



# Experienced Well-Being and Labor Market Status: The Role of Pleasure and Meaning

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## Abstract

This paper examines the experienced well-being of employed and unemployed workers. We use the survey-adapted Day Reconstruction Method of the Innovation Sample of the German Socio-Economic Panel Study to analyze the role of the employment status for well-being, incorporating time use. We use the novel P-index to summarize the average share of pleasurable minutes on a day and show that in contrast to evaluative life satisfaction the unemployed experiences more pleasurable minutes due to the absence of working episodes. Hence, we examine working episodes in depth. While working is among the activities with the highest propensities for an unpleasant experience, it is also among the most meaningful activities. We show that meaning is a central non-monetary determinant for pleasure at work and find that pleasure during work and job satisfaction have a comparable association with meaning.

**Keywords** Experienced well-being · Time use · Unemployment · Day reconstruction method · DRM · SOEP-IS

## 1 Introduction

Subjective well-being (SWB) is a multidimensional concept that encompasses evaluative and experiential measures. While evaluative well-being measures like life satisfaction ask people what they think about their life, experiential measures cover how people experience their life (Stiglitz et al, 2009, Fleurbaey, 2009). In principle, both measures of well-being

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are suitable to describe the subjective quality of different labor market states. However, the consequences of (un-)employment for SWB are mostly examined by evaluative SWB. Based on questions asking how satisfied workers are with their life in general, they show that unemployed are less satisfied than employed (see, for instance, Kassenboehmer & Haisken-DeNew, 2009). One domain of life satisfaction is, at least for the employed, job satisfaction. It is also an evaluative measure and asks if people are satisfied with their job, thus it is used as an empirical proxy of utility from one's job. However, both evaluative measures neglect that SWB has a temporal dimension. We study experienced well-being that combines well-being valuations with time use. Being employed or being unemployed crucially shapes individual time use. Hence, experienced well-being is particularly important in this context.

Empirically experienced well-being is based on the theoretical concept of experienced utility by Kahneman et al. (1997). It works out Bentham's idea that time comes along with experiences of pleasure or pain in every instantaneous unit.<sup>1</sup> It is defined as the temporal integral of positive or negative valuations, i.e. time becomes the weighting factor for experiences of pleasure and displeasure (Kahneman et al., 2004a; Krueger et al., 2009b, Diener and Tay, 2014). Experienced well-being aggregates such instantaneous experiences into one single measure and enables the comparisons of groups of individuals on an aggregate level (Kahneman et al., 2004b).

We use the day reconstruction method (DRM) module of the nationally representative innovation sample of the German Socio-Economic Panel Study (SOEP-IS), which was included in the annual GSOEP survey from 2012 to 2015. We examine experienced well-being on labor markets and take standard evaluative SWB measures for life and job satisfaction—as quantities that in general are used to evaluate labor market states—as reference measures. Namely, we investigate if being employed is valuable in terms of experienced well-being in comparison to being unemployed. Workers experienced well-being is expressed in terms of the novel P-index, which reports the share of pleasurable minutes a person experiences on the DRM day.

Two potential sources of (dis-)amenities from work beyond the monetary remuneration are examined: experiences of pleasure and experiences of meaning during the job. The latter meaning, a feeling that an activity has a deeper sense, specifically needs more investigation. We hypothesize that working becomes a pleasurable activity due to the production of meaning that it enables. A review suggests that workers strive for such experiences of meaning during work (Cassar & Meier, 2018). In the course of the paper, we shift the perspective from the outcome of experienced well-being for the whole day to working episodes alone. We ask if working becomes pleasurable because it provides a meaningful experience and examine how pleasure and a meaningful experience affect experienced well-being and job satisfaction.

We contribute to the literature by comparing experienced well-being of the employed and the unemployed by accounting for unobserved individuals' heterogeneity with individual fixed effects. Representative SOEP-IS also allows for strengthening the external validity compared to prevailing experimental DRM populations. Both aspects allow methodological progress to understand how workers experience being employed and being unemployed. By integrating experienced meaning as a predictor for pleasure during work, we assess a central non-monetary determinant for utility from work. We find that, in contrast

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<sup>1</sup> Allocation of time was already introduced into economics in the mid-twentieth century (see Juster and Stafford, 1991 for a literature review).

to income and working hours, perceiving meaningfulness enhances experienced pleasure at work. Consequently, total experienced well-being is increased by meaning. Nonetheless, on average, the unemployed experience more pleasurable time, which is mainly due to the absence of the working episodes in their daily life.

The rest of the article is organized as follows. Section 2 reviews the related literature and Sect. 3 describes the SOEP-IS DRM data. In Sect. 4, we describe the methodological aspects of experienced well-being and pleasure from job meaning. The results for experienced well-being are presented in Sect. 5, while Sect. 6 reports the findings regarding pleasure and well-being from experienced meaning. Finally, in Sect. 7, we sum up the findings and discuss implications.

## 2 Related Literature on Experienced Well-Being, Labor Market Status and Meaning

Unemployment reduces *life satisfaction* beyond the shrinking financial abilities from the job loss (e.g. Kassenboehmer & Haisken-DeNew, 2009; Winkelmann & Winkelmann, 1998). This decline in life satisfaction is explained by a loss of non-pecuniary benefits from employment (e.g. Clark, 2003; Hetschko et al., 2014; Schöb, 2013). The daily routine of employed and unemployed individuals differs fundamentally. The unemployed have more time discretion without the obligation to work. Measures of experienced well-being incorporate the valuation of elapsed time and allow us to incorporate it into labor market analysis. The few papers contrasting employment and unemployment using experienced well-being show ambiguous findings for the role of employment status: In two female-only samples from Rennes (France) and Columbus (USA), the unemployed have lower experienced well-being (Krueger et al., 2009a). In contrast, results from Berlin and Magdeburg (Germany) show that the experienced well-being of the unemployed does not significantly differ from that of the employed (Knabe et al., 2010). Krueger and Mueller (2012) examine reemployment of unemployed in New Jersey (USA), specifically tracking the hedonic experiences of happiness, sadness and stress. They find that reemployment increases the experienced intensity of happiness while it reduces stress and sadness. Another survey on experiences of happiness, anxiousness, and sadness of unemployed shows during a retrospective four-week window a comparable pattern for the unemployed in Germany. Unemployed report more frequent feelings of sadness and anxiety, and less frequent feelings of happiness (von Scheve et al., 2017). However, in a study on unemployed in France, the difference to employed in terms of experienced well-being is not significant, unemployed in the USA again show reduced experienced well-being (Flèche & Smith, 2017). For the UK, experienced well-being is similar between employed and unemployed (An Hoang & Knabe, 2021). To sum up, it is not clear whether employed and unemployed differ in terms of experienced well-being. These findings may result from the different locations, the selectivity of the survey populations, measurement issues, empirical approaches to experienced well-being, or the incomplete accounting for the differences in the day-to-day schedule of employed and unemployed.

At least for working days, activities like commuting and working exclusively shape the days of employees. The unemployed have more leisure time at discretion. It is remarkable that among the reported activities, 'working' ranks among the least pleasurable (Kahne-man et al., 2004a; Bryson & MacKerron, 2017; An Hoang & Knabe, 2021). Given the detrimental role of working time, a hypothetical *time composition effect* would lead to

higher experienced well-being among non-working persons as they can avoid unpleasant work. However, a counteracting *saddening effect* is also present: a lower intensity of positive valuations of leisure activities which is potentially due to diminishing marginal returns from leisure time. Therefore, the overall difference in experienced well-being depends on whether time composition or saddening effect dominates (Knabe et al., 2010). Two exceptions from harmful working experiences are ‘volunteer’ workfare participants (German ‘one Euro’ jobs) allowing for holidays from unemployment (Knabe et al., 2017) and US volunteers who enjoy their work (Gimenez-Nadal & Molina, 2015). Both groups experience greater well-being during working given their income level. We take this as a hint that pleasure from work depends not only on pecuniary aspects, times use and pleasure but also on a further factor that may be experienced meaningfulness.

Meaning is a feeling of purpose or a deeper sense. Stated preference studies suggest that workers have such a preference for a general sense of meaning in life (Adler et al., 2017; Benjamin et al., 2014). Among specific activities, working is described as an activity with a high level of perceived meaningfulness and rather low pleasure (White & Dolan, 2009). Workers might obtain meaning from work for several reasons that help to foster utility (for an overview see Cassar & Meier, 2018). For instance, meaning is described as a production technology for identity utility that links own actions (like working in a specific job as well as the choice of an occupation or a task) to a societal goal. Following a specific narrative of prescribed behavior, it allows for perceiving own work as meaningful. This is why workers prefer to act in a prescribed way of their social category (Akerlof & Kranton, 2000; Schöb, 2013). Experienced meaning during work is an expression of identity utility production during work. Further, meaning is also described as the biologically determined process or a human drive (Chater & Loewenstein, 2016) or as an assertion for free will (Karlsson et al., 2004). Organizational studies further suggest that each firm’s perceived pro-social mission allows for experiencing meaning during work. While it is difficult to separate these distinct channel of non-monetary advantages from work, the conjecture that the reduced life satisfaction of the unemployed is partly due to a loss of the opportunity to experience meaning is plausible (Cassar & Meier, 2018).

Work meaningfulness might be relevant for labor market behavior. A current empirical paper shows that meaning affects workers’ effort measured in terms of absenteeism, skills training, and retirement intentions (Nikolova & Cnossen, 2020). Other applied papers show that meaning correlates positively with measures of well-being. For instance, feeling that ones’ job is socially useless (the opposite of a meaningful experience) correlates negatively with evaluative job satisfaction. Remarkable here is that those individuals who claim that meaning does not matter for them do not have reduced job satisfaction (Dur & van Lent, 2019).<sup>2</sup> This finding suggests that preference heterogeneity among workers matters a lot in terms of meaning (Bryce, 2018). In line with the relevance of meaning, work-effort experiments suggest that increasing the meaning of tasks increases the work effort for this task. This does not hold for all subjects as some persons do not care about meaningfulness at all (Ariely et al., 2008; Chandler & Kapelner, 2013; Kosfeld et al., 2017). Thus, we expect that pleasure at work is positively associated with meaning.

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<sup>2</sup> A comparable correlation is found for a flourishing scale that encompasses a question on meaning and evaluative life satisfaction (Clark, 2016).

### 3 Data

For our analysis, we use the German Socio-Economic Panel Innovation Sample (SOEP-IS) which started in 2011. It contains a reduced form of the SOEP survey questionnaire and the representative sampling design of the SOEP household study (Goebel et al., 2019). A broad set of items, like socio-economic status, questions on life satisfaction and income information, are included. Moreover, the SOEP-IS enriches the SOEP household survey with supplemental modules, including experiments and additional questions within the SOEP survey design (Richter & Schupp, 2015). One of these modules is a survey-adapted version of the day reconstruction method (Kahneman et al., 2004a). SOEP-IS DRM combines a time use assessment with self-reported well-being for episodes (Anusic et al., 2017).

The SOEP-IS DRM data were collected in 2012, 2013, 2014, and 2015.<sup>3</sup> The interviewer asks the respondents to report what time the respondent got up on the previous day. Subsequently, the respondents were asked episode-wise to choose one out of a set of 23 activities, followed by the question about what they did afterwards. This procedure was repeated until the person reports that she went to bed. Besides the listed activities, respondents could also use an open text field for activities. These open answer episodes are also part of our sample as they were manually categorized (Wolf, 2018). Every activity of the previous day is tracked with its exact timing (in 5 min increments) from the beginning to its end.<sup>4</sup> After finishing the diary, the respondents assessed each reported activity in their diary by answering the following question:

Overall, was this episode [name of the episode] from [episode begin] until [episode end] rather pleasant or rather unpleasant?<sup>5</sup>

This binary measure of episode satisfaction reduces the (temporal) burden of assessing the whole DRM day for the respondents while still capturing the information for each episode of the previous day. Besides, three activities of each diary were randomly drawn and an additional battery of ratings for more detailed experiences was surveyed:

On a scale from 1 (not at all) to 7 (very strongly) how strongly did you experience the following feelings during the listed activity?<sup>6</sup>

The hedonic experiences are happiness, anger, frustration, fatigue, mourning, worries, pain, enthusiasm, satisfaction, boredom, loneliness, and stress. Further, a deeper meaning is also surveyed. Both the location of activity and the presence of other persons were additionally asked for these random episodes. As we examine the role of work in detail (Sect. 6), we specifically make use of randomly chosen work episodes. The experience that

<sup>3</sup> More specifically, respondents from the former SOEP core samples E (initially drawn 1998) and I (initially drawn 2009) were asked to answer the DRM module. Respondents from refreshment samples of SOEP-IS were not part of the DRM module.

