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*Adrian Chadi, Clemens Hetschko*

## **Impressum:**

CESifo Working Papers

ISSN 2364-1428 (electronic version)

Publisher and distributor: Munich Society for the Promotion of Economic Research - CESifo GmbH

The international platform of Ludwigs-Maximilians University's Center for Economic Studies and the ifo Institute

Poschingerstr. 5, 81679 Munich, Germany

Telephone +49 (0)89 2180-2740, Telefax +49 (0)89 2180-17845, email [office@cesifo.de](mailto:office@cesifo.de)

Editors: Clemens Fuest, Oliver Falck, Jasmin Gröschl

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# Income or Leisure? On the Hidden Benefits of (Un-)Employment

## Abstract

We study the usually assumed trade-off between income and leisure in labor supply decisions using comprehensive German panel data. We compare non-employed individuals after plant closures with employed people regarding both income and time use as well as their subjective perceptions of these two factors. We find that the gain of non-working time translates into higher satisfaction with free time, while time spent on hobbies increases to a lesser extent than home production. Additionally, satisfaction with family life increases, which may be a hidden benefit of being unemployed. In contrast, satisfaction with income strongly declines when becoming jobless. Identity utility from earning a living may play the role of a hidden benefit of employment. Finally, we examine subjective assessments of income and leisure as potential predictors for job take-up. Non-employed people are particularly likely to take up a job soon when they are dissatisfied with their income.

JEL-Codes: D010, D130, I310, J220, J640, J650.

Keywords: labor supply, plant closure, leisure, work-family conflict, life satisfaction, income satisfaction, free time satisfaction, family satisfaction.

*Adrian Chadi*  
*Trier University*  
*Institute for Labor Law and Industrial*  
*Relations in the EU (IAAEU)*  
*Behringstraße 21*  
*Germany – 54296 Trier*  
*Chadi@iaaeu.de*

*Clemens Hetschko*  
*Free University Berlin*  
*School of Business and Economics*  
*Boltzmannstraße 20*  
*Germany – 14195 Berlin*  
*Clemens.Hetschko@fu-berlin.de*

This version: July 8, 2017

We thank participants of the Workshop on Subjective Survey Data in Labour Market Research (Trier, 2016), and the European Society for Population Economics (Glasgow, 2017) as well as seminar participants in Trier. Clemens Hetschko acknowledges financial support by the German Science Foundation (DFG) through project SCHO 1270/5-1.

## 1. Introduction

Work gives meaning to life. Being productive and achieving something worthwhile makes people thrive and enables societies to prosper. Most people agree upon the importance of work for human beings. Leisure, in contrast, is often considered to be the opposite of meaningful productivity and is classified as an activity with less societal value. Accordingly, unemployed people in many societies suffer from stigmatization, which provides them with an additional motivation to search intensely for a new job, beyond their desire to restore material welfare. Notably, however, economists have a very different understanding of the trade-off between work and leisure. According to standard microeconomics, work itself yields a disutility and must be compensated with income. This compensation is crucial for individuals and their decision to go to work. Contrariwise, there is a clear benefit of being jobless, which is additional leisure. By assumption, this factor reflects the positive aspect of being unemployed and recreates a trade-off that individuals are facing in the labor market, as it is conceived in microeconomic theory: either, one goes to work for income or abstains from the labor market for the enjoyment of additional leisure. Given the clear contradiction between the views on work from inside and outside economics, we confront the assumptions underlying the basic model of labor supply with data and thereby address the important question whether people indeed lose utility from income and gain utility from leisure while becoming unemployed.

Both the assumptions that additional leisure time is beneficial for the unemployed and that reduced income is the main negative aspect of unemployment are questionable. First, working hours are at historic lows in many industrialized countries, allowing people to enjoy leisure activities despite having a job. Additional free time might thus be of little value, providing no additional utility for those without a job. Second, the income loss when losing work is mitigated in several ways, whether through income of others in the household or through unemployment benefits. The income loss might thus be relatively unimportant and yield only a small disutility for unemployed individuals who are still able to maintain previous consumption levels and living standards.

Empirical support for the idea that income and leisure are not the key factors in labor supply decision-making comes from research on subjective well-being.<sup>1</sup> In this literature, unemployment appears as an extensive negative shock (e.g. Clark and Oswald 1994,

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<sup>1</sup> By empirically investigating people's subjective assessments of their lives as well as certain domains of it, happiness researchers attempt to approximate individual utility and to identify the importance of different determinants of welfare (e.g. Weimann et al. 2015).

Kassenboehmer and Haisken De-New 2009), whose magnitude is much higher compared to other life events, such as marriage, divorce or birth of a child (e.g. Clark et al. 2008).<sup>2</sup> Most importantly, unemployment continues to substantially lower life satisfaction even if the impact of the variation in income is cancelled out (Winkelmann and Winkelmann 1998, Knabe and Rätzel 2011). This result casts serious doubts on the empirical validity of commonly assumed determinants of labor supply in theoretical models, an issue researchers are increasingly trying to resolve (e.g. Rätzel 2012, Bayer and Jüssen 2015, Bryson and MacKerron 2017). One interpretation is that income from labor might not be an important reason why people work, since its loss hardly hurts them when unemployed. Moreover, the role of leisure in workers' utility appears questionable, given the finding that unemployment causes substantial non-monetary costs instead of the gains suggested by the traditional model, where the loss of income should determine the upper bound of the total utility loss.

To analyze the roles of income and leisure in the trade-off between work and unemployment, we make use of rich longitudinal data from the German Socio-Economic Panel (SOEP) study. It is representative for Germany, the EU's largest labor market. The household survey not only includes information on people's income levels and their daily time allocation but also asks individuals to subjectively assess how they perceive these factors in their current lives. This provides us with a very comprehensive picture of the consequences of unemployment following job terminations. Of special interest are exogenously triggered changes in people's working lives, for which we focus on plant closures. Following previous studies investigating plant closures, we make use of the rich survey data and apply matching tools as our main empirical method in order to establish causal evidence on the implications of individual unemployment (e.g. Marcus 2013). To tackle remaining unobserved differences in individual characteristics between treatment and control group, we exploit the panel structure of the data and consider fixed-individual effects in the analyses.

Based on the findings of previous studies and our own theoretical considerations, we start from the premise that labor income may reduce well-being through other channels beyond the loss of consumption opportunities. It may also take away the identity utility of making a living based on market work, as unemployed people live off their partner, relatives or public funds.

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<sup>2</sup> Note that there are further strands of research that also describe becoming unemployed as a negative event with potentially detrimental implications for the individual, apart from the economic implications. For instance, unemployment has been connected to reduced health, though the debate on the direction of causality is ongoing (see e.g. Paul and Moser 2009, Eliason and Storrie 2009, Sullivan and von Wachter 2009, Böckerman and Ilmakunnas 2009, Schmitz 2011, Drydakis 2015). For a recent paper on the consequences of job loss for earnings, see Farber (2017).

Accordingly, labor income affects well-being not only by its level but also by its origin. If true, neglecting the latter aspect yields misleading conclusions regarding the incentive to trade leisure against labor income. To overcome this problem, we not only analyze the objectively measured level of income, but focus on people's subjective assessment of their income situation. This gives people in both employment and in non-employment a voice to inform us as researchers comprehensively about the welfare they gain from their current income situation. Combining both subjective data and objective information on income levels allows us to identify utility benefits from factors that were otherwise hidden behind the objective facts.

Likewise, the conclusion that leisure hardly matters for individual utility levels could be incorrect as non-pecuniary implications of unemployment reduce utility levels to such a degree that they hide the gain in leisure utility. To test this conjecture, we examine the impact of unemployment on satisfaction with free time as a direct measure of the welfare from leisure. In line with the idea that workers care about time for non-work activities, we also broaden the picture to further potentially hidden benefits of unemployment. Employees might suffer from the fact that working prevents them from joyful activities with their family and friends as well as from the benefits of home production (Gronau 1977). The loss of market work, however sad it may be in other respects, releases time for these activities. Using the richness of our data, the novel indicator of satisfaction with family life allows us to unveil how unemployment influences family-related well-being.

As a first result, our analysis of people's time allocation reveals that unemployed people spend the additional free time on home production rather than on hobbies. In terms of subjective perceptions, entering non-employment translates into a substantial increase of peoples' self-assessed satisfaction with free time. Likewise, satisfaction with family life benefits from entering non-employment. These benefits for jobless people seem to be substantial as they amount to about half a score point on a satisfaction scale from zero to ten. Regarding the drawbacks of being out of work, we gather further evidence in favor of theoretical expectations, as the unemployed report losing a tremendous amount of their income satisfaction. While we find evidence that the premium in free-time satisfaction directly results from having more time, this appears to be different for income satisfaction where the pure income loss hardly explains the negative effect. We conduct further analyses on the income satisfaction of unemployed people suggesting that non-compliance with the social norm to earn a living from work explains why unemployed people suffer beyond the income loss.

In our final analysis, we relate our findings directly to labor supply decisions examining the predictive power of satisfaction with income and free time for future job entries of currently jobless people. Employing linear probability models and survival analyses, we find that a new job is taken up quicker the more people are dissatisfied with their incomes. Thereby, we show that subjective perceptions predict behavior and thus reflect important parts of the theoretical concept of utility.

Our findings yield theoretical implications and policy conclusions that we discuss towards the end of the paper in the concluding Section 5. Beforehand, in Section 4, we present our results, which we yield by employing the data and methods illustrated in Section 3. First, however, we continue our discussion of theoretical considerations in the subsequent Section 2, thereby establishing the basis for our empirical agenda.

## **2. Theoretical illustration, previous research and empirical implementation**

In the following, we discuss the theoretical approach to labor supply and incorporate recent findings from research on subjective well-being into our discussion. We thereby reveal our main assumptions and derive predictions. The textbook notion of utility ( $U$ ) from working depends on the levels of consumption ( $C$ ) and hours of leisure ( $L$ ). Following other time-use studies, leisure is thereby defined in a broad sense as the best possible allocation of non-work activities (e.g. Graff Zivin and Neidell 2015). It can thus also extend to home production as a means to substitute the consumption of market goods (Gronau 1977). The level of consumption is determined by the level of income  $Y$ . In case of employment,  $Y$  constitutes a market income that equals the exogenously given net hourly wage times the number of working hours. In case of non-employment,  $Y$  can be non-market income such as social benefits. We additionally assume the utility function to be additively separable:

$$(1) \quad U = v(Y, L) = f(Y) + g(L)$$

with  $f_Y > 0, f_{YY} < 0, g_L > 0, g_{LL} < 0$ .

If the influence of the income loss is netted out, utility should increase when people enter unemployment as leisure soars up to  $L_{\max}$ . Even if people already enjoyed a very high degree of leisure time that ensures  $g(L_{\max})$ , the benefit from additional leisure cannot be negative. Studies on people's life satisfaction, however, suggest the opposite by revealing large non-pecuniary costs of unemployment.

We consider social stigmatization an important argument in this context. Jobless people who feel stigmatized by others may dislike or even avoid social interaction such that the utility

from leisure is lower compared to being employed. Indeed, formerly employed individuals seem to reduce social participation once they become unemployed (Kunze and Suppa 2017). A similar explanation concerns the potentially positive impact of increasing home production, at least with respect to men. If working at home is stigmatic for this group, they might hesitate to replace the production of market goods with the production of goods at home (Grogan and Koka 2013).

