.6e^{-4}$ (.095)	-0.287 (.066)**	-0.145 (.055)**
T^3 (x 10,000)	-0.179 (.232)	1.470 (1.14)	1.080 (1.21)	0.158 (1.65)	-0.123 (.778)	2.110 (.580)**	1.210 (.502)**
Schooling	-0.010 (.009)	-0.065 (.019)**	-0.031 (.024)	-0.014 (.025)	-0.057 (.031)**	0.003 (.018)	-0.034 (.016)**
Vocational training	0.089 (.034)**	0.138 (.072)*	-0.015 (.095)	-0.111 (.113)	-0.172 (.129)	-0.094 (.079)	-0.141 (.063)**
Labor force experience	0.010 (.007)	-0.003 (.015)	-0.034 (.021)	0.060 (.023)**	0.062 (.027)**	-0.028 (.016)*	-0.028 (.013)**
Labor force experience² (x 100)	-0.054 (.014)**	0.005 (.036)	0.057 (.049)	-0.162 (.054)**	-0.153 (.063)**	0.068 (.039)*	0.105 (.030)**
Tenure in previous job	-0.004 (.001)**	0.001 (.002)	$-3.2e^{-5}$ (.002)	0.002 (.002)	0.001 (.002)	-0.002 (.001)	-0.006 (.001)**
Tenure in previous job² (x 100)	$4.5e^{-4}$ ($2e^{-4}$)**	$4.9e^{-4}$ ($5e^{-4}$)	$-4.9e^{-4}$ (.001)	-0.001 (.001)	$-3.6e^{-4}$ (.001)	0.001 ($5e^{-4}$)	0.001 ($4e^{-4}$)**
Ln(previous earnings)	0.234 (.065)**	1.096 (.138)**	0.786 (.165)**	0.093 (.184)	0.129 (.208)	-0.028 (.138)	-0.061 (.113)
ρ_{12}		0.629 (.125)**	0.440 (.183)**	0.385 (.274)	0.240 (.332)	-0.268 (.185)	-0.518 (.132)**
Log-likelihood		-4,697.0	-4,453.7	-3,147.2	-3,040.5	-6,298.6	-6,443.0
LR-Test χ^2 (df)		1,368 (40)**	1,318 (40)**	785.4 (40)**	784.9 (54)**	1,385 (40)**	1,390 (40)**
Pseudo-R^2		0.127	0.129	0.111	0.114	0.099	0.097
N (observation months)		22,934	22,934	20,521	20,521	26,555	26,222

Notes: Standard errors in parentheses; statistical significance levels given at **p<.05, and *p<.10. As additional controls, all models include gender, ethnicity, the aggregate vacancy ratio, annual dummies as well as a seam month variable in the rate equation. The rate model estimates given are those obtained in the model for earnings losses.

Source: German Socio-Economic Panel, 1984-1995 data (Waves A-M).

