IAB·Discussion Paper 20/2017

What makes employees satisfied with their working time?

The role of working hours, time-sovereignty and working conditions for working time and job satisfaction

Susanne Wanger

What makes employees satisfied with their working time?

The role of working hours, time-sovereignty and working conditions for working time and job satisfaction

Susanne Wanger (IAB)

Content

Abstract

Working time arrangements are key elements of working conditions and determine the possibilities for employees to balance work with their other life spheres. Therefore, this paper examines the level of working time satisfaction of employees and identifies the factors that may facilitate or impede satisfaction with working time using cross-sectional data from the German BIBB/BAuA-Employment Survey. The analytical basis is a generalized ordered logistic regression model. The main results indicate that individual time-sovereignty is positively linked with a high level of working time satisfaction. Worker-friendly working time arrangements, which lead to less stress, insecurity and mental pressure, increase satisfaction levels, whereas atypical working time arrangements, such as unpaid overtime and working shifts, weekends and under high intensity, reduce satisfaction levels.

Zusammenfassung

Die Arbeitszeit und ihre Ausgestaltung sind Kernelemente von Arbeitsbedingungen und geben den Rahmen vor, der Beschäftigten für die Vereinbarkeit von Beruf und Privatleben zur Verfügung steht. Wir analysieren auf Basis der BiBB/BAuA-Erwerbs-tätigenbefragung die Zufriedenheit von Beschäftigten mit ihrer Arbeitszeit und welche Bestimmungsfaktoren diese erhöht bzw. verschlechtert. Die Ergebnisse der Ordered-Logit-Modelle zeigen, dass das Zufriedenheitslevel deutlich höher liegt, wenn Beschäftigte über eine hohe individuelle Zeitsouveränität verfügen und die Lage ihrer Arbeitszeit beeinflussen und mitgestalten können. Auch vorteilhafte Arbeitsbedingungen und -anforderungen mit einem geringen Maß an Stress, Unsicherheit und psychischen Druck erhöhen das Maß an Zufriedenheit, während atypische Arbeitszeitregelungen wie unbezahlte Überstunden, Schicht- und Wochenendarbeit sowie eine hohe Arbeitsintensität die Arbeitszeitzufriedenheit reduzieren.

1   Introduction

Recent decades have been marked by an overall trend towards a greater diversification in working time arrangements and flexibility in working hours (Absenger et al. 2014, Anttila et al. 2015, Plantenga et al. 2010). Working hours and working time arrangements are key elements of working conditions and determine the possibilities for employees to balance work with their other life spheres. This development has led to an increasing literature that suggests the impact that the changed work time patterns might have on the satisfaction, happiness and well-being of workers and their families (Merz 2002, Holly/Mohnen 2012, Golden/Okulicz-Kozaryn 2015, Rønsen/Kitterød 2010, van der Meer/Wielers 2013, Hanglberger 2010).

However, the existing studies offer little evidence about the influence of working time arrangements on working time satisfaction in particular. Two studies have explicitly investigated the relationship between part-time work and working hour satisfaction in the UK and Australia (Booth/van Ours 2009; Booth/van Ours 2008). Men appear to have the highest hours of work satisfaction if they work full-time without overtime hours. For women, the findings on hour satisfaction indicate that woman prefer part-time jobs regardless of whether they are small or large. But both studies have focused on satisfaction with hours worked and not on satisfaction with working time as a broader concept.

The majority of the remaining literature has concentrated on working hour discrepancies as an expression of working hour dissatisfaction. In contrast, a close match of preferred and current working hours is interpreted to represent high satisfaction with working hours (Rønsen/Kitterød 2010; Bijwaard/van Djik/de Koning 2008; Merz 2002; Booth/van Ours 2013). Furthermore some papers analyze the effects on how well-being is related to working time mismatches (Wooden et al. 2009, Wunder/Heineck 2013). But the concept working time satisfaction includes more than a simple comparison of preferred and current working hours. Whereas the satisfaction with hours worked measures only the satisfaction with the length of working time, working time satisfaction is more general and can provide additional information to other dimensions of working time such as location, distribution, work-intensity, flexibility or calculability. Therefore the main purpose of the underlying study is to shed light on the factors that determine employee satisfaction with working time and to examine how important this determinant is for job satisfaction.