<sup>4</sup> The diary is complemented by asking for parallel activity spells.

<sup>5</sup> English translation of the German interview question "Insgesamt gesehen, war diese Episode [...] von [...] bis [...] eher angenehm oder eher unangenehm?"

<sup>6</sup> We use the 2012 English translation of the German interview question "Wie stark haben Sie auf einer Skala von 1 (gar nicht) bis 7 (sehr stark) die folgenden Gefühle bei der angeführten Aktivität empfunden?" "The emotions are happiness (Glück), anger (Ärger), frustration (Frust), fatigue (Müdigkeit), mourning (Trauer), worries (Sorgen), pain (Schmerzen), enthusiasm (Begeisterung), satisfaction (Zufriedenheit), boredom (Langeweile), loneliness (Einsamkeit), stress (Stress), and a deeper meaning (einen tieferen Sinn).

we use for our analysis in Sect. 6 is the question on the intensity of a *deeper meaning* the measure for experienced meaning.

We take evaluative SWB measures: life satisfaction and job satisfaction. While life satisfaction is surveyed by asking “On a scale from 0 (completely dissatisfied) to 10 (completely satisfied), how satisfied are you with your life, all things considered?” for job satisfaction the response on the question “On a scale from 0 (completely dissatisfied) to 10 (completely satisfied), how satisfied are you with your job?” is used.

We make use of all observations with at least one answered DRM diary per person.<sup>7</sup> During the survey period, 2299 individuals answered 7370 DRM diaries, with 1409 persons surveyed in all four years, 301 persons answering three times, 242 persons answering two times, and 347 persons once. We distinguish between two employment states: employed and unemployed. *Employed* workers are individuals with information on the current occupational position (from untrained worker to executive civil service). We exclude persons working in sheltered workshops, in apprenticeship, traineeship, vocational training, or in (partial) retirement. *Unemployed* are individuals who are officially registered as unemployed on the interview day and do not report any working spell in their diary.<sup>8</sup> Additionally, we drop nine respondents who do not give any information about their activities or pleasure.

Table 6 presents an overview of the control variables we rely on: socio-demographic characteristics like gender, age, family status, educational attainment, number of adults, and children in the household. As a proxy for consumption possibilities, we use individual disposable income, measured as net household income equalized by the new OECD scale. Health status is proxied by the number of doctor consultations within the last three months. In addition, for the employed, we also have information on the job: monthly labor gross income, the occupational position (self-employed, white-collar worker, blue-collar worker, or civil service), company size, weekly working hours, tenure, and perceived autonomy at work as covariates of pleasure at work.

On the work episode level, we use DRM questions on a possible second activity during work, the time of beginning and ending a work episode, the number of working spells on the day, the work spell duration, the place of work, and involved persons during work. Due to the survey procedure, a subset of work episodes come along with information on experienced meaning.<sup>9</sup> Given the reported restrictions and missing values on the covariates, the sample of work episodes contains 3699 observations across 1308 individuals.

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<sup>7</sup> Three respondents from the supplement samples (S1 Supplementary 2012 and S2 Supplementary 2013 Sample) accidentally filled in the DRM and have been dropped for our analysis.

<sup>8</sup> In Germany, unemployed have the permission to work at maximum 15h per week (German Law: §138 SGB III). The work spells of the unemployed can be informal work or studying episodes. To have a clear interpretation, we drop such cases. As a robustness check, we left these (marginally) working unemployed in the sample and find no different results (available on request).

<sup>9</sup> Consequently, two other episodes of the same person on the same day are available with meaning information making it impossible to deduce the experienced meaning of the remaining non-working time or even the whole day.

## 4 Methods and Hypotheses

### 4.1 Experienced Well-Being by Employment Status

Experienced well-being combines two aspects: time use and an accompanying experiential valuation of each temporal increment. It allows for aggregating such instantaneous experiences into a single measure. We employ the P-index to compare the daily valuation of experiences of the employed and the unemployed. It is a measure for experienced well-being across the entire DRM day based on episode wise and dichotomous valuations. Thus, a person  $i$  in survey year  $t$  reports  $\sum a_{ijt} = J_{it}$  episodes with specific duration  $s_{ijt}$ . The sum of all episode durations on a day is  $S_{it}$ . An episode is either reported as *rather pleasurable* ( $p_{ijt} = 1$ ) or as *rather unpleasurable* ( $p_{ijt} = 0$ ) such that experienced well-being denotes as following:

$$P_{it} = \frac{\sum_{j=1}^J s_{ijt} p_{ijt}}{S_{it}} \quad (1)$$

$P_{it}$  records the individual share of pleasurable time awake. In order to keep it comparable between persons,  $P_{it}$  is normalized by the total time a person is awake  $S_{it}$ . The maximum value of 1.00 characterizes a fully pleasurable day while  $P_{it} = 0.00$  indicates a completely unpleasurable day.

While the cardinal time in minutes has clear and comparable meanings,<sup>10</sup> experiences raise methodological issues (for detailed discussions see: Krueger et al., 2009b; Knabe et al., 2010). The main advantage of our study is that we leave the choice of the relevant adjectives for experiences to the respondents' introspection. Therefore, it is not necessary to select positive or negative emotions as a researcher. We interpret the P-index analogously to the inverse of the widespread U-index. The main difference is that it is not based on the intensity of different emotions but based on one statement on experienced pleasure per episode.<sup>11</sup>

In our analysis, we compare conditional group means of  $P_{it}$  to investigate the difference in experienced well-being of employed and unemployed workers. The fixed-effects estimation equation has the following form:

$$P_{it} = \gamma_0 + \gamma_1 es_{it} + \gamma_2 w_{it} + day_{it} \gamma_a + X' \gamma_b + J' \gamma_c + wave_{it} \tau_t + \alpha_i + \mu_{it}, \quad (2)$$

where  $\gamma_0 \neq \gamma_1 \neq \gamma_2 \neq \gamma_a \neq \gamma_b \neq \gamma_c$ .

<sup>10</sup> For the sake of simplicity, we circumvent for the theory of individual perceptions of timing and assume that the physical definition of a minute (or another quantity of timing) applies to all respondents the same way.

<sup>11</sup> A widespread method of measuring affective experiences in psychological research is the positive affect scale (PA) and the negative affect (NA) scale. The weighted mean of positive adjectives like "happy" and "enthusiasm" on Likert-scales asking for the intensity constitutes the PA measure. Negative adjectives like "anger" and "worries" are used to generate NA of the specific episode. NA and PA are often used to calculate one single measure of net affect: (PA-NA). There are two drawbacks: (1) the researcher has to choose an appropriate set of relevant adjectives and (2) different scales for these adjectives are interpreted intrapersonal exactly on the same scale. This cardinality issue is discussed in the economic literature and led to the proposal of the so-called u-index (Kahneman and Krueger 2006; Krueger et al., 2009a, 2009b). The u-index summarizes the emotional experience of an episode by dichotomizing it either as pleasurable or unpleasurable. An episode is considered as unpleasant (=1) in the case the strictly most intensive feeling during this episode is a negative one. This means that the u-index is independent of scaling effects (Knabe et al., 2010, p.871) but the researcher has to choose the set of relevant emotional adjectives.

As the employed are the baseline, the  $\gamma_1$ -coefficient states whether unemployed experience more, equal, or less pleasurable time. While not all employed were working on the reported DRM day (e.g. on the weekend or on holidays), we control for the prevalence of a working episode on the DRM day  $w_{it} = \{0;1\}$ . In order to account for day-of-the-week effects, we integrate interview day controls as well as interview year fixed effects  $\tau_t$  that capture business cycle aspects. To make both groups comparable, we also account for socio-demographic characteristics  $X$ , encompassing, for instance, income, working hours, or family status (see for details Table 6). As respondents are surveyed up to four times with an approximate temporal distance of 12 months, we address endogeneity issues arising from unobserved individual heterogeneity (like personality traits) with individual fixed effects  $\alpha_i$ . Thus,  $\gamma_1$  and  $\gamma_2$  dummy coefficients are interpreted as average *within* an individual change of  $P_{it}$  resulting from a labor market status change respective the prevalence of working on the DRM day. We further account for activity-specific fixed effects by the vector  $J_{it}$  containing information whether a person was engaged in this activity on the DRM day. Finally, we assume that the idiosyncratic error term  $\varepsilon_{it}$  is uncorrelated with the explaining variables of every wave within the same individual.

### 4.2 Pleasure and Meaning from Work

In the second step, we shift the analytical perspective and exclusively examine working episodes. We investigate the potential channels through which meaning could affect well-being. Therefore, we examine if meaning affects pleasure at work beyond income, working hours, and further standard job characteristics. In line with the literature, we hypothesize that the propensity of reporting work as *rather pleasurable* ( $p_{ijt} = 1$ ) is positively associated with experienced meaning. We estimate the latent propensity of experiencing the working episode  $p_{it}^*$  pleasurable<sup>12</sup> as follows:

$$\begin{aligned}
 p_{ijt}^* &= M' \delta_a + Y' \delta_b + Z' \delta_c + \varepsilon_{it} \text{ with } \varepsilon_{it} \sim NID(0, 1) \\
 p_{ijt} &= 1 \quad \text{if } p_{it}^* > 0 \quad \text{and} \\
 p_{ijt} &= 0 \quad \text{if } p_{it}^* \leq 0 \quad \text{and} \\
 \delta_a &\neq \delta_b \neq \delta_c.
 \end{aligned}
 \tag{3}$$

The measure for experienced meaning  $M$  is a vector that includes two different specifications. First, using dummies for each category of an ordinal meaning scale allows the representations of non-linear associations. Specifically, persons reporting working as “not meaningful at all” should be controlled for separately as the literature suggests that some people do not value meaning at all. For such subjects, it is not clear whether they experience no meaning because their work experience is meaningless or they do not care about it. Second, we define  $M$  by a dummy that is equal to one if persons report working as “not meaningful at all” and zero otherwise (“extensive meaning scale”) and the other meaning values as a metric variable (“intensive meaning scale”). As pleasure at work is not only

<sup>12</sup> The additional question on how meaningful the activity was experienced was only asked for three randomly selected episodes (see Sect. 3). Therefore, estimating a fixed effects probit model makes no sense. For instance, if three working episodes of a person in one year were randomly selected, either an average of  $p$  has to be calculated or only one period per person can be used for the analysis. Option 1 needs a different estimation strategy by applying option 2, observations have to be skipped.



affected by meaning, we also condition on a vector  $Y$  of socio-demographic and job characteristics. Further, vector  $Z$  characterizes the working spell (for details see Sect. 3 and Table 6), e.g. for the early beginning of work or shift work, durations of each work spell or reporting behavior like more than one work spell at the DRM day due spell splits from breaks.

To clarify if meaningfulness of work has an overall effect on well-being and not just an effect on the pleasure of the work episode, we regress two general well-being measures on meaning. If meaning is associated with pleasure at work, experienced well-being (P-index) should also show an association. For instance, collecting pleasurable and meaningful episodes may increase experienced well-being. Since the day for employees is characterized by work, pleasure and meaning should influence the general experiences of well-being measure (P-index). As a second indirect measure for the role of meaning, we employ the established job satisfaction measure. The association of experienced meaning to this standard measure for utility from work gives us an additional impression on the relevance of meaning.

