

Impact of Benefit Sanctions on Unemployment Outflow

- Evidence from German Survey Data

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Draft: March 14, 2012 - Please do not cite

Abstract

In course of the “Hartz IV” reform implementation in January 2005, Germany has tightened unemployment benefit sanctions. In addition, the regulations with respect to job offer acceptance have been strengthened radically. As non-compliant behavior is supposed to entail benefit sanctions, we suspect that in particular sanctioned unemployed tend to make more concessions on the job conditions they are willing to accept, and hence enter employment more quickly. Moreover, we expect that sanctioned persons could otherwise tend to exit from labor market more quickly.

In our analysis we examine the impact of sanctions on the probability of getting into employment or leaving the labor force. Employing a mixed proportional hazard model enables us to draw causal inference of sanction enforcement on the unemployment exit hazard. Based on a survey sample covering the years 2005-2007, we find evidence for a positive impact of sanctions on getting employed, whereas the effect on leaving the labor market also turns out to be positive.

JEL classification: J48, J63, J64, J68, I38

Keywords: unemployment benefit sanctions, unemployment duration, employment, reemployment, non-employment, out of labor force, mixed proportional hazard estimation

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1 Introduction

During the last decade, many European countries shifted towards an activation policy accompanied by a tightened monitoring and sanctioning scheme for unemployed. In Germany, the implementation of a comprehensive labor market reform (“Hartz” reform) started in 2003 and was accomplished by “Hartz IV” in January 2005.¹ The entire reform package comprises a complete restructuring of the Federal Employment Agency (FEA) and the social benefit system. Numerous decentrally organized “job centers” have been established, whose major aims are to reduce the period of benefit receipt and the fiscal costs for unemployed. An improved job placement and a stronger monitoring of benefit recipient’s job search, combined with a comprehensive sanction scheme, are supposed to achieve these targets properly.

With this paper, we focus on the effects after the imposition of benefit sanctions (ex-post effects) and disregard the effects of warnings before a sanction is actually imposed (ex-ante effects).² We distinguish between periods a person has not yet been sanctioned and periods a person has at least once been sanctioned, covering the first three years after the implementation of “Hartz IV” from 2005 to 2007. The purpose is to examine whether sanctions support a higher (re-)employment or rather encourage unemployed to leave the labor market.

There is a strand of empirical studies analyzing the impact of sanctions on reemployment rates. There are two prominent studies for the Netherlands: van den Berg et al. (2004) estimate a mixed proportional hazard model and find sanction enforcements to have a significantly positive effect on the unemployment-to-employment hazard. To be more specific, a sanction raises the transition rate to work by 140%. Moreover, they find a substantially negative effect on the probability of an individual becoming long-term unemployed if the sanction is imposed at a relatively early stage in the respective unemployment spell. Also, Abbring et al. (2005) estimate a positive and significant effect of sanctions on re-employment in the metal and banking sector for both males and females separately, whereas the effect for female unemployed with an increased transition rate by 98% for the metal industry and 85% for the banking

¹The reform is named after Peter Hartz, the chief of the commission that set up the design of each reform law. For a comprehensive overview of each reform step, see Ebbinghaus and Eichhorst (2006).

²This wording is common in the literature, although the effects after a sanction, strictly spoken, are no pure ex-post effects, but indeed are a conglomerate of ex-ante and ex-post effects.

sector turns out to be considerably higher than for males.

Based on a Swiss data sample, Lalive et al. (2005) find that both warnings and sanction enforcements have a positive impact on the unemployment exit rate. Their estimates of a model, which allows for selectivity, reveal a 28% shift in the unemployment exit rate after a warning. Once a warning has been given, the transition out of unemployment increases again by 23%.

The results indicate that compared to the actual imposition of a sanction, already the warning exhibits a fairly similar and quantitatively important effect. Using the same administrative data sources, a similar but amplified analysis for Switzerland is provided by Arni et al. (2009). Employing a multivariate mixed proportional hazard model, Arni et al. (2009) explore how both warnings and imposition of sanctions in Switzerland affect the unemployment exit hazard to either regular employment or non-employment (i.e. out of labor force) as two competing risks. They find a positive impact of warnings and the effect of sanction enforcements on the unemployment exit rates to the two competing risks, whereas the announcement of a sanction causes a remarkable rise in the exit to non-employment. Beyond examining the unemployment exit hazard, Arni et al. (2009) extend their approach allowing for an analysis of the post-unemployment employment spells with respect to job stability and earnings. They find significant evidence that a sanction during the unemployment spell reduces the duration of both the first employment and non-employment period. With regard to wages, sanction warnings as well as impositions clearly exhibit a negative effect on post-unemployment earnings.

Svarer (2010) exploits a large Danish register dataset to investigate the effect of sanctions on reemployment rates in the period from January 2003 to November 2005. Svarer (2010) obtains positive estimates for the sanction coefficient, verifying the result of a positive impact of sanctions on the unemployment exit rate in previous studies. The estimates of the time-varying effect of sanctions suggest a remarkably high effect for the first four weeks after a sanction had been imposed. However, in the eight consecutive weeks the effect drops sharply and finally loses significance after thirteen weeks.

Müller and Steiner (2008) explore the ex-post effect of unemployment benefit sanctions on unemployment-to-employment transitions using a large set of monthly administrative data from 2001 to 2004 for West and East Germany separately. They

restrict the sample to inflow cohorts in the years 2001 and 2002 entitled to unemployment insurance or unemployment assistance benefits at the beginning of the unemployment spell. Based on this joined sample they estimate a discrete time hazard rate model, following the timing-of-events approach, and find the reemployment probability to be positively affected by sanctions.

The results had been verified by Hofmann (2012), who investigates the ex-post effect of sanctioned individuals who entered welfare receipt between April 2000 and March 2001 in West Germany on their reemployment probability. By applying a dynamic matching approach, sanctions turn out to affect the exit to work positively. In a follow up study, Hofmann(2010) exploits German register data of an inflow sample into UI receipt between 2001 and 2003 to study the impact of increased sanction rates on exit to work due to a policy change becoming effective in January 2003. Based on a proportional hazard model, she confirms her former result of a positive ex-post sanction effect.

Using a unique combined data set of German administrative and survey data for unemployed in UB II receipt between 2006 and 2007, Boockmann et al. (2009) estimate the effect of benefit sanctions on the exit to employment and from welfare dependency. Assessing the potential bias due to sanction endogeneity, Boockmann et al. (2009) employ an instrumental variable regression with both the reported sanction strategy and the sanction frequency rates of 154 German welfare agencies as instruments to measure the effectiveness of an intensified sanction regime in terms of the local average treatment effect (LATE). Based on their results, they support a tighter use of benefit cuts as it increases the probability of leaving welfare dependency and the transition to employment. So far, this is the only study for Germany based on data after the Hartz reform package, but with a different approach than our analysis and without explicitly regarding exits to non-employment.