This paper contributes to the existing literature on working hour satisfaction in several ways. It is the first study to comprehensively examine the perceived working time satisfaction of employees with different kinds of flexible working time arrangements. I exploit a special data set that provides a unique opportunity to examine working time satisfaction in a broader context for Germany, because it contains a specific question on satisfaction with working time, going beyond satisfaction with hours worked. Up to now empirical studies are missing that take into account not only the length of hours worked but also the other dimensions of working time when analyzing the satisfaction with working time.

In this respect, Germany provides an interesting role model, since flexible employment forms and especially flexible working time arrangements have prevailed over the past decades and a wide range of flexible working time instruments is in use. The German labour market is characterized by relatively low external flexibility, though there also exists comparatively high internal flexibility, particularly by adjusting working hours to demand fluctuations. This flexibility made a positive contribution to the development of the German Labor Market, but also to a growing dualization of employment (Eichhorst 2015).

My analysis focuses on the following questions: What circumstances make employees satisfied with their working time? Which factors associated with the household, the job or working time arrangements facilitate or impede working time satisfaction? In addition, I connect these results to the job satisfaction literature by analyzing whether the same factors that contribute to working time satisfaction are responsible for job satisfaction.

The paper is structured as follows: in section 2, I review the relevant literature on working time satisfaction, with a particular focus on the literature on working hour discrepancies. Next, I describe the data set and variables and provide some descriptive results. Section 4 outlines the methodological approach. The following section examines the degree to which employees are satisfied with their current working time and their current job. Finally, section 6 presents my conclusions.

2   Review of Literature

Working time satisfaction is a direct measure of the contentment that an employed worker derives from his current working time arrangements, and dissatisfaction may have behavioral consequences. For example, not being able to realize a desired working time or working time arrangement may cause employees to change jobs (Bijwaard/van Djik/de Koning 2008). Unusual working hours can complicate participation in social life and work life balance (Greubel et al. 2016). As has been shown in studies on job satisfaction, aspects that are related to working hours have an impact on job satisfaction; persons who are satisfied with the length of their working hours tend to be more satisfied with their jobs in general (Boot/van Ours 2008, Jahn 2013). In addition, working conditions that contribute to the satisfaction of workers lead to higher motivation and commitment (Wolter et al. 2016), which may positively affect productivity. The well-being of employees in a workplace has been shown to lead to a return in productivity (Oswald/Proto/Sgroi 2015).

As mentioned before Booth/van Ours are the first and only to investigate working hour satisfaction in Great Britain (2008) and Australia (2009). The majority of the remaining studies focus on hour mismatches when they have sought a measure for working hour satisfaction. To quantify working hour mismatches, respondents are asked to nominate the exact number of their preferred hours, thereby giving researchers a quantitative measure of the size of any discrepancy between current hours and preferred hours. Working time preference data are useful, and working hour mismatches help

to focus attention on what workers want. However, they are weakened by the common instability of answers to simple working time preference questions because many workers are uncertain about their working hours (Campbell/van Wanrooy 2013; Golden 2015; Holst/Bringmann 2016). Researchers commonly use responses to preference questions to classify employees into categories of either 'match' or 'mismatch'. Often the greatest possible match of current working hours and preferred working hours is interpreted as a measure for high working time satisfaction (Rønsen/Kitterød 2010; Bijwaard/van Djik/de Koning 2008; Merz 2002; Booth/van Ours 2013). Hour mismatches are quite common in Germany and Europe (Wielers/Münderlein/Koster 2014). The number of employees with working hour mismatches varies among different national surveys (Holst/Bringmann 2016) due to differences in concept and question wording: the estimates for 2014 range from 12 percent (Wanger/Weber 2016) to almost 52 percent (Seifert et al. 2016).[1]