While this is in conflict with the idea of having more free time as a blessing for non-employed people, some other previous findings point to a potential increase of utility from leisure. In his analysis of several domain satisfactions in British panel data, Powdthavee (2012) documents that satisfaction with the *amount* of leisure time increases while workers enter unemployment.<sup>3</sup> Studies on emotional well-being, i.e. the balance of pleasant and unpleasant experiences over the course of the day, reveal leisure activities as comparatively pleasurable, in contrast to work-related activities (e.g. Kahneman et al. 2004a, Krueger and Mueller 2012). Consequentially, unemployed individuals enjoy more pleasant weekdays than those who are employed (Knabe et al. 2010). Unemployment might also resolve work-family conflicts that originate from time scarcity (e.g. Berg et al. 2003, Michel et al. 2011). This idea has been overlooked so far in the labor economics discussion of unemployment, but would align well with the finding of Kunze and Suppa (2017), who demonstrate that people losing their jobs focus increasingly on private life. Altogether, previous research does not reveal whether or not gaining leisure increases the welfare of the non-employed, although many potential reasons for such an impact exist.

If exiting the labor market does indeed increase  $g(L)$ , another non-monetary component in overall utility levels may overcompensate this positive influence in the life of the jobless. Clark (2003) suggests that the social norm to work can explain why the unemployed suffer such a great deal. He shows that jobless people report higher life satisfaction where regional unemployment is higher, i.e. where the social norm to work is presumably weaker. One might argue that even unemployed people could comply with this norm by volunteering or by providing care to others, but the crucial part of the norm to work is the belief that one should provide for one's self and one's family through the fruits of one's own labor rather than subsist

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<sup>3</sup> In addition to the amount of leisure, respondents in the British Household Panel Survey (BHPS) also had to assess their satisfaction with the use of free time, which shows no increase after becoming unemployed (Powdthavee 2012). However, the BHPS does not contain an overall assessment of satisfaction with leisure. Note that there are thus far only a few empirical studies analysing data on people's satisfaction with their free time, such as Gimenez-Nadal and Sevilla-Sanz (2011).



on charity (Elster 1989, Chadi 2012). Accordingly, a high local share of welfare recipients increases life satisfaction of the unemployed (Chadi 2014), and they suffer in particular in regions where the voter support for cutting unemployment benefits is relatively high (Stutzer and Lalive 2004). Finally, Hetschko et al. (2014) argue that transitioning into retirement takes away the pressure of the norm to work as people switch into a social category where compliance is not required anymore. Accordingly, workers' life satisfaction soars up when switching labor market status from unemployed to retired.

To deliver a theoretical notion of their finding, Hetschko et al. (2014) describe it as an increase of 'identity utility', which people achieve by behaving in ways consistent with their ideal selves (Akerlof and Kranton 2000). The social groups or categories people assign themselves to constitute this self-image. To belong to the esteemed members of a society, people must comply with the social norms, in this case the norm requiring that people work and make a living based on their own efforts. To incorporate this notion in the utility function (1), we add identity utility  $I(S)$  which individuals obtain from meeting the norms of their social category. While being in working age, market work from which a living can be made yields  $S=1$ , whereas unemployment yields  $S=0$ .

$$(2) \quad U = f(Y) + g(L) + I(S), \quad \text{with } I_s > 0$$

We suppose that losing one's job involuntarily (*loss*) changes the utility of a person in the following way. Unemployment benefits replace former labor income, but not completely, such that  $f(Y)$  decreases.  $I(S)$  vanishes. Only leisure and hence  $g(L)$  increase. To sum up,

$$\Delta U_{loss} = \underbrace{\Delta f(Y)_{loss}}_{\leq 0} + \underbrace{\Delta g(L)_{loss}}_{\geq 0} + \underbrace{\Delta I(S)_{loss}}_{\leq 0} \leq 0$$

The standard utility function without the identity component would suggest that  $\Delta f(Y)$  is the upper bound of the potential total utility loss. Considering the potential loss of self-worth via identity utility, however, provides an explanation why the total loss can exceed  $\Delta f(Y)$ . When  $|\Delta I(S)| > |\Delta g(L)|$  the loss of identity utility may even veil a gain from increasing leisure. The larger is  $\Delta I(S)$  the more extensive  $\Delta g(L)$  might in fact be.

To test this notion, we apply a different identification strategy compared to previous research. Inspired by the idea that life satisfaction consists of satisfaction obtained from different areas of life (van Praag et al. 2003), we empirically disaggregate the different parts of the utility function. Identity utility responds to the source of income and depends on whether or

not self-earned income is enough to constitute making a living. We therefore consider satisfaction with household income as an approximation of  $f(Y) + I(S)$ . The more the subjective perception of income deviates from changes to the objective level of income, the more we expect identity utility to play a role. Some evidence in support of this comes from Powdthavee (2012), who finds that dissatisfaction with income accompanies the transition from employment to unemployment, even if the income change is controlled for.<sup>4</sup>

In a similar way, we aim at clarifying whether non-employment increases utility from non-work activities or not, i.e. unveiling the effect of unemployment on  $g(L)$ . An obvious choice is satisfaction with free time, which our data includes. Moreover, we suspect that the time which unemployment allows to be redirected towards family life increases satisfaction with family life. Home production matters here in particular (e.g. child care) and may help to resolve work-family conflict. Moreover, the interaction with relatives and in particular one's partner may be an important and joyful activity (Kahneman et al. 2004a). Hence, we also analyze the impact of unemployment on satisfaction with family life to test for the role of additional free time.

Throughout our analyses, we follow happiness researchers in assuming that satisfaction data are suited to examine utility. If people truly consider well-being to be a relevant goal, our outcome variables should prove themselves useful as predictors of observable behavior (rationality assumption). We examine this issue by analyzing data on transitions into employment. Focusing on the two key factors in our discussion, it is rather unlikely that a worker will give up leisure in order to gain income if the marginal utility of  $Y$  is low, i.e. the current utility from income is already high. Therefore, we expect that satisfaction with income is negatively related to the probability of entering employment. In turn, a worker will be more willing to trade  $L$  the higher the current utility from  $L$  is, i.e. the higher the satisfaction with free time. Hence, we expect that our indicator of leisure-related utility is positively related to the probability of accepting a job offer. To our knowledge, no other study has yet provided evidence in this respect. Previous research on subjective data and labor market entries have looked at (dis-)satisfaction with life in general as potential motivation to take up employment, yielding mixed evidence (e.g. Krause 2013, Gielen and van Ours 2014, Mavridis 2015).

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<sup>4</sup> Note that only a few studies discuss satisfaction with income, such as Frick and d'Ambrosio (2012), none of which provides a deeper analysis of exogenously triggered unemployment.

### 3. Empirical framework

#### 3.1 Data base

Our empirical analyses are based upon 17 waves (1999-2015) of German Socio-economic Panel (SOEP) data (see Wagner et al. 2007). We make use of SOEP version 32 (SOEP 2017). More than 10,000 individuals are surveyed annually and provide an enormous amount of information on their living circumstances, biographies, activities and well-being. One important feature of the dataset regarding our research purpose is its panel structure. It allows us to follow the same workers over several years, when they lose their job or take up a new one.

The SOEP includes information on satisfaction with life domains that is particularly useful in our context. To analyze satisfaction with the level and source of income, we use the item *'How satisfied are you with your household income?'*. The data also provide us with an overall measure of satisfaction with free time: *'How satisfied are you with your free time?'*. Satisfaction *'with family life'* is surveyed in the same way. Its availability in panel datasets is rare and allows us to shed light on benefits of unemployment that have thus far remained hidden. Respondents indicate their satisfaction with these particular areas of life in the same way as they assess their overall satisfaction with their lives (*'How satisfied are you with your life, all things considered?'*) on an eleven-point scale from zero (*'completely dissatisfied'*) to ten (*'completely satisfied'*). As common practice in the research field, we interpret subjects' satisfaction scores as continuous outcomes, while we ensure robustness of our main findings against alternative methodologies that take the ordinal nature of these variables into account.

Information on exogenously triggered job losses is another important feature of the SOEP. Once workers have terminated a job since the last SOEP interview, they are asked about the specific reason: *'How did that job end?'*. Answers include a variety of different reasons, including dismissal, resignation, mutually agreed terminations, end of a fixed-term contract, and retirement. In line with previous studies on exogenously triggered job loss, we focus on the *'office or place of work has closed'* (plant closure in the following). In most of these cases, large groups of workers lose their jobs and the individual characteristics of one specific worker are typically not the cause of subsequent unemployment. Note that this key category of job termination due to plant closure has been interrogated annually in the SOEP since 2001.<sup>5</sup>

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<sup>5</sup> As we consider information on individuals two years prior to the event of a plant closure, as illustrated below, we base our analysis upon data starting with SOEP wave 1999.

The SOEP also includes a time use questionnaire that allows us to examine people's activities before and after job loss. The time-use battery does not include all possible activities, but it sufficiently addresses those three main activities in which we are interested.<sup>6</sup> First, people indicate how many hours they spend doing their jobs, including commuting time. This provides us with a broad definition of working time. Second, they also indicate the time spent on free time activities, which we define as leisure in a narrow sense. Third, we add up hours invested in errands, housework, care for children or other persons and repairs including gardening as home production.

To consider equivalized household incomes, we apply the new OECD scale. Monthly net household income is divided by the weighted sum of persons living in the same household. While the first person gets a weight of 1, any additional person older than 14 years gets a weight of 0.5, children up to the age of 14 years get a weight of 0.3. In addition, we make use of data on various socio-demographic characteristics, job characteristics and objective indicators of health, such as visits to the doctor. Finally, workers' expectations of events related to working life (e.g. job loss, job search, new job) within the next two years as well as their concerns about the security of their jobs allow us to consider potential anticipation of job loss before the event. For further identification of potential differences regarding people's job and employment security, the SOEP provides subjective data on people's concerns about the security of their jobs as well as self-assessed chances to find a new job in the hypothetical case of a job loss.

### *3.2 Identifying effects of unemployment*

Our investigation strategy closely follows similar studies that aim at establishing causal evidence on the impact of unemployment (see, e.g., Kassenboehmer and Haisken De-New 2009, Marcus 2013). To investigate the potential effects of entering unemployment on satisfaction levels, we rely on a difference-in-differences (DiD) approach. Exogenously triggered job losses (plant closures) constitute our treatment. To compare changes in satisfaction levels of treated workers around a job loss with the counterfactual (DiD), we subtract the trend in a control group of people who stay employed, but are otherwise as similar

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<sup>6</sup> Studies that are based on the Daily Reconstruction Method (Kahneman et al. 2004a, 2004b) routinely consider more than ten activities (see e.g. Knabe et al. 2010). In their app-based study, Bryson and MacKerron (2017) are able to inspect almost forty different activities. In consequence of these large numbers, some of the research on people's time-use takes place on datasets in which activities are aggregated under certain categories (see e.g. Gimenez-Nadal and Sevilla 2012, Dittich and Mey 2015). Arguably, it is not trivial to distinguish activities like media consumption from hobbies, to give an example. Another issue for research on time-use is the role of developing technology, such as internet access, which can change people's allocation of their time significantly over the course of a few years.

as possible as the treatment group. We calculate the mean change in the satisfaction of the treated from two SOEP interviews before job loss ( $t = -2$ ) to the first interview afterwards ( $t = 0$ ). With respect to the observations of the control group, we measure the two-year difference in satisfaction levels of people who are employed over at least three SOEP interviews in a row ( $t = -2$ ,  $t = -1$ ,  $t = 0$ ). Thus, approximately two years pass by in either case. We do not choose  $t = -1$  as reference point in time as we cannot rule out that the situation one year prior to someone's job loss might be affected by its trigger incident of a plant closure. German employers making staff redundant must observe periods of notice of up to three months before layoff. By choosing the second-last interview before job loss instead, we assume to minimize the role of the future plant closure on individuals observed at that point in time.