Exploiting a new and rich German panel data set, we explore the ex-post effects of imposed unemployment benefit sanctions on the unemployment exit rate to employment and non-employment. Relying on the timing-of-events approach of Abbring and van den Berg (2003a,b), we estimate a discrete multivariate mixed proportional hazard model. In spite of the non-experimental character of this study and the absence of an independent control group which would require unemployed UB II recipients who are not faced to a sanction regime, the estimation of a mixed pro-

portional hazard model enables us unbiased estimates. In our analysis we actually ensure unbiased estimates by implementing MPH models which consider endogeneous selectivity of the unemployed to one of the groups - sanctioned or non-sanctioned - related with observed (socio-demographic factors, local labor market indicators) and unobserved heterogeneous components. With this paper, we conduct a first approach in analyzing the causal ex-post effects of unemployment benefit sanctions (namely UB II sanctions) on the hazard rates to both exit options, employment and non-employment, after the “Hartz IV” reform was implemented in 2005.

The remainder of the paper is organized as follows: The next section outlines the institutional structure of the German unemployment benefit system as well as the sanction scheme implemented with the labor market reform “Hartz IV”. A detailed description of the vast data set, in particular of the group differences between sanctioned and non-sanctioned unemployed in UB II receipt is provided by Section 3. Section 4 introduces the combined modeling approach to explore the ex-post effects of benefit sanctions on exit to employment respectively to non-employment. Results are presented and discussed in Section 5, followed by a conclusion in Section 6.

2 Unemployment Benefits and Sanction Scheme in Germany

Before the fourth and last step of the “Hartz” reform was accomplished in January 2005, there were three types of benefits that unemployed could be eligible for: unemployment insurance (UI) benefits, unemployment assistance (UA), and social assistance. Whereas UI benefits were not means-tested, both unemployment and social assistance were tax based and means-tested. The core of the reform, the so-called “Hartz IV” law, merged unemployment and social assistance to the unemployment benefit II (UB II). Hence, there are left two types of benefits for unemployed in Germany: unemployment insurance benefits, called UB I, and the tax financed and means-tested UB II.³

Due to the high proportion of UB II recipients, and in light of the new dimension of extensive sanction scheme initiated by “Hartz IV”, we focus our analysis to unemployed UB II recipients. Besides, our data set does not contain information about

³Social assistance is left only for persons who are unable to work.

UB I sanctions, but provides detailed information about UB II sanctions.

2.1 The Means-tested Unemployment Benefit System after the Reform

The means-tested UB II provides a basic social security for “needy job-seekers” and their (related) household members. Basically, every person living in Germany, who is in an employable age of 15 to 64 years and is able to work at least three hours per day, but is not able to cover the basic needs of its household, satisfies the eligibility criteria for UB II.⁴ As UB II is means-tested, claimants and their household members are classified as “needy” but do not necessarily have to be unemployed.

In contrast to the insurance benefit UB I, which is granted individually, the means-tested UB II applies to households, or more precisely, to so-called “need units”.⁵ A “need unit”, sometimes also referred to as “need community” (“*Bedarfgemeinschaft*”), consists of at least one person capable to work. The partner, regardless of married or not, and children younger than 25 years are also members of the “need unit“, given they share the same household.⁶

The group of UB II recipients is very heterogenous. It includes persons who either are unemployed but not entitled to the insurance benefit UB I, or whose UB I or earned income is below the household’s subsistence level. Normally, individuals who are not entitled to UB I are long-term unemployed who have exceeded their maximum period of UB I receipt (regularly 6 to 12 months) or persons who did not pay (sufficient) contributions to unemployment insurance, such as former pupils, students, self-employed persons or employees who worked for less than 12 months within the eligibility period of three years (before 2007) or two years (since January 2007), respectively.

In comparison to the former UA, UB II is granted under tightened acceptance regulations, prescribing which jobs UB II recipients are obliged to accept. Whereas the acceptance regulations of the former UA provided protection against loss of job quality and income to a certain extent, UB II recipients are obliged to accept or hold any jobs they are physically, intellectually, and mentally able to. Hence, there is left

⁴The eligibility requirements of UB II are codified in the Social Code II.

⁵We use the terms “household” and “need unit” synonymously, whereas the latter term is used officially.

⁶Persons who live together as a merely flat-sharing community do not belong to the same household in the sense of the Social Code II.

no more protection against a loss of job quality in terms of professional skill level, type of contract, and wages.⁷

Key tools of the comprehensive monitoring scheme in Germany are the “integration contract” (“*Eingliederungsvereinbarung*”) which UB II recipients are obliged to sign and the appointments with the “personal case manager”. To be more concrete, the integration contract typically specifies the duties of the client with respect to job search activities. But it can also define further obligations, e.g. more or less concretely specified commitments to participate in a program of active labor market policy (ALMP).

2.2 Sanctions

A crucial part of the “Hartz IV” implementation is the comprehensive sanction scheme. Compared to the former social assistance or UI benefits, the scope of reasons for imposing UB II sanctions had been widened severely. Furthermore, case managers are in charge of applying UB II sanctions rather strictly. Already twice repeated non-compliant behavior can lead to a total cut of UB II, including accommodation benefits.⁸ The duration of benefit cuts generally last three months.

Recipients of UB II are exposed to sanctions for a broad bundle of occasions such as insufficient job search effort, refusing to sign an “integration contract”, non-acceptance of a job offer or an offer for an integration measure, and quitting (by the unemployed herself) or provoking a dismissal from a regular job or an integration measure. All these types of failures are valued as *major* “breaches of duty” and cause a sanction by a 30% reduction of the base benefit in the first step. Repeated major breaches within one year severely increase the penalty: The second failure is sanctioned with a 60% cut, and the third one with a total cut of UB II, including housing benefits. Further justifications for sanctions are fails to meet the case manager and missing a medical or psychological appointment. These *minor* non-compliances are sanctioned initially by a 10% reduction of the base benefit. Each repeated minor failure increases the benefit reduction by additional 10 percentage points. Young

⁷These regulations do not only apply to unemployed UB II recipients but also to low-income earners receiving supplementary UB II (the so-called “*Aufstocker*”) who as well are obliged to search for additional or better paid jobs in order to reduce their means dependent benefits.

⁸UB II consists of the base benefit, housing or accommodation costs and social security contributions. The legal basis of the UB II sanction scheme is regulated in §§31, 31a, 31b, and 32 SGB II.

UB II recipients, in the age of 15 to 24 years, are sanctioned even harder. Apart from minor mistakes (missed appointments), already the first failure is sanctioned by a cut of 100% of the base benefit. The second sanction step for so-called “young adults” already comprises a total cut of UB II, including housing benefits.