In general, the recent studies on working hours mismatch find worse health among mismatched workers than among those with matched working hours (Kugler/Wiencierz/Wunder 2014). As with other countries, the preferences for working time changes in Germany depend strongly on personal characteristics such as age, sex, family background, qualifications or income (Merz 2002, Grözinger/Matiaske/Tobsch 2008, Pollmann-Schult 2009, Ehing 2014, Wanger 2011). Some studies also focus on workplace-related characteristics. Rønsen and Kitterød (2010) showed that the contentment with full-time working hours is lower with non-standard working hours such as shift or rotating work. Employees who work several days a week or daily in a home office more frequently want to reduce working hours (Holly/Mohnen 2012).

Few studies take a longitudinal view and show that working time preferences strongly depend on family events such as the birth of children or the death of a partner (Reynolds/Johnson 2012, Wooden et al. 2009), divorce (Wooden 2006) or a partner's decision (Reynolds 2014, Wunder/Heineck 2013). A college degree or a change of employer does not help to reduce cases of mismatch (Reynolds/Aletraris 2010). Knaus and Otterbach (2016) find, as do Bijwaard, van Djik and de Koning (2008), that job mobility seems to increase the probability of resolving a mismatch; however, many previously underemployed end up with working more hours than are desired.

International comparisons on working hour preferences show strong effects of the share of part-time jobs on overemployment among full-time workers. In contrast, the preference for an increase in working hours depends more on the income level of the GDP in a society (Wielers/Münderlein/Koster 2014).

---

[1] An overview of studies on working hour mismatch can be found in Holly/Mohnen 2012 or Kugler/Wiencierz/Wunder 2014.

Thus far, there is no literature that discusses the satisfaction of employees with regard to their working time based on the reported levels for Germany. Most studies investigate the factors that are responsible for working hour discrepancies (Ehing 2014, Pollmann-Schult 2009, Merz 2002). I expand the scarce literature concerning satisfaction with working hours (Booth/van Ours 2008, 2009) and provide the first results for Germany for a more general measure: working time satisfaction.

This article contributes, empirically, to our understanding of the influence factors for the level of working time satisfaction of employees. If we know what makes employees satisfied with their working time, policy and employers can identify which measures are needed to help them to avoid dissatisfaction and negative behavioral consequences. Especially for German employers, it is important to offer good working conditions in times of high competition for skilled workers. Further, high levels of satisfaction make significant contributions to the productivity of a company (Oswald/Proto/Sgroi 2015).

3 Data and Empirical Analysis

My empirical analysis were based on data from the BIBB/BAuA-Employment Survey[2] (Rohrbach-Schmidt/Hall 2013; Hall/Siefer/Tiemann 2015), which is a representative survey among fully employed persons in Germany. "Fully employed persons" are defined as being at least 15 years old and in paid employment for at least 10 hours per week. The survey is conducted at an interval of every 6 or 7 years and contains several questions on employee job history and on the working conditions of the current job. I use the cross-sectional data of the last survey 2012 for the analysis. Missing values for the variables working time satisfaction and weekly working hours (actual and preferred) are dropped from the descriptive analysis. I restricted the sample to persons who are aged between 15 and 64. Furthermore I dropped data from employees in private households and those who were self-employed from the sample because a lot of explanatory variables are missing for these groups, which reduces the number of persons who were available for the descriptive analysis to 16,706 in 2012.

An advantage of the BIBB/BAuA-Employment Survey is that it contains a direct question about working time satisfaction that is measured on a four-level scale. Time satisfaction was constructed from responses to the following question, in the individual questionnaire:

> *"I will now concentrate on various aspects of your work. Regarding your work, please tell me for each aspect whether you are very satisfied, satisfied, less satisfied or not satisfied with it.*

---

[2] The BIBB/BAuA-Employment Survey is conducted by the Federal Institute for Vocational Education and Training (Bundesinstitut für Berufsbildung - BIBB) in cooperation with the Federal Institute for Occupational Safety and Health (Bundesanstalt für Arbeitsschutz und Arbeitsmedizin - BAuA).