## 5 Experienced Well-Being of Employed and Unemployed Workers

### 5.1 Time Use and Pleasure During Activities

The DRM sample comprises 3384 employed and 315 unemployed respondents. Over the four years under study, 70 persons changed their labor market status. In order to portray representative characteristics of the German residential population, we apply population weights provided by the SOEP (Kroh et al., 2017) and compare the weighted socio-demographic characteristics with the unweighted. For a set of basic observable characteristics (age, gender, earnings, etc.) the application of population weights yields only marginal differences (see Table 7).<sup>13</sup> This suggests that the representative sampling procedure of SOEP-IS portrays the German residential population with sufficient precision. The distribution of employed and unemployed person is roughly similar before and after weighting. The average age in our sample is about 44 years and gender is almost equally distributed. Unemployed persons have, on average, less disposable household income, while education levels are higher among the employed. On average, the respondents report about 12 episodes, such that the sample consists in total of 40,325 episodes.

Initially, we pool all episodes, comparing the employed and unemployed on the activity level. Not all employed worked on the DRM day (due to holidays, weekends, or part-time

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<sup>13</sup> Because we rely on existing data, power considerations could not be used for study planning. Moreover, although it is possible to use prior research findings to estimate power to detect expected effects, such calculations are hampered by complex designs in prior work and the omission of critical information necessary for such calculations. We can, however, provide some rough estimates of power to detect simple effects found in prior work. For instance, Lucas et al. (2004) used the broader GSOEP sample to examine within-person changes in life satisfaction when people become unemployed. They found that life satisfaction dropped approximately 0.8 points when respondents became unemployed, which corresponds to roughly a one-half-standard deviation decline in long-term levels of life satisfaction. In the current study, if we were to simply compare the 1141 consistently employed respondents to the 167 consistently unemployed, we would have over 99% power to detect a difference of this size, and we have 80% power to detect a difference half as large. More complex models that include all observations will typically have greater power to detect effects, whereas the fixed effects analyses that include only the smaller number of participants who changed employment status (as we discuss below).

jobs).<sup>14</sup> The prevalence of most leisure activities is significantly higher for the unemployed (see Table 1). The unemployed more frequently report typical leisure activities (e.g. watching TV, browsing the internet), but they are also more often engaged with non-market work (e.g. doing housework, preparing meals). The only activities with higher frequencies among the employed are *commuting to/from work*, *working*, and *body care*. A diverse picture emerges by comparing durations of the specific activities. The unemployed report longer durations for almost all activities, both non-market work and leisure activities.<sup>15</sup> Differences on the activity level are not statistically significant for many activities due to low case numbers.

In general, experience during the activities is overwhelmingly reported as *rather pleasurable*. Even activities that rank among the least pleasurable like *working*, *commuting*, *housework*, or *renovation tasks* are rated as pleasurable in about 80% of all reports. Only doctoral consultations are more often reported as *rather unpleasurable*. Differences between the employed and unemployed are small. However, the groups significantly differ for four activities. A large share of the unemployed finds caring for children as pleasurable whereas the employed find watching TV, exercising, and strolling as pleasurable more often. These findings are in line with the idea of a ‘saddening effect’ from unemployment, as the unemployed engage in these latter activities more frequently and for longer times.

## 5.2 Experienced Well-Being

The comparison of the aggregate experienced well-being measures is reported in Table 2. Experienced well-being of the unemployed is higher than the experienced well-being of the employed. The employed spend on average 91.3 percent of their time awake in *rather pleasurable* activities whereas the unemployed experience 94.2% of their time in a subjectively *rather pleasurable* mood. Although both shares are rather high, we find that the difference is statistically significant ( $p < 0.00$ ). For initial evidence on the role of working for experienced well-being, we calculate a hypothetical P-index. The hypothetical experienced well-being level is calculated such that it reports the values as if the working employed had not worked. Hence, the hypothetical P-index reports experienced well-being without the time of working episodes during the DRM day and its accompanying valuation.<sup>16</sup> A higher hypothetical experienced well-being compared to the actually experienced well-being indicates a negative impact from the work episodes. Comparing employed without any working episodes with unemployed shows that both groups have similarly experienced well-being of about 0.94 ( $p < 0.31$ ). This finding suggests that working episodes of the employed particularly harm the overall experienced well-being.

Contrasting experienced well-being with the general life satisfaction of the same respondents replicates a standard result that the unemployed are significantly less satisfied with their lives. Thus, experienced well-being and life satisfaction show opposite signs when comparing the employed and unemployed. While experienced well-being of the unemployed is higher, life satisfaction is lower for the unemployed. This is in line with the

<sup>14</sup> Among the employed, about 65% worked on the DRM day (for more details see Table 1).

<sup>15</sup> The unemployed report also more minutes of sleep, which we calculate as a residual of the time awake.

<sup>16</sup> We exclude the *work* and *commuting to/from work* episodes.

**Table 1** Time use and pleasure by employment status

| Activity                     | Reported spell (N=) |     |       | Reported (share of persons) |           |         | Total minutes (per day), unconditional |            |         | Total minutes (per day), unconditional, unconditioned on spell reported |             |       | Reported "rather pleasurable" |          |      |
|------------------------------|---------------------|-----|-------|-----------------------------|-----------|---------|--|------------|---------|---|-------------|-------|-------------------------------|----------|------|
|                              | E                   | UE  | Diff  | E                           | UE        | Diff    | E                                      | UE         | Diff    | E   | UE          | Diff  | E                             | UE       | Diff |
| Way to/from work             | 3756                | -   | 0.642 | -                           | -         | -       | 48.375                                 | -          | 75.334  | -   | 882         | -     | 882                           | -        | -    |
| Way to/from leisure activity | 1367                | 141 | 0.259 | 0.238                       | 0.020     | 20.340  | 29.127                                 | -8.787**   | 78.663  | 122.333   | -43.670***  | 0.933 | 0.943                         | -0.011   |      |
| Working                      | 3448                | -   | 0.714 | -                           | -         | 322.651 | -                                      | -          | 451.925 | -   | -           | 0.861 | -                             | -        |      |
| Shopping                     | 1045                | 134 | 0.287 | 0.403                       | -0.116*** | 23.033  | 39.048                                 | -16.014*** | 80.190  | 96.850  | -16.660***  | 0.902 | 0.858                         | 0.044    |      |
| Preparing food               | 2518                | 341 | 0.497 | 0.625                       | -0.128*** | 23.212  | 39.968                                 | -16.756*** | 46.700  | 63.909  | -17.208***  | 0.960 | 0.971                         | -0.010   |      |
| Eating                       | 6023                | 609 | 0.891 | 0.914                       | -0.023    | 60.412  | 74.206                                 | -13.794*** | 67.783  | 81.163  | -13.380***  | 0.989 | 0.990                         | -0.001   |      |
| Washing oneself              | 4600                | 382 | 0.925 | 0.895                       | 0.030**   | 29.645  | 28.889                                 | 0.757*     | 32.041  | 32.270  | -0.229      | 0.953 | 0.966                         | -0.012   |      |
| Doing housework              | 2356                | 292 | 0.468 | 0.610                       | -0.141*** | 50.303  | 73.619                                 | -23.316*** | 107.465 | 120.781   | -13.316     | 0.781 | 0.791                         | -0.010   |      |
| Childcare                    | 1507                | 233 | 0.226 | 0.279                       | -0.054    | 32.951  | 63.206                                 | -30.256*** | 145.949 | 226.250   | -80.301***  | 0.938 | 0.970                         | -0.032** |      |
| Meet friends                 | 604                 | 113 | 0.162 | 0.276                       | -0.114*** | 27.590  | 58.825                                 | -31.235*** | 170.374 | 212.989   | -42.614***  | 0.983 | 0.973                         | 0.010    |      |
| Resting/taking a nap         | 697                 | 106 | 0.190 | 0.314                       | -0.124*** | 20.634  | 32.476                                 | -11.842*** | 108.593 | 103.333   | 5.259       | 0.989 | 0.972                         | 0.017    |      |
| Relaxing                     | 1051                | 111 | 0.265 | 0.286                       | -0.021    | 25.833  | 33.556                                 | -7.722**   | 97.567  | 117.444   | -19.877**   | 0.996 | 1.000                         | -0.004   |      |
| Intimate relations           | 36                  | -   | 0.010 | -                           | -         | 0.550   | -                                      | 53.143     | -       | -   | -           | 1.000 | -                             | -        |      |
| Worship/meditation           | 59                  | -   | 0.014 | -                           | -         | 0.895   | -                                      | 65.870     | -       | -   | -           | 0.983 | -                             | -        |      |
| Watching TV                  | 2720                | 384 | 0.680 | 0.832                       | -0.152*** | 99.972  | 173.556                                | -73.584*** | 147.025 | 208.664   | -61.639***  | 0.988 | 0.977                         | 0.012**  |      |
| Reading                      | 719                 | 52  | 0.183 | 0.140                       | 0.043     | 12.299  | 12.825                                 | -0.526     | 67.237  | 91.818  | -24.581**   | 0.994 | 1.000                         | -0.006   |      |
| Computer/internet            | 939                 | 130 | 0.231 | 0.327                       | -0.096*   | 24.165  | 53.413                                 | -29.248*** | 104.438 | 163.350   | -58.911***  | 0.967 | 0.954                         | 0.013    |      |
| On the phone                 | 361                 | 58  | 0.098 | 0.156                       | -0.058    | 3.756   | 11.127                                 | -7.371***  | 38.515  | 71.531  | -33.015***  | 0.931 | 0.897                         | 0.034    |      |
| Exercising                   | 380                 | 23  | 0.108 | 0.060                       | 0.048     | 11.195  | 5.381                                  | 5.814**    | 103.229 | 89.211  | 14.018      | 0.979 | 0.826                         | 0.153*** |      |
| Visiting doctor              | 223                 | 33  | 0.064 | 0.092                       | -0.029    | 6.300   | 11.365                                 | -5.065***  | 99.163  | 123.448   | -24.285*    | 0.583 | 0.515                         | 0.068    |      |
| Gardening                    | 283                 | 30  | 0.076 | 0.083                       | -0.007    | 9.205   | 12.905                                 | -3.700     | 121.680 | 156.346   | -34.666**   | 0.926 | 0.967                         | -0.041   |      |
| Keep oneself busy with pets  | 600                 | 119 | 0.125 | 0.219                       | -0.094**  | 7.110   | 22.857                                 | -15.747*** | 56.879  | 104.348   | -47.468***  | 0.968 | 0.992                         | -0.023   |      |
| Have a coffee/tee            | 350                 | 47  | 0.090 | 0.124                       | -0.033    | 3.496   | 6.254                                  | -2.758**   | 38.660  | 50.513  | -11.853     | 0.989 | 1.000                         | -0.011   |      |
| Listen to radio/music        | 29                  | -   | 0.008 | -                           | -         | 0.609   | -                                      | 79.231     | -       | -   | -           | 1.000 | -                             | -        |      |
| Care giving to relatives     | 32                  | 12  | 0.008 | 0.016                       | -0.008    | 0.804   | 4.683                                  | -3.879***  | 97.143  | 295.000   | -197.857*** | 0.844 | 1.000                         | -0.156   |      |