Unemployed in the last sanction step apparently are almost threatened to become homeless. Hence, it can be expected that such a sanction scheme increases compliance and concessions on the expected job quality, particularly of unemployed who already experienced a sanction.

3 Data

Our analysis is based on a novel German panel study, called “Labour Market and Social Security” (PASS).⁹ The PASS is a new annual household survey in the field of labor market and welfare state research, conducted upon request of the Institute for Employment Research (IAB).

3.1 General Description of the Survey Data

The PASS study consists of annual panel data on individual and household level as well as of several spell datasets comprising the entire employment history of individuals and the episodes of households’ UB II receipt.¹⁰ We use the first two waves of the survey.¹¹ For the first wave approximately 18954 individuals belonging to 12794 households were interviewed between December 2006 and July 2007. The second wave, conducted between December 2007 and July 2008, covers 12487 persons in 8429 households. Summing up, there are over 10000 employable individuals in the age of 15 to 64, living in more than 7300 households, who had been interviewed in

⁹The German title of the study is “*Panel 'Arbeitsmarkt und Soziale Sicherheit'*” (PASS).

¹⁰The PASS survey comprises the employment histories of individuals and the episodes of UB II receipt of households in several separate datasets. The most important spell datasets are the employment and unemployment spells, the gap spells with periods out of the labor force, and the measure spells with periods of participation in ALMP measures. The spell data generally are recorded for individuals, except for the UB II spells that are recorded on the household level. In order to get an integrated dataset of individuals’ employment histories, users of the PASS survey have to merge the relevant spell datasets and control for plausibility by themselves.

¹¹An extensive documentation on the first two waves of PASS is provided by Christoph et al. (2008) and Gebhardt et al. (2010).

both waves.¹²

As the PASS is targeted towards low-income households and unemployed, the survey is built as follows: There are two sub-samples, the “*FEA-sample*” which covers households and individuals entitled to UB II, and the so-called “*Microm-sample*” that covers households and individuals registered as German residents. The latter one is a stratified sample where the probability of a low-income (medium-income) household to be interviewed is 4 times (2 times) the probability of a high-income household. Consequently, UB II recipients and low-income earners are overrepresented in the PASS study. This is one of the PASS study’s great advantages, as this segment of the population is more difficult to reach and follow up over time, and hence normally is underrepresented in surveys.

In comparison to administrative register data, the survey not only consists of unemployment spells, but additionally contains employment spells and so-called “gap spells” with periods out of labor force. The detailed information in the various spell datasets enables us to follow households’ UB II receipt and individuals’ transitions out of unemployment. Both unemployment and employment episodes are reported on a monthly basis since January 2005. The UB II spells, reported on household level, cover detailed information on imposed sanctions, such as the type of violation, the date of the sanction enforcement and its duration. The study further comprises annually panel data with a large variety of information on socio-demographic characteristics like individuals’ household structure, labor market status, earned income, and households’ net income including any kind of social benefits. Moreover, there are several subjective indicators like employment orientation and experienced social status.¹³

3.2 Sample Selection

Our analysis covers the first three years since the Hartz IV implementation, concretely the period from January 2005 until December 2007. We selected those individuals who had been unemployed UB II recipients at least once within the period of interest. In order to cover the employment biographies over the entire analysis

¹²Persons aged 65 and older were interviewed using a reduced questionnaire, the so-called “senior citizens’ questionnaire”.

¹³There are some special subjects which are not inquired annually but only in certain waves, such as the questions about working motivation.

period, we restricted our sample to individuals who had been interviewed in both waves and were in the employable age between 15 and 64 years.

As the spell dataset of UB II receipt is recorded on household level, the information on imposed sanctions is reported on household level as well. Even though it is possible to assign sanctions to household members who caused it, we consider all household members as affected by sanctions as it appears reasonable that in the end the entire household is exposed to the budget cut. Hence, since the imposition of the first sanction, we classify all employable household members as already sanctioned.

3.3 Description of the Sample

Our final sample consists of 3996 unemployment spells, whereas 742 end with a transition into employment, 601 with a transition out of labor force, and 2653 are right censored, i.e. the persons remained unemployed until December 2007, the end of our observation period. The final sample records 3599 unemployed persons from 15 to 64 years, who had received UB II at least for one month in the respective period from January 2005 to December 2007. 391 of them (that is 10.86%) had been sanctioned.

Table 1: Sanction Rates of Selected PASS Data (2005-2007)

Sex/Age Group	Individuals	Sanction Rate ¹
All	3599	10.86
Men	1533	11.29
Women	2066	10.55
15-24 years	605	12.56
25-49 years	2067	11.66
50-64 years	927	7.98

Source: Own calculations based on selected data of the PASS survey. ¹Percentage sanction rates, calculated as share of sanctioned unemployed UB II recipients in the regarded period between January 2005 and December 2007.

Table 1 provides an overview on the sanction rates for different groups of our final sample. It concretely depicts the quotas of sanctioned unemployed UB II recipients who had been affected by at least one sanction from January 2005 to December 2007 in relation to all unemployed persons who received UB II at least for one month within this period. In comparison to the relatively large sample size, the number

of sanctioned persons is rather small, but generally not too small for our analysis. 605 persons of our sample are so-called “young adults” in the age of 15 to 24 years, whereby 76 of them (that is 12.56%) had been sanctioned. The sanction rate of 7.98% for persons above 50 years is notable lower than for the whole sample.

Table 2: Summary Statistics of Selected Variables¹

Variable	Non-Sanctioned	Sanctioned
PANEL DATA ²		
woman	0.576	0.564
east***	0.399	0.364
age***	40.28 (0.032)	37.91 (0.088)
age24-**	0.152	0.201
age50+***	0.293	0.199
couple***	0.311	0.262
child6	0.188	0.201
med skilled	0.595	0.561
high skilled	0.081	0.084
migrated*	0.267	0.226
non-monetary	0.800	0.816
monetary	0.534	0.511
social**	0.887	0.869
SPELL DATA ³		
exit to employment**	0.109	0.130
exit to non-employment	0.098	0.094
d4-6***	0.117	0.111
d7-12***	0.210	0.208
d13-36***	0.546	0.565

Source: Own calculations based on selected data of the PASS survey. ¹Means are calculated over 93913 person months of unemployed UB II receipt within the considered time period from January 2005 to December 2007, comprising 3996 UB II spells, 3586 of non-sanctioned and 410 of sanctioned persons. Standard deviations are given in parantheses. Two-sided mean comparison tests (t-tests) give significance levels of *10%, **5%, ***1%. ²Individual characteristics derived from panel data as reported in the first wave of the PASS (conducted between December 2006 and July 2007): Whether an individual has at least one child under 6 years (*child6*) or a partner (*couple*), who lives in the same household, is indicated by dummies, as well as the vocational qualification levels *low*, *medium*, and *high skilled*. The dummy *migrated* indicates whether the individual or at least one of his/her parents is migrated. Different kinds of working motives are represented by the (not excluding) dummies *non-monetary*, *monetary*, and *social*. ³Characteristics derived from spell data as reported for the period from January 2005 to December 2007: Current unemployment durations (measured in months) are represented by the dummies *d1-3*, *d4-6*, *d7-12*, and *d13-36*.