How satisfied are you with your present working time?"

The respondents were instructed to choose a number that ranged from 1 = very satisfied through 4 = not satisfied. The distribution of working time satisfaction is presented in Table 1. Few individuals have low satisfaction, and only about 20 percent have satisfaction that is less than 3. Category 2 contains the largest proportion of both women and men for working time satisfaction. Women more often state that they are very satisfied with their working time than men. Table 1 also shows mean satisfaction. Women on average have higher satisfaction than men.

Table 1
Distribution of Working Time Satisfaction by Gender (in percent and mean), 2012

	Women	**Men**	**Total**
1 very satisfied	19	15	17
2 satisfied	62	65	63
3 less satisfied	14	14	14
4 not satisfied	5	6	5
Total	100	100	100
Mean	2.04	2.11	2.08
Observations	*8,958*	*7,748*	*16,706*

Source: Author's calculations based on the BIBB/BAuA-Employment Survey in 2012, weighted results.

In Table 2, I present the averages of working time satisfaction values stratified by hours of work. For women, the average satisfaction is highest in part-time jobs that are less than 30 hours. With longer working hours, the average satisfaction drops. Men with small part-time jobs are more unsatisfied with their working time. Wanger (2015) shows that men in small part-time jobs often work involuntarily in these jobs, and they have a high preference for longer hours (see Table 4).

Table 2
Average Working Time Satisfaction by Working Hours and Gender (mean), 2012

Hours	**Women** Mean (Observations)		**Men** Mean (Observations)		**Total** Mean (Observations)	
10-19	1.91	*(818)*	2.00	*(139)*	1.93	*(957)*
20-29	1.89	*(1,657)*	1.88	*(141)*	1.89	*(1,798)*
30-34	1.95	*(1,115)*	1.96	*(136)*	1.95	*(1,251)*
35-39	1.98	*(1,432)*	1.95	*(1,129)*	1.96	*(2,561)*
40-44	2.08	*(2,478)*	2.01	*(3,196)*	2.03	*(5,674)*
45+	2.37	*(1,458)*	2.32	*(3,007)*	2.33	*(4,465)*
Total	**2.04**	**(8,958)**	**2.11**	**(7,748)**	**2.08**	**(16,706)**

Source: Author's calculations based on the BIBB/BAuA-Employment Survey in 2012, weighted results.

The data contain also a question with regard to the preferred hours of employees. For this reason, it is possible to compare working time satisfaction and working hour match or mismatch. Often the greatest possible match of current working hours and preferred working hours is interpreted as a measure for high working time satisfaction. However, as Table 3 shows, even if employees are very satisfied with their working

time, they state preferences for less or more hours. As can be seen, the incidence of mismatch is considerable even if employees are very satisfied with their working time. Almost 28 percent of employed women are overemployed, and 18 percent are under-employed. For men, the respective percentages are 36 percent and 16 percent. Over-employment seems to be a bigger problem – the percentage of employees who want fewer hours increases strongly with the level of dissatisfaction, while the proportion of employees who want more hours seems to be nearly the same over the different sat-isfaction levels.