Table 1 (continued)

| Activity  | Reported spell (N=) |    | Reported (share of persons) |       | Total minutes (per day), unconditional |       | Total minutes (per day), unconditioned |          | Total minutes (per day), conditioned on spell reported |         | Reported "rather pleasurable" |       |       |         |
|---|---------------------|----|-----------------------------|-------|--|-------|--|----------|--|---------|-------------------------------|-------|-------|---------|
|   | E                   | UE | E                           | UE    | E                                      | UE    | E                                      | UE       | E  | UE      | E                             | UE    |       |         |
| Volunteering  | 31                  | -  | 0.009                       | -     | 1.107                                  | -     | 124.833                                | -        | 1.000  | -       | 1.000                         | -     |       |         |
| Walking/stroll  | 67                  | 14 | 0.019                       | 0.041 | -0.023                                 | 1.974 | 3.222                                  | -1.248   | 106.032  | 78.077  | 27.955                        | 1.000 | 0.929 | 0.071** |
| Job search/job center                                   | 8                   | 14 | -                           | -     | -                                      | -     | -                                      | -        | -  | -       | -                             | -     | -     | -       |
| Meeting/talking to partner or relatives                 | 175                 | 16 | 0.048                       | 0.048 | 0.001                                  | 4.833 | 9.460                                  | -4.627** | 99.726   | 198.667 | -98.941***                    | 0.949 | 1.000 | -0.051  |
| Artistic activity                                       | 58                  | -  | 0.017                       | -     | 1.882                                  | -     | 113.750                                | -        | 1.000  | -       | -                             | 1.000 | -     | -       |
| Service of hairdresser, manicure, pedicure, cosmetician | 36                  | -  | 0.011                       | -     | 0.804                                  | -     | 75.556                                 | -        | 0.972  | -       | -                             | 0.972 | -     | -       |
| At party/events/going out                               | 23                  | -  | -                           | -     | -                                      | -     | -                                      | -        | -  | -       | -                             | -     | -     | -       |
| Doing DIY, handicrafts, renovate                        | 108                 | 10 | 0.028                       | 0.029 | 0.000                                  | 4.840 | 7.048                                  | -2.207   | 170.625  | 246.667 | -76.042                       | 0.870 | 0.700 | 0.170   |
| Playing (board) games, solving quizzes                  | 12                  | 14 | -                           | -     | -                                      | -     | -                                      | -        | -  | -       | -                             | -     | -     | -       |
| Drinking alcoholic drinks, smoking                      | 12                  | -  | -                           | -     | -                                      | -     | -                                      | -        | -  | -       | -                             | -     | -     | -       |

Source SOEP-IS 2012–2015, own calculations

E denotes employed, UE unemployed and Diff denotes the difference between employed and unemployed

\*\*\*Significant on a 1% level, \*\* significant on a 5% level, \* significant on a 10% level

–Values from cells with N < 30 in total or N < 10 for the distinct labor market status are truncated by the authors due to low case numbers

**Table 2** Experienced well-being (P-index) by employment status

| Status               | P-index          | P-index<br>(without work) | Life Satisfaction | N    |
|----------------------|------------------|---------------------------|-------------------|------|
| Employed             | 0.913            | 0.949                     | 7.453             | 3384 |
| Unemployed           | 0.942            | 0.942                     | 6.044             | 315  |
| Difference: E vs. UE | $p < 0.00^{***}$ | $p < 0.31$                | $p < 0.00^{***}$  | 3699 |

Source SOEP-IS 2012–2015, own calculations

The ‘P-index’ reports the average share of pleasurable time awake on the DRM day (see Sect. 3). The ‘P-index without work’ reports this share of pleasurable time excluding working and commuting episodes. The time of these episodes are also excluded from the time weighting. Life satisfaction was taken from the respondents answer on the general life satisfaction question in SOEP-IS (scale: 0–10)

\*\*\*Significant on a 1% level, \*\*significant on a 5% level, \*significant on a 10% level

“unemployed are dissatisfied with their lives, but having a good day” hypothesis of Knabe et al. (2010).<sup>17</sup>

In the next step, we run multivariate regressions on the P-Index controlling for individual fixed effects (see Table 3). We stepwise integrate controls for day and year effects (col. 1), control for the prevalence of work spells (col. 2), and, finally, integrating socio-demographic controls and the set of dummies for the prevalence of other activities on the DRM day (col. 3). The experienced well-being level increases when becoming unemployed and decrease when being reemployed. Due to low case numbers, this finding is statistically insignificant. The inclusion of a dummy variable indicating the prevalence of a working spell on the DRM day is associated with reduced experienced well-being of 3.8 percentage points less pleasurable time compared to a work-free day of the same person (col. 2). This indicates that working is, on average, detrimental for employed. Controlling for all other activities and socio-demographics slightly increases this effect to 4.5 percentage points less pleasurable time (col. 3). The prevalence of job search activities, visits to the job center, and visits to a doctor are also negatively associated with the P-index. Negative experiences are reduced by the prevalence of gardening or person to person services e.g. manicure or hairdresser. By far the most intensive positive association with experienced well-being is the prevalence of time spent on consuming alcohol and cigarettes.

In summary, daily experienced well-being is, on average, negatively associated with working given income, hours, and time-stable individual characteristics. There are only a few activities that yield the same negative impact on experienced well-being as working. As the unemployed do not report working spells, they, on average, experience more well-being. However, while visits to a doctor (due to illness) or the job center (looking for a job) is not at the discretion of the respondents, working has a substantially choice component. As most workers report their working spells as rather pleasurable, we attempt to understand which non-pecuniary aspects of work episodes (given hours and earnings) predict (un-)pleasant experiences. One under-investigated factor that can be obtained from work is experienced meaning. Therefore, we shift the perspective of analysis towards the working spells.

<sup>17</sup> In order to test the validity of the findings, we use alternative experienced well-being measures. Based on positive and negative affect scales, we find that the unemployed also experiences significantly more positive moods ( $p < 0.02$ ) and less negative moods (see Appendix Table 8).

**Table 3** Individual fixed effects estimation on experienced well-being

| Dependent variable                              | (1) P-index |           | (2) P-index |           | (3) P-index |           |
|---|-------------|-----------|-------------|-----------|-------------|-----------|
|   | Coef        | Std. Err. | Coef        | Std. Err. | Coef        | Std. Err. |
| Labor market status: Unemployment               | 0.026       | 0.029     | 0.028       | 0.029     | 0.033       | 0.03      |
| Reported: Work Spell                            |             |           | -0.038***   | 0.008     | -0.048***   | 0.012     |
| Year (Reference: 2012)                          |             |           |             |           |             |           |
| 2013  | 0.003       | 0.007     | 0.019       | 0.016     | 0.017       | 0.016     |
| 2014  | -0.006      | 0.008     | 0.027       | 0.03      | 0.02        | 0.03      |
| 2015  | 0.009       | 0.008     | 0.06        | 0.046     | 0.052       | 0.045     |
| DRM day (Reference: Wednesday)                  |             |           |             |           |             |           |
| Sunday  | -0.008      | 0.012     | -0.008      | 0.012     | -0.007      | 0.013     |
| Monday  | -0.006      | 0.009     | -0.006      | 0.009     | -0.005      | 0.009     |
| Tuesday   | -0.008      | 0.01      | -0.007      | 0.01      | -0.003      | 0.01      |
| Thursday  | -0.011      | 0.011     | -0.009      | 0.011     | -0.008      | 0.011     |
| Friday  | 0.013       | 0.013     | 0.014       | 0.013     | 0.015       | 0.013     |
| Saturday  | 0.001       | 0.021     | 0.002       | 0.021     | 0.001       | 0.023     |
| HH income (log)                                 |             |           |             |           |             |           |
| Age   |             |           |             |           | 0.017       | 0.016     |
| Age <sup>2</sup>                                |             |           |             |           | -0.012      | 0.018     |
| Family Status (Reference: Single)               |             |           |             |           | 0.000       | 0.000     |
| Married   |             |           |             |           | -0.026      | 0.029     |
| Divorced/Seperated                              |             |           |             |           | -0.009      | 0.034     |
| Widowed   |             |           |             |           | -0.142      | 0.09      |
| Number of doctural consultations (last 3 month) |             |           |             |           | 0.001       | 0.001     |
| Number of Persons in HH                         |             |           |             |           | -0.023**    | 0.009     |
| Number of Children in HH                        |             |           |             |           | 0.017       | 0.013     |
| Way to/from work                                |             |           |             |           | 0.013       | 0.011     |
| Way to/from leisure activity                    |             |           |             |           | -0.001      | 0.008     |

**Table 3** (continued)

| Dependent variable          | (1) P-index |           | (2) P-index |           | (3) P-index |           |
|-----------------------------|-------------|-----------|-------------|-----------|-------------|-----------|
|                             | Coef        | Std. Err. | Coef        | Std. Err. | Coef        | Std. Err. |
| Shopping                    |             |           | 0.008       |           | 0.008       | 0.008     |
| Preparing food              |             |           | 0.009       |           | 0.009       | 0.008     |
| Eating                      |             |           | -0.005      |           | -0.005      | 0.012     |
| Washing oneself             |             |           | -0.012      |           | -0.012      | 0.015     |
| Doing housework             |             |           | -0.007      |           | -0.007      | 0.009     |
| Childcare                   |             |           | 0.016       |           | 0.016       | 0.012     |
| Meet friends                |             |           | 0.009       |           | 0.009       | 0.008     |
| Resting/taking a nap        |             |           | 0.006       |           | 0.006       | 0.009     |
| Relaxing                    |             |           | -0.004      |           | -0.004      | 0.007     |
| Intimate relations          |             |           | -0.016      |           | -0.016      | 0.039     |
| Worship/meditation          |             |           | -0.011      |           | -0.011      | 0.024     |
| Watching TV                 |             |           | 0.013       |           | 0.013       | 0.009     |
| Reading                     |             |           | 0.002       |           | 0.002       | 0.009     |
| Computer/internet           |             |           | 0.007       |           | 0.007       | 0.009     |
| On the phone                |             |           | -0.006      |           | -0.006      | 0.01      |
| Exercising                  |             |           | 0.029***    |           | 0.029***    | 0.01      |
| Visiting doctor             |             |           | -0.062***   |           | -0.062***   | 0.015     |
| Gardening                   |             |           | 0.031**     |           | 0.031**     | 0.012     |
| Keep oneself busy with pets |             |           | 0.004       |           | 0.004       | 0.011     |
| Have a coffee/tee           |             |           | 0.020*      |           | 0.020*      | 0.01      |
| Listen to radio/music       |             |           | 0.011       |           | 0.011       | 0.032     |
| Care giving to relatives    |             |           | -0.027      |           | -0.027      | 0.028     |
| Volunteering                |             |           | 0.04        |           | 0.04        | 0.027     |

Table 3 (continued)

| Dependent variable                                      | (1) P-index |           | (2) P-index |           | (3) P-index |           |
|---|-------------|-----------|-------------|-----------|-------------|-----------|
|   | Coef        | Std. Err. | Coef        | Std. Err. | Coef        | Std. Err. |
| Walking/stroll  |             |           |             |           | -0.034**    | 0.017     |
| Job search/job center                                   |             |           |             |           | -0.066*     | 0.036     |
| Meeting/talking to partner or relatives                 |             |           |             |           | -0.001      | 0.013     |
| Artistic activity                                       |             |           |             |           | 0.011       | 0.029     |
| Service of hairdresser, manicure, pedicure, cosmetician |             |           |             |           | 0.048**     | 0.023     |
| At party/events/going out                               |             |           |             |           | 0.02        | 0.021     |
| Doing DIY, handicrafts, renovate                        |             |           |             |           | -0.029      | 0.025     |
| Playing (board) games, solving quizzes                  |             |           |             |           | 0.037       | 0.035     |
| Drinking alcoholic drinks, smoking                      |             |           |             |           | 0.087**     | 0.041     |
| Constant  | 0.941***    | 0.01      | 0.939***    | 0.029     | 0.930***    | 0.036     |
| Number of observations                                  | 3699        |           | 3699        |           | 3699        |           |
| Number of persons                                       | 1308        |           | 1308        |           | 1308        |           |
| R <sup>2</sup> (within)                                 | 0.01        |           | 0.02        |           | 0.05        |           |

Source SOEP-IS 2012–2015, own calculations

\*\*\*Significant on a 1% level, \*\* significant on a 5% level, \*Significant on a 10% level

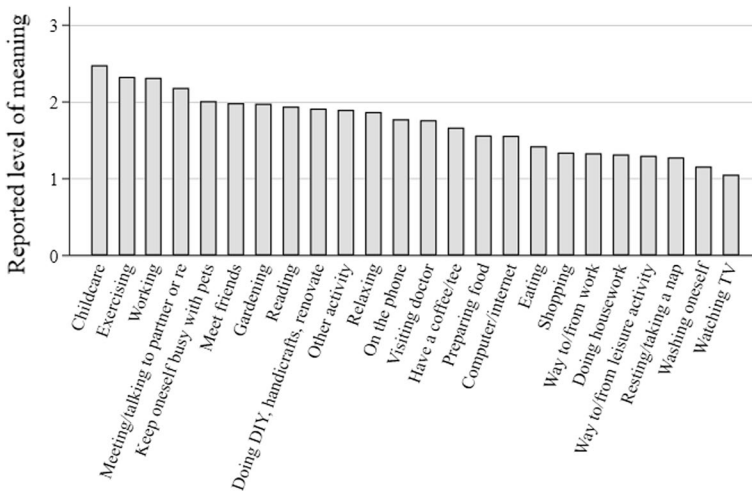


## 6 Pleasure and Meaning During Work

### 6.1 Does Experienced Meaning Explain Pleasure at Work?

Working is one of the activities that most harms experienced well-being. However, most respondents report that their working episodes are overall valued *rather pleasurable* and working is a widespread activity. Therefore, we further investigate the sources of pleasure from work. In this section, we examine if pleasure is affected by meaning during work (6.1) and overall experienced well-being and job satisfaction (6.2) are influenced by experienced meaning. Initially, we rank the reported experienced meaning between activities during each episode (see Fig. 1). The ranking of average valuations shows almost a reversed picture in comparison to pleasure (see Table 1). While working ranks very low in terms of pleasure, the opposite pattern emerges when looking at meaning. Only taking care of children and exercising rank higher in terms of experienced meaning. This indicates that meaning could be a highly relevant predictor for pleasure during these activities.

