

# Welfare while working: How does the life satisfaction approach help to explain job search behavior?

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# **Welfare while working: How does the life satisfaction approach help to explain job search behavior?**

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## **Abstract**

This paper examines the role of life satisfaction in the labor market behavior of workers receiving welfare benefits while working. Welfare stigma and other hard-to-observe factors may affect outcomes as on-the-job search and the duration until leaving welfare status. We utilize life satisfaction to track such factors. The German PASS-ADIAB dataset combines administrative process data with individual survey data offering a rich database that allows conditioning on changes in household income, time-stable individual traits, employment biographies and local labor market effects. Given a broad set of further covariates, we find that life satisfaction of in-work benefit recipients is negatively associated with job search, whereas the duration until the exit from welfare is hardly affected. Focusing on heterogeneity among workers suggests that life satisfactions' role for choice depends on the institutional setting, rendering marginally employed workers specifically prone to life satisfaction.

*JEL Classification Codes: J60, J62, I31, I38*

*Keywords: life satisfaction, job search, in-work benefits, welfare stigma*

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## 1. Introduction

This paper examines the job search behavior and success of employees receiving supplementary welfare benefits. In-work benefit programs allow employed workers to combine labor income and transfers when falling below a certain income level. In general, such programs constitute a monetary incentive to extend labor supply: workers are financially better off than unemployed welfare claimants. Besides the monetary incentive structure, non-monetary factors may also shape the behavior of in-work workers. Welfare stigma – the psychological costs of being dependent on welfare – is such a broadly discussed factor. It makes entitled workers restrain themselves from applying for welfare benefits (Moffitt 1983, Besley and Coate 1992). While the monetary incentive structure is legally defined, and income is observable, welfare stigma is not directly observable. Hence, empirical identification relies on indirect proxies or simulations such as non-take-up rates of welfare-entitled workers (Riphahn 2001) and information treatments in the field (Bhargava and Manoli 2015) or from the lab (Friedrichsen, König, and Schmacker 2018). This paper provides another way of assessing the behavioral consequences of non-monetary factors for labor market behavior. The economics of well-being literature examines hard-to-observe or non-monetary factors by using subjective well-being (SWB) as a predictor of behavior (Clark 2016). We apply this approach to both the on-the-job search of in-work benefit recipients and leaving the welfare program. We examine the German case of in-work benefit recipients of Arbeitslosengeld II ('unemployment benefits II,' henceforth 'UB II').

Three features position this paper in the literature. (1.) The choice of *life satisfaction* as a measure to explain the behavior of *the employed*. Previous papers on labor market behavior broadly speaking split into studies on employed workers with the domain of job satisfaction as a predictor of behavior, and those on unemployed workers with life satisfaction as a predictor for job search. This paper, in contrast, uses life satisfaction to explain the behavior of employed workers. Life satisfaction correlates negatively with welfare stigma (Krug, Drasch, and Jungbauer-Gans 2019, Hetschko, Schöb, and Wolf 2020), whereas such evidence is missing for job satisfaction. Hence, life satisfaction enables us to take hard-to-observe factors outside the job domain into account.

(2.) The choice of the target group of workers receiving in-work welfare benefits bridges the gap between two stands of literature on the behavioral consequences of SWB on labor markets. Studies on unemployed workers show diverging findings regarding the SWB effect on the job search and finding a job. While searching is negatively associated with life

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satisfaction, the results for finding a job remain ambiguous (Gielen and van Ours 2014, Mavridis 2015, Rose and Stavrova 2019). Studies on employed workers focus on job satisfaction as a proxy for job characteristics that explain job mobility (Freeman 1978, Clark 2001). Labor market institutions, the regulatory setting, or welfare stigma are rarely considered in both literature strands. As job search and labor mobility also take place among employed workers, the life satisfaction approach, known from studies on unemployed workers, is applied to employed UB II workers to examine the behavioral consequences of hard-to-observe stigma effects, excluding other non-pecuniary effects of unemployment on life satisfaction.

(3.) The behavioral outcomes we examine are the *on-the-job search* of UB II workers and the *duration until they leave welfare*. Job search is an expression of the intention to leave the current job. Job search is costly, as the well-being experienced during the job search is unpleasant – it is one of the least pleasurable activities (Knabe et al. 2010, An Hoang and Knabe 2019, Wolf, Metzing, and Lucas 2019). Job search is the first step of a process that might end in job mobility (Böckerman and Ilmakunnas 2009). Consequently, the second outcome we use is the duration of the actual change from UB II status to regular employment without in-work benefits. In doing so, we examine if life satisfaction affects the aim of the welfare program UB II: overcoming welfare dependency (German Social Code II, §1).

This research agenda demands detailed information on labor market behavior, individual characteristics and biographies, and repeated information on life satisfaction. Such a demanding set of information is available and increasingly used by linking administrative and survey data (Böckerman and Ilmakunnas 2012, Böckerman et al. 2013). Therefore, we utilize PASS-ADIAB. It consists of an individual and household panel survey linked to administrative data from the German social security system and annual establishment data (Antoni and Bethmann 2019). The richness of the dataset makes it possible to extract the employment status from administrative records, and to obtain annual life satisfaction information, job search status from the survey as well as information on the respective firms of the UB II worker. The exact location of the establishment is linked and allows us to address local labor market and demand-side factors. As a methodological approach, we choose a panel analysis model with individual fixed effects to explain the job search (outcome 1) and a Cox proportional hazard model to estimate the duration until the actual UB II exit (outcome 2).

We find evidence that life satisfaction is *ceteris paribus*, a relevant predictor for the labor market behavior of in-work benefit recipients. Lower life satisfaction is associated with an

increased likelihood of starting on-the-job search among UB II workers that go beyond the incentive arising from income. However, this finding holds for a sub-population of marginally employed UB II workers. The duration until successfully leaving UB II is hardly affected by the life satisfaction level.

The rest of the paper is structured as follows. Section 2 describes the conceptual framework and related literature. Section 3 explains the institutional background of UB II, followed by Section 4, which introduces the PASS-ADIAB dataset. Section 5 explains the empirical estimation strategy. Section 6 summarizes descriptive statistics (6.1), the results for the on-the-job search (6.2, outcome 1), and the duration analysis of successfully leaving UB II (6.3, outcome 2). Section 7 discusses the findings, and Section 8 concludes.

## 2. Subjective well-being and labor market behavior of working welfare recipients

We describe the labor market behavior of UB II workers under the assumption that an intrinsic cost-benefit analysis drives their decision to act. Workers compare the benefits and costs of their employment status with the expected outside costs and benefits of a different labor market status. If the benefit-cost ratio of the outside status outweighs that of the current position, the workers act, e.g., start to search for a better job. Such an approach builds on the idea of a general on-the-job search framework that describes labor turnover if the utility from the current job is outweighed by the expected returns from outside job offers (Burdett 1978, Pissarides and Wadsworth 1994). We describe this relationship with a modified version of the Green (2010) turnover function. An *action* to change employment status – such as job search – is carried out if the inequation (2.1) holds.

$$u^* - u - c > 0 \quad (2.1)$$

The decision to act depends on the relation between the expected utility of outside costs and benefits aggregated in  $u^*$  and the current utility of costs and benefits of the current employment status in  $u$ . Searching for a job also has transaction costs (or benefits) that are expressed with  $c$ . If the outside state  $u^*$  offers more utility than the current state  $u$  together with the transaction costs  $c$ , the worker acts in order to obtain the other labor market state. Hence, observing that an in-work benefit worker remains without any search efforts in welfare dependency might be due to his perception of an in-work benefit job having a sufficiently high amount of benefits, or due to the perception of rather sobering outside opportunities or due to individually prohibitively high search costs. Any outside status is only

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feasible if the search is not too costly. All three variables are subject to monetary and non-monetary attributes. This paper distinguishes between such monetary and non-monetary factors that shape  $u$  while holding the outside options  $u^*$  and transaction costs  $c$  constant in order to explain job search and the welfare duration of working welfare recipients.

SWB makes it possible to distinguish between monetary and non-monetary attributes of labor market status (Schöb 2013). This distinction is needed to examine the extent to which life satisfaction is affected by the non-monetary aspects of an in-work benefit program. In general, the differentiation between monetary and non-monetary effects of such programs on SWB is rarely studied (Gregg, Harkness, and Smith 2009, Boyd-Swan et al. 2016). An exception is Hetschko, Schöb, and Wolf (2020), who differentiate between income and life satisfaction effects of welfare dependency on employees. The authors find that UB II workers have reduced life satisfaction due to their welfare compared to workers with the same income but without in-work welfare. The (non-monetary) deviation from the non-dependency norm (“one should make one’s own living”) is described as a cause for the *ceteris paribus* reduced life satisfaction. They present evidence that UB II workers who put a high weight on such a work norm experience a severe reduction in life satisfaction due to welfare dependency. Using self-reported stigma consciousness points in the same direction: the higher the stigma consciousness, the lower the life satisfaction given the income of the welfare recipients (Krug, Drasch, and Jungbauer-Gans 2019). The evidence in this respect suggests that life satisfaction proxies the non-monetary welfare stigma of being an in-work benefit worker.

In addition to welfare stigma, there are other non-monetary costs and benefits that shape  $u$ , and, hence, labor market switches. Taking a process perspective, the initial step to switch status is the expression of the intention-to-quit succeeded by actual job search attempts (Böckerman and Ilmakunnas 2009). Observed individual life satisfaction changes, foremost due to job losses, are used for the distinction between income loss and the loss of non-monetary benefits of a job. It is not that jobs are merely costly in terms of foregone leisure, however; they also offer substantial non-monetary benefits. For instance, in terms of identity (Hetschko, Knabe, and Schöb 2014), meaning (Cassar and Meier 2018) or individual autonomy (Kaplan and Schulhofer-Wohl 2018). Unemployment deprives workers of the non-monetary benefits of a job that is reflected in life satisfaction. As a behavioral consequence, unemployed with a more severe drop in life satisfaction search more frequently and more intensively for a new job (see Clark 2003, Mavridis 2015). Following this idea, we

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hypothesize for UB II workers that the likelihood of a job search is negatively associated with life satisfaction given the income level of the workers.

Examining the literature on re-employment reveals a less clear picture of the role of life satisfaction for the next step in the turnover process – the actual status change. Whereas Clark (2003) and Mavridis (2015) also find that lower life satisfaction due to unemployment leads to shorter unemployment durations and a higher likelihood of re-employment. Gielen and van Ours (2014) also find the above-mentioned increased job search effort due to reduced life satisfaction, but no correlation with actual unemployment duration. Self-reported stigma consciousness also affects search effort; however, this intensified effort does not result in more job interviews, nor does it increase the likelihood of leaving unemployment (Krug, Drasch, and Jungbauer-Gans 2019). A further strand of literature finds a rather non-linear association between SWB and re-employment (Krause 2013, Rose and Stavrova 2019). These papers find a hump-shaped association between SWB and unemployment duration and re-employment likelihood. Consequently, a moderate well-being level maximizes the likelihood of re-employment. The reasons for the discrepancy of the empirical results regarding search efforts and duration of unemployment and re-employment are manifold. For instance, re-employment and short unemployment periods require labor demand that matches the search efforts of the unemployed. Nevertheless, the demand side is hard to track and therefore might account for the unsuccessful search on the part of the unemployed (Gielen and van Ours 2014). Some reported findings are also driven by or hold only for specific subgroups, such as men (Mavridis 2015), or relate to specific types of re-employment, such as self-employment (Krause 2013). Further, not all studies account for time-stable individual traits, whereas personality traits are identified as relevant for searching and finding a job. Hence, unobserved stable traits might bias well-being effects on behavioral outcomes or may cause diverging findings regarding job searching and re-employment (Krause 2013, Rose and Stavrova 2019).