Table 5
Estimated marginal benefit effects on unemployment dynamics

T (months)	1	3	6	12
		United States		
Δ r(t)	-0.063 (-28.3)	-0.060 (-29.1)	-0.055 (-30.3)	-0.046 (-32.4)
Δ F(t)	-0.063 (-28.3)	-0.123 (-23.9)	-0.138 (-18.9)	-0.108 (-11.9)
Δ Pr(earnings loss | work exit)	-0.080 (-15.9)	-0.079 (-15.5)	-0.078 (-14.9)	-0.074 (-14.0)
Δ Pr(earnings loss > 20% | work exit)	-0.091 (-24.6)	-0.091 (-24.0)	-0.090 (-23.2)	-0.088 (-21.8)
Δ Pr(occupational mobility | work exit)	-0.091 (-14.8)	-0.087 (-13.5)	-0.081 (-12.0)	-0.070 (-10.1)
Δ Pr(downward mobility | work exit)	-0.046 (-14.2)	-0.046 (-13.8)	-0.045 (-13.0)	-0.041 (-11.6)
Δ Pr(duration < 6 months | work exit)	-0.055 (-8.9)	-0.055 (-8.7)	-0.054 (-8.5)	-0.052 (-8.2)
Δ Pr(duration < 12 months | work exit)	-0.022 (-2.7)	-0.022 (-2.6)	-0.020 (-2.4)	-0.018 (-2.1)
		West Germany		
Δ r(t)	-0.017 (-14.8)	-0.016 (-15.1)	-0.014 (-15.7)	-0.012 (-16.6)
Δ F(t)	-0.017 (-14.8)	-0.040 (-13.5)	-0.057 (-11.9)	-0.065 (-9.5)
Δ Pr(earnings loss | work exit)	0.013 (+3.1)	0.013 (+3.0)	0.014 (+3.1)	0.014 (+3.2)
Δ Pr(earnings loss > 20% | work exit)	-0.075 (-41.3)	-0.080 (-40.2)	-0.085 (-38.7)	-0.090 (-36.4)
Δ Pr(occupational mobility | work exit)	-0.116 (-26.6)	-0.117 (-26.4)	-0.117 (-26.1)	-0.118 (-25.5)
Δ Pr(downward mobility | work exit)	-0.130 (-47.6)	-0.133 (-47.1)	-0.136 (-46.2)	-0.140 (-45.2)
Δ Pr(duration < 6 months | work exit)	-0.050 (-30.4)	-0.053 (-29.3)	-0.057 (-27.6)	-0.058 (-25.0)
Δ Pr(duration < 12 months | work exit)	0.005 (+1.1)	0.005 (+1.1)	0.005 (+1.2)	0.006 (+1.3)

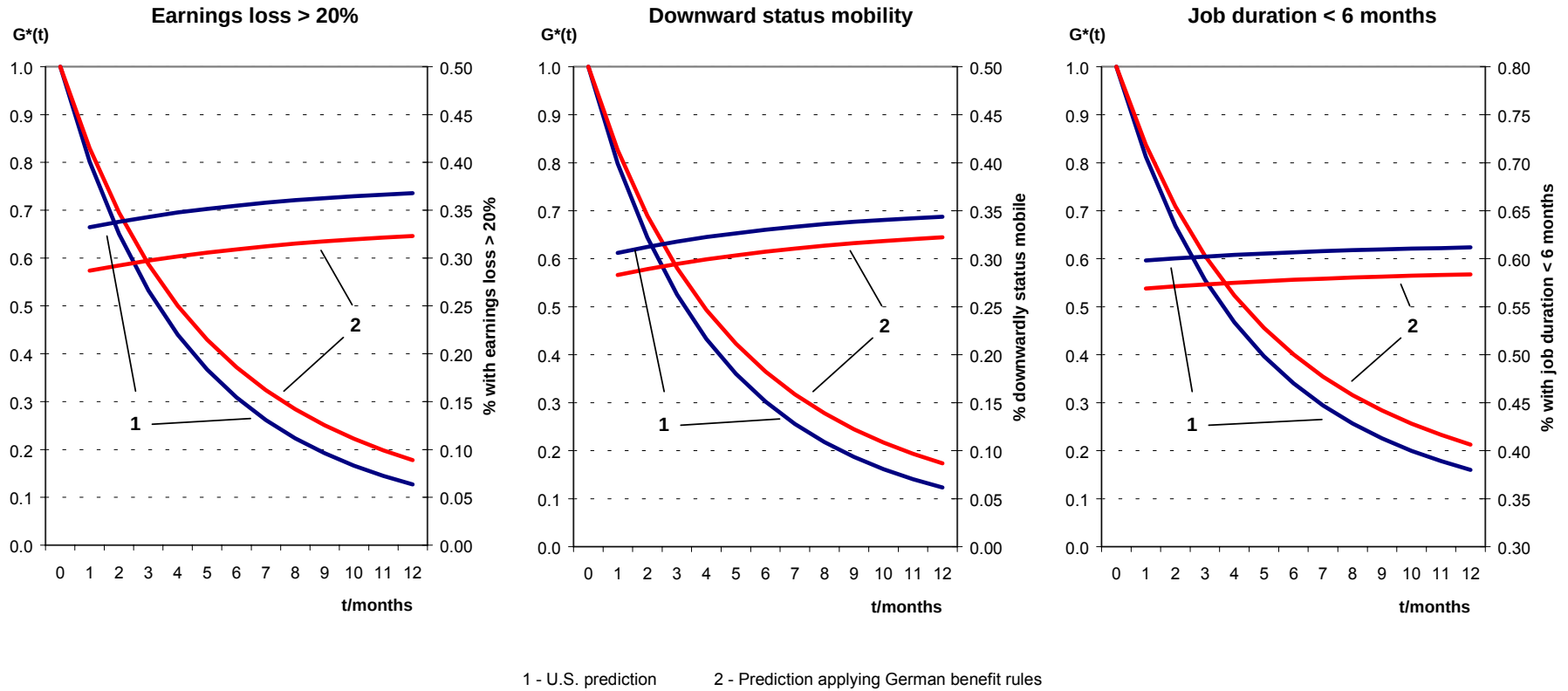
Notes: Average discrete-change effects of UI benefit status on unemployment dynamics in the estimation samples; proportional levels of change in parantheses; weighted data.