To understand whether meaning also affects experienced pleasure at work, we estimate a probability model for all observed work episodes. When focusing on randomly drawn episodes with information on experienced meaning (see Sect. 3), the sample of working spells shrinks to 849 episodes. Table 4 depicts the resulting average marginal effects in four specifications. In columns 1 and 2, we integrate experienced meaning as dummies variables for each category (scale from 1 ‘not at all’ to 7 ‘very strongly’). We use the scale category two as a reference since it represents the lowest value on the “intensive meaning scale.” We stepwise integrate controls for survey effects (col.1) and socio-demographic factors, job characteristics, and DRM-specific characteristics (col. 2). To account for non-linear associations (col. 3 and col. 4), we repeat the previous



**Fig. 1** Average level of experienced meaning by activity. *Source:* SOEP-IS 2012–15, own calculations. The graph depicts the average level of experienced meaning on a scale from 1 to 7 for different activities. Calculations based on three random episodes from each DRM interview with a question on experienced meaning during this activity. Activities with less than 30 observations are dropped. The total case numbers are N = 10,668 episodes

**Table 4** Probit estimation on pleasure at work: the role of meaning

| Dependent variable:            | (1) $Pr(\text{pleasure} = 1)$ |           | (2) $Pr(\text{pleasure} = 1)$ |           | (3) $Pr(\text{pleasure} = 1)$ |           | (4) $Pr(\text{pleasure} = 1)$ |           |
|--------------------------------|-------------------------------|-----------|-------------------------------|-----------|-------------------------------|-----------|-------------------------------|-----------|
|                                | AME                           | Std. Err. | AME                           | Std. Err. | AME                           | Std. Err. | AME                           | Std. Err. |
| <i>Meaningful (Ref: 2)</i>     |                               |           |                               |           |                               |           |                               |           |
| Meaningful 1 (Not at all)      | 0.130**                       | 0.053     | 0.129**                       | 0.051     |                               |           |                               |           |
| Meaningful 3                   | 0.022                         | 0.070     | 0.041                         | 0.066     |                               |           |                               |           |
| Meaningful 4                   | 0.089                         | 0.058     | 0.076                         | 0.056     |                               |           |                               |           |
| Meaningful 5                   | 0.106*                        | 0.060     | 0.119**                       | 0.057     |                               |           |                               |           |
| Meaningful 6                   | 0.090                         | 0.061     | 0.089                         | 0.059     |                               |           |                               |           |
| Meaningful 7 -Very strongly    | 0.152**                       | 0.063     | 0.165***                      | 0.058     |                               |           |                               |           |
| Meaningful Dummy (Not at all)  |                               |           |                               |           | 0.125***                      | 0.033     | 0.186***                      | 0.048     |
| Meaningful (1–7)               |                               |           |                               |           | 0.026***                      | 0.009     | 0.047***                      | 0.015     |
| Meaningful—Not at all * male   |                               |           |                               |           |                               |           | -0.146                        | 0.103     |
| Meaningful (1–7) * male        |                               |           |                               |           |                               |           | -0.034*                       | 0.019     |
| Labor Income (log)             |                               |           | 0.060***                      | 0.022     | 0.058***                      | 0.022     | 0.057**                       | 0.022     |
| Weekly working hours           |                               |           | -0.002                        | 0.003     | -0.002                        | 0.003     | -0.003                        | 0.003     |
| Weekly working hours (sq.)     |                               |           | 0.000                         | 0.000     | 0.000                         | 0.000     | 0.000                         | 0.000     |
| DRM day and wave fixed effects | yes                           |           | yes                           |           | yes                           |           | yes                           |           |
| Socio-demographic controls     |                               |           | yes                           |           | yes                           |           | yes                           |           |
| Job characteristics            |                               |           | yes                           |           | yes                           |           | yes                           |           |
| DRM-specific characteristics   |                               |           | yes                           |           | yes                           |           | yes                           |           |
| Number of observations         | 849                           |           | 849                           |           | 849                           |           | 849                           |           |
| Pseudo R <sup>2</sup>          | 0.025                         |           | 0.160                         |           | 0.158                         |           | 0.162                         |           |

Source SOEP-IS 2012–15, own calculations

The analysis comprises all working spells reported by employed individuals. Survey effects: year and DRM day; socio-demographic factors: age, male, family status, number of doctoral consultations, education, number of persons in the household, number of children in the household; job specific characteristics: tenure, tenure (sq.), duration in work spell, duration in work spell (sq.), occupation position, autonomy, company size; DRM specific characteristics: second activity, begin and end of the work spell, place of work, involved person

\*\*\*Significant on a 1% level, \*\* significant on a 5% level, \* significant on a 10% level

regressions and use a modified experienced meaning control. Instead of dummies for each category, we distinguish between an extensive and intensive meaning scale. Therefore, we integrate a dummy for workers reporting that work is *not meaningful at all* (“extensive meaning scale”) and zero otherwise (the scales two to seven are recoded to zero). In addition, we introduce a metric variable for meaning including all categories. In column 4, we add an interaction term of meaning with males (0/1) in order to investigate gender differences.

**Table 5** Meaning, and experienced well-being and job satisfaction

| Dependent variable             | (1) P-index (0.00–1.00) |           | (2) Job Satisfaction (0–1) |           | (3) Job Satisfaction (0–1) |           |
|--------------------------------|-------------------------|-----------|----------------------------|-----------|----------------------------|-----------|
|                                | Coef                    | Std. Err. | Coef                       | Std. Err. | Coef                       | Std. Err. |
| Meaningful Dummy -Not at all   | 0.082***                | 0.025     | 0.641***                   | 0.237     | 0.512**                    | 0.236     |
| Meaningful (1–7)               | 0.016***                | 0.006     | 0.185***                   | 0.054     | 0.161***                   | 0.053     |
| Pleasure                       |                         |           |                            |           | 0.900***                   | 0.194     |
| Labor income (log)             | 0.012                   | 0.012     | 0.316**                    | 0.126     | 0.269**                    | 0.125     |
| Weekly working hours           | 0.002                   | 0.002     | –0.044**                   | 0.020     | –0.042**                   | 0.020     |
| Weekly working hours (sq.)     | 0.000                   | 0.000     | 0.001**                    | 0.000     | 0.001**                    | 0.000     |
| DRM day and wave fixed effects | yes                     |           | yes                        |           | yes                        |           |
| Socio-demographic controls     | yes                     |           | yes                        |           | yes                        |           |
| Job characteristics            | yes                     |           | yes                        |           | yes                        |           |
| DRM-specific characteristics   | yes                     |           | yes                        |           | yes                        |           |
| Number of observations         | 849                     |           | 849                        |           | 849                        |           |
| Pseudo R <sup>2</sup>          | 0.025                   |           | 0.160                      |           | 0.190                      |           |

Source SOEP-IS 2012–15, own calculations

The analysis comprises all working spells reported by employed individuals. Survey effects: year and DRM day; socio-demographic factors: age, male, family status, number of doctoral consultations, education, number of persons in the household, number of children in the household; job specific characteristics: tenure, tenure (sq.), duration in work spell, duration in work spell (sq.), occupation position, autonomy, company size; DRM specific characteristics: second activity, begin and end of the work spell

\*\*\*Significant on a 1% level, \*\*significant on a 5% level, \*significant on a 10% level

We find that working is perceived as pleasurable if no meaning is experienced at all or the meaning score is high. This non-linear association suggests that a group of workers sees working as completely meaningless but experiences working as pleasurable while other groups have an increased propensity for pleasure with increasing experienced meaning. Including all controls (col. 2) does not change this finding. Accounting for the non-linearity in meaning yields a positive association between meaning and pleasurable working episodes. Again, the only exception is the dummy-indicator for *not meaningful at all*. The positive coefficient indicates that compared to the baseline probability of all other persons, workers experiencing *no meaning at all*, also report a higher probability of pleasure at work. Column 4 shows that this holds mainly for women as the ordinal meaning coefficient for males has the opposite sign and magnitude cancelling the overall effect almost out.

## 6.2 Relevance of Meaning for Experienced Well-Being and Job Satisfaction

Perceived meaning at work is associated with a higher propensity to experience working pleasurable for some workers. In this section, we examine how meaning influences overall experienced well-being of the DRM-day. In order to fit this result into the labor market literature, we validate this finding by regressing it on evaluative job satisfaction. As a standard measure for utility from work, we examine if job satisfaction is also affected by experienced meaning.

Table 5 presents the results. Meaning is significantly positively associated with experienced well-being (col. 1). The higher experienced meaning during the work episode is, the higher is the share of pleasurable time for the respondents, given income, working hours, socio-demographic controls, job characteristics, and other controls (entire Table 10 in Appendix ). Again, the dummy-indicator for *not meaningful at all* shows that, compared to the average level of meaningful work, individuals experiencing more pleasurable time. Hence, the association of experienced meaning with pleasurable working episodes is also reflected in the experienced well-being of the whole day.

Further, in cols. 2 and 3, we regress experienced meaning on job satisfaction, measured on a 0–10 scale (for details see Sect. 3). Experienced meaning is positively associated with job satisfaction. The higher the experienced meaning during a work episode, the higher is job satisfaction. As before, the positive coefficient of the *not meaningful at all*-indicator has a substantially higher level of job satisfaction. In contrast to experienced well-being, labor income and working hours per week are associated with job satisfaction. In column 3, we add a dummy indicating that working episodes are pleasurable (1 if the episode was pleasurable, 0 otherwise). The positive association of experienced meaning with job satisfaction becomes only slightly weaker while the other coefficients remain qualitatively the same. Pleasure during work increases, *ceteris paribus*, job satisfaction. Experienced meaning is also a positive predictor of job satisfaction, given that the group of individuals with *no meaning at all* are also more satisfied with their jobs.

Experienced meaning and experienced pleasure both come along with higher experienced well-being, indicating more pleasurable time on an average day. Experienced meaning qualitatively has a similar association with job satisfaction as does experienced well-being. Hence, the evaluative measure job satisfaction is also positively affected by experienced meaning (of a work episode of the DRM day). Further, the non-linearity of this meaning association is also similar: those workers who experience *no meaning at all* (about 30% of the workers report *no meaning at all*) also report higher job satisfaction. Comparing the impact of the income coefficient with the meaning and pleasure coefficients suggest that, in terms of job satisfaction, a pleasurable working episode is worth about three log-points of income. Or, in other words: A more than 300 percent increase in income could compensate for unpleasant work episode. Experienced meaning is also valued relatively high with a positive coefficient such that a 60 percent increase in income would buy a meaning point in order to keep job satisfaction constant.