To estimate the role of life satisfaction in the duration until successfully leaving in-work benefits for a regular job, we also need evidence on the role of non-monetary job characteristics for employees. Simulations show that the importance of non-monetary job attributes is even more crucial for utility than monetary incentives (Sullivan and To 2014). The empirical literature examines non-monetary job attributes among employees foremost with job satisfaction to predict job quitting and job turnover. Early studies already suggest that lower job satisfaction is associated with a higher propensity to quit (Freeman 1978). More recent studies confirm this: *ceteris paribus*, job satisfaction is a significant negative

predictor for job quitting and labor mobility (see, for instance, Clark, Georgellis, and Sanfey 1998, Clark 2001, Lévy-Garboua, Montmarquette, and Simonnet 2007). This finding holds specifically beyond income. Structural, multi-equation models also use job satisfaction to account for hard-to-observe non-pecuniary aspects of a job, such as good relations to colleagues or advancement opportunities (Böckerman and Ilmakunnas 2009, Cornelißen 2009). Furthermore, comparable case studies on discrimination in specific occupations yield that job satisfaction, like life satisfaction, affects the likelihood of on-the-job search and quitting negatively. For instance, British ethnic minority nurses (Shields and Wheatley Price 2002) and racially discriminated US military personnel (Antecol and Cobb-Clark 2009) have a higher likelihood not to stay in their job due to reduced job satisfaction from discrimination. As we take general overall life satisfaction as a proxy for non-monetary factors, we assume that life satisfaction incorporates the effect of such non-monetary job attributes, too. Welfare stigma and non-monetary job attributes together affect life satisfaction. All things equal, we hypothesize that UB II workers with a reduced life satisfaction leave welfare faster to obtain a labor market status with the beneficial outside  $u^*$ .

### **3. Institutional setting: Welfare while working**

The UB II in-work benefit program is part of the general German welfare system, which guarantees a socio-economic minimum income through welfare transfers. Hence, UB II is means-tested and it is granted to needy households. The neediness threshold of a household depends on the number of adults and children living in this household, the total household income, and the savings of the household.<sup>1</sup> Consequently, UB II is granted to applying households irrespective of the reasons for its low income level. Unemployment of one or more adults, low earnings, or a high number of dependent children substantially increases the risks for UB II. However, UB II workers have a job. They live in households receiving UB II while having earnings from a job or self-employment. UB II workers “combine” earnings with welfare transfers. The self-earned income is not fully deducted from the welfare amount and, hence, they have a monetary incentive to work. The deduction plan of UB II defines the monetary incentives the UB II workers face and is the central part of the reform debate on UB II (Knabe 2005, Schöb 2020). Currently, UB II workers have an individual monthly allowance of 100 euros without deductions of the welfare amount. For a single adult

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<sup>1</sup> The official German term for a UB II household is “Bedarfsgemeinschaft”.



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household, the welfare deduction rate of each euro earned above 100 euros is 80 percent up to monthly earnings of 1,000 euros. For higher earnings, the deduction rate rises to 90 percent, and phases out at individual earnings of 1,200 euros. The transfer phase-out threshold is extended to 1,500 euros for households with dependent children (for more institutional details see Hetschko, Schöb, and Wolf 2020, section 3).

In principle, UB II workers face the same monetary incentive structure that leads to the same financial outcomes. However, two crucial differences among the UB II workers are present: the employment regulation and the job search obligation. (1) The job might be either regular or marginal. UB II workers in regular employment pay full social security payroll tax. Marginal employment (ME), or so-called “Minijobber” (henceforth: ME UB II) are restricted to jobs with monthly earnings below 451 euros, which comes along with fewer working hours and lower wage rates. ME UB II workers’ earnings are not subject to social security contributions for the employee. As a result, such a scheme is often used to provide secondary employment, and more importantly, it is suitable for workers who are officially registered unemployed (Lietzmann, Schmelzer, and Wiemers 2017). (2) In principle, UB II welfare comes along with the obligation to search for a job to overcome the neediness by own earnings. This holds for UB II workers who have a job. ME UB II workers search more often, and they are also more often have an obligation to search from their respective Jobcenter (Bähr et al. 2018). About half of UB II workers are marginally employed. Another difference between UB II workers and other workers are the non-pecuniary attributes of the jobs carried out with in-work benefits. For instance, the jobs UB II workers have are more often temporary, leading to more reports of worries about losing the job (also for non-temporary jobs) or autonomy at work is perceived lower (Achatz and Gundert 2017).

#### **4. Data**

This study utilizes PASS-ADIAB 7515 that combines survey data from the annual household panel study Labour Market and Social Security (henceforth PASS, see Trappmann et al. (2013)) with administrative labor market information from registers of the German Federal Employment Agency using record linkage techniques (Antoni and Bethmann 2019). Several advantages make PASS-ADIAB particularly compelling for this analysis. First, PASS oversamples households receiving welfare, guaranteeing a sufficiently high number of cases of UB II workers. Furthermore, the presence of individual panel data on life satisfaction and a broad set of life circumstances allows individual fixed effects to be applied. Also, the linked

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administrative register data allow for more reliable information on welfare dependency as this information comes from the welfare administration instead of self-reported welfare reports. The avoidance of error-prone survey answers on transfer dependency helps to account for misreporting of UB II status (Bruckmeier, Müller, and Riphahn 2014). The detailed register information on the exact date of specific employment status is also an essential feature for estimating precise survival curves for UB II status as well as for accounting for employment biographies by generating measures for job tenure, welfare biographies, and the labor market histories of the UB II workers. Another advantageous feature of administrative data is the availability of a firm-identifier, which makes it possible to merge establishment information for each UB II worker. Furthermore, PASS-ADIAB supplies county-level information on the location of the establishment, allowing us to control location-specific factors.

The foundation of the working sample consists of the respondents of the PASS panel study. The initial wave of the annual survey, with approximately 18,000 persons in about 12,000 households, was drawn in December 2006/2007. The PASS study consists of two survey populations facing the same questionnaire design, one of which represents the German residential population, while the other is a random sample from the UB II recipient register (Trappmann et al. 2010, 2013). The administrative records that are, in principle, linkable to PASS contains each person in Germany who was subject to social security (since 1975), in marginal employment (since 1999), a recipient of benefits from unemployment insurance (since 1975), and a recipient of UB II (since 2005) as well as a registered job seeker at the employment agency or a participant in an active labor market program. Hence, in principle, all UB II workers have at least one record in the administrative IEB data. The maximum possible spell for which information is available starts on the 1<sup>st</sup> of January 1975 and ends on the 31<sup>st</sup> December 2014 for PASS-ADIAB 7515 (Antoni and Bethmann 2019).

For the working sample, we use the PASS-ADIAB 7515 scientific use file that consists of respondents from PASS waves 2007/2008, 2008/2009, 2010, 2011, 2012, 2013, and 2014. The first PASS survey wave (2006/2007) is dropped due to subsequent changes in the questionnaire design. Moreover, we cannot use PASS wave 9 (2015) due to the lack of administrative records for that year. Furthermore, the working sample consists of workers who granted linkage consent for the administrative records during the survey process. The selectivity from denied linkage consent is small with a weak tendency towards persons who have fewer privacy concerns, and therefore, having fewer missing values on sensible variables. In general, the average linkage consent rate is 81 percent. Estimations on socio-

demographic outcomes suggest that consent bias does not change the results significantly (Beste 2011, Antoni and Bethmann 2019). We form the UB II workers sample from those PASS respondents who granted consent. A respondent qualifies as a UB II worker if, on the PASS survey interview day, she has an overlap of an administrative employment spell (regular employment or marginal employment on indicator ‘erwstat’) and a UB II welfare spell (registered UB II recipient who is indicated as an adult and employable on the variables ‘quelle’ and ‘erwstat’). Over all waves, this leads to  $N = 7,516$  cases of UB II workers. In total, the working sample shrinks to  $N = 4,016$  UB II workers by dropping all the observations without information on job search, life satisfaction, and all applied covariates.

Job search is generated from the PASS survey question:

*In the past four weeks, have you been looking for. . .*

(1) *a different job*, (2) *an additional job*, (3) *no job at all*, or (4) *an additional as well as for a different job*. The binary outcome variable is defined such that (3) becomes No = 0, and (1), (2), and (4) as Yes = 1.<sup>2</sup>

The duration until successfully ending UB II are the days between the onset of the *risk of leaving UB II* and leaving UB II for regular employment without welfare. It defines a successful exit as the day on which a UB II spell ends, and within the following five days, an employment spell is observed. Working UB II episodes not ending within the period of observation are right-censored on the 31<sup>st</sup> December 2014 and kept for the survival analysis dataset.

Regarding the two outcome variables, we condition on essential factors affecting either UB II entitlement (such as household income, cohabitation, and the number of children in the household) and job search (such as tenure, working hours, and firm characteristics). For a comprehensive summary of all covariates, see Appendix A1.

## 5. Estimation strategies

### 5.1 On-the-job search of UB II workers

We examine the role of non-monetary factors in the on-the-job search of UB II workers by estimating a linear probability model with individual fixed effects. The outcome is whether a

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<sup>2</sup> A detailed overview of the generation of dependent and independent variables from PASS-ADIAB is available in Appendix A1.

UB II worker is searching for a new job or not ( $JS = 1$  if yes; 0 otherwise)). The model is expressed by the equation:

$$\begin{aligned}
 JS_{it}^* = & \beta_0 + \beta_1 LS_{it} + \beta_2 \ln(y_{it}) + \beta_3 h_{it} + \beta_4 h_{it}^2 \\
 & + \mathbf{job}'\beta_{job} + \mathbf{firm}'\beta_{firm} + \mathbf{soc}'\beta_{soc} + \alpha_i + \varphi_k + \tau_t + \varepsilon_{it}
 \end{aligned}
 \tag{5.1}$$

We estimate the latent likelihood of  $JS_{it}^* = 1$  of a UB II worker  $i$  at the interview wave  $t$ . The coefficient of interest is  $\beta_1$ , which states the partial correlation between life satisfaction ( $LS$ ) and the likelihood of searching. Such types of longitudinal linear probability models are applied in related works on non-experimental labor supply decisions of in-work benefit recipients (Francesconi and van der Klaauw 2007) and estimations on mental health affecting employment rates in register data (Greve and Nielsen 2013). The SWB and job search literature either rely on past life satisfaction changes from job loss to explain a current binary outcome (Clark 2003, Gielen and van Ours 2014) or does not account for individual fixed effects (Krause 2013, Rose and Stavrova 2019).

The identification of the  $\beta_1$ -coefficient rests on the assumption that  $LS_{it}$  is not endogenous. We choose a longitudinal probability model to avoid the arbitrary process of choosing the “correct” past life satisfaction (change) relevant to the current job search decision. Job search and life satisfaction are measured at the same point in time (the interview date). This comes at the cost of a higher risk for reverse causality that might also run from job search to well-being. This is specifically the case as job search is among the least pleasurable activities for experienced well-being that is associated with life satisfaction (Knabe et al. 2010, Wolf, Metzing, and Lucas 2019). However, we tolerate this caveat as we are able to address this issue with sensitivity analysis, whereas two other potential sources of biases are ruled out with our approach. Taking past life satisfaction would require two consecutive steps: one change in life satisfaction at an arbitrary point in time and using this life satisfaction change for the search estimation. Therefore, the risk of a selective outflow from the UB II status depending on life satisfaction between step one and step two are severe. Especially, Hetschko, Schöb, and Wolf (2020) show that the likelihood of experiencing a status transition (either to regular employment or to unemployment) is correlated with life satisfaction. Besides, the elapsed time in a two-step procedure is prone to adaption in life satisfaction (Gielen and van Ours 2014). By examining job search and life satisfaction simultaneously, we overcome both two limitations. As a sensitivity analysis, we show that past life satisfaction

also influences today's search decisions and that the effect is not the opposite direction (see Appendix A4).