Both groups consist of adults that are largely not yet eligible to receive retirement benefits pre- and post-treatment (18-60 years). We focus on individuals in dependent employment, either full-time or part-time employed, thereby excluding apprentices and self-employed people. After job loss, the treatment group is non-employed. They might have filed for unemployment or not, but they cannot have retired. Observations in both control and treatment group fulfil the conditions regarding age and employment at  $t = -2$  and  $t = -1$ , independently of whether they continue to report being on a job in  $t = 0$  or not. Additionally, we exclude cases of job changes in  $t = 0$  from the control group. This provides us with a basic sample of 89,612 observations, including 331 cases of non-employment in consequence of plant closure.<sup>7</sup>

The likelihood of experiencing a plant closures may vary across socio-demographic groups as well as job attributes, since different groups of people work for companies with varying risk of firm closure. We therefore exploit the information available in the SOEP on socio-demographics and job characteristics and employ entropy balancing (EB, Hainmueller 2012) to further increase similarity of treatment group and control group. The EB algorithm reweights the observations of the control group so that the means and standard deviations of treatment and control group equalize across these characteristics while the entropy distance between initial and new weights is minimized. In our case, population weights provided by the SOEP to ensure representativeness serve as initial weights. As a result, EB ensures high matching quality as measured by statistical similarity of treatment and control group. This renders the non-parametric EB different from other matching techniques for which the researcher needs to select covariates depending on whether they contribute to statistically equal groups or not (see

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<sup>7</sup> Case numbers shrink once we require workers to provide additional information that we use in our analyses. We document the exact sample sizes underlying each analysis in the respective notes below tables and figures.

Caliendo and Kopeinig 2008). Instead, we take as much potentially relevant information as possible into account upon the condition of a sufficient sample size. As the treatment must not affect the conditioning variables, we measure them at  $t = -2$ .

Table A1 in the Appendix provides descriptive statistics of all of the socio-demographic characteristics, job characteristics and objective indicators of health that underlie the matching process producing our main results. The table reveals how much these characteristics differ between the treatment group, the initial control group (which we use for our comparative analysis in Section 4.1), and the reweighted control group to which EB is applied. As intended, balancing almost perfectly adjusts mean and standard deviation of the two groups. Table A1 also shows that treated and control observations are fairly similar already before balancing, except for earnings and job characteristics that relate to firm-specific risk of plant closure (industry, company size, occupational status).

## 4. Results

### 4.1 Time use, income and satisfaction levels

We start our empirical investigation with a graphical analysis on how average time-use of people evolves when they either continue to be employed or terminate employment following a plant closure. As Figure 1 reveals, the time allocation of the treatment group responds strongly to the job loss. Time spent on home production and free time activities increases whereas working time declines from  $t = -2$  to  $t = 0$  (left panel of Figure 1). The loss of working time (-8.3 hours) is larger than the combined increase of time spent on home production (+2.2 hours) and leisure activities (+1.2 hours).<sup>8</sup> In absolute terms, Figure 1 shows that people increase their time spent on (observable) home production more than time spent on pure leisure activities when they lose their jobs. Note that until  $t = -1$ , the time use of the unbalanced control group hardly differs from the treatment group. Workers who stay employed for at least three consecutive SOEP interviews also do not report any notable changes over time (right panel of Figure 1).

< FIGURE 1 >

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<sup>8</sup> We also observe that the unemployed spend 0.3 hours more on further education. Recall that several time-consuming activities are not included in the SOEP time-use questionnaire in our period of investigation. For instance, newly unemployed people invest a substantial amount of time in job search (Krueger and Mueller 2010), and they sleep longer than employed people (Knabe et al. 2010).

The reduction of working time accompanying job loss goes along with a significant decline of monthly equivalized income of 369 euros (24%, at 2011 prices) from  $t = -2$  to  $t = 0$  (see Figure 2).<sup>9</sup> Individual net labor earnings, i.e. self-earned income, vanish completely. Instead, the non-employed receive substantial transfers of about 815.19 euros per month (67 euros of transfers before job loss).<sup>10</sup> Individuals in the control group of job stayers report stable levels of equivalized income and net labor income, and they rarely receive transfers.

< FIGURE 2 >

Before discussing the main results from our satisfaction data, we present preliminary evidence in Figure 3. We observe that both satisfaction with life (-1.1) and with income (-1.6) decrease significantly from  $t = -2$  to  $t = 0$  if workers lose their jobs (upper panel of Figure 3). Part of the change already takes place within the last year workers are still employed, i.e. until  $t = -1$  (57% of the change in life satisfaction and 21% of the change in income satisfaction). As the control group (lower panel of Figure 3) does not exhibit a similar change, job loss might be anticipated, which supports our decision not to set  $t = -1$  as pre-treatment reference point in time. Satisfaction with free time (+0.7) benefits significantly from job loss whereas the controls report no change in this respect.

< FIGURE 3 >

#### 4.2 Main results

Table 1 presents our main findings. Column 1 displays the mean satisfaction differences in the change from  $t = -2$  to  $t = 0$  between treated and controls. The second specification estimates differences in satisfaction between these two points in time using a standard OLS regression to adjust treatment and control group based on our set of pre-treatment conditioning variables as measured at  $t = -2$ . Entropy balancing is introduced with the third specification. Here, the observations of the control group are assigned the weights that ensure statistically identical groups as outlined in Tables A1. The effect is then once more the pure DiD between treatment and control group. Finally, we combine adjustment through balancing and an OLS regression that considers our set of pre-treatment control variables in a fourth step.

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<sup>9</sup> Overall net household income also drops by 24% (632 euros).

<sup>10</sup> Displaced workers are eligible for public unemployment insurance benefits (UIB, 'Arbeitslosengeld'), which currently replace 60% of former net labor earnings in most cases. UIB amount to 84% of all transfers in our treatment group. The remainder mainly consists of social benefits (14%, 'Arbeitslosengeld II', 'Sozialhilfe') plus additional regional housing benefits ('Wohngeld'). Both are granted to the household as a whole. Social benefits supplement household income if it does not reach the legally defined minimum subsistence level (including UIB).

< TABLE 1 >

Across all of these specifications, becoming unemployed decreases satisfaction with income. The predicted change is tremendous, as it amounts to 27% (Specification 4) of the average level of income satisfaction the treated show about two years before terminating employment. The effect of job loss on satisfaction with free time is clearly positive, suggesting that utility from leisure increases in response to job loss. More free time might help the unemployed enjoy a more pleasant day and compensates them for negative implications related to the loss of labor income.<sup>11</sup>

The different ways of adjusting members of treatment and control group barely change the effect sizes, despite the rich information taken into account. This suggests that the trigger event of a plant closure is either almost random in our context or, if not, that at least the observed differences between affected and unaffected individuals are irrelevant for the effects in our selection of outcome variables. Another interpretation is that the role of hard-to-observe factors like anticipation of events might not be essential, if the major observables do not already matter much.

Still, the SOEP data allow us to look at the potential role of such aspects. Hence, as a first sensitivity check, we adjust treatment and control group additionally using subjective data on how people expect their future working life (perceived job security and employment security as well as the self-assessed probabilities of job loss / job change / job search / resignation in the next two years). In the process, we account for potential differences in anticipation of unemployment at our reference point in time, i.e. the second-last SOEP interview before terminating employment. Table 1 displays these results as well (Specification 5). Note that the anticipation data are not available across all of the SOEP waves, such that the sample size shrinks but the findings remain the same.

Secondly, we expand the time window to several years prior to the event of the plant closure to check whether or not control and treatment group follow similar trends. This sheds some light on the validity of the common trend assumption underlying the difference-in-differences approach. Recall that the second-last year before job loss constitutes our pre-treatment reference point in time. From the third-to-last year to the second-to-last year before the treated lose their job loss, the difference in the change in satisfaction with free time between treated and controls amounts to 0.08 points ( $p = 0.54$ ). We also find no varying pre-treatment trend in income

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<sup>11</sup> In line with the previous literature, we also replicate the standard finding that unemployment decreases life satisfaction substantially using the same approach on the same data sample (see Table A2 in the Appendix).



satisfaction, which changes from  $t = -3$  to  $t = -2$  only about 0.07 points ( $p = 0.63$ ) differently between treatment group and control group. For both satisfaction outcomes, we also do not find evidence for significantly differing trends in the years until  $t = -2$  when we go more interviews back in time (i.e.  $t = -6$ ), which, however, comes at the loss of observations from the initial sample if people are not observed over the whole period. Since we do not observe evidence of a treatment effect in the period prior to  $t = -2$ , we conclude that the treated do not anticipate unemployment beforehand.

Thirdly, we take a closer look at sample selectivity, as some workers immediately find another job after the initial job loss. In a deeper inspection of this group, we detect a weak tendency of more productive persons re-entering the labor market sooner (see Chadi and Hetschko forthcoming). It is rather difficult, however, to assess the importance of such potential selectivity for our findings on the satisfaction with both income and leisure. One could argue that differences in the marginal utility of leisure may play a role in our results on free time satisfaction, so that the effects may be underestimated due to an attrition of hard workers from the pool of jobless individuals. Regarding income satisfaction, those with particularly strong dissatisfaction may re-enter the labor market relatively soon, which similarly could also lead to an underestimation of treatment effects. Note that we examine the predictive power of individual satisfaction levels for future labor market entries in our final analysis at the end of this section.

As a further check, we apply an individual fixed-effects approach as a methodological alternative to our matching-based difference-in-differences design. The fixed-effects approach does not require a fixed reference point before job loss but instead determines differences from the individual average satisfaction over time. Just as with the DiD design, it provides evidence on within-person changes controlling for stable worker characteristics. Note that there are some changes in our set of control variables, as we estimate changes in satisfaction of individuals after entering non-employment so that job-related variables drop out. Complementing the previous set of controls, the fixed-effects approach allows us to expand the model with variables that reflect survey-related factors, such as the interview mode, to ensure that such aspects and potential measurement issues are taken into account.<sup>12</sup> Apart from another robustness check of our findings, we also use this approach for investigating the role of the objective channels that

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<sup>12</sup> Research on the role of survey-related factors in satisfaction measurement shows that presence of an interviewer can affect self-reported scores (e.g. Conti and Pudney 2011). Other potentially relevant factors are changes in the interviewer person administering the survey as well as the interviewee's overall survey experience (Chadi 2013).

we have considered previously from a theoretical point of view and discuss those deeper in the following subsection.

#### *4.3 Objective inputs and subjective outcomes*

We start with a fixed-effect regression on satisfaction with income, implementing losing work for the reason of a recent plant closure again as treatment dummy. Controlling for the level of income, we isolate the effect of unemployment from its impact through the pure loss of income to identify whether income satisfaction drops for non-monetary reasons. In line with previous satisfaction research, we use the log of the income level to account for decreasing marginal utility of income.

< TABLE 2 >

As Table 2 reveals, controlling for log equivalized income reduces the effect of unemployment on satisfaction with income (step from Column 1.1 to Column 1.2). The non-monetary effect, however, remains substantial and significant. The same picture shows up when considering further controls (Column 1.3). It turns out that income satisfaction decreases for non-monetary reasons in response to unemployment. Below, we lay out in detail our interpretation of this finding, which seems to suggest hidden benefits of employment.