Table 6 Heterogeneity in benefit effects, discrete-time bivariate probit rate models

Unemployment benefits interacted with	Job exit rate	Job quality					
		Any earnings loss	Earnings loss > 20%	Occupational mobility	Downward status mobility	Job duration < 6 months	Job duration < 12 months
				United States			
T	0.022 (.003)**	0.032 (.006)**	0.033 (.006)**	0.024 (.007)**	0.019 (.007)**	0.023 (.007)**	0.017 (.010)*
Schooling	-0.033 (.006)**	-0.001 (.011)	-0.001 (.012)	0.038 (.012)**	0.036 (.013)**	0.015 (.012)	-0.004 (.016)
Labor force experience	$-1.5e^{-4}$ (.001)	0.002 (.002)	-0.001 (.002)	0.001 (.002)	$4.3e^{-4}$ ($2e^{-4}$)	0.006 (.002)**	0.005 (.003)*
Tenure in previous job	$-1.7e^{-4}$ ($2e^{-4}$)	$3.2e^{-5}$ ($4e^{-4}$)	$-9.1e^{-5}$ ($4e^{-4}$)	$5.2e^{-4}$ ($5e^{-4}$)	$-4.7e^{-4}$ ($5e^{-4}$)	-0.001 ($5e^{-4}$)**	-0.002 (.001)**
Earnings in previous job	-0.053 (.014)**	-0.049 (.032)	-0.031 (.034)	-0.055 (.030)*	-0.108 (.029)**	0.028 (.029)	0.115 (.039)**
Vacancy ratio	-0.008 (.006)	-	-	-	-	-	-
Log-likelihood		-45,353	-45,176	-47,185	-46,577	-39,672	-33,593
LR-Test against baseline model: χ^2 (df)		161.3 (11)**	160.5 (11)**	168.9 (11)**	169.8 (11)**	165.4 (11)**	147.5 (11)**
				West Germany			
T	-0.007 (.004)*	0.017 (.012)	0.038 (.018)**	0.034 (.018)*	-0.001 (.013)	0.005 (.010)	$1.5e^{-4}$ (.009)
Schooling	-0.003 (.026)	-0.003 (.056)	0.051 (.070)	0.116 (.103)	0.116 (.131)	-0.009 (.049)	-0.076 (.043)*
Labor force experience	0.003 (.006)	0.015 (.015)	0.012 (.019)	-0.045 (.024)*	-0.023 (.026)	-0.007 (.014)	0.007 (.013)
Tenure in previous job	-0.002 (.001)	-0.014 (.006)**	-0.016 (.006)**	-0.002 (.003)	0.004 (.004)	0.010 (.006)*	0.006 (.003)*
Earnings in previous job	-0.070 (.094)	-0.370 (.267)	0.147 (.350)	0.204 (.379)	-0.202 (.377)	0.021 (.196)	-0.119 (.174)
Vacancy ratio	-0.024 (.229)	-	-	-	-	-	-
Log-likelihood		-4,687	-4,441	-3,137	-3,035	-6,293	-6,435
LR-Test against baseline model: χ^2 (df)		19.2 (11)*	24.5 (11)**	19.7 (14)**	11.4 (14)	12.1 (11)	16.8 (11)