Another source of endogeneity is the omission of relevant covariates of job search. Here, the richness of PASS-ADIAB with its combination of administrative and survey information is beneficial and allows to reduce the risk for biased estimates. To distinguish between monetary and non-monetary factors, we need an appropriate proxy that allows us to keep the monetary circumstance of the labor market status fixed. Therefore, we control for monthly disposable household income  $y$ . Household income positively correlates with earnings, which express the monetary value of a job (Pissarides and Wadsworth 1994). Furthermore, it proxies three additional monetary factors that would otherwise affect life satisfaction. Household income is also positively correlated to one's partner's earnings. Consequently, it constitutes the central UB II eligibility criteria that shape the prospects of leaving UB II (Hetschko, Schöb, and Wolf 2020). As household income approximates consumption possibilities as well, we use a log-linear specification to reflect the diminishing returns of consumption for well-being (Stevenson and Wolfers 2013). Working hours  $h$  and hours squared  $h^2$  reflect the opportunity costs of being at work and are an essential job characteristic workers care about (Grün, Hauser, and Rhein 2010). Hence, we also control for non-linear associations between working time and life satisfaction. Under perfect market clearing, income and hours allow considering the wage rate.

Job characteristics, however, turn out to be important predictors of job search beyond income (Delfgaauw 2007). Hence, we control for job characteristics by using the vector ***job***, which encompasses indicators for individual tenure at the firm and an indicator for fixed-term contracts that shape the decision for on-the-job search, too. Firm-specific factors also influence the decision to search. These factors are addressed by the vector of controls ***firm***. Individual socio-demographic characteristics are considered by the vector ***soc*** encompassing a health status control as well as family characteristics such as cohabitation and the number of children in the household. Specifically, the latter are also determinants of the UB II entitlement that is granted on the household level (see section 3).

Unobserved individual characteristics are essential covariates that affect job search and employment transitions (Krause 2013, Rose and Stavrova 2019). Therefore, we focus also on the unobserved heterogeneity among the workers. One strategy in well-being research is the inclusion of individual fixed effects (here:  $\alpha_i$ ) that condition the estimation on time-stable individual traits that affect, for instance, life satisfaction, income and job search (Ferrer-i-

Carbonell and Frijters 2004). However, some other unobserved traits are not entirely stable over time and, therefore, potential confounders of life satisfaction association. The locus of control is such a trait that may alter depending on the employment status (Preuss and Hennecke 2018). As a consequence, we control for administrative employment biographies of the UB II workers, too. Such biographical measures typically from administrative records affect labor market outcomes and allow to proxy unobserved heterogeneity that might alter over time (Caliendo, Mahlstedt, and Mitnik 2017). Specifically, the total number of transfer episodes and the total days in UB II since its introduction 2005 should correlate with time-varying heterogeneity in personality.

The search behavior is affected by the labor demand by the firms around. In terms of a search model, job search depends on the individual expectations about the job offer arrival rate. A search without any opportunity to receive a job offer might be felt to be a hopeless endeavor (Gielen and van Ours 2014). Hence, we need to make labor demand comparable between the different workers. Therefore, we introduce county-specific fixed effects  $\varphi_k$  in order to address local labor market effects. Hence, we estimate the likelihood of searching, given that the UB II workers remain under the same labor market conditions.

The wave controls  $\tau_t$  completes the estimation equation and further controls for business cycle aspects. We use a linear probability model as the estimation technique. However, logit models are also a suitable solution for binary outcomes, and we estimate the same model with the conditional logit estimator with fixed effects.<sup>3</sup>

### *5.2 Duration analysis: Outflow sample towards working without welfare*

In a second step, we examine the duration until successfully leaving welfare for regular employment without welfare dependency. We examine if life satisfaction shows an association with the duration of being in the UB II worker state. The exit into regular employment indicates the end of a process that is initiated by the job search. To estimate the time for such an outflow sample, we use a proportional hazard model with continuous time (Jenkins 2005). We estimate the hazard rate  $h(s)$  with  $s$  representing the number of days of working while being a welfare recipient. The model is estimated in the following form:

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<sup>3</sup> The results are presented in Appendix A2 and A3. The signs of the coefficients confirm the findings of the linear probability model. The magnitude of the logit coefficients is not directly comparable to coefficients of the linear probability model.

$$\begin{aligned}
h(s|LS, \mathbf{X}, u) = & h_0(s) \exp(\beta_1 LS_{it} + \beta_2 \ln(y_{it}) + \beta_3 h + \beta_4 h^2 \\
& + \mathbf{job}'\beta_{job} + \mathbf{firm}'\beta_{firm} + \mathbf{soc}'\beta_{soc} + \mathbf{X}'\beta + u)
\end{aligned}
\tag{5.2}$$

We examine the hazard rate  $h(s)$  describing the chance of successfully leaving UB II for each day  $s$  since the beginning of the UB II episode. The number of days  $s$  between the onset of the chance to the failure event (= successfully leaving UB II) is the increment to be explained.<sup>4</sup> We estimate a semi-parametric Cox proportional hazard model, and so we do not need to assume a specific form of the baseline hazard function  $h_0(s)$  as long as the proportional hazard assumption over time holds. As a robustness check, we redo the procedure with a parametric Weibull baseline hazard function (Luecke 2018).<sup>5</sup>

Analogously to the model in 5.1, life satisfaction  $LS$  is the variable of interest. The other vectors of covariates are part of the estimated model to condition on the socio-demographic, firm, and job characteristics of the UB II workers that experience the successful end to welfare. We make the usual assumption that the explanatory variables from the last interview before the exit event are stable over time. For instance, in the case of the last PASS interview having taken place 143 days before leaving UB II, the life satisfaction score from that interview is assumed to be valid during the remaining days until the exit event occurs.

By taking the within worker perspective in the job search model 5.1, we control time-stable characteristics. Nevertheless, duration models require a different data structure that restricts the possibility for individual fixed effects as units of analysis are expiring UB II episodes. Consequently, the number of occurrences of the exit event during the observation period determines how often an individual appears in the dataset. Due to the low number of cases of repeated occurrences, individual fixed effects are not feasible here. Hence, we rely on additional (time-stable) covariates in vector  $\mathbf{X}$ . Namely, we rely on controls that proxy personality traits and human capital as well as gender to account for between UB II worker differences that may also affect the duration of successful leaving UB II.

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<sup>4</sup> A successful end of an UB II episode of a worker (= failure) is assigned if a working episode with no UB II parallel to the UB spell follows immediately afterwards. A maximum of four days of non-work between end-of-UB II and working is accepted.

<sup>5</sup> Results are presented in Appendix A6.

## 6. Results

### 6.1 On-the-job search of UB II workers

The target group of UB II workers differs from the rest of the German workforce. UB II workers work fewer hours with fewer earnings, and, on average, they are less satisfied with life. Earnings affect the household income and, consequently, the UB II entitlement (Hetschko, Schöb, and Wolf 2020). We are interested in the search behavior of UB II workers. We, therefore, differentiate between the characteristics of searching UB II workers and non-searching UB II workers. Table 1 depicts these differences. UB II workers searching for a job are 0.5187 points less satisfied with life ( $p < 0.001$ ). Of course, we cannot claim that the difference in life satisfaction causally induces job search. For instance, a complementary factor potentially inducing job search is a lower salary that is reflected in €154.51 less monthly household income of the searching UB II workers ( $p < 0.001$ ).<sup>6</sup> This is a pecuniary incentive to seek a better-paid job. Employment contracts also differ considerably. The share of workers with a fixed-term contract is higher in the group of job seekers. Hence, this employment is more prone to the necessity of finding a new job. A substantial share of ME UB II workers do not search for a new job, although their monthly earnings are limited to 450 euros a month (see section 3).

The UB II workers, in general, differ from other employees in that they are more frequently employed in a rather small set of service jobs. Cleaning jobs, cooks, salesperson, drivers, and waiters account for about 25 percent of all UB II workers (Achatz and Gundert 2017). Nevertheless, within the UB II workers, there are minor differences between seekers and non-seekers regarding the job requirements that are assigned to the specific occupation. In particular, workers at the lowest level of job requirements more frequently search for a new job. The job seekers among the UB II workers cohabit less often, and the number of dependent children in the household is lower. Both point to the role of household composition, which may affect the job search decision of UB II workers.

The lower panel of Table 1 shows time-stable (cross-sectional) characteristics. UB II workers with higher educational attainment have a higher likelihood of job search, potentially reflecting better outside job options. Slightly over two-thirds of UB II workers are female, the share of males is a bit higher among the searching UB II workers. In PASS wave five, a

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<sup>6</sup> The monthly gross earnings are surveyed for a subgroup of UB II workers only. The difference is € 136.18 ( $p < 0.000$ ) for them.



psychological standard measure for personality traits – the so-called Big Five – was surveyed. We extrapolated the respective scores for the five traits to all the other waves of the same person under the assumption that they remain stable over time. Searching UB II workers differ significantly from non-searching UB II workers. Job seekers have higher scores for extraversion ( $p = 0.0912$ ), conscientiousness ( $p = 0.0538$ ), and openness ( $p = 0.0375$ ).

Table 1: Characteristics of UB II workers by job search

	On-the-job search			
	No		Yes	
	Mean / Pct.	Std. Dev.	Mean / Pct.	Std. Dev.
Life satisfaction	6.59	1.84	6.07	1.97
Monthly household income (disposable, in €)	1,389.33	648.35	1,234.82	570.11
Actual working hours (per week)	26.33	14.40	18.87	14.07
Tenure (in years)	2.91	3.73	2.31	3.04
Biography: Total number of transfer episodes	4.77	3.90	4.69	3.54
Since 2005: Total time in UB II (in years)	5.03	2.40	5.35	2.40
Fixed-term contract (in %)	22.84		26.55	
Marginal Employment (in %)	26.83		56.60	
Job requirements: Level 1 (in %)	41.28		46.35	
Job requirements: Level 2 (in %)	52.49		46.04	
Job requirements: Level 3 (in %)	3.19		3.57	
Job requirements: Level 4 (in %)	3.04		4.04	
Active trade union member (in %)	3.63		4.81	
Establishment: 1-20 employees (in %)	41.06		48.21	
Establishment: 21-100 employees (in %)	30.21		21.12	
Establishment: 101-500 employees (in %)	19.94		21.43	
Establishment: 501-2000 employees (in %)	./.		./.	
Establishment: 2000+ employees (in %)	./.		./.	
Establishment: Time since first appearance: < 5 years (in %)	19.17		20.65	
Establishment: Time since first appearance: 5-9 years (in %)	17.16		18.09	
Establishment: Time since first appearance: 10-19 years (in %)	32.29		30.98	
Establishment: Time since first appearance: 20+ years (in %)	30.72		30.28	
Cohabitation (in %)	47.25		37.97	
Number of children in household	1.01	1.11	0.84	1.02
Age bracket: 18-32 (in %)	18.99		17.00	
Age bracket: 33-42 (in %)	26.98		24.61	
Age bracket: 43-51 (in %)	27.82		32.61	
Age bracket: 52-61 (in %)	26.21		25.78	
Number of doctoral consultations (last three months)	2.45	4.53	2.60	4.66
Number of observations (pooled)	2,728		1,288	

	Time-stable characteristics within UB II worker				N <sup>a</sup>
Big Five personality trait: extraversion <sup>b</sup>	3.52	0.86	3.56	0.80	2,823
Big Five personality trait: agreeableness <sup>b</sup>	3.24	0.71	3.27	0.73	2,823
Big Five personality trait: conscientiousness <sup>b</sup>	4.12	0.58	4.16	0.56	2,822
Big Five personality trait: neuroticism <sup>b</sup>	2.83	0.81	2.86	0.82	2,823
Big Five personality trait: openness <sup>b</sup>	3.57	0.50	3.61	0.49	2,818
Highest educational attainment: ISCED 1-2 (in %)	26.40		23.42		4,008
Highest educational attainment: ISCED 3 (in %)	54.57		52.37		4,008
Highest educational attainment: ISCED 4-6 (in %)	19.02		24.20		4,008
Gender: Male (in %)	34.42		37.40		4,014

Source: PASS-ADIAB, version 7515, own calculations.

Note: ./ denotes cells with information that are censored by IAB data processing due to very low number of cases. <sup>a</sup> The number of cases deviates from the longitudinal panel above due to missing values. <sup>b</sup> Big 5 indicators were surveyed exclusively in PASS wave 5. We transferred these traits to all other available PASS waves of the same person under the assumption of time stability.