## 7 Concluding Discussion

We examine experienced well-being for a nationally representative population with individual fixed effects and find that the experienced well-being of the unemployed in Germany higher than experienced well-being of the employed. The unemployed experience more pleasurable minutes awake. This paper shows that this is due to the absence of working episodes for unemployed. It does not depend on employment status. This difference holds after controlling for income and other covariates and, in particular, after introducing person fixed effects controlling for person-inherent stable traits. Hence, the consequences of unemployment for SWB differ between evaluative life satisfaction and hedonic experienced well-being as the outcome. The incorporation of individual time use with its valuations renders being unemployed less detrimental than just focusing on life satisfaction that diminishes.

The relatively high share of unpleasant experiences during work compared to other activities is in line with findings obtained for work experiences in the UK, France, and the US that examine the intensity of pleasure (Bryson & MacKerron, 2017; Flèche & Smith, 2017). Our simple pleasure (vs. no pleasure) indicator seems sufficient to identify reasons for work misery while reducing costs (survey time). Beyond other wages, working hours, or episode-timing, the experienced meaning is a significant predictor for pleasure during work. The higher experienced meaning during work is, the higher is the propensity to report a pleasurable working episode. However, this association is non-linear, as persons reporting *no meaning at all* also have a higher (than average) propensity to report a pleasurable work episode. One potential explanation for this finding is that meaning depends on preference heterogeneity. Not all persons wish to experience a meaningful job. They still report *no meaning at all*, even if working is pleasurable for them. This explanation is in line with evidence from the lab showing that varying meaning of certain tasks affects only specific individuals prone to it (Fehrler & Kosfeld, 2014). One source for such heterogeneity are gender differences. We find that the positive association of meaning and pleasure during work is due to the women in the sample. For men, we hardly find any positive association. As experienced meaning is positively associated with pleasure during work, it is not surprising that we find the same association for daily experienced well-being. Evaluative job satisfaction, however, measures completely different components of SWB, but still, it shows the same association with experienced meaningfulness.

Our results have implications for personnel economics and labor market policy. On the firm level, it seems clear that worker heterogeneity in terms of a “taste for meaning” makes it necessary for the management to know the underlying structure of its workforce’s preferences. Indeed, an incentive compatible contract for such workers is feasible (Besley & Ghatak, 2017) and gains more relevance with an increasing share of female workers who prefer meaning during work. In a labor supply framework, a preference for meaning helps to explain the intensive margin of labor supply. Excessive extra hours with a low marginal monetary return (workaholic behavior) might come along with experienced meaning that intrinsically generates pleasure.

## Appendix

See Tables 6, 7, 8, 9 and 10.

**Table 6** Description of covariates

| Characteristic                                  | Description   |
|---|---|
| Survey effects                                  |   |
| Year  | Year defines the year of the interview using four dummies: 2012, 2013, 2014 and 2015  |
| DRM day   | DRM day describes the day the respondent reports about using 7 dummies (Monday to Sunday). The DRM dataset is the base to generate this variable  |
| Socio-demographic characteristics               |   |
| Age   | The survey year minus year of birth defines the age of the respondent   |
| Male  | This variable is a dummy taking the value '1' if respondent is a male   |
| Disposable income (Household)                   | The variable hginc in dataset hgen is the base to generate the disposable household income  |
| Disposable income (Household, equival. OECD)    | This variable uses hginc, hgnrpers and hgnrkid14 from the dataset hgen to generate the equivalized disposable household income. It divides hghinc by $1 + 0.5 * (\text{number of persons in household} - \text{number of children (below 14) in household} - 1) + 0.3 * \text{number of children (below 14) in household}$  |
| Labor income (log)                              | This variable presents the logarithm of the gross labor income. The variable pglabgro from the dataset pgen allows to generate the gross labor income of the respondent   |
| Education level                                 | Three dummies describe education: low, middle and high. These dummies take the value '1' if respondent highest education level is primary or secondary (low), upper secondary or post-secondary non-tertiary (middle) or short-cycle tertiary or tertiary (high) education. The variables pgsced from the dataset pgen are the base to generate these dummies   |
| Family status                                   | Four dummies describe the family status: single, married, and divorced/separated/widowed. The variable pgfamst from the dataset pgen is the base to generate this variable  |
| Number of persons in Household                  | The number of persons in the household is a variable from the dataset hgen  |
| Number of children in household                 | This variable comprises the number of children (below 18 years) in the household. The dataset h and hgen provide the information to generate this variable  |
| Number of doctoral consultations (last 3 month) | The dataset p provides counts the number of doctoral consultations in the last three months and is provided in the dataset p  |
| Job specific characteristics                    |   |
| Labor market status: unemployed                 | This dummy describes the labor market status and takes the value '1' if the respondent is unemployed. 'Unemployed' characterizes persons who are officially registered as unemployed and report no weekly working hours (pgtatzt). 'Employed' characterizes individuals with a current occupational position (from untrained worker to executive civil service) working full-time or part-time, including marginal or irregular employed people. The variables pgstib and empl from the dataset pgen provide this information |
| Weekly working hours                            | The weekly working hours base on a generation using the variable pgtatzt in the dataset pgen  |

**Table 6** (continued)

| Characteristic                         | Description   |
|--|---|
| Tenure                                 | The job tenure of a person  |
| Occupational Position                  | Four dummies describe the occupational position: worker, self-employed, employee and civil servant. The variable <code>pgstib</code> from the dataset <code>pgen</code> provides the information to generate the occupational position                                |
| Autonomy                               | Five dummies describe autonomy: low, low-middle, middle, middle-high and high. The generation uses <code>pgautono</code> from the dataset <code>pgen</code> that has this five expressions  |
| Company Size                           | Three dummies describe company size: below 200, 200–2000, > 2000. The dataset <code>pgen</code> provides this information   |
| DRM specific characteristics           |   |
| Number of episodes per DRM day         | This variable counts the number of episodes per reported DRM day and is generated from the information in the DRM dataset   |
| Reported activity                      | The respondents were asked episode-wise to choose activities out of a set of 23 and one open answering option. In the second wave, the activities were extended to 25. In addition, we recoded open answering options into activities as advised in Wolf (2018)       |
| Reported second activity while working | The respondents were asked episode-wise to choose activities out of a set of 23 and one open answering option. Until the second wave, the activities were extended until 25. In addition, we recoded open answering options into activities as advised in Wolf (2018) |
| Begin to work of first spell           | 12 dummies for every two hours describe the begin to work of the first spell, e.g. start work between 0 to 2 am   |
| Finish with work of last spell         | 12 dummies for every two hours describe the end of work of the last spell, e.g. finish work between ten to 12 pm  |
| Duration in work spell                 | This variable describes the duration of the reported work spell   |
| Break during work                      | Three dummies describe a break during work: no break, 1 break or > 1 break  |
| Involved person                        | Eight dummies describe the involved persons: no one, partner, children, colleagues, clients, parents, boss or other   |
| Place of work                          | Three dummies describe place of work: at work, at home or elsewhere   |

Source SOEP-IS 2012–2015

**Table 7** Pooled sample of DRM respondents by employment status

|  | Unweighted |            | Population weights |            |
|--|------------|------------|--------------------|------------|
|  | Employed   | Unemployed | Employed           | Unemployed |
| Age  | 44.88      | 44.67      | 43.61              | 44.48      |
| Female (share)                               | 0.50       | 0.51       | 0.48               | 0.54       |
| Disposable income (Household)                | 3336.95    | 1442.91    | 3248.12            | 1467.74    |
| Disposable income (Household, equival. OECD) | 1930.20    | 875.00     | 1932.12            | 919.53     |
| Earnings (gross labor income)                | 2642.94    | –          | 2704.29            | –          |
| <i>Education level (share)</i>               |            |            |                    |            |
| Low (ISCED 1–2)                              | 0.09       | 0.24       | 0.09               | 0.22       |
| Middle (ISCED 3–4)                           | 0.57       | 0.63       | 0.59               | 0.66       |
| High (ISCED 5–6)                             | 0.34       | 0.13       | 0.32               | 0.12       |
| <i>Marital status (share)</i>                |            |            |                    |            |
| Single                                       | 0.24       | 0.35       | 0.25               | 0.38       |
| Married                                      | 0.60       | 0.34       | 0.57               | 0.35       |
| Divorced                                     | 0.14       | 0.29       | 0.15               | 0.25       |
| Widowed                                      | 0.02       | 0.03       | 0.03               | 0.03       |
| Number of Person in Household                | 2.71       | 2.49       | 2.62               | 2.36       |
| Number of Children in Household              | 0.67       | 0.63       | 0.64               | 0.59       |
| Weekly working hours                         | 36.58      | –          | 37.38              | –          |
| Tenure                                       | 12.00      | –          | 11.26              | –          |
| <i>Occupational position (share)</i>         |            |            |                    |            |
| Worker                                       | 0.18       | –          | 0.20               | –          |
| Self-employed                                | 0.10       | –          | 0.10               | –          |
| Employee                                     | 0.65       | –          | 0.64               | –          |
| Civil Servant                                | 0.07       | –          | 0.07               | –          |
| <i>DRM day (share)</i>                       |            |            |                    |            |
| Sunday                                       | 0.10       | 0.11       | 0.11               | 0.12       |
| Monday                                       | 0.24       | 0.24       | 0.25               | 0.23       |
| Tuesday                                      | 0.21       | 0.25       | 0.19               | 0.22       |
| Wednesday                                    | 0.18       | 0.20       | 0.17               | 0.22       |
| Thursday                                     | 0.14       | 0.13       | 0.14               | 0.15       |
| Friday                                       | 0.11       | 0.06       | 0.11               | 0.06       |
| Saturday                                     | 0.02       | 0.01       | 0.02               | 0.01       |
| Number of episodes per DRM day               | 11.88      | 12.17      | 11.45              | 12.21      |
| Number of observations (= DRM interviews)    | 3384       | 356        | –                  | –          |

Source SOEP-IS 2012–2015, own calculations

– Denotes not available or missing information. The used population weights are provided by the SOEP-IS and calculated as in the SOEP. For further information see Kroh et al. (2017)



**Table 8** Positive affect and negative affect by employment status

| Status               | Postive affect  | Negative affect | P-index          | P-index (with-out work) | N    |
|----------------------|-----------------|-----------------|------------------|-------------------------|------|
| Employed             | 2.780           | 0.636           | 0.913            | 0.948                   | 3383 |
| Unemployed           | 2.954           | 0.611           | 0.942            | 0.942                   | 315  |
| Difference: E vs. UE | $p < 0.02^{**}$ | $p < 0.61$      | $p < 0.00^{***}$ | $p < 0.37$              | 3698 |

Source SOEP-IS 2012–2015, own calculations

Positive affect was generated from the equally weighted averages for happy, satisfaction, enthusiasm (scale 1–7). The negative affect scale was generated from equally weighted averages for anger, frustration, mourning, worries, and stress. For each person in each year only three episodes contain this information (see Sect. 3). The t-tests for mean equivalence of employed and unemployed are reported in the bottom line

\*\*\*Significant on a 1% level, \*\*significant on a 5% level, \*significant on a 10% level