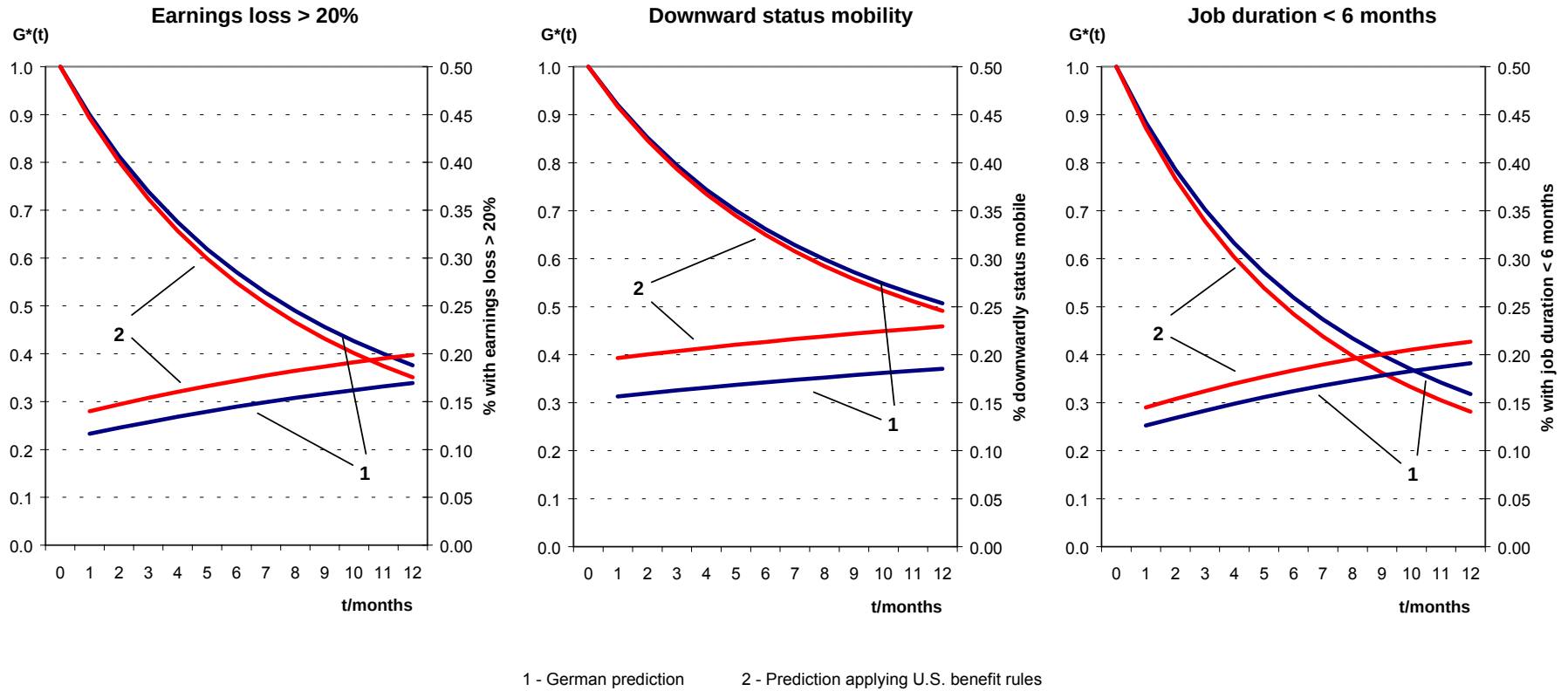
Notes: Standard errors in parentheses; statistical significance levels given at **p<.05, and *p<.10. Rate model estimates as obtained from earnings losses model.
Source: Survey of Income and Program Participation, Panels 1984, 1986, 1988, 1990, 1992, and 1993; German Socio-Economic Panel, 1984-1995 data (Waves A-M).