## 6.2 Does life satisfaction affect job search?

In order to address the association of life satisfaction with the on-the-job search of UB II workers over time, we estimate a linear probability model with individual fixed effects. Table 2 shows the results. In (1), a baseline model shows the association of within-person life

satisfaction changes and the on-the-job search likelihood of UB II workers. Household income, working hours, and socio-demographic controls, as well as firm-specific factors, are added in (2). Column (3) incorporates the local labor market by introducing county fixed effects.

Table 2: Job search of UB II workers and life satisfaction

Dependent: $Pr(JS = 1)$	(1)		(2)		(3)	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Life satisfaction	-0.0220 ***	0.0075	-0.0160 **	0.0074	-0.0176 **	0.0075
Monthly household income (ln)			-0.0316	0.0341	-0.0307	0.0343
Hours			-0.0130 ***	0.0040	-0.0137 ***	0.0040
Hours (sq)			0.0002 ***	0.0001	0.0002 ***	0.0001
Tenure			0.0152	0.0113	0.0142	0.0114
Tenure (sq)			-0.0002	0.0008	-0.0001	0.0008
Fixed-term contract (yes = 1)			0.0465	0.0371	0.0457	0.0375
Marginal Employment (yes = 1)			0.2320 ***	0.0522	0.2331 ***	0.0538
Job requirements: Level 1 (Reference: Level 2)			0.0105	0.0415	0.0072	0.0424
Job requirements: Level 3			-0.0773	0.0929	-0.0792	0.0926
Job requirements: Level 4			0.1104	0.0869	0.1102	0.0875
Active trade union member (yes = 1)			0.0486	0.0621	0.0380	0.0613
Establishment: 1-20 employees			0.0659	0.0494	0.0598	0.0504
Establishment: 101-500 employees			0.0994 *	0.0576	0.0839	0.0583
Establishment: 501-2000 employees			0.0516	0.0716	0.0344	0.0743
Establishment: 2000+ employees			-0.2507	0.1948	-0.2669	0.1954
Establishment: Time since first appearance: < 5 years			-0.0744	0.0460	-0.0638	0.0467
Establishment: Time since first appearance: 10-19 years			-0.0537	0.0407	-0.0481	0.0408
Establishment: Time since first appearance: 20+ years			-0.0616	0.0520	-0.0614	0.0520
Cohabitation (yes = 1)			0.0312	0.0663	0.0308	0.0681
Number of children in household			0.0234	0.0368	0.0327	0.0374
Age bracket: 18-32 (Reference: 33-42)			-0.0246	0.0688	-0.0147	0.0746
Age bracket: 43-51			-0.0627	0.0701	-0.0450	0.0696
Age bracket: 52-61			-0.0588	0.0933	-0.0431	0.0936
Number of doctoral consultations (last three months)			-0.0006	0.0025	-0.0008	0.0025
Biography: Total number of transfer episodes			-0.0337 **	0.0170	-0.0318 *	0.0178
Since 2005: Total time in UB II (in years)			-0.0342	0.0314	-0.0322	0.0317
Constant	0.4623 ***	0.0480	0.8709 ***	0.2849	0.8442 ***	0.2874
Individual fixed effects		yes		yes		yes
Wave controls				yes		yes
County fixed effects						yes
Number of observations		4,016		4,016		4,016
R <sup>2</sup> (overall)		0.0063		0.0722		0.0937

Source: PASS-ADIAB, version 7515, own calculations.

Note: \* denotes significance at the 10% level, \*\* at the 5% level, and \*\*\* at the 1% level.

In all three columns, life satisfaction shows a statistically significant negative coefficient that changes only slightly with the stepwise integration of controls. Increasing (decreasing) life satisfaction is accompanied by a decreasing (increasing) propensity to search for another job. In column (3), a one-point increase in life satisfaction is accompanied by a 1.76 percentage-point lower likelihood of job search ( $p < 0.0189$ ). As we focus exclusively on the within-person perspective, observed, but time-stable, factors (e.g., gender) and unobserved time-stable factors are controlled and do not bias these results. Working time shows a negative

coefficient; the likelihood of searching becomes lower, the more hours UB II workers work per week. Household income remains insignificant. Controlling for individual earnings instead of household income yields a negative coefficient (see Appendix A4, col. 4-6). The insignificant household income coefficient is thus a sign that other income sources (like earnings of a partner) affect job search with the opposite sign. These findings are in line with standard models of on-the-job search (Pissarides and Wadsworth 1994). The estimation combines UB II workers in marginal employment as well as regular employed UB II workers. Even given the working hours, marginal employment is a strictly positive predictor of job search. An extensive transfer biography is the strongest negative predictor for job search. The likelihood of searching for another job drops with each additional transfer episode in the past by more than three percentage points. It is remarkable that despite a comprehensive set of controls, life satisfaction remains a significant predictor that supplements the explanatory power and shows a negative sign.

Life satisfaction and job search are both measured at the same point in time. Hence, reverse causality might be an issue. As a sensitivity check, we substitute lagged life satisfaction ( $t-1$ ) for current life satisfaction. Past satisfaction is not affected by current dissatisfaction due to job search. Furthermore, we combine current and lagged satisfaction measures in one estimation together as predictors for job search (see Appendix A4, col. 1-3). The results show that changes in life satisfaction in the past and also past and current life satisfaction together are negatively associated with job search. This makes us confident that it is not job search that reverses the causal direction.

Table 3 attempts to understand the channel through which life satisfaction affects search behavior. Initially, we address the heterogeneity among UB II workers and estimate the role of marginal employment in column (1) since ME UB II workers are confronted with different individual and institutional constraints regarding, for instance, their time budget. The role of the German ‘Jobcenter’ as a government body that ‘activates’ UB II workers is examined in column (2). These ‘Jobcenters’ attempt to incentivize transfer recipients to overcome welfare dependency – for instance, they impose the obligation to search for a job on the UB II worker (Hetschko, Schöb, and Wolf 2020). Column 3 examines the role of perceived job security, which is known as an essential determinant of job search (Clark, Knabe, and Rätzl 2010).<sup>7</sup>

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<sup>7</sup> For all three estimations, we do not include county fixed effects as this would prevent the maximum likelihood function from converging.

Table 3: Job search of UB II workers and life satisfaction: Institutions and expectations

Dependent: $Pr(JS = 1)$	(1)		(2)		(3)	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Life satisfaction	-0.0050	0.0089	-0.0212 *	0.0112	-0.0110	0.0145
ME = 1 × Life satisfaction	-0.0323 ***	0.0110				
Number of contacts to Jobcenter			-0.0175	0.0411		
Jobcenter: Obligation to search for a job = 1			0.1726 ***	0.0375		
Expectations: Worries about future job loss = 1					0.1112 **	0.0485
Monthly household income (ln)	-0.0318	0.0339	-0.0149	0.0500	0.0121	0.0604
Hours	-0.0131 ***	0.0040	-0.0158 **	0.0077	-0.0221 **	0.0094
Hours (sq)	0.0002 ***	0.0001	0.0002	0.0001	0.0003 **	0.0001
Tenure	0.0163	0.0113	0.0183	0.0154	0.0144	0.0208
Tenure (sq)	-0.0002	0.0008	-0.0005	0.0009	-0.0010	0.0013
Fixed-term contract (yes = 1)	0.0474	0.0372	0.0222	0.0533	0.0695	0.0966
Marginal Employment (yes = 1)	0.4108 ***	0.1029	0.2034 **	0.0867	0.1227	0.0999
Job requirements: Level 1 (Reference: Level 2)	0.0071	0.0416	-0.0449	0.0557	0.0833	0.1438
Job requirements: Level 3	-0.0719	0.0929	-0.0784	0.1219		
Job requirements: Level 4	0.1043	0.0887	0.0069	0.1204	0.1338	0.2071
Active trade union member (yes = 1)	0.0459	0.0633	-0.0118	0.1019	-0.1532	0.1422
Establishment: 1-20 employees	0.0673	0.0495	-0.0007	0.0650	-0.0088	0.1318
Establishment: 101-500 employees	0.1016 *	0.0575	-0.0494	0.0783	0.1004	0.1255
Establishment: 501-2000 employees	0.0506	0.0713	-0.1781	0.1090	0.2525	0.2102
Establishment: 2000+ employees	-0.2480	0.1935	-0.4925 ***	0.1733	0.2084	0.1825
Establishment: Time since first appearance: < 5 years	-0.0716	0.0459	-0.0889	0.0590	-0.0708	0.0924
Establishment: Time since first appearance: 10-19 years	-0.0532	0.0406	-0.1446 ***	0.0547	-0.0006	0.1162
Establishment: Time since first appearance: 20+ years	-0.0620	0.0520	-0.1439 **	0.0722	-0.0724	0.1155
Cohabitation (yes = 1)	0.0296	0.0658	0.0155	0.0895	0.0023	0.1774
Number of children in household	0.0234	0.0367	0.1207 **	0.0539	-0.1019	0.0839
Age bracket: 18-32 (Reference: 33-42)	-0.0179	0.0676	-0.1530	0.0974	0.1113	0.1879
Age bracket: 43-51	-0.0659	0.0698	0.0273	0.0971	-0.0678	0.1576
Age bracket: 52-61	-0.0649	0.0931	0.0736	0.1314	-0.1841	0.2184
Number of doctoral consultations (last three months)	-0.0007	0.0025	-0.0051	0.0041	0.0042	0.0065
Biography: Total number of transfer episodes	-0.0336	0.0170	-0.0030	0.0262	-0.0953	0.0518
Since 2005: Total time in UB II (in years)	-0.0354	0.0314	-0.0243	0.0467	-0.0664	0.0642
Constant	0.8049 ***	0.2841	0.6068	0.4176	1.3765 *	0.7475
Individual fixed effects		yes		yes		yes
Wave controls		yes		yes		yes
Number of observations		4,016		2,421		1,552
R <sup>2</sup> (overall)		0.0749		0.1373		0.0908

Source: PASS-ADIAB, version 7515, own calculations.

Note: \* denotes significance at the 10% level, \*\* at the 5% level, and \*\*\* at the 1% level. Column 1 is the same specification as Table 2, column 2. Column 2 shows the same specification, but without wave seven as no information on the Jobcenter contacts and search obligation is available for PASS-ADIAB wave 7. Column 3 shows the estimation results for within-person changes between wave seven and wave eight that offer information on worries about future job loss.

The role of marginal employment (ME) for the search behavior of UB II workers is examined in column 1. The baseline likelihood to search for ME UB II workers is about 40 percentage points higher than the likelihood of regularly employed UB II workers. The interaction effect of life satisfaction with marginal employment shows that a one-point increase in life satisfaction reduces the likelihood of ME UB II workers for job search by 3.7 percentage points ( $p < 0.0034$ ) while for regularly employed UB II workers no significant coefficient emerges. As a sensitivity check, we estimate the model above separately for ME UB II workers and for regularly employed UB II workers (see Table A5 in the Appendix for the

results). For marginally employed UB II workers, we find a negative life satisfaction coefficient of  $-0.0216$  ( $p < 0.0849$ ). Estimating the model solely for regular employed UB II workers does not yield any significant association of life satisfaction with the likelihood for job search (The  $\beta_1$ -coefficient is  $-0.009$  ( $p < 0.3545$ )). We take this as evidence for the negative association found in Table 2 and Table 3, col. 1 is due to the marginal employed UB II workers.