**Table 9** Probit estimation on pleasure at work: the role of meaning (full table)

| Dependent variable:                                    | (1)<br><i>Pr(pleasure = 1)</i> |           | (2)<br><i>Pr(pleasure = 1)</i> |           | (3)<br><i>Pr(pleasure = 1)</i> |           | (4)<br><i>Pr(pleasure = 1)</i> |           |
|--|--------------------------------|-----------|--------------------------------|-----------|--------------------------------|-----------|--------------------------------|-----------|
|  | AME                            | Std. Err. | AME                            | Std. Err. | AME                            | Std. Err. | AME                            | Std. Err. |
| <i>Meaningful (Ref: 2)</i>                             |                                |           |                                |           |                                |           |                                |           |
| Meaningful 1—Not at all                                | 0.130**                        | 0.053     | 0.129**                        | 0.051     |                                |           |                                |           |
| Meaningful 3   | 0.022                          | 0.070     | 0.041                          | 0.066     |                                |           |                                |           |
| Meaningful 4   | 0.089                          | 0.058     | 0.076                          | 0.056     |                                |           |                                |           |
| Meaningful 5   | 0.106*                         | 0.060     | 0.119**                        | 0.057     |                                |           |                                |           |
| Meaningful 6   | 0.090                          | 0.061     | 0.089                          | 0.059     |                                |           |                                |           |
| Meaningful 7—Very strongly                             | 0.152**                        | 0.063     | 0.165***                       | 0.058     |                                |           |                                |           |
| Meaningful Dummy—Not at all                            |                                |           |                                |           | 0.125***                       | 0.033     | 0.186***                       | 0.048     |
| Meaningful (1–7)                                       |                                |           |                                |           | 0.026***                       | 0.009     | 0.047***                       | 0.015     |
| Meaningful—Not at all * male                           |                                |           |                                |           |                                |           | -0.146                         | 0.103     |
| Meaningful (1–7) * male                                |                                |           |                                |           |                                |           | -0.034*                        | 0.019     |
| Labor income (log)                                     |                                |           | 0.060***                       | 0.022     | 0.058***                       | 0.022     | 0.057**                        | 0.022     |
| Weekly working hours                                   |                                |           | -0.002                         | 0.003     | -0.002                         | 0.003     | -0.003                         | 0.003     |
| Weekly working hours (sq.)                             |                                |           | 0.000                          | 0.000     | 0.000                          | 0.000     | 0.000                          | 0.000     |
| Tenure   |                                |           | -0.003                         | 0.004     | -0.003                         | 0.004     | -0.003                         | 0.004     |
| Tenure (sq.)   |                                |           | 0.000                          | 0.000     | 0.000                          | 0.000     | 0.000                          | 0.000     |
| duration in work spell                                 |                                |           | -0.016                         | 0.023     | -0.014                         | 0.023     | -0.014                         | 0.023     |
| duration in work spell (sq.)                           |                                |           | 0.002                          | 0.001     | 0.001                          | 0.001     | 0.001                          | 0.001     |
| <i>Occupational position (ref: blue-collar worker)</i> |                                |           |                                |           |                                |           |                                |           |
| Self-employed  |                                |           | 0.064                          | 0.062     | 0.066                          | 0.063     | 0.071                          | 0.063     |
| White-collar worker                                    |                                |           | 0.021                          | 0.050     | 0.023                          | 0.051     | 0.028                          | 0.051     |
| Civil service  |                                |           | -0.014                         | 0.074     | -0.013                         | 0.074     | -0.008                         | 0.074     |
| <i>Autonomy (ref: middle level)</i>                    |                                |           |                                |           |                                |           |                                |           |
| Low  |                                |           | 0.109**                        | 0.055     | 0.111**                        | 0.054     | 0.110**                        | 0.054     |

**Table 9** (continued)

| Dependent variable:                             | (1)<br><i>Pr(pleasure = 1)</i> |           | (2)<br><i>Pr(pleasure = 1)</i> |           | (3)<br><i>Pr(pleasure = 1)</i> |           | (4)<br><i>Pr(pleasure = 1)</i> |           |
|---|--------------------------------|-----------|--------------------------------|-----------|--------------------------------|-----------|--------------------------------|-----------|
|   | AME                            | Std. Err. | AME                            | Std. Err. | AME                            | Std. Err. | AME                            | Std. Err. |
| Low-middle                                      |                                |           | 0.113***                       | 0.031     | 0.113***                       | 0.031     | 0.113***                       | 0.031     |
| Middle-high                                     |                                |           | 0.007                          | 0.038     | 0.005                          | 0.038     | 0.005                          | 0.038     |
| High  |                                |           | -0.044                         | 0.082     | -0.050                         | 0.082     | -0.051                         | 0.082     |
| <i>Company size (ref.: below 200)</i>           |                                |           |                                |           |                                |           |                                |           |
| 200–2000  |                                |           | 0.032                          | 0.029     | 0.032                          | 0.029     | 0.031                          | 0.029     |
| >2000   |                                |           | -0.052                         | 0.034     | -0.051                         | 0.034     | -0.047                         | 0.034     |
| Male  |                                |           | 0.038                          | 0.028     | 0.037                          | 0.028     | 0.038                          | 0.034     |
| Age   |                                |           | -0.004                         | 0.009     | -0.005                         | 0.008     | -0.005                         | 0.009     |
| Age (sq.)                                       |                                |           | 0.000                          | 0.000     | 0.000                          | 0.000     | 0.000                          | 0.000     |
| <i>Family status (ref: single)</i>              |                                |           |                                |           |                                |           |                                |           |
| Married   |                                |           | 0.062                          | 0.039     | 0.063                          | 0.039     | 0.063                          | 0.039     |
| Divorced/seperated                              |                                |           | 0.131***                       | 0.041     | 0.130***                       | 0.042     | 0.133***                       | 0.042     |
| Number of doctoral consultation (last 3 months) |                                |           | 0.001                          | 0.004     | 0.001                          | 0.004     | 0.001                          | 0.004     |
| <i>Education (ref: middle)</i>                  |                                |           |                                |           |                                |           |                                |           |
| Low   |                                |           | 0.006                          | 0.044     | 0.007                          | 0.044     | 0.016                          | 0.042     |
| High  |                                |           | -0.020                         | 0.033     | -0.017                         | 0.033     | -0.014                         | 0.033     |
| Number of Persons in HH                         |                                |           | -0.004                         | 0.017     | -0.006                         | 0.017     | -0.005                         | 0.017     |
| Number of Children in HH                        |                                |           | -0.017                         | 0.023     | -0.016                         | 0.023     | -0.017                         | 0.023     |
| <i>Year (ref: 2012)</i>                         |                                |           |                                |           |                                |           |                                |           |
| 2013  | 0.023                          | 0.034     | 0.025                          | 0.031     | 0.026                          | 0.031     | 0.027                          | 0.031     |
| 2014  | -0.010                         | 0.036     | -0.010                         | 0.033     | -0.009                         | 0.034     | -0.007                         | 0.033     |
| 2015  | 0.033                          | 0.036     | 0.016                          | 0.034     | 0.015                          | 0.034     | 0.016                          | 0.034     |
| <i>DRM day (Ref: Wednesday)</i>                 |                                |           |                                |           |                                |           |                                |           |
| Sunday  | -0.106                         | 0.070     | -0.065                         | 0.065     | -0.059                         | 0.065     | -0.069                         | 0.065     |
| Monday  | 0.034                          | 0.038     | 0.041                          | 0.035     | 0.043                          | 0.036     | 0.037                          | 0.035     |
| Tuesday   | 0.016                          | 0.039     | 0.012                          | 0.038     | 0.013                          | 0.038     | 0.007                          | 0.037     |
| Thursday  | 0.014                          | 0.042     | 0.025                          | 0.039     | 0.026                          | 0.040     | 0.023                          | 0.039     |
| Friday  | -0.018                         | 0.051     | -0.020                         | 0.047     | -0.016                         | 0.047     | -0.019                         | 0.047     |
| Saturday  | 0.014                          | 0.137     | 0.119**                        | 0.053     | 0.124**                        | 0.051     | 0.127***                       | 0.048     |
| <i>Second activity:</i>                         |                                |           |                                |           |                                |           |                                |           |
| Eating  |                                |           | 0.110***                       | 0.025     | 0.110***                       | 0.025     | 0.112***                       | 0.025     |
| Childcare                                       |                                |           | -0.810***                      | 0.015     | -0.810***                      | 0.015     | -0.810***                      | 0.015     |
| Computer/internet                               |                                |           | 0.029                          | 0.100     | 0.023                          | 0.105     | 0.029                          | 0.100     |
| On the phone                                    |                                |           | 0.069                          | 0.083     | 0.073                          | 0.082     | 0.073                          | 0.082     |
| Radio   |                                |           | -0.035                         | 0.139     | -0.039                         | 0.140     | -0.038                         | 0.142     |
| Care giving to relatives                        |                                |           | -0.080                         | 0.215     | -0.070                         | 0.212     | -0.106                         | 0.227     |
| <i>Begin to work (Ref: 8–10 am)</i>             |                                |           |                                |           |                                |           |                                |           |
| 2–4 am  |                                |           | -0.336**                       | 0.162     | -0.319**                       | 0.160     | -0.318**                       | 0.160     |
| 4–6 am  |                                |           | -0.171***                      | 0.064     | -0.164***                      | 0.063     | -0.166***                      | 0.063     |
| 6–8 am  |                                |           | -0.075**                       | 0.032     | -0.073**                       | 0.032     | -0.075**                       | 0.032     |
| 10–12 am  |                                |           | 0.010                          | 0.049     | 0.009                          | 0.050     | 0.002                          | 0.050     |

**Table 9** (continued)

| Dependent variable:                   | (1)<br><i>Pr(pleasure = 1)</i> |           | (2)<br><i>Pr(pleasure = 1)</i> |           | (3)<br><i>Pr(pleasure = 1)</i> |           | (4)<br><i>Pr(pleasure = 1)</i> |           |
|---------------------------------------|--------------------------------|-----------|--------------------------------|-----------|--------------------------------|-----------|--------------------------------|-----------|
|                                       | AME                            | Std. Err. | AME                            | Std. Err. | AME                            | Std. Err. | AME                            | Std. Err. |
| 0–2 pm                                |                                |           | –0.093                         | 0.074     | –0.095                         | 0.076     | –0.095                         | 0.076     |
| 2–4 pm                                |                                |           | 0.082***                       | 0.030     | 0.083***                       | 0.030     | 0.080**                        | 0.031     |
| 4–6 pm                                |                                |           | 0.044                          | 0.070     | 0.042                          | 0.074     | 0.038                          | 0.077     |
| 6–8 pm                                |                                |           | –0.294                         | 0.236     | –0.316                         | 0.241     | –0.296                         | 0.238     |
| 8–10 pm                               |                                |           | –0.026                         | 0.124     | –0.023                         | 0.123     | –0.017                         | 0.118     |
| <i>Finish with work (Ref: 4–6 pm)</i> |                                |           |                                |           |                                |           |                                |           |
| 6–8 am                                |                                |           | –0.398                         | 0.284     | –0.378                         | 0.286     | –0.374                         | 0.284     |
| 8–10 am                               |                                |           | 0.079                          | 0.110     | 0.073                          | 0.116     | 0.068                          | 0.116     |
| 10–12 am                              |                                |           | 0.097*                         | 0.054     | 0.099*                         | 0.053     | 0.096*                         | 0.053     |
| 0–2 pm                                |                                |           | 0.081**                        | 0.040     | 0.078*                         | 0.041     | 0.079**                        | 0.040     |
| 2–4 pm                                |                                |           | 0.000                          | 0.037     | –0.006                         | 0.037     | –0.010                         | 0.037     |
| 6–8 pm                                |                                |           | –0.096**                       | 0.049     | –0.096**                       | 0.049     | –0.095**                       | 0.048     |
| 8–10 pm                               |                                |           | –0.059                         | 0.069     | –0.056                         | 0.068     | –0.061                         | 0.068     |
| 10–12 pm                              |                                |           | 0.032                          | 0.057     | 0.034                          | 0.056     | 0.033                          | 0.055     |
| <i>Break during work (Ref.: No)</i>   |                                |           |                                |           |                                |           |                                |           |
| 1 Break                               |                                |           | 0.072**                        | 0.032     | 0.074**                        | 0.032     | 0.073**                        | 0.032     |
| > 1 Break                             |                                |           | 0.060                          | 0.038     | 0.059                          | 0.038     | 0.060                          | 0.038     |
| <i>Involved person (Ref.: no one)</i> |                                |           |                                |           |                                |           |                                |           |
| Partner                               |                                |           | 0.041                          | 0.081     | 0.035                          | 0.081     | 0.043                          | 0.081     |
| Colleagues                            |                                |           | 0.078**                        | 0.033     | 0.080**                        | 0.032     | 0.083***                       | 0.032     |
| Clients                               |                                |           | 0.027                          | 0.036     | 0.027                          | 0.035     | 0.023                          | 0.036     |
| Children                              |                                |           | 0.920***                       | 0.120     | 0.927***                       | 0.118     | 0.930***                       | 0.123     |
| Parents                               |                                |           | 0.047                          | 0.145     | 0.054                          | 0.145     | 0.088                          | 0.140     |
| Boss                                  |                                |           | –0.039                         | 0.040     | –0.038                         | 0.040     | –0.040                         | 0.039     |
| Other                                 |                                |           | 0.069                          | 0.048     | 0.063                          | 0.048     | 0.068                          | 0.047     |
| <i>place of work (ref.: at work)</i>  |                                |           |                                |           |                                |           |                                |           |
| At home                               |                                |           | 0.027                          | 0.040     | 0.026                          | 0.041     | 0.027                          | 0.041     |
| Elsewhere                             |                                |           | 0.059                          | 0.046     | 0.061                          | 0.045     | 0.062                          | 0.044     |
| Number of observations                | 849                            |           | 849                            |           | 849                            |           | 849                            |           |
| Pseudo R <sup>2</sup>                 | 0.025                          |           | 0.160                          |           | 0.158                          |           | 0.162                          |           |