In a very similar way, we test whether increased availability of time actually explains the positive effect of unemployment on satisfaction with free time. We use the level of daily non-working hours (24 hours minus daily working hours) as a broad measure of time spent on leisure and home production. This variable is included in logs as control in an estimation of the impact of unemployment on satisfaction with free time. As Table 2 reveals, the treatment effect disappears almost completely once we consider non-working time in the regression analysis (from Column 2.1 to Column 2.2). Hence, the change in time use induced by the transition from employment to non-employment probably accounts for the accompanying satisfaction increase. This picture does not change anymore when further controls are considered, in particular log equivalized income (Column 2.3).<sup>13</sup>

#### *4.4 Subgroup analyses*

The fixed-effect approach of the previous section also allows us to conduct several separate subgroup analyses, on which we report in this subsection (detailed results output available upon

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<sup>13</sup> For consistency, we can also control for log non-working time in our income satisfaction regression. This reduces the impact of unemployment on income satisfaction again slightly. The effect, however, continues to be substantially negative and significant.

request). As further sensitivity checks, we exclude civil servants from our dataset, as they are less likely to lose their jobs due to plant closures. We also consider data on people's contractually agreed working hours and focus on a sample of individuals with at least 15 hours per week. Furthermore, we check our broad definition of unemployment by singling out persons who are out of the labor force, but not registered as unemployed. Finally, we make use of the information on firm size and exclude the smallest category to minimize the hypothetical chance of a single worker in our data being responsible for the plant closure. None of the findings change.

To complement our discussion of potential channels, we conduct further subgroup analyses or use interaction variables to reveal which socio-demographic groups drive our findings in particular. Many related contributions have focused on gender.<sup>14</sup> There is some evidence for heterogeneous free-time satisfaction effects, as the impact of leaving the labor market is 0.4 points larger for women than for men, though this interaction effect is not statistically significant. In contrast, we find robust evidence for gender differences in income satisfaction. In line with expectations from previous research on life satisfaction, lack of employment makes men 0.9 points more dissatisfied with their income ( $p < 0.01$ ), although the decline also remains significant for women. Controlling for equivalized income, the effect on women diminishes and is no longer statistically significant. Hence, the negative impact of unemployment on women's income satisfaction is largely explained by the loss of income. These findings suggest that gender-specific social norms ('breadwinner model') are at play and require men to work for a living whereas women are able to ensure norm compliance by doing activities other than market work. We find no different treatment effects on free time satisfaction and income satisfaction dependent on age. Academics gain one point more free time satisfaction due to unemployment than people with lower education who nevertheless benefit significantly.

To understand what is behind the strong income dissatisfaction, it is informative to consider indicators for the economic suffering of people who become non-employed. We do indeed find some evidence for a stronger unemployment effect in dissatisfaction with income for those who lose more economically, but such interaction effects are not robust across variables and definitions. Notably, the effect remains strong if we focus on people with comparatively small income losses. We even find that individuals whose household income is not reduced by job loss report significant dissatisfaction with their current income.

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<sup>14</sup> See e.g. Burda et al. (2013) who discuss differences in home and market work between men and women. Booth and van Ours (2008, 2009, 2013) use satisfaction data from several countries to comprehensively discuss the role of gender-specific social norms in working time decisions.

One possible reason why the non-employed become very dissatisfied with their income situation, despite experiencing no particular decline in actual income, could be the role of permanent income.<sup>15</sup> Our impression from studying the data more deeply, however, is that this is not the sole explanation for our main finding. For instance, assuming that unemployment is more detrimental to long-term income for highly educated individuals, it is interesting to observe no evidence on significant interactions between the unemployment effect and education levels. Furthermore, when we use subjective data, which is available on a variety of issues like employment security, economic prospects, and even reservation wages, we cannot find any evidence that those who are more concerned about their economic future suffer more than the others from becoming unemployed. Strikingly, if we identify people whose economic outlook clearly gets worse, compared to our reference point two years before while still in employment, we also find no evidence for any effect heterogeneity.<sup>16</sup> We conclude that there has to be a reason other than a permanent income loss which explains why people are so severely dissatisfied with their income situation when they exit the labor market. The following subsection provides one such explanation.

#### *4.5 The hidden benefits of (un)employment*

Our main findings are in line with theoretical considerations and are in support of standard economic reasoning about labor supply. However, the clear-cut picture provided by the evidence from subjective data on both income and free time satisfaction deserves more scrutiny, as these strong results may not fully align with the evidence on actual time-use and income, as discussed at the outset of Section 4.1. Furthermore, by using information on people's income situation and their time-use directly in our analysis, we observe the striking picture that changes in available time seem to matter for our main findings, while changes in income do not. We thus discuss two potential explanations for the positive utility effects related to having more time (4.5.1.) and earning labor income (4.5.2). We thereby present our interpretation of possible hidden benefits of (un-)employment and present supportive empirical evidence.

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<sup>15</sup> Several studies discuss how job loss affects long-term income development (e.g. Stevens 1997, Huttunen et al. 2011), and a few papers specifically focus on the role of permanent income shocks for current life satisfaction (e.g. Knabe and Rätzel 2011, Bayer and Jüssen 2015).

<sup>16</sup> For example, we use the information on individual reservation wages in non-employment, assuming the long-term income losses to be greater for those whose expected wages have become smaller than the actual wages two years before versus those cases where reported reservation wages are at least as high. Such a distinction allows for a sample split and the application of interaction terms, but the results show no significant differences in the unemployment effect when comparing the two groups.

#### *4.5.1 Time for the family*

Unemployment allows people to enjoy a greater satisfaction with their free time. Leisure in the narrow sense, however, increases only about an hour per day (Section 4.1). This suggests that there could be another potential benefit from being unemployed, which may relate to the stronger increase in home production that we observe in our data. To test for possible side effects of having more time for household work and other activities from which the entire household may benefit, we look at the satisfaction with family life as an alternative domain satisfaction. We use the same identification strategy as with our previous analyses of satisfaction outcomes, i.e. the DiD regression based on the treatment group of individuals who report plant closure as reason for recent job termination and control group of continuously employed people, which we again reweight by using entropy balancing. The analysis has to rely on a smaller sample size (93 treated observations and 33,476 controls), as satisfaction with family life has only been a part of the SOEP questionnaire since 2006.

#### < TABLE 3 >

Table 3 shows the findings for an OLS regression with no controls, the full set of controls and the DiD effect when entropy balancing is applied. The results show a sharp increase of satisfaction with family life in response to job loss. This effect even survives controlling for the anticipation of future job market events, as shown in the last column, despite small sample sizes. We conclude that this additional finding on higher family satisfaction may unveil a hidden benefit of unemployment.

#### *4.5.2 The norm to work for a living*

In Section 2, we have argued that no longer complying with the norm to work for a living could contribute to explaining why people experience significant reductions of income satisfaction in the wake of job loss. The influence of such social norms is, however, very hard to measure directly. We therefore apply the indirect proof of Hetschko et al. (2014) to unemployment and satisfaction with income in the following. The approach is based on the assumption that the retirement of unemployed people changes the social categorization from working age to retirement age, which arguably takes away the need to fulfill the social norm to work.<sup>17</sup> People in retirement age are typically no longer subject to the social norm requiring them to work to make a living. We conjecture accordingly that the specific source of income does not matter to

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<sup>17</sup> For more comprehensive discussions on how entering retirement affects subjective well-being, see e.g. Bonsang and Klein (2012), Bender (2012), Abolhassani and Alessie (2013) as well as Nikolova and Graham (2014).

income satisfaction anymore when retired, such that people retiring from unemployment experience an increase in income satisfaction. If true, we in turn interpret the loss of income satisfaction in response to unemployment as at least partly driven by not complying with the norm to work.

For the purpose of this additional analysis, we rely on the same SOEP waves as before and identify continuous transitions from either unemployment or employment to retirement between two consecutive SOEP interviews (i.e. from one year to the next). As Table A3 in the Appendix shows, retiring from unemployment does not change peoples' lives. Income levels remain almost stable, though they are on average lower than in employment. Right before retirement, over 90% of unemployed people have already stopped searching for a job as they approach the end of working life. People also enjoy the maximum amount of free time before and after the transition. Even uncertainty about future incomes should be resolved on the eve of retirement as people in Germany are well-informed about the level of their pensions. Hence, we can credibly assume that, if any, the only implication of retirement is the new social categorization. In sharp contrast, Table A3 reveals that the lives of employees change upon retirement in many regards. Figure 4 reveals that retirement also affects the income satisfaction of the two groups differently. People retiring from employment lose satisfaction with income whereas unemployed people benefit (both  $p < 0.01$ ).

< FIGURE 4 >

We interpret the increase of satisfaction with income upon retirement as the effect of leaving the socially undesired status of being unemployed. To consider the role of relevant factors in this context, we conduct regression analyses on how income satisfaction changes upon retirement, distinguishing between formerly unemployed and the reference group of formerly employed people. The results are presented in Table 4 and confirm that unemployed people benefit much more than employed people from retiring (Specification 1). The estimation takes into account the changes in relevant characteristics during retirement, most importantly the relative change in income (change in income over the former level of income) when people retire (Specifications 2 to 4). However, the effect of retiring from unemployment remains positive and significant. As a final step, we take out all unemployed people that actively searched for a job in order to test whether these drive our findings. This does not alter the results either. In line with our interpretation above, we explain the result that leaving unemployment raises income satisfaction by the fact that formerly unemployed retirees do not need to meet the

social norm to work anymore and therefore gain identity utility. Vice versa, when people *enter* unemployment, we conclude that they are likely reporting particular losses in income satisfaction as they lose identity utility.

< TABLE 4 >

#### *4.5 Starting a new job*

To shed further light on the importance of satisfaction with income and satisfaction with free time in people's utility, we inspect how these factors relate to actual labor market behavior. For this purpose, we estimate the probability that non-employed individuals start a new job by the next SOEP interview dependent on our subjective indicators of interest. We use a different sample to analyze the predictive power of satisfaction with income and satisfaction with free time for labor market behavior. Our analysis relies on 13,625 observations in non-employment, coming from people who are in working age (18-60 years) and have not retired yet. We do not distinguish according to the reason for non-employment, which yields a representative and large group of people who are observed outside of the labor force. In 1,561 cases, individuals enter employment by the next SOEP interview, i.e. within approximately 12 months.

We estimate the probability that an individual belongs to this group dependent on satisfaction with income, with free time and various controls. We use binary variables to distinguish between high (above the median of seven points) and low satisfaction (at the median and below), but would obtain the same results based on continuous variables or different splits (e.g. three categories divided by the first and third quartile or the 10<sup>th</sup> and 90<sup>th</sup> percentile). The controls allow us to take other influences on the decision to start a new job into account. At first, we consider factors that explain why people differ in their individual willingness to search a job or accept job offers. For instance, married people might be less flexible and less mobile. Secondly, firms demand different abilities to a different extent so that highly educated people, for instance, will receive more (attractive) job offers and enter employment more quickly.

The results are presented in Table 5. When only the federal state of residence and the year of the interview are controlled for (Specification 1), satisfaction with income is negatively related to beginning a new job. Satisfaction with free time shows no clear effect. This does not change once we consider living conditions that might explain why people hesitate to become employed (Specification 2) or control for demand-sided explanations for the probability of transitioning from non-employment to employment (Specification 3). The estimated effect of

income-related well-being continues to be negative, confirming our theoretical expectations from Section 2.

< TABLE 5 >

While our focus is on both income and leisure satisfaction, we follow previous studies in a final step, as we include life satisfaction as another potential predictor of labor market entry. Leaving the qualitative effects of satisfaction with income unchanged, overall life satisfaction is negatively related to the probability to start a job. Remarkably, however, the marginal effect is smaller compared to income satisfaction although the difference is not statistically significant. This underlines the important role of the subjective value people assign their current income situation for labor supply.