Column 2 of Table 3 examines if Jobcenters or life satisfaction are the driving forces behind the job search of UB II workers. Hence, we complement two control variables for the contact with the local Jobcenter. We suppose that the number of personal contacts to the Jobcenter and the self-reported obligation-to-search imposed by the case managers affects life satisfaction, and henceforth the job search behavior. 51 Percent of the UB II workers confirming that an obligation by the Jobcenter is imposed.<sup>8</sup> We find that the life satisfaction coefficient remains roughly the same when we add both controls. Unsurprisingly, reporting that one has the personal obligation to search increases the likelihood to search. Nevertheless, the negative association of life satisfaction with job search remains statistically significant, given that this obligation applies. Hence, the supposed association via the case managers is not sufficient to explain the association between life satisfaction and job search. To dig deeper into the role of institutional pressure (or activation measures), we run a sensitivity analysis to differentiate between UB II workers with different institutional pressure to search. In the UB II workers sample are 55,7 percent are registered as unemployed, meaning that these workers have signed an “Eingliederungsvereinbarung” contract where they state that they actively search for a job. However, compliance with this agreement is rather weak. Controlling for such registered job seekers confirms that life satisfaction plays a genuine role in job search as the life satisfaction coefficient also remains significant and negative ( $-0.0157$ ,  $p < 0.0328$ ).

Column 3 of Table 3 examines the role of job insecurity for job search of UB II workers. UB II workers worried about their job security may have a higher intrinsic motivation for job search than workers perceiving their job as safe. PASS-ADIAB has two waves available with information on the worries about a future job loss (wave 7 and 8). This considerably reduces the number of cases and yields coefficients of a first-difference estimation. The results show

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<sup>8</sup> The exact question from the question of PASS wave 8 is: “Not everyone who obtains unemployment benefit II (“Arbeitslosengeld II”) is expected by the Jobcenter to look for work, for example because this person is 58 years of age or older, looks after children, cares for relatives or is ill. How about you? Does the Jobcenter expect you to look for work?”

that worries about future job loss are associated with job search, whereas the life satisfaction coefficient becomes insignificant. Unfortunately, it cannot be ruled out that the insignificant coefficient of life satisfaction results from the low number of cases and not from adding the qualitative effect of expectations.<sup>9</sup> It remains partially open whether a low level of life satisfaction is the channel for anticipating future unemployment.

We carry out several sensitivity checks on the estimation technique, too. The results of Table 2 (see Appendix A2) and Table 3 (see Appendix A3) from a conditional logit model with individual fixed effects do not differ qualitatively. As heterogeneity analysis, we estimate the model of Table 2 by gender and find that the negative life satisfaction coefficient is driven by the women among the UB II workers.

### 6.3 Duration until successfully ending UB II episodes

We investigate the relationship of life satisfaction to a second outcome variable: the duration of the UB II episode of employees. The chosen successful UB II episodes are spells with follow-up employment within five days after leaving UB II welfare. Thus, we exclude all episodes ending in unemployment or with longer records gaps after leaving UB II. This restriction also applies to brief interruptions to enduring working UB II episodes. Overall, this procedure considerably reduces the number of available episodes (see Table 4).

Table 4: Number of cases of UB II episodes and exit events

	N =
UB II worker	4,016
1 of those with information on exit status	2,886
2 of those with right-censored spell	1,073
3 of those ending successfully	605
4 of those ending in unemployment	1,208

Source: PASS-ADIAB, version 7515, own calculations.

Note: 1 counts all spells with valid information on the ending of the spell; 2 counts all spells that are right-censored at the 31st December 2014; 3 counts spells that end with a subsequent episode of working without UB II (gaps of less than 5 days are allowed); 4 counts episodes that end with subsequent episodes of UBII and officially registration as a job seeker.

In principle, the observed episodes (2) and (3) in Table 4 are suitable for the evaluation of the duration of exposure. As we additionally use control variables with missing values, the

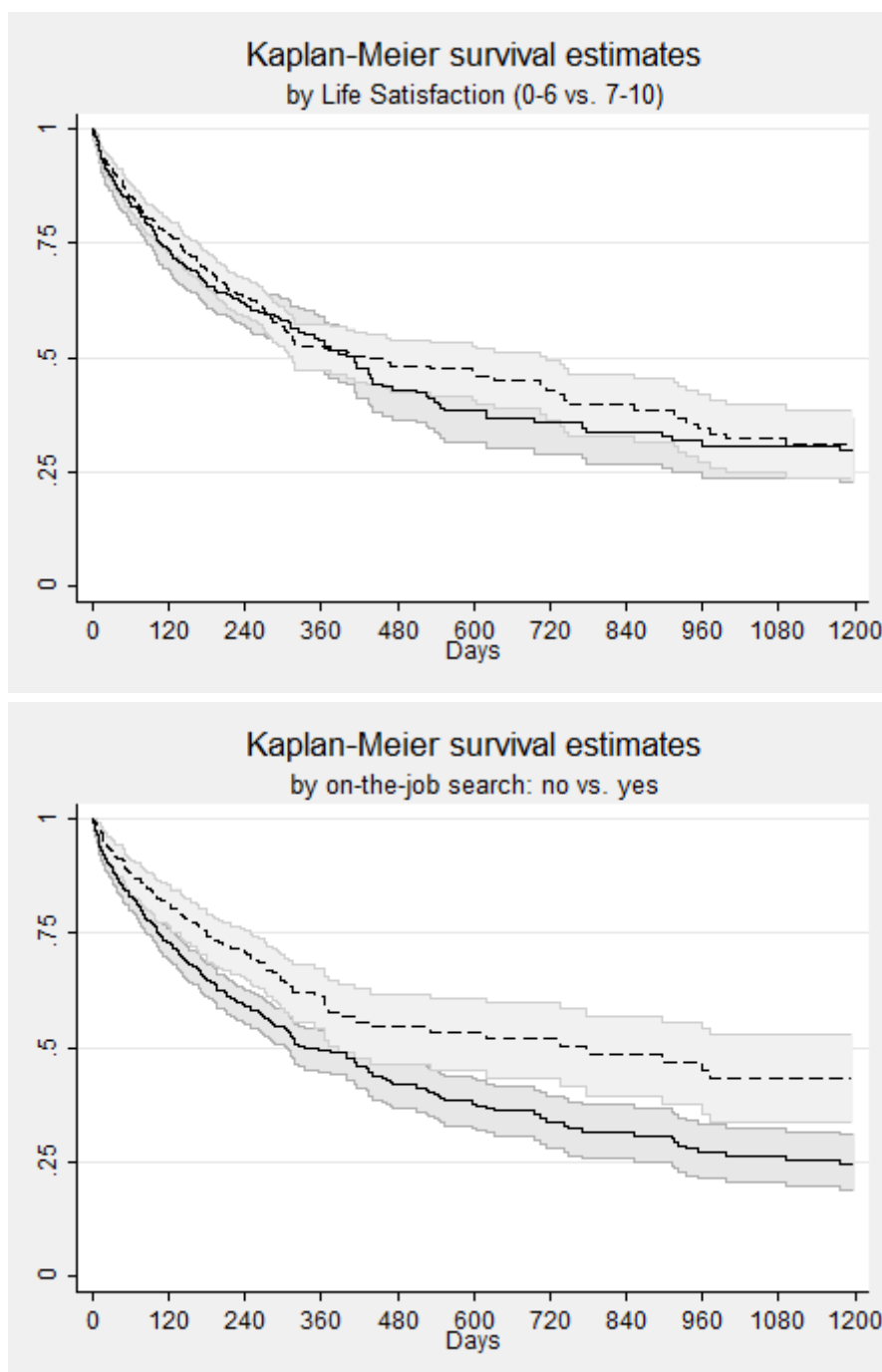
<sup>9</sup> Estimations with the same reduced sample size of column 3, Table 3 without the „worries about job loss“ - dummy lead to an insignificant life satisfaction coefficient (-0.0125,  $p < 0.3890$ ).

number of episodes shrinks to a total of  $N = 987$  with 469 observed successful UB II exit events.

The median length of the sample of a successful working UB II episode is 412 days. The mean duration is higher due to a group of mid- to long-term UB II spells which are right-censored at the 31st December 2014. These findings correspond to results showing UB II status is persistent as two-thirds of UB II workers are still or again in UB II within one year. The other third of all UB II workers leave UB II – not all successful – within one year (Bruckmeier et al. 2013). To obtain a descriptive impression of the impact of life satisfaction on the duration of successful episodes, we estimate Cox survival curves depending on well-being (low/high) and search activity (no/yes), as shown in Figure 1.



Figure 1: Survival time estimates of UB II workers with exit event “regular employment”



Source: PASS-ADIAB, version 7515, own calculations.

Note: The upper panel of Figure 1 depicts Cox survival time curves of UB II workers with the exit event regular employment differentiated by their life satisfaction at the last interview before UB II exit. The solid line represents workers who reported a life satisfaction of 0-6, the dashed line is the curve for workers with a life satisfaction of 7-10. The lower panel of Figure 1 depicts Cox survival time curves of UB II workers with the exit event regular employment differentiated by the job search status reported at the last interview before UB II exit. The solid line represents workers who reported no job search, while the dashed line is the curve for workers who reported job search.

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The estimated survival curves depict the relative survival propensity for each day until the successful UB II exit. The upper panel shows the survival curves with the dashed line representing reports of high life satisfaction (7-10 life satisfaction score at the last interview before exit), while the solid line shows the same trend, but for low life satisfaction reports (0-6 life satisfaction scores). The 95% confidence intervals almost wholly overlap, suggesting that life satisfaction is not associated with the duration of successful leaving UB II.

The lower panel of Figure 1 shows the survival curves of UB II workers differentiated by reporting job search or not. Hence, it indicates if labor market behavior affects successful UB II episodes. The solid line depicts workers who did not search for a job, and the dashed line indicates episodes of workers reporting job search within the last four weeks (the outcome variable of section 6.2). In contrast to differentiation by life satisfaction, in the case of job search, we see some systematic differences in the survival curves: the solid non-search line is completely located below the dashed search line. This means that searching UB II workers always have a lower hazard of successfully leaving their status of UB II worker to move into regular employment. However, this puzzling result needs to be addressed in a multivariate framework as one would expect that searching UB II workers leave UB II faster, whereas the descriptive results show the opposite.

We estimate a Cox proportional hazard model to examine the role of life satisfaction in the duration of UB II ending successfully. Initially, we regress the hazard rate solely on life satisfaction to validate the descriptive findings (Table 5, col. 1). Column 2 adds the covariates of the job search model in section 6.2. As individual fixed effects are not feasible, we extend the model with controls for time-stable differences in educational attainment, gender, and personality traits in column 3. Column 4 of Table 5 picks up the puzzling descriptive result above and estimates a model with an interaction of job search with life satisfaction to examine the group of fast-and-successful welfare leaves among the UB II workers.