Figure 1
Simulated effects of cross-national differences in UI generosity on unemployment dynamics, U.S. sample



Notes: Predictions calculated on baseline discrete-time bivariate probit hazard rate model (Table 3); the simulations compare the structure of unemployment dynamics under (1) empirical U.S. UI eligibility rules and (2) predicted UI benefit status according to the auxiliary probit regression on German data (cf. Appendix 2).

Figure 2
Simulated effects of cross-national differences in UI generosity on unemployment dynamics, West German sample



Notes: Predictions calculated on baseline discrete-time bivariate probit hazard rate model (Table 4); the simulations compare the structure of unemployment dynamics under (1) empirical German UI eligibility rules and (2) predicted UI benefit status according to the auxiliary probit regression on U.S. data (cf. Appendix 2).

Appendix 1
Summary statistics for the estimation samples, spell data

	United States			West Germany		
	All workers	with UI benefits	without UI benefits	All workers	with UI benefits	without UI benefits
Women	0.400 (0.490)	0.357 (0.479)	0.422 (0.494)	0.385 (0.487)	0.382 (0.486)	0.412 (0.493)
Non-white / Non-German	0.184 (0.387)	0.152 (0.359)	0.189 (0.391)	0.118 (0.322)	0.116 (0.320)	0.135 (0.342)
Age	33.05 (11.68)	36.96 (11.23)	30.35 (11.11)	34.99 (12.21)	35.62 (12.32)	29.75 (9.84)
Years of education	12.52 (1.89)	12.60 (1.88)	12.45 (1.90)	10.85 (2.12)	10.82 (2.07)	11.11 (2.56)
Vocational training	-	-	-	0.607 (0.489)	0.628 (0.484)	0.435 (0.496)
Labor force experience (years)	12.76 (11.31)	16.60 (11.38)	10.32 (10.56)	16.02 (12.38)	16.82 (12.48)	9.43 (9.26)
Tenure in previous job (months)	20.56 (52.51)	32.79 (65.93)	12.78 (39.86)	51.38 (93.25)	54.25 (95.87)	27.67 (63.06)
Earnings in previous job (1990 US-$, PPP-adjusted)	1141.05 (1131.41)	1510.13 (1280.90)	906.54 (953.69)	1554.83 (758.69)	1585.90 (731.61)	1279.54 (922.96)
Occupational status (ISEI)	39.49 (13.94)	40.42 (14.20)	38.90 (13.74)	39.69 (12.79)	39.99 (12.75)	36.02 (12.75)
Vacancy ratio (quarterly)	3.072 (1.924)	2.966 (1.874)	3.140 (1.953)	0.794 (0.247)	0.796 (0.246)	0.760 (0.204)
Unemployment benefits	0.389 (0.487)			0.892 (0.317)		
N spells (unweighted)	24,100	8,941	15,159	3,251	2,856	395

Notes: Standard deviations in parentheses.
Source: Survey of Income and Program Participation, Panels 1984, 1986, 1988, 1990, 1992, 1993; German Socio-Economic Panel, 1984-1995 data (Waves A-M); weighted data.