Table 3
Distribution of Working Time Satisfaction by Gender and Working Hour Preferences (percent and hours), 2012

	Women wanting			Total	Men wanting			Total
	fewer hours	same hours	more hours		fewer hours	same hours	more hours	
in percent								
1 very satisfied	28	54	18	100	36	48	16	100
2 satisfied	40	44	16	100	48	42	10	100
3 less satisfied	61	23	16	100	75	19	7	100
4 not satisfied	65	16	19	100	70	20	10	100
Total	**42**	**42**	**17**	**100**	**51**	**38**	**10**	**100**
Mean	2.22	1.86	2.03	2.04	2.26	1.94	1.98	2.11
Observations	*3,903*	*3,680*	*1,375*	*8,958*	*3,995*	*2,997*	*756*	*7,748*
in hours								
1 very satisfied	-7.6	0	+10.0	-0.3	-7.6	0	+8.6	-1.4
2 satisfied	-8.7	0	+9.7	-1.9	-8.4	0	+8.2	-3.2
3 less satisfied	-10.5	0	+10.1	-4.8	-10.6	0	+11.4	-7.2
4 not satisfied	-13.3	0	+11.5	-6.5	-14.0	0	+11.3	-8.6
Total	**-9.3**	**0**	**+9.9**	**-2.2**	**-9.2**	**0**	**+8.8**	**-3.8**

Source: Author's calculations based on the BIBB/BAuA-Employment Survey in 2012, weighted results.

Table 4
Average Working Time Satisfaction by Gender, Working Hours and Working Hour Preferences (mean and hours), 2012

	Women wanting						Men wanting					
	fewer hours		same hours		more hours		Fewer hours		same hours		more hours	
Hours	*mean*	*hours*	*mean*	*hours*	*mean*	*hours*	*mean*	*hours*	*mean*	*hours*	*mean*	*hours*
10-19	1.97	*-3,8*	1.74	-	2.06	*+13.2*	2.57	*-5.2*	1.86	-	2.02	*+20.7*
20-29	1.96	*-5,1*	1.79	-	2.02	*+10.4*	1.81	*-6.8*	1.71	-	2.02	*+17.0*
30-34	2.11	*-7,4*	1.81	-	2.07	*+8.0*	1.84	*-5.8*	1.70	-	2.36	*+8.5*
35-39	2.08	*-7,8*	1.87	-	1.99	*+4.0*	2.03	*-5.2*	1.89	-	1.96	*+3.6*
40-44	2.20	*-7,9*	1.93	-	1.90	*+7.9*	2.11	*-5.8*	1.92	-	1.90	*+8.2*
45+	2.45	*-14,1*	2.06	-	2.32	*+6.3*	2.43	*-12.7*	2.06	-	2.03	*+8.9*
Total	**2.22**	***-9,3***	**1.86**	**-**	**2.03**	***+9.9***	**2.26**	***-9.2***	**1.94**	**-**	**1.98**	***+8.8***

Source: Author's calculations based on the BIBB/BAuA-Employment Survey in 2012, weighted results.

The proportion that prefers longer working hours is considerably lower than the pro-portion that prefers shorter hours for women and men. This corresponds to the results of another national study on working hour preferences – the German Socio-Economic

Panel[3] (Seifert et al. 2016). Table 4 shows that people who want fewer hours are on average less satisfied with their working time than employees who want more hours; however, there are differences if the data are stratified by hours of work.

Furthermore, it is interesting how important working time satisfaction issues are for overall job satisfaction. Working time satisfaction can be correlated with the job satisfaction question because in the questionnaire, the job satisfaction question follows a series of satisfaction questions, i.e., on income, opportunities or working conditions with regard to the work of the employee and especially on the current working time satisfaction question (see page 8).

To summarize, the last question of this set of satisfaction questions is

"And now, as an overall summary:

How satisfied are you with your work as a whole?"

Table 5
Incidence of Working Time Arrangements and Average Satisfaction
(Share in percent and mean), 2012

Working Time Arrangement	Incidence (percent)	Average Working Time Satisfaction (mean)	Average Job Satisfaction (mean)
Shift work	18	*2.30*	*1.93*
Weekend work	66	*2.15*	*1.85*
Full-time work	77	*2.12*	*1.83*
Part-time work	19	*1.91*	*1.79*
Marginal work	4	*1.97*	*1.87*
Standby/on-call duty	17	*2.17*	*1.83*
No overtime	49	*1.98*	*1.81*
Overtime with compensation	42	2.13	1.84
Overtime without compensation	9	2.36	1.84
Work breaks are skipped	25	2.30	1.89
All employees	**100**	**2.08**	**1.83**

Source: Author's calculations based on the BIBB/BAuA-Employment Survey in 2012, weighted results.