Table 5: Cox proportional hazard model: UB II episodes ending in regular work

Dependent: Hazard of exit UB II (in days)	(1)		(2)		(3)		(4)	
	Haz. Ratio	Std. Err.	Haz. Ratio	Std. Err.	Haz. Ratio	Std. Err.	Haz. Ratio	Std. Err.
Life satisfaction	1.0251	0.0261	1.0315	0.0428	0.9141	0.0737	0.8485 **	0.0801
Job search = 1							0.7928	0.2634
Job search = 1 × Life Satisfaction							1.2287	0.1816
Monthly household income (ln)			0.9468	0.2685	0.7377	0.3253	0.7305	0.3329
Hours			1.0415 **	0.0167	1.0922 ***	0.0269	1.0836 ***	0.0271
Hours (sq)			0.9998	0.0002	0.9995	0.0003	0.9996	0.0003
Tenure			0.7937 ***	0.0489	0.7029 ***	0.0922	0.6930 ***	0.0947
Tenure (sq)			1.0102 ***	0.0022	1.0152 ***	0.0040	1.0157 ***	0.0040
Fixed-term contract (yes = 1)			0.8513	0.1650	0.5346 **	0.2437	0.5212 ***	0.2466
Marginal Employment (yes = 1)			0.7663	0.2241	1.2549	0.3531	1.2382	0.3585
Job requirements: Level 1 (Reference: Level 2)			0.8855	0.1506	1.2014	0.2426	1.1856	0.2374
Job requirements: Level 3			0.5586 *	0.3475	0.3886 **	0.4521	0.4130 *	0.4636
Job requirements: Level 4			1.5367	0.3868	5.5515 ***	0.5960	5.6440 ***	0.6170
Active trade union member (yes = 1)			1.8980 **	0.2553	2.7807 **	0.4329	3.0675 ***	0.4302
Establishment: 1-20 employees			0.6979 *	0.1898	0.8318	0.2588	0.8358	0.2504
Establishment: 101-500 employees			0.9788	0.1821	0.9830	0.2740	0.9769	0.2704
Establishment: 501-2000 employees			1.9378 **	0.2591	4.4808 ***	0.4577	4.1928 ***	0.4409
Establishment: 2000+ employees			1.5534	0.4457	0.8582	0.9793	0.8799	0.9778
Establishment: Time since first appearance: < 5 years			0.9887	0.2230	0.8539	0.3506	0.8535	0.3561
Establishment: Time since first appearance: 10-19 years			0.9400	0.2044	1.0362	0.3321	1.0505	0.3381
Establishment: Time since first appearance: 20+ years			0.9236	0.2031	0.9945	0.3319	0.9968	0.3379
Cohabitation (yes = 1)			0.8913	0.1756	0.7482	0.2316	0.7244	0.2307
Number of children in household			1.0422	0.0782	0.9878	0.1291	0.9838	0.1319
Age bracket: 18-32 (Reference: 33-42)			1.4084 *	0.1920	1.2612	0.3636	1.2211	0.3704
Age bracket: 43-51			1.0517	0.1944	1.3535	0.3222	1.3661	0.3333
Age bracket: 52-61			0.8818	0.2189	0.7223	0.3676	0.7029	0.3789
Number of doctoral consultations			1.0015	0.0267	0.9992	0.0217	1.0035	0.0229
Biography: Total number of transfer episodes			1.0721 ***	0.0243	1.0397	0.0369	1.0360	0.0372
Since 2005: Total time in UB II (in years)			0.8069 ***	0.0282	0.6912 ***	0.0498	0.6854 ***	0.0503
Gender: Male					0.5460 **	0.2839	0.5352 **	0.2770
Highest educational attainment: ISCED 1-2					1.0849	0.2791	1.0492	0.2833
Highest educational attainment: ISCED 4-6					0.4564 **	0.3369	0.4365 **	0.3403
Big Five personality trait: extraversion					1.2903 *	0.1502	1.2762 *	0.1474
Big Five personality trait: agreeableness					0.8917	0.1328	0.9082	0.1348
Big Five personality trait: conscientiousness					0.8010	0.2260	0.8413	0.2326
Big Five personality trait: neuroticism					1.1440	0.1424	1.1116	0.1401
Big Five personality trait: openness					1.4184 *	0.2066	1.3874	0.2158
Number of subjects	=	958	958		614		614	
Number of observations	=	987	987		639		639	
Number of failures	=	469	469		316		316	
Log pseudolikelihood	=	-2,908.7849	-2,724.5808		-1,639.8440		-1,637.5559	

Source: PASS-ADIAB, version 7515, own calculations.

Note: \* denotes significance at the 10% level, \*\* at the 5% level, and \*\*\* at the 1% level. Estimation includes all episodes that are right-censored and episodes that show regular employment (without UB II) after the occurrence of exit from UB II.

Recall that the outcome is that of workers successfully leaving UB II for a regular job without transfers. We estimate the factors that affect the duration in the UB II welfare while working status until it terminates. First, column 1 validates that there is no significant correlation between life satisfaction and duration in UB II. This result holds for estimations (2) and (3) that condition on the set of time-varying and time-stable covariates. Significant hazard ratios of the covariates are consistent with the job search theory. So, UB II workers with longer tenure also have a lower hazard ratio and remain in the UB II jobs longer. Fixed-term contracts prolong the process of leaving welfare successfully as do biographies with more prior transfer experiences. In particular, the trait of extraversion seems to foster the process of leaving UB II while still having a job.

In column 4, we examine why UB II workers reporting that they search for a job remain longer in the status. The baseline hazard ratio of life satisfaction for non-searching individuals is significantly and below one. Those non-searching UB II workers have a longer duration in UB II before leaving the status depending on the life satisfaction level. The higher their satisfaction level is, the longer they remain in UB II. However, the episodes of searching individuals seem not to be influenced by this inverse association of satisfaction with the duration in the welfare while working status. An explanation is that at the time of the interview, the seeking individuals are already anticipating the future change of job and, therefore, their satisfaction can no longer influence the duration of future employment transition. These findings are replicated by a Weibull estimation (see Table A6 in the Appendix).

As an interim conclusion, we show that life satisfaction plays – if at all – a subordinate role for the duration until leaving UB II successfully. Only for particular groups, like non-searching UB II workers that will leave UB II soon, life satisfaction may have a role.

## 7. Discussion

Lower life satisfaction of UB II workers is *ceteris paribus* associated with a higher likelihood of on-the-job search. This finding is in line with results for employees without welfare transfers who report lower job satisfaction, which leads to a job search. Self-reported intentions to quit (Scott et al. 2006, Böckerman and Ilmakunnas 2009), on-the-job search (Delfgaauw 2007), and actual quitting (Clark 2001, Green 2010) become more likely if job satisfaction declines. We find that this also holds after controlling for household income and individual earnings, which have the same negative sign as life satisfaction (see Table A4 in the Appendix). In this respect, the findings reinforce the notion that the welfare assessment of a job and the subsequent turnover decisions depend on pecuniary and non-pecuniary job attributes alike. Given the *ceteris paribus* character of the estimation, the on-the-job search of UB II workers is affected by life satisfaction beyond the role of individual earnings and household income, with this being important for joint decisions on labor supply. Searching for a job becomes attractive if either income or non-monetary aspects deteriorate.

Taking the heterogeneity of UB II workers into account shows that the association of life satisfaction and job search depends on the institutional setting. ME UB II workers are the source of the negative coefficient of life satisfaction. These workers have a higher likelihood of searching for another job. A prominent difference to regular employed UB II workers is

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that the ME UB II workers work fewer hours and earn less. More leisure goes hand in hand with a relatively relaxed time constraint, leaving more time for the costly job search (Knabe et al. 2010). Lower earnings leave space for substantially higher outside earnings, also making the job search relatively more attractive than for higher earning regular UB II workers. Regularly employed workers can hardly leave UB II by working more hours as they often work (close to) full-time or their family context imposes high levels of neediness (for instance, for single parents); thus, they cannot hope to overcome welfare dependency by finding a slightly better-paid job. A survey on the reasons for not searching for another job confirms this different motive. Regular employed UB II workers refuse to search for another job due to “little financial gains from finding another job,” whereas ME UB II workers do not search due to feelings of resignation or mental health issues (Bruckmeier et al. 2015). Time and monetary constraints define the space that non-monetary life satisfaction has as a predictor of labor market behavior.

The second outcome is the duration until a UB II worker leaves welfare for a regular job. We do not find an association between life satisfaction and time elapsed until leaving welfare for those who leave welfare. For UB II workers, searching, and the actual successful exit from welfare do not coincide. This is in contrast to Clark (2003) and Mavridis (2015), who describe a similar effect of life satisfaction on searching for and finding a job. Other papers also find that finding a job is not accelerated by reduced life satisfaction (Gielen and van Ours 2014, Krug, Drasch, and Jungbauer-Gans 2019). One explanation may be two opposing effects reflected in life satisfaction. As satisfaction captures welfare stigma, this makes the UB II status relatively costly (Hetschko, Schöb, and Wolf 2020). Hence, the likelihood of searching for another job increases. However, life satisfaction may also reflect the negative impact of welfare stigma in terms of the reduced employability found for unemployed welfare recipients (Contini and Richiardi 2012). Consequently, the reduced employability keeps workers in the current job as their search becomes less effective, and the likelihood of finding a new job decreases. Such a dilemma situation is, for instance, observed in the case of Finnish workers with poor working conditions. They search for another job, but actual job switches are hampered due to their poor employability (Böckerman et al. 2013). Finding the negative coefficients for the obligation to work points in the same direction as in the face of this activation policy, the UB II workers show a negative association with the life satisfaction coefficient. This means that welfare stigma may have an impact beyond the intended activation via life satisfaction.

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Papers on employees often use job satisfaction to account for non-monetary job amenities. We show that UB II workers' general life satisfaction is also associated with behavioral consequences. A systematic comparison of the predictive power of subjective indicators for employees that are no sub-indicators of job satisfaction is rare. An exception is Green (2010), who shows that different SWB measures affect labor turnover similarly. However, job satisfaction predicts job mobility better than experienced well-being.<sup>10</sup> From this paper, we can learn that job satisfaction of employees exposed to welfare stigma (but also other forms of psychological stress such as ethnic discrimination) could be too narrow as a predictor for labor market behavior.

## 8. Concluding remarks

This study deals with the effects of life satisfaction on the labor market behavior of employees receiving welfare. We examine the extent to which life satisfaction alters the likelihood of searching for a new job and the welfare duration of those workers who leave welfare dependency. UB II workers experiencing a reduction in life satisfaction are more likely to search for a new job. This effect goes beyond monetary incentives and unobserved, but time-stable, personality traits of the in-work benefit workers. The findings suggest that the institutional framework of the welfare system, roughly speaking, splits the UB II workers into two groups of different regulatory regimes: marginally employed workers and regularly employed workers, with both groups receiving in-work benefits. Only the search behavior of the former is affected by changes in life satisfaction. The duration of the successfully ended transfer period is not affected by workers' life satisfaction.

The heterogeneity of the UB II workers in the role of life satisfaction is remarkable. It suggests that a unified framework for the behavioral consequences of life satisfaction needs to take institutional characteristics, like a marginal employment contract, into account. General life satisfaction correlates with welfare stigma and other hard-to-observe factors, and it seems to matter for the decision to search. Hence, it is reasonable to use it in future studies as a covariate to account for these factors. Moreover, if there are measures for welfare stigma and life satisfaction together available, the relevance of an indirect life satisfaction channel and direct stigma channel for search behavior seems a promising research direction.

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<sup>10</sup> The experienced well-being scales are called subjective well-being and measure feelings on the Depression–Enthusiasm and the Anxiety–Comfort axis.