The linear probability model used so far might be seen as a relatively rough way of analyzing reemployment as it fixes both the exit event (job take-up) and its timing (until next SOEP interview). All people who will start employment in the next year are treated in the same way despite the variation in the actual timing of job take-up, which can amount to about one year (some people start a new job directly after the current SOEP interview, others wait until the month of the next interview). A survival-time regression offers a more flexible approach to estimating the timing of reemployment. Here, we treat job take-up as ‘failure event’. The SOEP provides us with monthly information on starts of employment and thus extensive variation in the dependent variable (from 1 to 140 months), i.e. time until reemployment. Note that we exclude episodes of non-employment whose end we do not observe. This leaves us 2,918 spells. Their duration is estimated by binary variables indicating that satisfaction with income respectively free time is reported above the median levels, while the same findings would emerge if we estimated continuously measured levels of satisfaction or split the scales into three categories. Moreover, we include the same sets of controls as with the linear probability analysis introduced before.

< TABLE 6 >

Table 6 presents the results of a parametric survival time regression using a Weibull distribution. The estimation confirms the findings of the linear probability model. Scoring above the median level of satisfaction with income decelerates reemployment by about two to three months depending on the model specification (marginal effect calculated at the mean of about 17 months). To illustrate this finding, Figure 5 draws the two predicted survival functions of workers ranking below the median of income satisfaction and above the median based on the



third model specification. The former group's probability to be reemployed after two years is 6 percentage points higher than the latter's.

< FIGURE 5 >

In the first column of Table 6, satisfaction with free time seems to shorten the time people spent in non-employment, but the effect does not show up robustly across different specifications. As the fourth specification reveals, relatively high life satisfaction again predicts an increase in the duration of non-employment. As before, the marginal effect (of 1.4 months at the mean) is smaller when compared to the effect of high satisfaction with income.

## **5 Discussion and Conclusions**

Our study discusses one of the most fundamental concepts of economics, which is the idea of a trade-off between income and leisure in people's labor supply decisions. We combine both subjective and objective data to test the two crucial assumptions underlying this concept. Our analysis provides strong evidence in support of the idea of such a trade-off in labor supply decision-making. People do benefit in unemployment from having more time, while they benefit in employment from obtaining labor income. This is implied by extensive effects in people's satisfaction with income and their satisfaction with leisure when becoming non-employed. Both of our main findings point to rather novel explanations for the existence of this trade-off which have received little or no attention so far.

First, we find that job loss reduces satisfaction with income by more than one fourth. At first glance, this contradicts the previous finding from life satisfaction studies according to which the income loss hardly contributes to the overall effect of unemployment. However, we also deliver an explanation to reconcile this contradiction. Not complying with the norm to earn a living may strongly decrease satisfaction with income and at the same time explain the extensive non-monetary loss of life satisfaction. Hence, both monetary and non-monetary reasons for the misery of unemployment matter. Losing labor income takes effect because of reduced consumption and because it shifts the origin of income from self-earned to passively obtained, under which people seem to suffer. Second, we find that satisfaction with free time significantly increases when entering unemployment. This effect is remarkable, given that narrowly defined leisure increases only about an hour per day. More time ends up in home production. We argue that the additional time allows for hidden benefits of unemployment, as time for home production might yield positive side effects regarding family life. In fact, we present additional evidence for increases in satisfaction with family when becoming

unemployed, which is a novel finding and complements research on the family-work conflicts. Finally, we can show that dissatisfaction with income predicts actual job entries, which underlines the relevance of such subjective information.

Our findings reconcile the roles of income and leisure in theoretical models with previous empirical findings. Labor income creates a strong incentive to work while working imposes an opportunity cost on leisure and family life. Another implication concerns the social norm to work. Just working may not satisfy the human need for social recognition and self-acceptance. Work has to yield income to have this positive impact. In consequence, volunteer work alone may not cure the misery of unemployment. While it comes at the price of leisure, it does not generate income. Likewise, our results can explain why we observe some people staying unemployed for a long time, although one may expect that their very low satisfaction would incentivize them to take up any job. Poorly paid jobs might not compensate the utility loss of forgone leisure. In addition, they often do not lead out of the dependence on public assistance.

From a policy perspective, our results are informative for both firms and labor market policy-makers. From a personnel perspective, our evidence confirms the basic idea that income considerations matter for labor supply decisions. Recently, this view has become subject to criticism from multiple angles, but our study substantiates the important role that income plays in the labor context. In consequence, firms have to be aware of the human desire to make a living based on the firms' payments, so that low wages can generate dissatisfaction among workers, which could go far beyond the loss of consumption opportunities and the reduced standard of living. Furthermore, the role of free time should not be neglected, although personnel managers may believe that their employees actually enjoy a quite comfortable situation in this respect. Our study emphasizes the idea that free time is not just the enjoyment of hobbies and other leisure activities. Instead, people benefit from having more time for their family, a life domain that appears to benefit significantly if individuals reduce working time.

With regards to labor market policies, our study suggests that it is more promising to help the unemployed get back into regularly paid jobs than providing passive public assistance. While the latter gives them the necessary income to live, it hardly compensates their perceived misery. Interestingly, our study also suggests that those who suffer from non-employment make choices in line with basic economic theory, and thus increase efforts to get back into the labor market. In this vein, our findings also cast some light on the effectiveness of labor market programs that create unpaid public jobs for the unemployed, such as workfare. These programs are often seen as an incentive device forcing those people to take up a regular job (or otherwise

abandon welfare receipt) who are happy with enjoying free time and public assistance, so that they do not try to become reemployed (Besley and Coate 1992). Our results imply that threatening people with taking away their free time may in fact entail such an incentive. However, most unemployed people may try hard to get back to work anyway as this ensures labor income. Accordingly, mandatory participation in workfare or similar programs may impose a high cost on people's well-being, as these jobs fail to provide both the pecuniary and non-pecuniary blessings of employment, while depriving people of time for hobbies, home production and family life, which our study revealed as benefits of being jobless.

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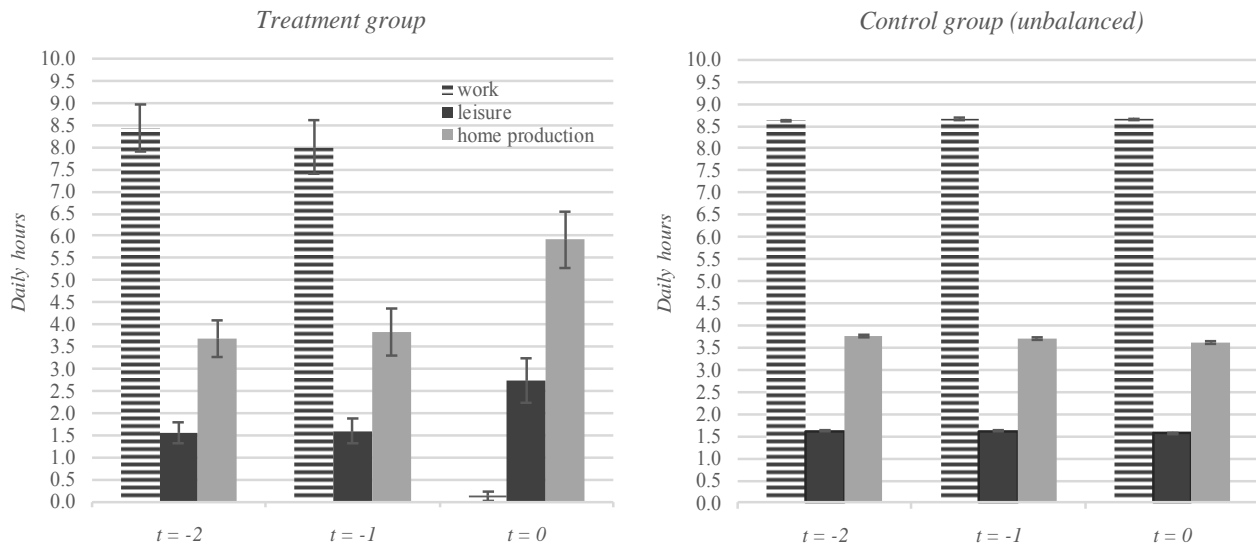
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## Figures and Tables

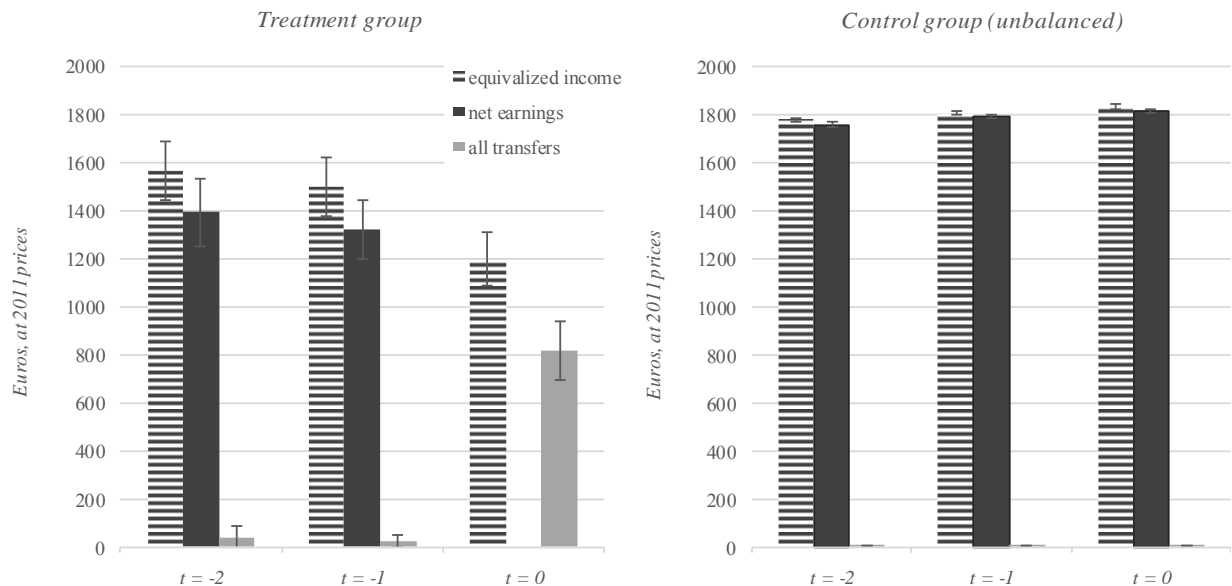
Figure 1. Time use of people who become unemployed and people who stay employed



Source. SOEP 1999-2015.

Note. Left bars (horizontally striped) denote working time, middle bars (black) denote leisure, right bars (grey) denote home production. Whiskers denote 95% confidence intervals. The treatment group consists of 229 workers whose job termination follows a plant closure between  $t = -1$  to  $t = 0$ . Control group observations (76,403) stay employed three SOEP interviews in a row.