Table 2 provides summary statistics of the basic explanatory variables of our final sample, differentiated according to persons with or without a sanction enforcement. Figures present the means of the explanatory variables, which are distinguished be-

tween individual data (PANEL) and spell properties (SPELL). The means of the individual characteristics are derived from panel data, and represent the values of the first PASS wave. The characteristics of the unemployment spells are derived from several spell datasets of the PASS study, as reported for the period from January 2005 to December 2007.

At first glance, the average values of the selected variables in Table 2 for sanctioned and non-sanctioned unemployed reveal a quite homogenous picture. In both groups, the proportion of *women* is negligibly higher than the proportion of men. The variable *east* indicates the fraction of unemployed who live in the Eastern part of Germany. From the continuous variable *age* we derive three age-group dummies, whereby *age24-* contains all unemployed individuals with an age between 15 and 24 years. Correspondingly, *age50+* takes the value one if an unemployed in the sample has an age between 50 and 64 years.¹⁴ Two-sided mean comparison tests of both, *east* and *age* are highly significant, whereas the means for East Germany hardly differ. But the means of young unemployed with 15% for non-sanctioned and 20% for sanctioned differ some clearer, and even more do the means of elder unemployed with 29% for non-sanctioned and 20% for sanctioned. This goes along with legal regulations and the common practice of sanction enforcement, whereby case managers are obliged to sanction young adults below 25 years explicitly stronger, and conversely treat persons above 50 years less strictly.

Considering the variable *couple*, it becomes apparent that the larger proportion of sanctioned and non-sanctioned unemployed are either single, unmarried, or not living with their (unmarried) partner in the same household. Households with children aged six years or younger (*child6*) account for a quite similar part of around 20% in both groups. With respect to the (vocational) qualification level, we compose three skill groups. The level *high skilled* refers to unemployed holding a university degree and *medium skilled* comprises individuals with a secondary or high school certification or any type of successfully accomplished apprenticeship.¹⁵ Detailed information about the migrational status of each survey participant are also given by the PASS data. The dummy variable *migrated* indicates individuals who are

¹⁴In total, our sample comprises persons in the employable age from 15 to 64 years. The age group of persons between or equal 25 and 49 years we take as the reference category in the subsequent estimation.

¹⁵The remaining fraction of unemployed who have not finished school successfully and have no vocational degree (non-skilled and semi-skilled) serves as a reference.

either migrated by themselves (first generation of immigrants) or who have at least one parent that is migrated (second generation).

The first wave of the PASS survey, furthermore, provides some information about working motives. The dummies *non-monetary*, *monetary* and *social* report the announced importance of different kinds of working motivations. The answers are not mutually exclusive, i.e. individuals may report that more than one (or none) of the three inquired kinds of working motives is important for him or her. The means of persons who reported that working is important for them in order to participate in society (*social*), differ not strongly but significantly between non-sanctioned (88.7%) and sanctioned (86.9%).

A first impression about the probable effect of benefit sanctions on (re-)employment respectively on leaving the labor market, the SPELL data provide. Here we see a higher fraction (13.0%) of sanctioned unemployed exiting unemployment for employment compared to the fraction of the non-sanctioned group (10.9%). Concerning the unemployment duration, it is noticeable that the group with more than a year of UB II receipt is by far the largest (54.6% for non-sanctioned, 56.5% for sanctioned). Obviously there is a high proportion of longterm unemployed within the group of unemployed UB II recipients.

4 Multivariate Duration Analysis

With this paper we examine the effects of sanctions on the transition rates of unemployed UB II recipients into employment or non-employment. We concretely focus on the ex-post effect, i.e. the effect after the imposition of a benefit sanction.¹⁶ For our analysis we set up a model that accounts for individual's unemployment duration dependence. From the beginning of each unemployment spell, the individuals are at risk to switch to one of the two probable states in time T : become employed (e) or exit the labor market and enter non-employment (ne). If neither occurs, the individual remains unemployed and the respective spell is classified as censored ($c = 0$).

¹⁶Indeed we analyze a mixture of ex-ante and ex-post effects, because after a sanction is imposed, there are not only pure ex-post effects but also ex-ante effects which are caused by the threat to be sanctioned repeatedly. In other words, as people are not only backward-looking but also forward-looking, we strictly face a conglomerate of ex-post and ex-ante effects. Nevertheless, the effects after the imposition of a sanction are commonly regarded to as ex-post effects in the literature, see Lalive et al. (2005) and Arni et al. (2009).

Let t_e be the corresponding duration until exiting unemployment for a job, and let t_e be the time until the unemployed leaves the labor market.

Moreover, for each unemployment spell we observe the point in time T_s of a sanction enforcement and the respective time t_s until the individual experiences its first sanction.¹⁷ Even though our final sample is for homogeneity reasons already restricted to unemployed UB II recipients, there are still numerous observed and unobserved components, causing a non-negligible correlation between the probability of a sanction and unemployment duration. In consequence, we cannot treat the effect of a sanction and, in particular, the time until a sanction is given t_s as exogenous.

In order to disentangle the effects of an unemployment benefit sanction from other observable or unobservable factors influencing the exit from unemployment, Abbring and van den Berg (2003a,b) have developed the “timing of events” approach, which enables the causal identification of dynamic treatment effects of sanctions imposed on the exit hazard of unemployed. The elaborate technique reveals the causal from the selection effect of an imposed benefit sanction on unemployment duration.

To analyze the duration t_o with $t \in \{e, ne\}$ until the point of transition in T_o , we employ a discrete mixed proportional hazard (MPH) framework. The exit rate to either destinations $o \in \{e, ne\}$, conditioned on the months elapsed until the sanction enforcement t_s is given by:

$$\theta_o(t_o|x, v_o, t_s) = \lambda_o(t_o)exp[x'\beta_o + \delta I(t_s < t_o) + v_o], \quad (1)$$

where $\lambda_o(t)$ represents the baseline hazard (duration t until exit to state o). x is a vector of observables, describing individual characteristics and controlling for local labor market conditions. The dummy variable $I(t_s < t)$ indicates whether a sanction has been enforced during the unemployment spell. Hence, $I(\cdot)$ takes the value one if the time interval until a sanction has been imposed t_s is shorter than the interval until exit t_o or shorter than the entire unemployment spell in case of a censored record. v is a random variable, controlling for the unobserved components presumably affecting the hazard rates.