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## Appendix

### *A1 Description of variables*

Variable	Source	Note
On-the-job search ( <i>JS</i> )	PASS-Survey	Based on the question: "In the past four weeks, have you been looking for (1) a different job, (2) an additional job, (3) no job at all (4) an additional as well as for a different job?". (3) was coded as "0" while (1), (2), and (4) are coded as "1".
Life satisfaction ( <i>LS</i> )	PASS-Survey	Based on the question: "In general, how satisfied are you currently with your life on the whole? '0' means, that you are 'very dissatisfied', '10' means that you are 'very satisfied'. The numbers '1' through '9' allow you to grade your assessment."
Disposable household income ( <i>y</i> )	PASS-Survey	Monthly net income of the household from PASS variable <i>hhincome</i> .
Actual working hours per week ( <i>h</i> )	PASS-Survey	The weekly actual working hours ( <i>azges2</i> ), in the case of marginal employment ( <i>PET 0700</i> ) as it was asked separately.
Tenure (days / 365)	Administrative records	Number of days within the same establishment at the date of interview at the respective PASS wave. To obtain easy-to-interpret coefficients transformed to years.
Fixed-term contract	Survey and administrative records	The source variable "befrist" (from PASS) and "befrist" (from PASS-ADIAB) each cover only a subset of the UB II target group. While PASS only asks whether there is an employment contract if there is a regular employment relationship (otherwise filter), PASS-ADIAB reduces the number of cases as not all administrative information are actually filled. Specifically, the administrative information based on the occupational classification KldB2010 allows only a coverage of the limited number of spells that end after 30th November 2011 due to conversion of data processing. By combining both source variables, the prevalence of an fixed-term employment contract is approximated by a only a few losses of observations.
Marginal employment (ME)	Administrative records	Dummy variable, which takes the employment level from the variable <i>erwstat</i> = 109. The marginal employment is the main employment.
Job requirements	Administrative records	Skill level requirements of an occupation assigned by the "Classification of Occupations 2010" of the Bundesagentur für Arbeit by the tasks carried out in the job. Level 1 is assistant and training tasks, level 2 are specialized tasks, level 3 are complex tasks, and level 4 are highly complex tasks (own translation of the German task bundles of the occupations).
Active member of trade union	PASS-Survey	Self-reported answer on the question of active engagement in trade union.
Establishment: Time since first appearance	Administrative records	Current year minus the year of first appearance of the establishment number in the dataset. The four categories are (1) < 5 year, (2) 5-9 years, (3) 10-19 years, and (4) 20+ years.
Establishment: Number of employees	Administrative records	Total number of an establishment's employees reported to the social security agencies as of 30 June of a year. (1) 1-20 Employees; (2) 21-100 employees, (3) 101-500 employees, (4) 501-2000 employees, and (5) 2000+ employees.
Cohabitation	PASS-Survey	Partner is living in the same household (married or unmarried).
Number of children in own household	PASS-Survey	Number of children living in the same household.
Age bracket	PASS-Survey	The age control collapsed to four age brackets since an annual change of age otherwise forms with annual fixed effects almost perfect collinearity. The age groups are (1) 18-32, (2) 33-42, (3) 43-51 and (4) 53-65.
Doctoral consultations	PASS-Survey	Number of doctoral consultations within the last 3 months.
Biography: Total number of transfer episodes	Administrative records	Total number of transfer episodes in the whole employment biography since the first record in the administrative data.
Since 2005: Total time in UB II (in years)	Administrative records	Total number of (days/365) in UB II since the 1st January 2005.
County identifier	Administrative records	Based on a 5-digit county identifier in "wo_kreis".
Number of Jobcenter contacts	PASS-Survey	Based on the question: "How many times have you personally been to the Jobcenter since your household has been obtaining unemployment benefit 2 ("Arbeitslosengeld 2")?"
Jobcenter: Obligation to search for a job	PASS-Survey	Based on the question: "Not everyone who obtains unemployment benefit 2 ("Arbeitslosengeld 2") is expected by the Job centre to look for work, for example because this person is 58 years of age or older, looks after children, cares for relatives or is ill. How about you? Does the Job centre expect you to look for work?" Answers: (1) Yes, the Job centre expect me to look for work. (2) No, the Job centre does not expect me to look for work and I don't look. (3) No, the Job centre does not expect me to look for work but I look nevertheless. (2) and (3) as No (= 0).
Expectations: Worries about future job loss	PASS-Survey	Based on the question: "To what extent are you worried that you could lose your job?" (1) very worried, (2) somewhat worried, (3) slightly worried only, (4) not worried at all. Reference category (= 0) are workers with little or no worries to lose the job ((3) + (4)). Workers with less favorable future expectations ((1) + (2)) are coded (1).

Source: PASS-ADIAB, version 7515.

*A2 Job search of UB II workers and life satisfaction - conditional logit estimations*

Dependent: <i>Pr</i> (JS = 1)	(1)		(2)	
	Coef.	Std. Err.	Coef.	Std. Err.
Life satisfaction	-0.1512 ***	0.0516	-0.1020 *	0.0578
Monthly household income (ln)			-0.3109	0.2719
Hours			-0.1112 ***	0.0374
Hours (sq)			0.0016 **	0.0007
Tenure			0.1661	0.1116
Tenure (sq)			-0.0021	0.0080
Fixed-term contract (yes = 1)			0.3851	0.3080
Marginal Employment (yes = 1)			1.3460 ***	0.3821
Job requirements: Level 1 (Reference: Level 2)			0.0878	0.3387
Job requirements: Level 3			0.0067	1.0050
Job requirements: Level 4			1.0297	0.9201
Active trade union member (yes = 1)			0.4021	0.5813
Establishment: 1-20 employees			0.1096	0.3740
Establishment: 101-500 employees			0.5209	0.3748
Establishment: 501-2000 employees			0.3580	0.6265
Establishment: 2000+ employees			-1.2004	1.3194
Establishment: Time since first appearance: < 5 years			-0.6523 *	0.3397
Establishment: Time since first appearance: 10-19 years			-0.5689	0.3637
Establishment: Time since first appearance: 20+ years			-0.4207	0.3904
Cohabitation (yes = 1)			0.1913	0.6091
Number of children in household			0.2127	0.3452
Age bracket: 18-32 (Reference: 33-42)			-0.0697	0.6909
Age bracket: 43-51			-0.3501	0.4881
Age bracket: 52-61			-0.3473	0.7293
Number of doctoral consultations (last three months)			-0.0014	0.2148
Biography: Total number of transfer episodes			-0.3282	0.9339
Since 2005: Total time in UB II (in years)			-0.2464	0.2331
Individual fixed effects		yes		yes
Wave controls				yes
Number of observations		932		932
Pseudo R <sup>2</sup>		0.0130		0.1302

Source: PASS-ADIAB, version 7515, own calculations.

Note: \* denotes significance at the 10% level, \*\* at the 5% level, and \*\*\* at the 1% level. This table replicates the estimations of table 2 with a conditional logit estimator. The maximum likelihood estimation for column 3 (adding county-specific fixed effects) does not converge. The number of observations reports all UB II workers who experienced at least one within-person change on the outcome variable job search over time.

### A3 Job search of UB II workers - Institutions - conditional logit estimations

Dependent: $Pr(JS = 1)$	(1)		(2)		(3)	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Life satisfaction	-0.0512	0.0728	-0.1541 *	0.0909	-0.0712	0.1912
ME = 1 × Life satisfaction	-0.1806 **	0.0917				
Number of contacts to Jobcenter			0.1100	0.5653		
Jobcenter: Obligation to search for a job = 1			1.1746 ***	0.3234		
Expectations: Worries about future job loss = 1					0.9838 *	0.5490
Monthly household income (ln)	-0.3176	0.2740	-0.1503	0.4388	-3.1304	1.9320
Hours	-0.1104 ***	0.0374	-0.1070 *	0.0576	-0.4098 **	0.1764
Hours (sq)	0.0016 **	0.0007	0.0013	0.0051	0.0103 **	0.0051
Tenure	0.1796	0.1127	0.2248	0.1786	0.5173	0.5189
Tenure (sq)	-0.0028	0.0080	-0.0048	0.0113	-0.0149	0.0304
Fixed-term contract (yes = 1)	0.3870	0.3080	0.3742	0.4809	0.1563	1.2252
Marginal Employment (yes = 1)	2.1690 ***	0.8281	1.3009 **	0.5422	2.6348	2.6645
Job requirements: Level 1 (Reference: Level 2)	0.0657	0.3401	-0.5924	0.5858	-0.5240	1.8655
Job requirements: Level 3	-0.0026	1.0032	0.3648	1.4692		
Job requirements: Level 4	1.0503	0.9201	-0.0432	1.3612		
Active trade union member (yes = 1)	0.4123	0.5809	-0.2382	0.8732	-16.4086	2,736.42
Establishment: 1-20 employees	0.1268	0.3740	-0.7815	0.6532	-1.9895	1.6086
Establishment: 101-500 employees	0.5511	0.3762	-1.1115 *	0.5906	-0.0326	1.3695
Establishment: 501-2000 employees	0.4014	0.6292	-1.1068	0.9853	18.5897	1,743.95
Establishment: 2000+ employees	-1.1597	1.3274	-16.2326	1,314.73		
Establishment: Time since first appearance: < 5 years	-0.6212 *	0.3414	-0.8000	0.6021	-2.3416	2.3114
Establishment: Time since first appearance: 10-19 years	-0.5511	0.3640	-2.0504 ***	0.7169	-0.7243	1.0954
Establishment: Time since first appearance: 20+ years	-0.4118	0.3913	-1.4722 **	0.6544	-1.2851	2.3597
Cohabitation (yes = 1)	0.1576	0.6097	-0.7906	1.3640	-3.4764	2.9738
Number of children in household	0.2278	0.3462	1.2325 **	0.6158	1.0700	1.6258
Age bracket: 18-32 (Reference: 33-42)	-0.0670	0.6895	-2.5889 *	1.4103	15.6476	2,182.01
Age bracket: 43-51	-0.3580	0.4893	-0.0399	0.6605	-0.0530	1.6538
Age bracket: 52-61	-0.3336	0.7307	0.7694	1.0614	-3.5287	3.2724
Number of doctoral consultations (last three months)	-0.0031	0.0171	-0.0165	0.0333	0.0371	0.0729
Biography: Total number of transfer episodes	-0.3397	0.2150	-0.0564	0.3889	-1.1297	1.1294
Since 2005: Total time in UB II (in years)	-0.2580	0.2329	-0.1132	0.3953	-0.3750	0.8250
Individual fixed effects		yes		yes		yes
Wave controls		yes		yes		yes
Number of observations		932		439		172
Pseudo R <sup>2</sup>		0.1321		0.2586		0.2883

Source: PASS-ADIAB, version 7515, own calculations.

Note: \*denotes significance at the 10% level, \*\* at the 5% level, and \*\*\* at the 1% level. This table replicates the estimations of table 3 with a conditional logit estimator. The number of observations reports all UB II workers who experienced at least one within-person change on the outcome variable job search over time.