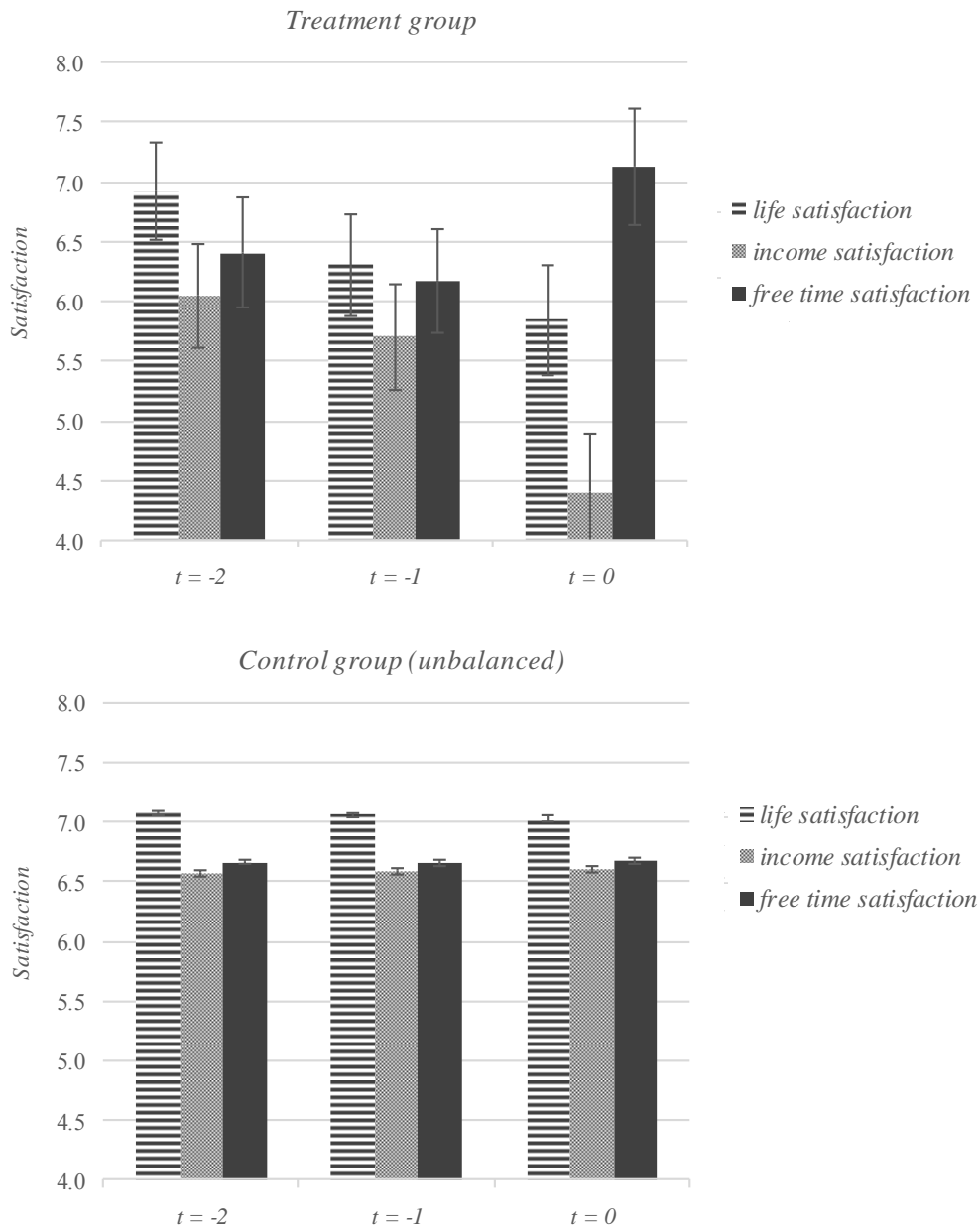
Figure 2. Level and sources of income of people who become unemployed / stay employed



Source. SOEP 1999-2015.

Note. Left bars (horizontally striped) denote equivalized household incomes, middle bars (black) denote individual net labor earnings, right bars (grey) denote social benefits. Whiskers denote 95% confidence intervals. The treatment group consists of 229 workers (transfers: 220) whose job termination follows a plant closure between  $t = -1$  to  $t = 0$ . Control group observations (76,403, transfers: 76,251) stay employed three SOEP interviews in a row.

Figure 3. Subjective assessments of people who become unemployed or stay employed



Source. SOEP 1999-2015.

Note. Left bars (horizontally striped) denote life satisfaction, middle bars (hatched) denote income satisfaction, right bars (black) denote satisfaction with free time. Whiskers denote 95% confidence intervals. The treatment group consists of 167 workers whose job termination follows a plant closure between  $t = -1$  to  $t = 0$ . Control group observations (54,978) stay employed three SOEP interviews in a row. Note that the sample used here is the main sample, as illustrated in Table A1.



Table 1. DiD effects on satisfaction with income and satisfaction with free time

	satisfaction with income					satisfaction with free time				
	(1) mean	(2) OLS	(3) EB	(4) EB & OLS	(5) EB & OLS expect.	(1) mean	(2) OLS	(3) EB	(4) EB & OLS	(5) EB & OLS expect.
Job loss	-1.673*** (0.233)	-1.614*** (0.232)	-1.612*** (0.235)	-1.608*** (0.180)	-1.703*** (0.194)	0.712** (0.277)	0.714*** (0.277)	0.745*** (0.278)	0.748*** (0.192)	0.727*** (0.188)
Daily working time (hours)		-0.005 (0.008)		-0.034 (0.039)	-0.043 (0.050)		0.026*** (0.009)		-0.090*** (0.033)	-0.094** (0.043)
Daily leisure (hours)		-0.010 (0.009)		-0.110 (0.070)	-0.051 (0.071)		-0.056*** (0.010)		-0.221*** (0.056)	-0.165*** (0.057)
Daily hours of household production (hours)		0.001 (0.005)		0.032 (0.034)	0.015 (0.041)		0.008 (0.005)		-0.025 (0.039)	-0.015 (0.038)
Age		-0.005 (0.003)		-0.028 (0.024)	-0.026 (0.026)		0.002 (0.004)		-0.050** (0.022)	-0.003 (0.024)
Female (share)		-0.084*** (0.030)		-0.206 (0.237)	-0.183 (0.265)		0.045 (0.034)		0.220 (0.257)	0.291 (0.249)
Primary level of education (ref. secondary)		-0.028 (0.047)		0.192 (0.286)	0.335 (0.306)		-0.053 (0.055)		0.166 (0.277)	0.041 (0.287)
Tertiary level of education (ref. secondary)		0.037 (0.029)		-0.178 (0.256)	-0.498* (0.272)		-0.005 (0.032)		0.266 (0.233)	-0.334 (0.250)
Years of employment		0.005 (0.003)		0.009 (0.019)	0.015 (0.020)		0.000 (0.003)		0.026 (0.018)	-0.003 (0.018)
Years of unemployment		0.001 (0.012)		0.031 (0.053)	0.057 (0.081)		-0.004 (0.012)		-0.061 (0.072)	-0.031 (0.078)
Married (ref. single)		-0.038 (0.039)		-0.175 (0.259)	-0.134 (0.321)		-0.085* (0.045)		0.140 (0.317)	0.118 (0.321)
Separated (ref. single)		0.148* (0.083)		0.196 (0.555)	-0.128 (0.429)		0.031 (0.084)		0.046 (0.373)	0.001 (0.328)
Divorced (ref. single)		0.042 (0.050)		-0.252 (0.308)	-0.182 (0.343)		-0.048 (0.056)		-0.505 (0.380)	0.034 (0.345)
Widowed (ref. single)		0.313*** (0.108)		-1.235** (0.593)	-0.769 (0.598)		-0.120 (0.118)		-0.201 (0.538)	0.167 (0.494)
Having a partner		0.063 (0.039)		0.478 (0.306)	0.666** (0.315)		0.007 (0.044)		-0.254 (0.265)	-0.117 (0.242)
Home ownership		-0.017 (0.026)		0.438*** (0.161)	0.331* (0.188)		0.014 (0.030)		0.358 (0.227)	0.398* (0.229)
Size of apartment (m <sup>2</sup> )		0.000 (0.000)		-0.006*** (0.002)	-0.006** (0.002)		-0.000 (0.000)		0.002 (0.002)	0.002 (0.003)
Number of persons in household		-0.027* (0.015)		-0.241* (0.132)	-0.224 (0.151)		0.033** (0.017)		-0.008 (0.142)	0.227 (0.143)
People in need of care in household (ref.: no)		0.014 (0.087)		0.248 (0.181)	0.114 (0.239)		0.190* (0.103)		0.252 (0.166)	0.172 (0.241)
Children in household: one (ref.: zero)		-0.003 (0.035)		0.180 (0.283)	0.087 (0.334)		-0.021 (0.038)		-0.195 (0.293)	-0.344 (0.327)
Children in household: two (ref.: zero)		0.037 (0.043)		0.490 (0.346)	0.511 (0.408)		0.039 (0.048)		-0.369 (0.385)	-0.858** (0.398)
Children in household: three or more (ref.: zero)		-0.029 (0.076)		1.149* (0.598)	1.012 (0.728)		-0.042 (0.089)		-0.601 (0.554)	-1.223* (0.684)
Visits to doctor		0.006 (0.004)		-0.020 (0.037)	-0.034 (0.032)		-0.001 (0.005)		-0.058** (0.028)	-0.075*** (0.027)
Disability		-0.068 (0.055)		0.110 (0.233)	0.140 (0.231)		-0.016 (0.060)		0.130 (0.253)	0.098 (0.254)
Being fulltime employed (ref.: part-time)		-0.039 (0.043)		-0.435 (0.301)	-0.520 (0.337)		-0.026 (0.048)		0.413 (0.368)	0.752** (0.363)
Monthly net labor earnings (euros, at 2011 prices)		-0.000 (0.000)		-0.000 (0.000)	-0.000 (0.000)		0.000 (0.000)		0.000 (0.000)	0.000 (0.000)
Autonomy in occupational actions (scale 1-5)		-0.033* (0.019)		0.122 (0.129)	0.233* (0.141)		-0.014 (0.021)		0.207 (0.141)	0.157 (0.140)
Years of tenure		-0.000 (0.002)		0.016 (0.011)	0.021* (0.012)		-0.001 (0.002)		-0.002 (0.013)	0.006 (0.013)
Blue collar		-0.121*** (0.038)		-0.103 (0.243)	-0.229 (0.291)		0.040 (0.041)		0.466* (0.281)	0.197 (0.275)
Company size, sector of industry, region and time-fixed effects			yes		yes		yes		yes	yes
Probability of job loss / search / change / resignation, next 2 years					yes					yes
Worries about job security / job finding in the hypothetical case of a job loss					yes					yes
Constant	0.027** (0.011)	0.616*** (0.171)	-0.034 (0.028)	1.111 (1.438)	-0.652 (1.628)	0.012 (0.012)	-0.162 (0.192)	-0.021 (0.027)	0.394 (1.448)	-3.272** (1.602)
Number of observations	55,145	55,145	55,145	55,145	46,672	55,145	55,145	55,145	55,145	46,672
R <sup>2</sup>	0.003	0.013	0.127	0.252	0.282	0.000	0.006	0.026	0.208	0.169

Source. SOEP 1999-2015.

Note. \* denotes significance at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level. Robust standard errors are in parentheses. (1) and (2) rely on the initial control group. For (3) and (4), the control group is reweighted with respect to all of the control variables considered by (2) / listed in Table A1. For (5), the control group is reweighted in addition with respect to job security, employment security and the probabilities of job loss / search / change and resignation, which also serve as OLS controls.

Table 2. OLS fixed-effects approach

	Satisfaction with income			Satisfaction with free time		
	(1.1)	(1.2)	(1.3)	(2.1)	(2.2)	(2.3)
Job loss	-1.483*** (0.175)	-1.153*** (0.169)	-1.016*** (0.169)	1.023*** (0.190)	0.306 (0.203)	0.164 (0.209)
Log. equalized income, in euros, at 2011 prices		1.236*** (0.046)	1.208*** (0.049)			0.015 (0.049)
Log. daily non-working time					1.635*** (0.140)	1.497*** (0.143)
Socio-demographic characteristics			yes			yes
Health			yes			yes
Survey controls			yes			yes
Individual fixed-effects	yes	yes	yes	yes	yes	yes
Region fixed-effects			yes			yes
Time fixed-effects			yes			yes
Observations	62,978	62,978	62,978	62,978	62,978	62,978
Number of persons	11,301	11,301	11,301	11,301	11,301	11,301
R <sup>2</sup>	0.004	0.037	0.060	0.001	0.009	0.018

Source. SOEP 2001-2015.