Table 5 presents the results of both questions. Average job satisfaction (1.83) is 0.25 points higher than average working time satisfaction (2.08), and, except for shift work, the values of average job satisfaction by working time arrangements show less variation than the values of average working time satisfaction. What is remarkable is that part-time employees obtain the highest satisfaction values for working time as well as job satisfaction.

---

[3] In 2012, approximately 42 percent wanted to work fewer hours, 46 percent wanted to work the same hours, and 11 percent wanted to work more hours. The corresponding values in the 2012 German Socio-Economic Panel were 47 percent fewer hours, 40 percent the same hours and 13 percent more hours (Seifert et al. 2016).

Based on these descriptive results I investigate the question of what makes employees satisfied with their working time, and I connect this question to job satisfaction. Are the same factors that are accountable for the level of working time satisfaction the main drivers for the level of job satisfaction? Therefore, in the next section, I outline my approach to the analysis of the two dependent variables: working time satisfaction and overall job satisfaction.

4 Modelling Working Time and Job Satisfaction

4.1 Dependent Variables and Method

I dropped the missing values of the explanatory variables, which reduces my final sample to 14,061 persons. To gain more insight into what makes employees satisfied with their job and their working time and because of the ordinal structure of the dependent variables, a generalized ordered logit was applied. Ordinal variables are often recoded to binary ones to facilitate an appropriate interpretation. I retain the ordered structure of the dependent variable, and aside from the ordered logit, I base the estimates on a heterogeneous choice model, where the heteroscedasticity in choices is controlled for (Williams 2010). My two dependent variables in the estimations are self-reported working time satisfaction and job satisfaction levels. They measure satisfaction scored on a scale from 1 to 4. I transformed the original label into the inverse scale with a score of 4 described as "totally satisfied" and a score of 1 described as "totally dissatisfied". That is because the model always takes the highest category as the reference category, and I want to know what increases the satisfaction level.

Assuming a latent satisfaction variable Y* exists,

$$Y^* = \beta SC + \delta WC + \theta JC + \varepsilon$$

Where Y* is unobserved satisfaction and the explanatory variables SC represents socio-demographic characteristics, WC represents working time characteristics and JC represents general job characteristics. The coefficients $\beta, \delta\ and\ \theta$ give the effect of each explanatory variable on Y*. The last term ε represents a random disturbed that is assumed to be independent of the explanatory variables and this disturbance term is often assumed to have either a logistic or normal distribution.

Let Y* be divided by some cut points (thresholds): $\alpha_1, \alpha_2, \alpha_j\ and\ \alpha_1 < \alpha_2 < \alpha_j$. Considering the observed satisfaction level is the ordinal outcome, y, ranging from 1 (not satisfied) to 4 (very satisfied):

$$Y = \begin{cases} 1\ if\ y^* \le \alpha_1 \\ 2\ if\ \alpha_1 < y^* \le \alpha_2 \\ 3\ if\ \alpha_2 < y^* \le \alpha_3 \\ 4\ if\ \alpha_3 < y^* \le \alpha_4 \end{cases}$$

Therefore the probability of an employee at each satisfaction level can be computed:

$$P(Y \leq j) = F(\alpha_j - \beta SC - \delta WC - \theta JC), \text{ where } j = 1, 2, \dots J - 1$$