#### A4 Sensitivity analysis: job search and lagged life satisfaction and earnings

Dependent: $Pr(JS = 1)$	(1)		(2)		(3)		(4)		(5)		(6)	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Life satisfaction	-0.0203 **	0.0091			-0.0258 ***	0.0092	-0.0112	0.0100	-0.0100	0.0100	-0.0100	0.0100
Life satisfaction (t-1)			-0.0174 *	0.0090	-0.0231 **	0.0092						
Monthly gross earnings (ln)									-0.1213 **	0.0509	-0.1224 **	0.0513
Monthly household income (ln)	0.0124	0.0408	0.0056	0.0399	0.0068	0.0408	0.0015	0.0454			0.0119	0.0442
Hours	-0.0139 **	0.0056	-0.0144 **	0.0057	-0.0136 **	0.0056	-0.0185 ***	0.0067	-0.0143 **	0.0072	-0.0143 **	0.0072
Hours (sq)	0.0002 *	0.0001	0.0002 **	0.0001	0.0002 *	0.0001	0.0002 **	0.0001	0.0002 **	0.0001	0.0002 **	0.0001
Tenure	-0.0030	0.0140	-0.0020	0.0139	-0.0026	0.0138	0.0194	0.0142	0.0200	0.0140	0.0199	0.0140
Tenure (sq)	0.0005	0.0009	0.0004	0.0010	0.0005	0.0009	0.0000	0.0008	-0.0001	0.0008	-0.0001	0.0008
Fixed-term contract (yes = 1)	0.0416	0.0460	0.0418	0.0461	0.0454	0.0456	0.0138	0.0453	0.0143	0.0446	0.0144	0.0446
Marginal Employment (yes = 1)	0.1924 ***	0.0663	0.1972 ***	0.0662	0.1866 ***	0.0662	0.1095	0.0839	0.0593	0.0857	0.0574	0.0859
Job requirements: Level 1 (Reference: Level 2)	0.0271	0.0526	0.0275	0.0523	0.0225	0.0516	-0.0263	0.0508	-0.0239	0.0507	-0.0243	0.0507
Job requirements: Level 3	0.0703	0.1175	0.0659	0.1202	0.0644	0.1187	0.0299	0.1169	0.0097	0.1114	0.0099	0.1115
Job requirements: Level 4	0.0366	0.0609	0.0444	0.0652	0.0525	0.0616	0.0711	0.1084	0.0748	0.1130	0.0741	0.1127
Active trade union member (yes = 1)	-0.0510	0.0583	-0.0374	0.0623	-0.0404	0.0620	0.0197	0.0665	0.0164	0.0658	0.0165	0.0659
Establishment: 1-20 employees	0.0096	0.0574	0.0089	0.0579	0.0055	0.0576	0.1165 *	0.0595	0.0998 *	0.0589	0.1003 *	0.0591
Establishment: 101-500 employees	0.0077	0.0681	0.0106	0.0681	0.0054	0.0677	0.1006	0.0751	0.0978	0.0743	0.0981	0.0744
Establishment: 501-2000 employees	-0.0355	0.0968	-0.0319	0.0962	-0.0316	0.0970	0.0534	0.1162	0.0477	0.1138	0.0479	0.1138
Establishment: 2000+ employees	-0.3634	0.2295	-0.3390	0.2210	-0.3323	0.2249	-0.3311	0.2655	-0.3528	0.2676	-0.3529	0.2672
Establishment: Time since first appearance: < 5 years	-0.0478	0.0569	-0.0430	0.0570	-0.0471	0.0568	-0.0340	0.0638	-0.0285	0.0633	-0.0293	0.0638
Establishment: Time since first appearance: 10-19 years	-0.0150	0.0535	-0.0193	0.0538	-0.0223	0.0534	-0.0452	0.0561	-0.0405	0.0558	-0.0406	0.0558
Establishment: Time since first appearance: 20+ years	-0.0204	0.0653	-0.0170	0.0658	-0.0275	0.0649	0.0020	0.0723	0.0075	0.0721	0.0077	0.0719
Cohabitation (yes = 1)	0.0658	0.0870	0.0668	0.0843	0.0446	0.0856	0.0265	0.0913	0.0329	0.0965	0.0352	0.0976
Number of children in household	0.0328	0.0471	0.0324	0.0473	0.0271	0.0471	0.0372	0.0448	0.0345	0.0451	0.0332	0.0450
Age bracket: 18-32 (Reference: 33-42)	-0.0713	0.0869	-0.0592	0.0865	-0.0640	0.0863	-0.0228	0.0737	-0.0246	0.0748	-0.0243	0.0749
Age bracket: 43-51	-0.1429	0.0918	-0.1482	0.0911	-0.1517 *	0.0905	-0.0279	0.0913	-0.0417	0.0904	-0.0419	0.0905
Age bracket: 52-61	-0.0995	0.1169	-0.1064	0.1166	-0.0970	0.1167	0.0057	0.1149	-0.0112	0.1141	-0.0118	0.1143
Number of doctoral consultations (last three months)	-0.0012	0.0033	-0.0006	0.0033	-0.0006	0.0032	-0.0015	0.0030	-0.0021	0.0031	-0.0021	0.0031
Biography: Total number of transfer episodes	-0.0420 *	0.0224	-0.0437 *	0.0225	-0.0459 **	0.0222	-0.0413 **	0.0183	-0.0401 **	0.0184	-0.0403 **	0.0184
Since 2005: Total time in UB II (in years)	-0.0273	0.0363	-0.0267	0.0366	-0.0251	0.0360	-0.0104	0.0377	-0.0088	0.0377	-0.0092	0.0378
Constant	0.7683 **	0.3658	0.7961 **	0.3542	1.0124 ***	0.3641	0.6290 *	0.3793	1.3555 ***	0.3366	1.2812 ***	0.4414
Individual fixed effects	yes		yes		yes		yes		yes		yes	
Wave controls	yes		yes		yes		yes		yes		yes	
County fixed effects	yes		yes		yes		yes		yes		yes	
Number of observations	2,757		2,757		2,757		2,607		2,607		2,607	
R <sup>2</sup> (overall)	0.0798		0.0788		0.0862		0.0752		0.0825		0.0826	

Source: PASS-ADIAB, version 7515, own calculations.

Note: \* denotes significance at the 10% level, \*\* at the 5% level, and \*\*\* at the 1% level.

*A5 Sensitivity analysis: job search of marginal employed UB II workers*

Dependent: $Pr(JS = 1)$	Baseline (Table 3, Col. 1)		Marginal employed only		Regular employed only	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Life satisfaction	-0.0050	0.0089	-0.0216 *	0.0849	-0.0095	0.0103
ME = 1 × Life satisfaction	-0.0323 ***	0.0110				
Monthly household income (ln)	-0.0318	0.0339	-0.0543	0.0596	-0.0088	0.0429
Hours	-0.0131 ***	0.0040	-0.0096	0.0062	-0.0200 ***	0.0071
Hours (sq)	0.0002 ***	0.0001	0.0001	0.0001	0.0003 ***	0.0001
Tenure	0.0163	0.0113	0.0059	0.0262	0.0229 *	0.0138
Tenure (sq)	-0.0002	0.0008	0.0013	0.0023	-0.0001	0.0008
Fixed-term contract (yes = 1)	0.0474	0.0372	0.1025	0.0932	0.0073	0.0447
Marginal Employment (yes = 1)	0.4108 ***	0.1029				
Job requirements: Level 1 (Reference: Level 2)	0.0071	0.0416	0.0843	0.0819	-0.0208	0.0524
Job requirements: Level 3	-0.0719	0.0929	0.2332	0.1784	0.0331	0.1084
Job requirements: Level 4	0.1043	0.0887	0.2028 *	0.1172	0.0136	0.1245
Active trade union member (yes = 1)	0.0459	0.0633	0.0088	0.2074	0.0766	0.0614
Establishment: 1-20 employees	0.0673	0.0495	-0.1335	0.1200	0.1121 **	0.0569
Establishment: 101-500 employees	0.1016 *	0.0575	0.1663	0.1214	0.0562	0.0727
Establishment: 501-2000 employees	0.0506	0.0713	-0.1270	0.1340	0.1033	0.1115
Establishment: 2000+ employees	-0.2480	0.1935	-0.3876	0.3512	-0.3108	0.2798
Establishment: Time since first appearance: < 5 years	-0.0716	0.0459	-0.1734 **	0.0823	-0.0235	0.0647
Establishment: Time since first appearance: 10-19 years	-0.0532	0.0406	-0.0262	0.0700	-0.0124	0.0535
Establishment: Time since first appearance: 20+ years	-0.0620	0.0520	-0.0734	0.0898	-0.0038	0.0694
Cohabitation (yes = 1)	0.0296	0.0658	-0.0288	0.0673	-0.0331 *	0.0194
Number of children in household	0.0234	0.0367	-0.1562 ***	0.0586	0.0118	0.0378
Age bracket: 18-32 (Reference: 33-42)	-0.0179	0.0676	0.1699 *	0.0951	0.0491	0.0948
Age bracket: 43-51	-0.0659	0.0698	0.0111	0.0793	0.0449	0.0441
Age bracket: 52-61	-0.0649	0.0931	0.3457 *	0.1976	-0.0361	0.1034
Number of doctoral consultations (last three months)	-0.0007	0.0025	-0.0853	0.1017	-0.0528	0.0904
Biography: Total number of transfer episodes	-0.0336 **	0.0170	-0.1764	0.1705	-0.0189	0.1085
Since 2005: Total time in UB II (in years)	-0.0354	0.0314	0.0034	0.0045	-0.0030	0.0029
Constant	0.8049 ***	0.2841	1.4168 **	0.6540	0.6311 *	0.3575
Individual fixed effects	yes		yes		yes	
Wave controls	yes		yes		yes	
County fixed effects	yes		yes		yes	
Number of observations	4,016		1,461		2,530	
R <sup>2</sup> (overall)	0.0749		0.1045		0.0730	

Source: PASS-ADIAB, version 7515, own calculations.

Note: \* denotes significance at the 10% level, \*\* at the 5% level, and \*\*\* at the 1% level. The sum of the observations from column (2) and column (3) is  $N = 3,991$ . 25 workers are excluded from the analysis as they could not clearly assigned to one status only.

### A6 Sensitivity analysis: Duration model with Weibull distribution

Dependent: Hazard of exit UB II (in days)	(1)		(2)		(3)		(4)	
	Haz. Ratio	Std. Err.	Haz. Ratio	Std. Err.	Haz. Ratio	Std. Err.	Haz. Ratio	Std. Err.
Life satisfaction	1.0283	0.0266	1.0399	0.0429	0.9200	0.0722	0.8575 **	0.0783
Job search = 1							0.8273	0.2579
Job search = 1 × Life Satisfaction							1.2194	0.1789
Monthly household income (ln)			0.9852	0.2608	0.7135	0.3151	0.7062	0.3189
Hours			1.0409 **	0.0169	1.0773 ***	0.0251	1.0712 ***	0.0255
Hours (sq)			0.9998	0.0002	0.9996	0.0003	0.9997	0.0003
Tenure			0.7779 ***	0.0496	0.7067 ***	0.0870	0.6961 ***	0.0899
Tenure (sq)			1.0111 ***	0.0023	1.0152 ***	0.0038	1.0158 ***	0.0039
Fixed-term contract (yes = 1)			0.8480	0.1666	0.5281 ***	0.2403	0.5182 ***	0.2425
Marginal Employment (yes = 1)			0.7868	0.2269	1.1994	0.3585	1.1990	0.3638
Job requirements: Level 1			0.8961	0.1510	1.1190	0.2229	1.0983	0.2187
Job requirements: Level 3			0.5362 *	0.3383	0.3756 **	0.4003	0.3967 **	0.4029
Job requirements: Level 4			1.5726	0.3952	5.0600 ***	0.5767	5.0771 ***	0.5960
Active trade union member (yes = 1)			1.9457 ***	0.2563	2.8446 **	0.4356	3.1419 ***	0.4355
Establishment: 1-20 employees			0.7002 *	0.1924	0.8236	0.2521	0.8300	0.2427
Establishment: 101-500 employees			0.9862	0.1870	1.0933	0.2758	1.0979	0.2692
Establishment: 501-2000 employees			1.9579 **	0.2659	4.4981 ***	0.4408	4.3389 ***	0.4155
Establishment: 2000+ employees			1.6504	0.4639	0.8324	0.9592	0.8796	0.9523
Establishment: Time since first appearance: < 5 years			1.0071	0.2242	0.9858	0.3438	0.9826	0.3517
Establishment: Time since first appearance: 10-19 years			0.9437	0.2070	1.0044	0.3307	1.0243	0.3373
Establishment: Time since first appearance: 20+ years			0.9237	0.2031	0.9142	0.3353	0.9252	0.3402
Cohabitation (yes = 1)			1.0742 ***	0.0254	1.0421	0.0392	1.0378	0.0399
Number of children in household			0.8075 ***	0.0288	0.6974 ***	0.0485	0.6929 ***	0.0485
Age bracket: 18-32			0.9324	0.1731	0.7796	0.2300	0.7557	0.2259
Age bracket: 43-51			1.0429	0.0786	0.9795	0.1229	0.9769	0.1259
Age bracket: 52-61			1.4104 *	0.1925	1.4339	0.3425	1.4012	0.3497
Number of doctoral consultations			1.0023	0.0268	1.0000	0.0214	1.0038	0.0227
Biography: Total number of transfer episodes			1.0742 ***	0.0254	1.0421	0.0392	1.0378	0.0399
Since 2005: Total time in UB II (in years)			0.8075 ***	0.0288	0.6974 ***	0.0485	0.6929 ***	0.0485
Gender: Male					0.6012 *	0.2736	0.5909 **	0.2668
Highest educational attainment: ISCED 1-2					0.9993	0.2815	0.9682	0.2863
Highest educational attainment: ISCED 4-6					0.5228 **	0.3248	0.4993 **	0.3280
Big Five personality trait: extraversion					1.2599	0.1446	1.2415	0.1425
Big Five personality trait: agreeableness					0.8843	0.1366	0.8958	0.1387
Big Five personality trait: conscientiousness					0.8225	0.2219	0.8652	0.2298
Big Five personality trait: neuroticism					1.0553	0.1349	1.0309	0.1328
Big Five personality trait: openness					1.4224 *	0.2107	1.3883	0.2168
Constant	0.0088 ***	0.1539	0.0017	2.0891	0.0027	2.7291	0.0037	2.7938
Number of observations	=	987		987		639		639
Log pseudolikelihood	=	-1,305.0491		-978.9209		-523.6947		-521.9295

Source: PASS-ADIAB, version 7515, own calculations.

Note: \* denotes significance at the 10% level, \*\* at the 5% level, and \*\*\* at the 1% level.

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