Note. \*denotes significance at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level. Robust standard errors are in parentheses. Socio-demographic characteristics and health controls as listed in Table A1. Survey controls include interview mode, number of interviews in panel, and recent change of interviewer. The sample size differs from the main estimations as we no longer lose observations of workers because of missing values on job characteristics.

Table 3. DiD effects on satisfaction with family life

	(1) mean	(2) OLS	(3) EB	(4) EB & OLS	(4) EB & OLS, expectations
Job loss	0.622** (0.296)	0.611** (0.275)	0.527* (0.301)	0.536** (0.155)	0.461*** (0.151)
Number of observations	31,312	31,312	31,312	31,312	23,794
R <sup>2</sup>	0.001	0.017	0.020	0.244	0.325

Source. SOEP 2006-2015.

Note. \*denotes significance at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level. Robust standard errors are in parentheses. The specifications correspond to Table 1. (1) and (2) rely on the initial control group. For (3) and (4), the control group is reweighted with respect to all of the control variables considered by (2) and listed in Table A1. For (5), the control group is additionally reweighted with respect to job security, employment security and the probabilities of job loss / search / change and resignation, which also serve as OLS controls.

Figure 4. Retirement and satisfaction with income

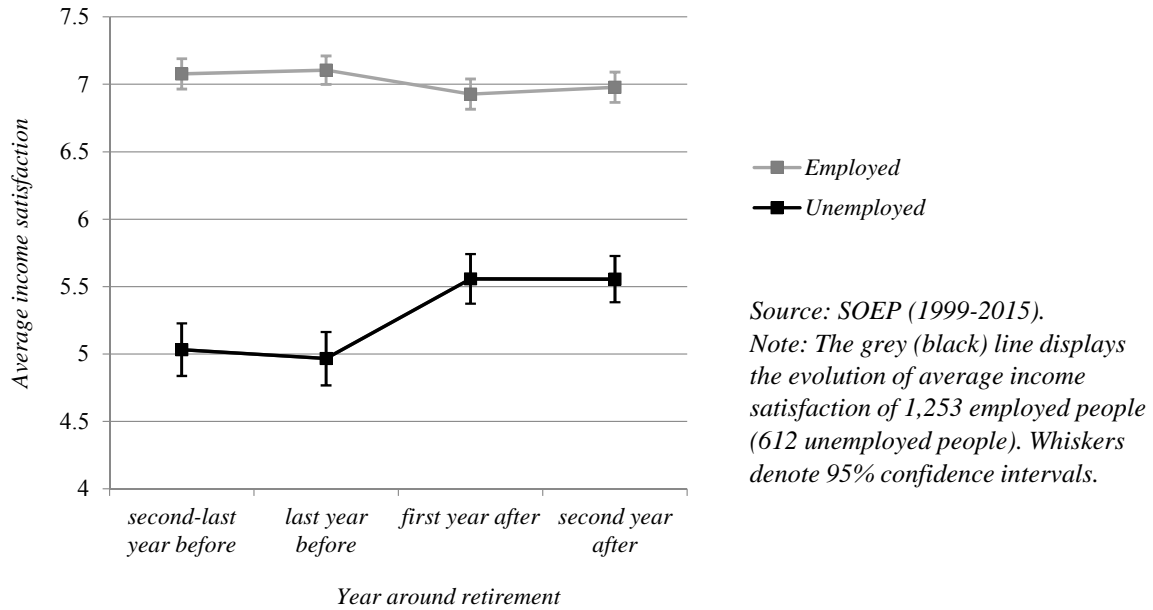


Table 4. Retirement and income satisfaction – regression analysis

OLS estimates of change in income satisfaction	(1)	(2)	(3)	(4)	No job seekers
Formerly unemployed	0.794*** (0.093)	0.707*** (0.096)	0.559*** (0.124)	0.524*** (0.128)	0.532*** (0.130)
Relative change in equivalized income		0.496*** (0.135)	0.477*** (0.132)	0.456*** (0.135)	0.479*** (0.141)
Changes in ...					
non-working time (hours per day)			-0.024* (0.012)	-0.028** (0.013)	-0.025** (0.013)
home ownership (yes / no)				0.087 (0.293)	0.073 (0.308)
being single (yes / no)				-0.795** (0.390)	-0.784** (0.389)
children in household (yes / no)				0.858* (0.509)	0.888* (0.512)
people in need of care in household (yes / no)				0.539 (0.434)	0.559 (0.453)
Female				0.136 (0.086)	0.145 (0.088)
Primary education (ref. secondary)				0.010 (0.143)	0.039 (0.145)
Tertiary education (ref. secondary)				0.134 (0.089)	0.151* (0.089)
Age, difference to 65 years				-0.036** (0.017)	-0.037** (0.017)
Year of retirement	yes	yes	yes	yes	yes
Constant	-0.417** (0.167)	-0.370** (0.164)	-0.215 (0.181)	-0.421** (0.194)	-0.518*** (0.195)
Observations	1,865	1,865	1,865	1,865	1,808
R <sup>2</sup>	0.046	0.057	0.059	0.069	0.069

Source. SOEP 1999-2015.

Note. \*denotes significance at the 10% level / \*\*5% / \*\*\*1%; robust standard errors in parentheses; dependent variable is change in income satisfaction from the last year before retirement to the first year afterwards.

Table 5. Probability of job take-up within next year

	(1)	(2)	(3)	(4)
Satisfaction with income, above median	-0.045*** (0.008)	-0.053*** (0.009)	-0.056*** (0.009)	-0.046*** (0.010)
Satisfaction with free time, above median	-0.003 (0.008)	0.003 (0.008)	0.006 (0.008)	0.010 (0.008)
Satisfaction with life, above median				-0.029*** (0.009)
Age		-0.004*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)
Female		-0.028** (0.011)	-0.012 (0.012)	-0.009 (0.012)
Home ownership		0.013 (0.010)	0.005 (0.010)	0.005 (0.010)
Size of apartment		0.000*** (0.000)	0.000* (0.000)	0.000** (0.000)
Number of persons in household		-0.009* (0.005)	0.002 (0.005)	0.001 (0.005)
<i>Children (ref.: no)</i>				
One		0.033*** (0.013)	0.010 (0.013)	0.011 (0.013)
Two		0.027* (0.015)	-0.000 (0.015)	0.002 (0.015)
Three or more		-0.020 (0.019)	-0.045** (0.019)	-0.042** (0.019)
People in need of care in the same household		-0.046*** (0.015)	-0.039*** (0.014)	-0.041*** (0.014)
<i>Partnership / marital status (ref.: single)</i>				
Married		-0.043** (0.019)	-0.060*** (0.019)	-0.058*** (0.019)
Divorced		0.010 (0.018)	-0.004 (0.018)	-0.004 (0.018)
Separated		-0.002 (0.032)	-0.018 (0.032)	-0.018 (0.032)
Widowed		-0.016 (0.024)	-0.025 (0.023)	-0.022 (0.023)
Partner		0.068*** (0.017)	0.058*** (0.017)	0.060*** (0.017)
Level of education (ISCED)			0.021*** (0.003)	0.021*** (0.003)
Lifetime employment experience			0.005*** (0.001)	0.005*** (0.001)
Lifetime unemployment experience			-0.004*** (0.001)	-0.005*** (0.001)
Disability			-0.017 (0.014)	-0.019 (0.014)
Visits to the doctor			-0.001** (0.001)	-0.001** (0.001)
Constant	0.111*** (0.021)	0.240*** (0.034)	0.255*** (0.035)	0.260*** (0.035)
State dummies	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes
Observations	13,625	13,625	13,625	13,625
R <sup>2</sup>	0.009	0.037	0.058	0.059

Source. SOEP 1999-2015.

Note. The table presents OLS estimates of taking up a new job from the current to the next SOEP interview. \* denotes significance at the 10% level / \*\*5% / \*\*\*1%. Robust standard errors in parentheses.

Table 6. Parametric survival time regression

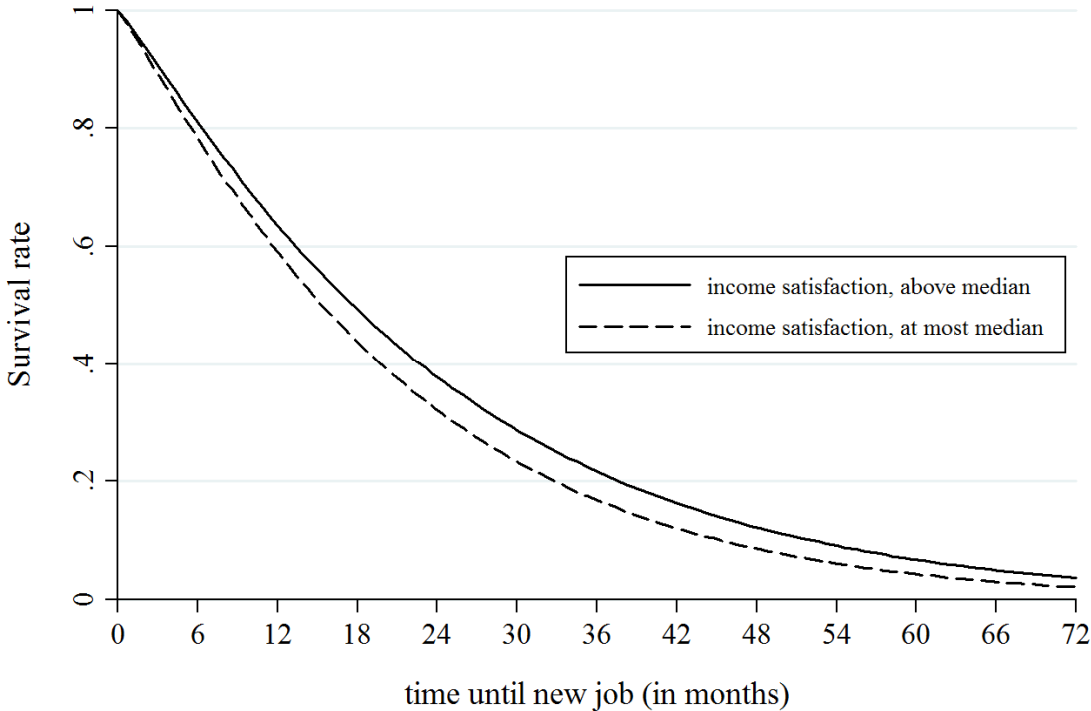
<i>'Failure event' new job</i>	(1)	(2)	(3)	(4)
Satisfaction with income, above median	-0.199*** (0.044)	-0.158*** (0.047)	-0.153*** (0.048)	-0.124** (0.050)
Satisfaction with free time, above median	0.111*** (0.039)	0.045 (0.041)	0.057 (0.041)	0.069* (0.041)
Satisfaction with life, above median				-0.102** (0.045)
Age		-0.004 (0.003)	-0.024*** (0.004)	-0.025*** (0.004)
Female		-0.075 (0.060)	0.016 (0.064)	0.026 (0.064)
Home ownership		0.062 (0.047)	-0.005 (0.047)	0.005 (0.048)
Size of apartment		0.001 (0.001)	0.001* (0.001)	0.001* (0.001)
Number of persons in household		-0.055** (0.026)	0.007 (0.028)	0.003 (0.028)
<i>Children (ref.: no)</i>				
One		-0.060 (0.063)	-0.089 (0.064)	-0.074 (0.065)
Two		-0.177** (0.073)	-0.215*** (0.075)	-0.198*** (0.076)
Three or more		-0.281*** (0.098)	-0.338*** (0.100)	-0.308*** (0.100)
People in need of care in the same household		0.178 (0.112)	0.170 (0.112)	0.162 (0.112)
<i>Partnership / marital status (ref.: single)</i>				
Married		-0.159** (0.073)	-0.196*** (0.073)	-0.185** (0.074)
Divorced		-0.076 (0.098)	-0.082 (0.097)	-0.078 (0.098)
Separated		0.046 (0.127)	-0.022 (0.130)	-0.011 (0.131)
Widowed		-0.361* (0.194)	-0.265 (0.198)	-0.241 (0.198)
Partner		-0.112 (0.083)	-0.175** (0.082)	-0.173** (0.082)
Level of education (ISCED)			0.043** (0.017)	0.046*** (0.017)
Lifetime employment experience			0.031*** (0.004)	0.031*** (0.004)
Lifetime unemployment experience			-0.002 (0.008)	-0.003 (0.008)
Disability			0.046 (0.091)	0.037 (0.092)
Visits to the doctor			0.001 (0.006)	0.000 (0.006)
State dummies	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes
Observations	2,918	2,918	2,918	2,918
Pseudo log-likelihood	-4,330	-4,281	-4,248	-4,246

Source. SOEP 1999-2015.