The corresponding conditional density function of $\theta_o(t_o|x, v_o, t_s)$ is

¹⁷It's a common approach in the literature to evaluate the effect of the first sanction solely (van den Berg et al. (2004), Abbring et al. (2005), Lalive et al. (2005) and Svarer (2010).

$$f_o(t_o|x, v_o, t_s) = \theta_o(t_o|x, v_o, t_s) \exp\left(-\int_0^{t_o} \lambda_o(\tau|x, v_o, t_s) d\tau\right). \quad (2)$$

As unemployment duration is measured in months, we specify a discrete MPH for both probable states $o \in \{e, ne\}$ and adopt the common flexible piecewise-constant step function for the baseline hazard

$$\lambda_o(t_o) = \exp\left[\sum_k \lambda_{o,k} D_k(t_o)\right] \quad (3)$$

for $k = 1, \dots, 4$ fixed time intervals. $D_k(t_o)$ denotes time-varying dummy variables equal unity in the corresponding interval and $\lambda_{o,k}$ the estimated parameters for the specific interval k . According to the distribution of the unemployment duration, we define the following intervals (in months): $[0 - 3]$; $(3 - 6]$; $(6 - 12]$; $(12 - 36]$. We set $\lambda_{o,1} = 0$ for the first time dummy ($k = 1$) to avoid collinearity in an estimation with a constant term.

Again, the probability of a sanction during a period of unemployment among UB II recipients is likely to be endogeneous. Unemployed who do not complain with the entitlement requirements or do not behave according to compliance commitments are at risk to experience a sanction. Here we can expect that this type of behavior in turn affects unemployment duration of the individuals, entailing a correlation between the unobserved components of the two processes. Hence, both hazards of being sanctioned and exiting unemployment to one of the two states e, ne must be estimated jointly.

Similar to the unemployment exit hazard, also the hazard rate of being sanctioned $\theta_s(t|x, v)$ is assumed to follow a MPH specification

$$\theta_s(t_s|x, v_s) = \lambda_s(t_s) \exp[x' \beta_s + v_s], \quad (4)$$

with $\lambda_s(t_s)$ as duration dependence. For a parsimonious but flexible estimation, we specify $\lambda_s(t_s)$ as a quadratic function of log-time. The respective conditional density of $t_s|x, v_s$ is

$$f_s(t_s|x, v_s) = \lambda_s(t_s|x, v_s) \exp\left(-\int_0^{t_s} \lambda_s(\tau|x, v_s) d\tau\right). \quad (5)$$

Based on the modeling framework so far, the joint distribution of the processes $t_o|t_s, x, v_o$ and $t_s|x, v_s$ can be fully described by the proposed mixed proportional

hazard specification. Thus, the hazard of the latent failure (either unemployment exit or the hazard being sanctioned) depends on the duration t_o, t_s until this event occurs in T_o, T_s , on the observable characteristics comprised by x , and the unobservable components in v_o, v_s capturing the unobserved heterogeneity. The MPH model allows for the simultaneous modeling of the two failures T_o, T_s . To ensure that the MPH framework is applied appropriately, we verify that the following assumptions have been met. Controlling for x and v , we ensure that the shape of the hazard of an unemployment exit θ_o is not influenced by the hazard of a sanction unless a sanction occurs in T_s implying $\theta_o|t_s, x, v_o$ for $t_o > t_s$.

Unemployed in Germany are warned about the possibility of a sanction in case of non-compliance with the entitlement requirement, immediately after they have entered unemployment. However, they do not know the exact point in time T_s at which a sanction will be imposed. This condition is also called the no-anticipation assumption (see Abbring and van den Berg (2003a,b)) and important to guarantee that individuals do not change their behavior before the treatment occurs. There are a handful of empirical studies which provide significant evidence of an ex-ante effect. These studies, as outlined in Section 1, exploit register data where the date of a warning is recorded. All studies come up with a positive ex-ante effect on the unemployment exit rates. We might expect a moderate change in behavior already before a sanction is imposed as the unemployed know that they will occur a sanction if they go on with a less compliant job search effort, for instance. But how often sanctions are applied, depends primarily on the case manager and how strict she is following the strengthened sanction regulations. Furthermore, it depends on the region and the entire economic situation, which makes it either more or less difficult to find a job, regardless of the search intensity and the willingness to accept bad job conditions. Interpreting the results, we are aware of a potential upward bias of the estimated coefficient for the sanction dummy δ .

Moreover, it is assumed that the unobserved heterogeneity is independent from the time-varying covariates in x . The idempendency and no-anticipation assumption ensures that causal effects of a specific treatment on the hazard of exiting unemployment is identified by a MPH framework, hence conditional on the observed explanatory variables in x and the unobserved heterogeneity v_o and v_s . Thereby, selectivity is captured by the correlation between those two unobserved heterogeneity compo-

nents v_o and v_s . Since we use discrete data, we identify the causal effect using a non-parametric setting, additionally assuming that the results are rather insensitive to a particular parametric model set-up.

The overall likelihood function \mathcal{L} is then:

$$\mathcal{L} = \int_v \theta_s^{c_s}(t_s|\cdot) S_s(t_s|\cdot) \Theta^{c_o}(t_o|\cdot) S_o(t_o|\cdot) \mathcal{L}_p dG(v), \quad (6)$$

where $\Theta(t_o)S(t_o) = \prod_o \theta_o^{c_o}(t_o|x, v_o, t_s) S_o(t_o|x, v_o, t_s)$ for $o \in \{e, ne\}$ and $G(v)$ as the joint distribution of both heterogeneous unobserved components v_o, v_s . c indicates whether an unemployment spell is censored, namely no exit out of unemployment occurs, or not. Without exploring the post-unemployment employment history and the subsequent impact of history of the past unemployment spell, \mathcal{L}_p is set to unity.

5 Results

The parameters of the mixed proportional hazard models are estimated via maximum likelihood using gaussian mixing with a fixed number of quadrature points. To assess to what extent sanctions affect the hazard of reemployment or an exit from labor force, we focus on two main specifications, one for the exit to employment θ_e and the other for the exit to non-employment θ_{ne} . We treat the imposition of sanctions as endogenous, i.e. we control for the potential bias due to the endogeneity of the sanction treatment. Hence, all models are specified as discrete MPH models, where the hazards for both, exit to employment (or non-employment) and sanction enforcement, are estimated simultaneously.

For our baseline models (Specification I) in Subsection 5.1, we assume the effect of a sanction as constant across the sample population. Thus, the impact of a sanction enters the unemployment hazard equation as a simple time-varying dummy variable δ , being 1 in t if a sanction already has been imposed, zero otherwise. Besides δ , all models include a basic set of explanatory variables reflecting individual characteristics or habits as well as the unemployment rate (uq) for each federal state of Germany. The latter one is supposed to reflect arbitrarily the general labor market conditions. For the sensitivity analysis in Subsection 5.2, we allow the effect

of a sanction to vary across the sample population. Hence, the expanded models (Specification II) let δ interact with selected explanatory variables used before, and outlined in Table 2 of Section 3.