Source SOEP-IS 2012–15, own calculations

The analysis comprises all working spells reported by employed individuals. Duration in work spell in hours. Additionally, second activities as on the way to work, shopping, preparing food, washing oneself, doing housework, resting, relaxing, meditation, watching TV, exercising, taking care of pets, other activities, drinking coffee/tea or drinking alcoholic drinks/smoking, starting to work between 0 and 2 am or 10 and 12 pm, finish between 0 and 4 am or 4 and 6 am and widowed are automatically dropped by only a small number of observations and no variation with these variables

\*\*\*Significant on a 1% level, \*\*significant on a 5% level, \*significant on a 10% level

**Table 10** Meaning, experienced well-being and job satisfaction (full table)

| Dependent variable:                                    | (1) P-index (0.00–1.00) |           | (2) Job Satisfaction (1–10) |           | (3) Job Satisfaction (1–10) |           |
|--|-------------------------|-----------|-----------------------------|-----------|-----------------------------|-----------|
|  | Coef                    | Std. Err. | Coef                        | Std. Err. | Coef                        | Std. Err. |
| Meaningful Dummy-Notatall                              | 0.082***                | 0.025     | 0.641***                    | 0.237     | 0.512**                     | 0.236     |
| Meaningful (1–7)                                       | 0.016***                | 0.006     | 0.185***                    | 0.054     | 0.161***                    | 0.053     |
| Pleasure   |                         |           |                             |           | 0.900***                    | 0.194     |
| Labor income (log)                                     | 0.012                   | 0.012     | 0.316**                     | 0.126     | 0.269**                     | 0.125     |
| Weekly working hours                                   | 0.002                   | 0.002     | −0.044**                    | 0.020     | −0.042**                    | 0.020     |
| Weekly working hours (sq.)                             | 0.000                   | 0.000     | 0.001**                     | 0.000     | 0.001**                     | 0.000     |
| Tenure   | 0.001                   | 0.002     | −0.021                      | 0.022     | −0.019                      | 0.022     |
| Tenure (sq.)   | 0.000                   | 0.000     | 0.000                       | 0.001     | 0.000                       | 0.001     |
| duration in work spell                                 | −0.003                  | 0.011     | −0.051                      | 0.121     | −0.046                      | 0.120     |
| duration in work spell (sqrt)                          | 0.001                   | 0.001     | −0.003                      | 0.007     | −0.003                      | 0.007     |
| <i>Occupational Position (Ref: Blue-collar worker)</i> |                         |           |                             |           |                             |           |
| Self-Employed  | 0.048                   | 0.038     | 0.462                       | 0.351     | 0.397                       | 0.351     |
| White-collar worker                                    | 0.043                   | 0.030     | 0.093                       | 0.281     | 0.062                       | 0.281     |
| Civil Service  | −0.035                  | 0.047     | −0.214                      | 0.408     | −0.204                      | 0.397     |
| <i>Autonomy (Ref: Middle level)</i>                    |                         |           |                             |           |                             |           |
| Low  | 0.045                   | 0.051     | −0.246                      | 0.432     | −0.375                      | 0.422     |
| Low-middle   | 0.061***                | 0.021     | 0.212                       | 0.222     | 0.087                       | 0.221     |
| Middle-high  | 0.017                   | 0.019     | 0.086                       | 0.176     | 0.076                       | 0.173     |
| High   | 0.025                   | 0.031     | 0.022                       | 0.346     | 0.050                       | 0.339     |
| <i>Company Size (Ref.: below200)</i>                   |                         |           |                             |           |                             |           |
| 200–2000   | 0.003                   | 0.019     | 0.001                       | 0.194     | −0.026                      | 0.190     |
| > 2000   | −0.034*                 | 0.019     | 0.100                       | 0.198     | 0.142                       | 0.196     |
| Male   | 0.036**                 | 0.017     | −0.062                      | 0.161     | −0.104                      | 0.157     |
| age  | −0.003                  | 0.005     | −0.056                      | 0.050     | −0.053                      | 0.049     |
| age (sq.)  | 0.000                   | 0.000     | 0.000                       | 0.001     | 0.000                       | 0.001     |
| <i>Family Status (Ref: Single)</i>                     |                         |           |                             |           |                             |           |
| Married  | 0.012                   | 0.021     | 0.177                       | 0.194     | 0.114                       | 0.192     |
| Divorced/Seperated                                     | 0.038                   | 0.024     | 0.785***                    | 0.268     | 0.652**                     | 0.264     |
| Number of doctoral consultation (last 3 months)        | 0.000                   | 0.002     | −0.080***                   | 0.027     | −0.082***                   | 0.027     |
| <i>Education (Ref: middle)</i>                         |                         |           |                             |           |                             |           |
| Low  | 0.015                   | 0.028     | 0.253                       | 0.295     | 0.265                       | 0.298     |
| High   | 0.009                   | 0.020     | −0.056                      | 0.178     | −0.049                      | 0.173     |
| Number of Persons in HH                                | −0.006                  | 0.009     | 0.053                       | 0.095     | 0.056                       | 0.094     |
| Number of Children in HH                               | −0.004                  | 0.013     | 0.023                       | 0.133     | 0.043                       | 0.132     |
| <i>year (Ref: 2012)</i>                                |                         |           |                             |           |                             |           |
| 2013   | −0.007                  | 0.019     | −0.202                      | 0.190     | −0.227                      | 0.188     |
| 2014   | −0.019                  | 0.019     | −0.354*                     | 0.181     | −0.338*                     | 0.178     |
| 2015   | 0.017                   | 0.018     | −0.332*                     | 0.199     | −0.349*                     | 0.197     |
| <i>DRMday (Ref: Wednesday)</i>                         |                         |           |                             |           |                             |           |
| Sunday   | −0.033                  | 0.036     | −0.719**                    | 0.342     | −0.654**                    | 0.327     |
| Monday   | 0.019                   | 0.021     | −0.157                      | 0.205     | −0.196                      | 0.202     |
| Tuesday  | −0.002                  | 0.022     | 0.205                       | 0.207     | 0.196                       | 0.200     |

**Table 10** (continued)

| Dependent variable:  | (1) P-index (0.00–1.00) |           | (2) Job Satisfaction (1–10) |           | (3) Job Satisfaction (1–10) |           |
|--|-------------------------|-----------|-----------------------------|-----------|-----------------------------|-----------|
|  | Coef                    | Std. Err. | Coef                        | Std. Err. | Coef                        | Std. Err. |
| Thursday   | 0.031                   | 0.021     | −0.056                      | 0.208     | −0.074                      | 0.203     |
| Friday   | 0.010                   | 0.024     | −0.114                      | 0.279     | −0.089                      | 0.284     |
| Saturday   | 0.064                   | 0.041     | −0.522                      | 0.815     | −0.632                      | 0.766     |
| <i>Reported second activity while working (Ref: nose conductivity)</i> |                         |           |                             |           |                             |           |
| Eating   | 0.049**                 | 0.020     | 0.032                       | 0.175     | −0.069                      | 0.176     |
| Childcare  | −0.088*                 | 0.052     | −1.111                      | 1.144     | −0.651                      | 1.334     |
| Computer/internet  | −0.001                  | 0.050     | −1.148                      | 0.943     | −1.131                      | 0.851     |
| On the phone   | 0.019                   | 0.044     | 0.187                       | 0.533     | 0.153                       | 0.521     |
| Radio  | −0.053                  | 0.079     | 0.126                       | 0.472     | 0.152                       | 0.432     |
| Caregiving to relatives  | −0.041                  | 0.166     | −0.741                      | 0.477     | −0.659                      | 0.406     |
| <i>Begin to work of first spell (Ref: 8–10 am)</i>                     |                         |           |                             |           |                             |           |
| 2–4 am   | −0.176                  | 0.110     | −1.205*                     | 0.727     | −0.969                      | 0.652     |
| 4–6 am   | −0.072**                | 0.036     | −0.165                      | 0.321     | −0.034                      | 0.312     |
| 6–8 am   | −0.013                  | 0.020     | −0.023                      | 0.185     | 0.044                       | 0.180     |
| 10–12 am   | 0.035                   | 0.033     | 0.235                       | 0.326     | 0.242                       | 0.323     |
| 0–2 pm   | −0.037                  | 0.050     | 0.358                       | 0.393     | 0.479                       | 0.383     |
| 2–4 pm   | 0.118***                | 0.043     | −0.402                      | 0.548     | −0.534                      | 0.549     |
| 4–6 pm   | 0.092**                 | 0.046     | 0.359                       | 0.622     | 0.307                       | 0.606     |
| 6–8 pm   | −0.030                  | 0.113     | −2.502**                    | 0.985     | −2.223**                    | 0.943     |
| 8–10 pm  | 0.085                   | 0.070     | 0.417                       | 0.657     | 0.437                       | 0.651     |
| <i>Finish with work of last spell (Ref: 4–6 pm)</i>                    |                         |           |                             |           |                             |           |
| 6–8 am   | 0.082                   | 0.082     | −1.977                      | 1.309     | −1.566                      | 1.207     |
| 8–10 am  | 0.141*                  | 0.076     | 1.160                       | 0.782     | 1.063                       | 0.783     |
| 10–12 am   | 0.107**                 | 0.042     | −0.216                      | 0.567     | −0.319                      | 0.556     |
| 0–2 pm   | 0.070**                 | 0.033     | −0.064                      | 0.326     | −0.140                      | 0.322     |
| 2–4 pm   | 0.006                   | 0.022     | 0.175                       | 0.214     | 0.192                       | 0.210     |
| 6–8 pm   | −0.027                  | 0.023     | 0.202                       | 0.226     | 0.279                       | 0.220     |
| 8–10 pm  | −0.043                  | 0.036     | 0.779***                    | 0.282     | 0.818***                    | 0.278     |
| 10–12 pm   | −0.045                  | 0.033     | 0.238                       | 0.365     | 0.248                       | 0.366     |
| <i>Break during work (Ref.: No)</i>                                    |                         |           |                             |           |                             |           |
| 1 break  | 0.036*                  | 0.020     | −0.027                      | 0.188     | −0.088                      | 0.188     |
| > 1 break  | 0.057**                 | 0.022     | −0.127                      | 0.217     | −0.178                      | 0.214     |
| Constant   | 0.709***                | 0.067     | 7.627***                    | 0.618     | 7.082***                    | 0.619     |
| Number of observations   | 849                     |           | 849                         |           | 849                         |           |
| Pseudo R <sup>2</sup>  | 0.025                   |           | 0.160                       |           | 0.190                       |           |

Source: SOEP-IS 2012–15, own calculations

The analysis comprises all working spells reported by employed individuals. Duration in work spell in hours. Additionally, second activities as on the way to work, shopping, preparing food, washing oneself, doing housework, resting, relaxing, meditation, watching TV, exercising, taking care of pets, other activities, drinking coffee/tea or drinking alcoholic drinks/smoking, starting to work between 0 and 2 am or 10 and 12 pm, finish work between 0 and 4 am or 4 and 6 am and widowed are automatically dropped by only a small number of observations and no variation with these variables

\*\*\*Significant on a 1% level, \*\*significant on a 5% level, \*significant on a 10% level

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