Note. Coefficients based on robust variance estimator, individual level clustering and Weibull distribution.

\* denotes significance at the 10% level / \*\*5% / \*\*\*1%.

Figure 5. Income satisfaction and survival in non-employment



Source. SOEP 1999-2015.

Note. Coefficients based on robust variance estimator, individual level clustering and Weibull distribution.  
\*denotes significance at the 10% level / \*\*5% / \*\*\*1%.

## Appendix

Table A1. Descriptive statistics before and after balancing the main sample

Conditioning variables as measured at $t = -2$ :	Treat		Control, initially		Control, reweighted	
	Mean	std. dev.	mean	std. dev.	mean	std. dev.
<i>Time use</i>						
Daily working time (hours)	8.26	2.78	8.65	2.31	8.24	2.78
Daily leisure (hours)	1.49	1.29	1.61	1.30	1.48	1.29
Daily hours of household production (hours)	3.75	2.69	3.81	3.50	3.74	2.69
<i>Socio-demographic characteristics</i>						
Age	46.77	8.73	43.07	8.91	46.65	8.72
Female (share)	0.49	0.50	0.45	0.50	0.49	0.50
Level of education (ISCED, shares)						
Primary	0.18	0.39	0.08	0.27	0.18	0.39
Secondary	0.64	0.48	0.61	0.49	0.64	0.48
Tertiary	0.18	0.39	0.31	0.46	0.18	0.38
Years of employment	23.83	10.24	20.07	9.49	23.77	10.22
Years of unemployment	0.55	1.20	0.40	1.10	0.55	1.20
Marital status (shares)						
Married	0.65	0.48	0.61	0.49	0.65	0.48
Separated	0.04	0.20	0.02	0.15	0.04	0.20
Divorced	0.15	0.35	0.10	0.30	0.15	0.35
Widowed	0.02	0.14	0.01	0.10	0.02	0.14
Having a partner (share)	0.85	0.36	0.81	0.39	0.85	0.36
Home ownership (share)	0.40	0.49	0.50	0.50	0.40	0.49
Size of apartment (m <sup>2</sup> )	97.14	42.04	102.16	41.62	96.89	41.99
Number of persons in household	2.58	1.21	2.65	1.23	2.57	1.21
People in need of care in household (share)	0.00	0.00	0.02	0.13	0.00	0.01
Children living in household (shares)						
None	0.67	0.47	0.64	0.48	0.67	0.47
One	0.18	0.38	0.19	0.39	0.18	0.38
Two	0.13	0.33	0.15	0.36	0.13	0.33
Three or more	0.02	0.15	0.03	0.17	0.02	0.15
<i>Health</i>						
Visits to doctor	1.88	2.83	1.89	2.91	1.88	2.83
Disability (share)	0.14	0.34	0.07	0.25	0.14	0.34
<i>Job characteristics</i>						
Monthly net labor earnings (euros, at 2011 prices)	1,400.74	840.31	1,780.25	971.83	1,397.13	839.22
Autonomy in occupational actions (scale 1-5)	2.21	0.92	2.72	1.04	2.20	0.92
Years of tenure	12.03	9.87	12.73	9.60	12.00	9.86
Being fulltime employed (share)	0.74	0.44	0.78	0.41	0.74	0.44
Sector of industry (shares)						
Manufacturing	0.30	0.46	0.21	0.41	0.30	0.46
Construction	0.14	0.35	0.13	0.33	0.14	0.35
Agriculture	0.01	0.07	0.01	0.09	0.00	0.06
Trade	0.36	0.48	0.14	0.35	0.36	0.48
Transport	0.02	0.15	0.06	0.23	0.02	0.15
Banking and finance	0.01	0.08	0.04	0.20	0.01	0.08
Public administration	0.00	0.05	0.10	0.30	0.00	0.05
Education	0.03	0.17	0.06	0.24	0.03	0.17
Health and social services	0.02	0.14	0.12	0.33	0.02	0.14
Other services	0.11	0.32	0.11	0.32	0.11	0.32
Occupational status (shares)						
White collar	0.51	0.50	0.32	0.47	0.51	0.50
Blue collar	0.49	0.50	0.68	0.47	0.49	0.50
Company size (shares)						
≤ 20 employees	0.28	0.45	0.20	0.40	0.28	0.45
20-199 employees	0.48	0.50	0.30	0.46	0.48	0.50
200-1999 employees	0.15	0.36	0.24	0.43	0.15	0.36
≥ 2000 employees	0.09	0.28	0.26	0.44	0.09	0.28

Source. SOEP 1999-2015.

Note. The table presents descriptive statistics for the sample underlying our main estimations. All of the figures refer to  $t = -2$  (about 2 years 'pre-treatment'). The treatment group consists of 167 workers whose job termination follows a plant closure between  $t = -1$  to  $t = 0$ . Control group observations (54,978) stay employed three SOEP interviews in a row.

Table A2. DiD effects on satisfaction with life

	satisfaction with life				
	(1)	(2)	(3)	(4)	(5)
	mean	OLS	EB	EB & OLS	EB & OLS expect.
Job loss	-1.021*** (0.170)	-0.998*** (0.166)	-1.008*** (0.171)	-0.999*** (0.124)	-0.993*** (0.127)
Daily working time (hours)		-0.008 (0.007)		-0.098*** (0.034)	-0.122*** (0.037)
Daily leisure (hours)		-0.008 (0.008)		-0.025 (0.037)	-0.035 (0.037)
Daily hours of household production (hours)		0.002 (0.004)		-0.056** (0.026)	-0.062** (0.026)
Age		-0.003 (0.003)		-0.058*** (0.020)	-0.027 (0.020)
Female (share)		-0.070*** (0.027)		-0.334** (0.163)	-0.384** (0.174)
Primary level of education (ref. secondary)		-0.024 (0.040)		-0.192 (0.189)	-0.234 (0.193)
Tertiary level of education (ref. secondary)		0.030 (0.026)		0.088 (0.136)	-0.180 (0.132)
Years of employment		0.000 (0.003)		0.037*** (0.013)	0.019 (0.014)
Years of unemployment		-0.004 (0.010)		0.045 (0.046)	0.076 (0.047)
Married (ref. single)		-0.001 (0.034)		0.135 (0.197)	-0.241 (0.220)
Separated (ref. single)		0.253*** (0.071)		0.664*** (0.253)	0.248 (0.275)
Divorced (ref. single)		0.046 (0.041)		0.213 (0.213)	0.136 (0.215)
Widowed (ref. single)		0.209** (0.105)		0.243 (0.333)	-0.025 (0.346)
Having a partner		-0.095*** (0.034)		-0.220 (0.172)	-0.155 (0.170)
Home ownership		-0.005 (0.024)		0.113 (0.159)	-0.003 (0.167)
Size of apartment (m <sup>2</sup> )		-0.000 (0.000)		-0.001 (0.002)	0.000 (0.002)
Number of persons in household		-0.007 (0.013)		-0.006 (0.092)	0.066 (0.089)
People in need of care in household (ref.: no)		0.030 (0.086)		0.284* (0.169)	0.116 (0.215)
Children in household: one (ref.: zero)		-0.053* (0.030)		-0.189 (0.232)	-0.203 (0.256)
Children in household: two (ref.: zero)		0.002 (0.038)		0.273 (0.230)	0.486** (0.225)
Children in household: three or more (ref.: zero)		-0.055 (0.062)		-0.243 (0.403)	-0.484 (0.491)
Visits to doctor		0.019*** (0.004)		-0.018 (0.017)	-0.012 (0.016)
Disability		-0.007 (0.047)		0.183 (0.142)	0.151 (0.151)
Being fulltime employed (ref.: part-time)		-0.045 (0.037)		-0.343 (0.218)	-0.084 (0.237)
Monthly net labor earnings (euros, at 2011 prices)		0.000 (0.000)		-0.000 (0.000)	-0.000 (0.000)
Autonomy in occupational actions (scale 1-5)		-0.014 (0.016)		-0.109 (0.096)	-0.095 (0.103)
Years of tenure		0.000 (0.001)		0.019*** (0.007)	0.021*** (0.008)
Blue collar		-0.016 (0.032)		-0.059 (0.169)	-0.170 (0.180)
Company size, sector of industry, region and time-fixed effects				yes	yes
Probability of job loss / search / change / resignation, next 2 years				yes	yes
Worries about job security / job finding in the hypothetical case of a job loss				yes	yes
Constant	-0.046*** (0.010)	0.354** (0.147)	-0.059*** (0.023)	3.030*** (1.049)	2.157* (1.164)
Number of observations	55,145	55,145	55,145	55,145	46,672
R <sup>2</sup>	0.002	0.012	0.085	0.240	0.278

Source. SOEP 1999-2015.

Note. \* denotes significance at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level. Robust standard errors are in parentheses. (1) and (2) rely on the initial control group. For (3) and (4), the control group is reweighted with respect to all of the control variables considered by (2) / listed in Table A1. For (5), the control group is additionally reweighted with respect to job security, employment security and the probabilities of job loss / search / change and resignation, which also serve as OLS controls.



*Table A3. Unemployed people and employed people around retirement*

<i>Retiring from ...</i>	<i>unemployment</i>		<i>employment</i>	
	<i>year before</i>	<i>year after</i>	<i>year before</i>	<i>year after</i>
Number of persons	612	612	1,253	1,253
Net equivalence income (in euros, at 2006 prices)	1,286.80	1,337.28	2,389.33	2,142.23
Home ownership (share)	51%	52%	69%	70%
Age (in years)	61.10	62.10	61.99	62.99
Non-working time (hours per day)	23.84	23.82	16.21	22.63
Female	45%	45%	40%	40%
Primary education	17%	17%	8%	8%
Secondary education	60%	60%	45%	45%
Tertiary education	23%	23%	47%	47%
Single	17%	17%	16%	16%
Someone in need of care lives in the household	5%	5%	2%	2%
Children younger than 14 years live in the household	2%	1%	1%	1%
Having searched actively for a job, last four weeks	9%	-	-	-

*Source: SOEP (1999-2015).*