Finally, Submodels (a) and (b) differ with respect to the specification of the baseline hazard. Submodels (a) assume a constant log combined with a log-quadratic impact of unemployment duration, namely the month already spent in UB II receipt without being employed, on the unemployment exit hazard (θ_e, θ_{ne}) . In contrast, Submodels (b) impose a piecewise-constant duration dependence as a more flexible approach in explaining how different unemployment periods might affect the exit to employment or non-employment.

5.1 Baseline Models

The results in Table 3 provide significant evidence of a positive impact (δ) of sanctions on (re-)employment for specifications (a) and (b) for both exit hazards. We find that sanctions enhance the transition to employment by 70% for the log-quadratic baseline hazard (a), and by 68% for the flexible piecewise-constant duration dependence (b). These results and the extent of the transition rates are in line with Müller and Steiner (2008), who estimated a timing of events model for West and East Germany separately, but found for both parts a significantly positive effect of benefit sanctions on the transition from unemployment to regular employment. The results of the studies by Lalive et al. (2005), Arni et al. (2009), Abbring et al. (2005), Svarer (2010) and van den Berg et al. (2004) also confirm the positive effect of benefit sanctions on the unemployment-employment transition.

At first sight, these results might support the application of sanctions, as they entail an enhanced (re-)employment probability of sanctioned individuals. But we obtain also a significantly positive impact of sanctions for the hazard out of labor force. According to the results of Table 3, we find that sanctions increase the transition factor to non-employment by 60% for the log-quadratic specification (a) and by 79% for the piecewise-constant specification (b) of the baseline hazard. Apparently, there are two groups of unemployed who respond to sanctions differently. One group seems to find a job more quickly, perhaps by increasing the search efforts or by accepting worse working conditions, while the other group raises respond with a higher probability for an exit to non-employment.

Table 3: Baseline Models, Exit Equations (θ_e and θ_{ne})

Variable	Employment θ_e				Non-Employment θ_{ne}			
	Model Ia		Model Ib		Model Ia		Model Ib	
	coef	z-stat	coef	z-stat	coef	z-stat	coef	z-stat
δ	0.528	2.45	0.520	3.75	0.469	2.04	0.583	3.44
lnt	0.285	1.69			0.972	4.01		
lnt ²	-0.121	-2.81			-0.237	-3.91		
d4-6			3.755	25.96			4.122	20.76
d7-12			2.692	19.74			3.438	19.75
d13-36			1.396	12.25			1.978	12.54
women	-0.591	-5.43	-0.454	-5.59	0.164	1.56	0.196	2.04
med skilled	0.613	4.65	0.394	3.65	0.341	2.66	0.050	0.45
high skilled	0.794	4.31	0.471	3.04	0.186	0.85	-0.175	-0.87
age24-	-0.540	-2.93	-0.698	-4.33	1.462	6.73	0.988	7.75
age50+	-1.168	-7.47	-0.751	-6.44	-0.031	-0.25	0.318	2.71
couple	-0.039	-0.36	-0.139	-1.48	0.840	6.08	0.603	5.88
child6	-0.338	-2.60	-0.186	-1.71	-0.262	-1.97	-0.093	-0.76
migrated	-0.083	-0.72	-0.024	-0.23	-0.220	-1.72	-0.158	-1.38
uq	-0.193	-6.69	-0.096	-5.06	-0.147	-5.00	-0.073	-3.23
non-mometary	0.366	2.70	0.280	2.39	-0.213	-1.65	-0.232	-1.98
monetary	-0.122	-1.31	-0.055	-0.67	-0.094	-0.91	-0.037	-0.40
social	0.021	0.14	0.089	0.68	0.257	1.51	0.272	1.76

Models Ia in Table 3 reveal a non-linear relation between the length of the unemployment spell and the hazard for an exit to employment θ_e , and to non-employment θ_{ne} respectively, as the log-quadratic term of unemployment duration enters with a negative sign for both hazards. Putting it differently, after a certain spell length the probability of finding a job and of leaving the labor market declines.

Imposing the unemployment duration dependence as a flexible piecewise constant baseline function (Models Ib) in terms of four intervals ($[0 - 3]$; $(3 - 6]$; $(6 - 12]$; $(12 - 36]$, in months) entails positive and significant estimates for all three intervals (given $[0 - 3]$ -interval as the reference). This holds for both, the employment hazard θ_e as well as the non-employment hazard θ_{ne} . Even though the estimated coefficients decline in their impact as unemployment duration elapses, they still remain positive. Basically, the impact of longer unemployment spells on employment hazard

Table 3 (continued): Baseline Models, Sanction Equations (θ_s)

Variable	Employment e				Non-Employment ne			
	Model Ia		Model Ib		Model Ia		Model Ib	
	coef	z-stat	coef	z-stat	coef	z-stat	coef	z-stat
lnt	-0.351	-1.58	-0.350	-1.57	-0.350	-1.58	-0.334	-1.49
lnt ²	0.063	1.10	0.062	1.07	0.062	1.07	0.063	1.08
woman	-0.195	-1.63	-0.190	-1.60	-0.190	-1.59	-0.195	-1.64
med skilled	0.165	1.17	0.170	1.21	0.171	1.21	0.175	1.24
high skilled	0.051	0.20	0.076	0.31	0.077	0.31	0.090	0.36
age24-	0.253	1.37	0.271	1.48	0.272	1.48	0.278	1.52
age50+	-0.493	-3.16	-0.493	-3.18	-0.493	-3.18	-0.502	-3.24
couple	-0.009	-0.07	-0.014	-0.10	-0.013	-0.09	-0.008	-0.06
child6	-0.088	-0.59	-0.083	-0.55	-0.083	-0.55	-0.079	-0.53
migrated	-0.246	-1.65	-0.252	-1.69	-0.252	-1.69	-0.262	-1.77
uq	-0.076	-2.22	-0.076	-2.22	-0.076	-2.22	-0.071	-2.22
Log-Lik	-5551		-5221		-4828		-4519	
cases	3239		3239		3239		3239	
N	150204		150204		150204		150204	

is expected to turn negative, compared to the first time interval in benefit receipt ($[0 - 3]$ months) as the reference group. Here we should again emphasize that our sample is restricted to unemployed who are in UB II receipt. As mentioned in Section 1, Boockmann et al. (2009) also base their analysis on UB II recipients, but they have a different approach without analyzing the impact of unemployment duration. All other studies, however, refer to unemployment insurance sanctions. Whereas UI recipients must have been employed for a certain period in order to fulfill the eligibility conditions, UB II recipients are a much more heterogenous group. As described in Section 2 they e.g. include long-term unemployed, persons who never had been employed before, and low income earners. Hence, UB II recipients on average have lower chances on the labor market than recipients of UI. Thus, the difference between long-term UB II recipients and the reference group with up to three months of UB II receipt is smaller than a similar comparison within unemployed UI recipients with different unemployment durations would result in.