Appendix 2
UI benefit coverage in the United States and West Germany, probit models

	United States	West Germany
Intercept	-4.194 (.052)*	-3.983 (.204)*
Tenure in previous job	0.008 ($3e^{-4}$)*	0.004 (.001)*
Tenure²	$-4.3e^{-4}$ ($3e^{-6}$)*	$-1.5e^{-5}$ ($6e^{-6}$)*
Tenure³	$6.0e^{-8}$ ($5e^{-9}$)*	$1.7e^{-8}$ ($1e^{-8}$)*
Ln(Previous Earnings)	0.420 (.006)*	0.636 (.028)*
Women	-0.063 (.046)	0.088 (.109)
Non-White/German	-0.250 (.012)*	0.070 (.030)*
Age	0.121 (.005)*	0.053 (.017)*
Age²	-0.005 ($3e^{-4}$)*	-0.003 (.001)*
Age³	$5.3e^{-5}$ ($4e^{-6}$)*	$4.4e^{-5}$ ($1e^{-5}$)*
Women x Age	0.008 (.008)	0.022 (.023)
Women x Age²	$-3.9e^{-4}$ ($4e^{-4}$)	-0.001 (.001)
Women x Age³	$8.0e^{-6}$ ($6e^{-6}$)	$2.1e^{-5}$ ($2e^{-5}$)
Education		
- High School / Vocational Training	0.099 (.012)*	0.065 (.031)*
- Some College / *Abitur*	0.073 (.014)*	0.056 (.077)
- Bachelor's degree	-0.089 (.019)*	-
- Master's degree / University	-0.333 (.026)*	-0.355 (.065)*
Labor Force Experience	0.022 (.002)*	0.050 (.006)*
Labor Force Experience²	$-3.2e^{-4}$ ($4e^{-5}$)*	-0.001 ($1e^{-4}$)*
Log-likelihood	-49,360	-5,267
LR-Test (df)	20,821 (32)*	2,419 (31)*
Pseudo R^2	0.174	0.187
N	86,915	27,135

Notes: Standard errors in parantheses; statistical significance at *p<.05. The models additionally include seasonal and year dummy variables as additional controls.

Source: Survey of Income and Program Participation, Panels 1984, 1986, 1988, 1990, 1992, 1993; German Socio-Economic Panel, 1984-1995 data (Waves A-M).

Appendix 3
Calculation of cross-nationally counterfactual unemployment dynamics

The analyses simulating the counterfactual unemployment dynamics for the condition that U.S. UI eligibility rules resemble the empirical German rules, and vice versa, capitalize on some core identities of event history analyses. In the two competing-risks, discrete-time setting with incomplete destination space as applied in the analyses, let the destination-specific job exit rates $r_k(t)$ be given by

$$\text{(A1)} \quad r_k(t) = \Pr(T = t, D = k \mid X, B, T \geq t) = \Phi_2(\mathrm{X}_1, \mathrm{X}_2, \rho_{12}), \quad k = 1,2 .$$

Then, by virtue of basic survival analysis theory (cf. Blossfeld and Rohwer 1995; Tuma and Hannan 1984; Lancaster 1990; Petersen 1995; Allison 1982), the aggregate cumulated pseudo-survivor function $G^*(t)$ relating to the pseudo-duration distribution of work exits from unemployment in the sample is given by

$$\text{(A2)} \quad G^*(t) = \prod_t \left(1 - \sum_k \bar{r}_k(t) \right), \text{ with}$$

$$\text{(A3)} \quad F^*(t) = 1 - G^*(t)$$

as the cumulated pseudo-distribution function. Repeating the calculation separately by job quality type *k* gives the relative proportion of job exits into employment of type *k* from

$$\text{(A4)} \quad \Pr(D = k \mid T \leq t) = F_k^*(t) / F^*(t) .$$

To arrive at the counterfactual prediction, actual individual benefit status *B* has been replaced with a counterfactual individual benefit status B^* as predicted by the other country's auxiliary probit regression given in Appendix 2, and the calculations have been run accordingly. In fact, the same method has been applied to arrive at the marginal benefit effects as given in Table 5, with the only difference being that benefit status has been varied between benefit coverage and non-coverage, independently of actual benefit status *B*.

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