A quick glance through Models Ia and Ib for the unemployment-to-employment hazard θ_e in Table 3 reveals the typical impacts θ on the length of the unemployment

spell. Apart from the specific influence of the explanatory variables, there are almost all statistically significant with negligible variations in the size of the coefficients between models (a) and models (b). Except for the variables *migrated* and *couple*, and for two of the three variables of working motivation (*monetary* and *social*) all estimated coefficients enter significantly different from zero. Female, younger and elder UB II recipients, as well as households with children below six years exhibit negative transition rates to employment. The transition rate enhancing effects of high- and medium-skilled unemployed and unemployed, who reported that they are motivated to work also if they would not need the money (“*non-monetary* working motivation”), support the common expectations, namely a positive impact on exit to employment. In fact, the significance of the explanatory variables is to a great extent robust against the different specifications with respect to duration dependence.

Considering Models Ia and Ib for the exit hazard to non-employment θ_{ne} , the estimated coefficients form a slightly different picture. Compared to the unemployment-to-employment hazard θ_e , the impact of living with a partner in the same household (*couple*) as well as the impact of being young (*age24-*) turns out to be positive significant on the hazard to non-employment. In other words, younger unemployed UB II recipients are more likely to exit the labor market compared to the reference group of medium-aged unemployed. With respect to duration dependence, we find pretty similar results to both exit options. In fact, the significantly negative estimate for the log-quadratic time implies an increasing probability to remain unemployed after the individual exceeds a certain point in time.

The estimates in Table 3 (continued) confirm at first sight a non-linearity in duration dependence also for the sanction hazard θ_s , but in the opposite direction as found for the unemployment hazard θ_o . Firstly, the probability of being sanctioned decreases as time passes. Later there will be a reversal point at which the effect turns around. Although, this would go along with expectations, the MPH specifications for both exit options does not come up with significant estimates. This may be caused by the relatively small number of sanctioned persons in our sample, as pointed out in Section 3.

Moreover, we can state that persons above 50 years (*age50+*) as well as *migrated* persons are less likely to be sanctioned, whereas the effect for younger, *medium* and *high skilled* unemployed as well as for *couples* and households with children younger

than six (*child6*) years turns out to be insignificant. Finally, unemployed UB II recipients in regions with lower unemployment quotas (*uq*) are more likely to be sanctioned than in regions with high unemployment rates. This goes along with the fact that job centers in regions with lower unemployment rates tend to have higher sanction quotas.

5.2 Sensitivity Analysis

We expand the baseline models with selected interaction terms in order to analyze, whether sanction effects vary across different subgroups of the sample population. Firstly, we let the dummy for being sanctioned δ interact with two age groups (*24-* and *50+*), and additionally with two qualification levels (*medium* and *high skilled*). The results are presented in Table 4 for the employment hazard θ_e and in Table 5 for the exit hazard out of labor force θ_{ne} .

As shown in Table 4, we find strong evidence for a positive sanction effect. Considering interaction terms for the subgroups of elder and younger unemployed, we find the transition rate to be positively influenced by sanctions, for both age cohorts. Some sort of modified behavior, probably in terms of intensified job search and/or increased willingness to accept jobs with lower levels and worse conditions, leads to higher transition rates from unemployment to employment.

Accounting for interaction with qualification levels, the picture slightly changes by reducing the significance of the impact for both age cohorts. For elder unemployed UB II recipients, the transition rate to employment remains positively affected by sanction enforcements. Though, we find no consistent significant evidence for the younger unemployed. In contrast to Model IIb with the piecewise-constant duration dependence, Model IIa with the log-quadratic baseline hazard comes up with an insignificant estimate. To sum up, sanction effects vary across different age cohorts of the sample population. The results shown in Table 4, in parts go along with the findings of the baseline models shown in Table 3. Especially, the estimates of the control variables in Table 4 resemble the results of the baseline model.

Putting the focus on qualification levels and considering both exit options, transition to employment (Table 4) and exit out of labor force (Table 5), we get the following outcomes. For high qualified unemployed UB II recipients our models do not show any significant impact of sanctions on the exit from unemployment, neither

Table 4: Exit to Employment θ_e

Variable	2 Interaction Terms				4 Interaction Terms			
	Model IIa		Model IIb		Model IIa		Model IIb	
	coef	z-stat	coef	z-stat	coef	z-stat	coef	z-stat
δ								
δ^* med					0.396	1.97	0.296	1.63
δ^* high					-0.105	-0.20	0.285	0.60
δ^* age24-	0.834	1.79	1.097	2.51	0.733	1.56	1.010	2.29
δ^* age50+	1.114	2.91	0.957	2.72	0.852	2.04	0.716	1.89
lnt	0.284	1.69			0.280	1.67		
lnt ²	-0.123	-2.87			-0.123	-2.88		
d4-6			3.747	25.91			3.754	25.93
d7-12			2.696	19.76			2.696	19.74
d13-36			1.396	12.25			1.394	12.23
women	-0.586	-5.56	-0.468	-5.77	-0.578	-5.49	-0.458	-5.63
med skilled	0.608	4.77	0.412	3.82	0.576	4.51	0.385	3.52
high skilled	0.794	4.45	0.486	3.14	0.798	4.40	0.465	2.93
age24-	-0.596	-3.16	-0.789	-4.65	-0.586	-3.12	-0.782	-4.60
age50+	-1.229	-7.94	-0.826	-6.82	-1.207	-7.80	-0.807	-6.62
couple	-0.041	-0.39	-0.144	-1.54	-0.037	-0.36	-0.140	-1.48
child6	-0.329	-2.59	-0.190	-1.74	-0.324	-2.55	-0.187	-1.72
migrated	-0.084	-0.75	-0.023	-0.23	-0.081	-0.72	-0.026	-0.25
uq	-0.193	-6.82	-0.100	-5.29	-0.191	-6.76	-0.098	-5.17
non-monetary	0.365	2.74	0.293	2.50	0.356	2.68	0.285	2.42
monetary	-0.118	-1.30	-0.055	-0.67	-0.120	-1.31	-0.053	-0.65
social	-0.001	0.00	0.070	0.53	0.005	0.03	0.079	0.60
regional dummies	yes		yes		yes		yes	

to employment, nor out of the labor market. For medium qualified persons our models show a different picture. As opposed to the piecewise-constant specification of duration dependence (b) that identifies no significant impact, the log-quadratic specification (a) indicates a significantly positive effect of sanctions on the transition to employment of medium skilled persons. Concerning the hazard to non-employment, the results for medium skilled sanctioned are more robust against different baseline hazards. Here both specifications of duration dependence result in a significant

Table 4 (continued): Sanction equation θ_e

Variable	2 Interaction Terms				4 Interaction Terms			
	Model IIa		Model IIb		Model IIa		Model IIb	
	coef	z-stat	coef	z-stat	coef	z-stat	coef	z-stat
lnt	-0.350	-1.57	-0.350	-1.57	-0.350	-1.57	-0.350	-1.57
lnt ²	0.062	1.07	0.062	1.07	0.062	1.07	0.062	1.07
woman	-0.190	-1.60	-0.190	-1.60	-0.190	-1.60	-0.190	-1.60
med skilled	0.170	1.21	0.170	1.21	0.170	1.21	0.170	1.21
high skilled	0.076	0.31	0.076	0.31	0.076	0.31	0.076	0.31
age24-	0.271	1.48	0.271	1.48	0.271	1.48	0.271	1.48
age50+	-0.493	-3.18	-0.493	-3.18	-0.493	-3.18	-0.493	-3.18
couple	-0.014	-0.10	-0.014	-0.10	-0.014	-0.10	-0.014	-0.10
child6	-0.083	-0.55	-0.083	-0.55	-0.083	-0.55	-0.083	-0.55
migrated	-0.252	-1.69	-0.252	-1.69	-0.252	-1.69	-0.252	-1.69
uq	-0.076	-2.22	-0.076	-2.22	-0.076	-2.22	-0.076	-2.22
regional dummies	yes		yes		yes		yes	
Log-Lik	-5553		-5222		-5551		-5221	
cases	3239		3239		3239		3239	
N	150204		150204		150204		150204	

positive effect.

Summarized, sanction effects do not only vary across different age cohorts but also across different qualification levels. The results of the baseline models presented in Table 3, namely the positive impact of sanctions on entering employment, are only partially confirmed by the expanded models.

Table 5: Exit to Non-Employment θ_{ne}

Variable	2 Interaction Terms				4 Interaction Terms			
	Model IIa		Model IIb		Model IIa		Model IIb	
	coef	z-stat	coef	z-stat	coef	z-stat	coef	z-stat
δ								
δ^* med					0.498	1.90	0.526	2.20
δ^* high					-1.161	-1.09	-0.175	-0.17
δ^* age24-	0.445	1.23	0.766	2.39	0.349	0.97	0.654	2.01
δ^* age50+	1.171	3.37	1.037	3.39	0.905	2.24	0.687	1.93
lnt	0.974	4.02			0.968	4.00		
lnt ²	-0.237	-3.92			-0.238	-3.97		
d4-6			4.119	20.72			4.126	20.73
d7-12			3.442	19.77			3.442	19.75
d13-36			1.975	12.52			1.973	12.49
women	0.162	1.52	0.188	1.95	0.168	1.60	0.201	2.08
med skilled	0.346	2.69	0.055	0.49	0.306	2.39	0.009	0.08
high skilled	0.195	0.89	-0.169	-0.84	0.252	1.15	-0.174	-0.85
age24-	1.442	6.76	0.922	7.04	1.439	7.01	0.931	7.09
age50+	-0.113	-0.87	0.237	1.97	-0.093	-0.72	0.266	2.18
couple	0.847	6.15	0.604	5.89	0.845	6.32	0.608	5.91
child6	-0.267	-1.99	-0.099	-0.81	-0.262	-1.97	-0.090	-0.73
migrated	-0.227	-1.77	-0.150	-1.30	-0.220	-1.73	-0.148	-1.28
uq	-0.150	-5.08	-0.076	-3.39	-0.147	-5.06	-0.074	-3.30
non-monetary	-0.217	-1.68	-0.219	-1.86	-0.226	-1.76	-0.229	-1.95
monetary	-0.090	-0.87	-0.036	-0.38	-0.093	-0.91	-0.034	-0.36
social	0.253	1.48	0.265	1.70	0.254	1.50	0.277	1.78
regional dummies	yes		yes		yes		yes	

Table 5 (continued): Sanction equation θ_s

Variable	2 Interaction Terms				4 Interaction Terms			
	Model IIa		Model IIb		Model IIa		Model IIb	
	coef	z-stat	coef	z-stat	coef	z-stat	coef	z-stat
lnt	-0.350	-1.57	-0.350	-1.57	-0.350	-1.57	-0.350	-1.57
lnt ²	0.062	1.07	0.062	1.07	0.062	1.07	0.062	1.07
woman	-0.190	-1.60	-0.190	-1.60	-0.190	-1.60	-0.190	-1.60
med skilled	0.170	1.21	0.170	1.21	0.170	1.21	0.170	1.21
high skilled	0.076	0.31	0.076	0.31	0.076	0.31	0.076	0.31
age24-	0.271	1.48	0.271	1.48	0.271	1.48	0.271	1.48
age50+	-0.493	-3.18	-0.493	-3.18	-0.493	-3.18	-0.493	-3.18
couple	-0.014	-0.10	-0.014	-0.10	-0.014	-0.10	-0.014	-0.10
child6	-0.083	-0.55	-0.083	-0.55	-0.083	-0.55	-0.083	-0.55
migrated	-0.252	-1.69	-0.252	-1.69	-0.252	-1.69	-0.252	-1.69
uq	-0.076	-2.22	-0.076	-2.22	-0.076	-2.22	-0.076	-2.22
regional dummies	yes		yes		yes		yes	
Log-Lik	-4825		-4516		-4822		-4514	
cases	3239		3239		3239		3239	
N	150204		150204		150204		150204	

6 Conclusion

This paper analyzes the effects of benefit sanctions against unemployed UB II recipients on their transition rates into employment respectively into non-employment (i.e. leaving the labor force). Based on a mixed proportional hazard model which handles sanctions as an endogenous treatment, we isolate the ex-post effects of UB II sanctions. We show that sanctioned unemployed either tend to fasten (re-)entering employment or otherwise leave the labor market more quickly. Obviously there are two groups of persons responding to sanctions differently. Whereas one group on average fastens exit to non-employment, the other group is more likely to find a job. The latter effect could be caused either by an increased search effort or by lowering the claims to job quality and working conditions. These results go in line with economic theory as well as with the empirical literature on ex-post effects of foremost UI sanctions, summarized in Section 1.

At first glance, our findings go along with political intention to reduce the individual's periods and amounts of benefit receipt in order to lower unemployment and fiscal costs. But the causal mechanism that leads to these results most likely generates some additional effects that also has to be considered for an economic evaluation of benefit sanctions. According to job search theory, the positive effect of benefit sanctions on unemployed's exit to work is quite probably due to the increased willingness of sanctioned to make concessions on job conditions. In other words, the increased transition rate to employment is likely to be bought at the expense of job quality, e.g. in terms of wages, qualification level and job stability. Such side effects of benefit sanctions should be investigated in future research in order to get a more comprehensive economic assessment of benefit sanctions.

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