General the model for the underlying y^* can be written as:

$$y_i^* = a_0 + a_1 x_{i1} + \cdots + a_j x_{ij} + \sigma \varepsilon_i$$

where the $x's$ are the explanatory variables (SC, WC, JC), the $\alpha's$ are coefficients (β, δ, θ) that give the effect of each x on y^*, ε_i is a residual term. The σ parameter allows the variance to be adjusted upward and downward. Because y^* is a latent variable, its metric must be fixed in some way. Typically, this is done by scaling the coefficients so that the residual variance is $\frac{\pi^2}{3}$ as in logit. Note that in a logistic regression, the $\beta's$ rather than the $\alpha's$ are estimated, which are related as follows:

$$\beta_j = \frac{\alpha_j}{\sigma}, \text{ where } j = 1, 2, \dots, J$$

As the above equation implies, it is not possible to estimate the α's and σ separately; all we can estimate are their ratios, the β's. This leads to a potential problem, when σ is the same for all cases – residuals are homoscedastic – the ratio between the α's and the β's is also the same for all cases. However, when σ differs across cases – there is heteroscedasticity – the ratio also differs. Because the coefficients are always scaled so that the residual variance is the same no matter what variables are in the model, the scaling of coefficients will differ across groups if the residual variances are different and will make the cross-group comparisons of effects invalid (see more details in Williams 2010). For this reason, I estimate no separate models for females and males.

In a proportional odds model, the odds ratio of any predictor is assumed to be constant across all categories. To test the proportional odds assumption for the ordinal logistical model, the Brant-test is proposed by examining the spate fits to the underlying binary logistical model (Long/Freese 2006). A nonsignificant test indicates that the proportional odds assumption is not violated (Xing 2009). Violating the proportional odds assumption can have a substantial effect on both the logit coefficients and the predicted probabilities (Fullerton/Xu 2012). To address these concerns I estimate heterogeneous choice models and heteroscedastic logit models. Heterogeneous choice models (also known as location–scale models or heteroskedastic ordered models) explicitly specify the determinants of heteroscedasticity in an attempt to correct for it. Such models are also useful when the variance itself is of substantive interest (Williams 2006, 2009, 2010). The heterogeneous choice model corrects for heteroscedasticity by simultaneously fitting two equations: one for the determinants of the outcome, or choice, and another for the determinants of the residual variance, the variance equation.

4.2 Control Variables

When considering which explanatory variables to include in the models, I looked at the dimensions of working time and its different terms and at the general literature on

satisfaction. Table A1 in the Supplementary Appendix presents the descriptive statistics for all of the variables that are used in the analysis.

I grouped the control variables into socio-demographic variables, working time characteristics and general job characteristics. The following variables were added as socio-demographic control variables: sex, age, squared age, years of school education, place of residence (West or East Germany), having a (working) partner and the number of children below 18 years in the household. I included the hourly gross wage as an explanatory variable in my model. About 20 percent of the respondents in 2012 made no statement about their monthly gross income. The missing income data were therefore imputed by the data producers using a MNAR failure mechanism (for the algorithm, see more details in Alda/Rohrbach-Schmidt 2011). In addition to these personal objective characteristics, I considered some personal subjective variables: I included a measure "desired profession", which indicates that the employee is currently working in his chosen field and would not prefer to work in another profession. This measure also works as a proxy for "likes the nature and content of the work on its own merits". In addition, I used a dummy to indicate whether the employee strongly pursues the goal of "having a secure job" as a measure for job-security.

In addition to the above-described socio-demographic measures, I considered working time specific variables and measures for flexibility. An important variable that was included in the model is based on the question "How often do you succeed in taking your private interests and the interests of your family into account when planning your working hours?" The response option "often" indicates that the employee has a great autonomy over working time and this identifies good conditions to achieve a high work-life balance. Whereas the response option "sometimes" indicate lower levels of individual time-sovereignty and a lower degree of self-determined working hours and the response option "never" implies no time-sovereignty. In the same direction works the variable autonomy over work, where the employees could evaluate how often (often, sometimes/rarely, never) they could plan and schedule their work on their own. Both variables are indicators for the employee's ability to structure work and working time more or less autonomously. Weekly working hours were included as continuous variable. Furthermore, I controlled for working hour discrepancies by including whether the respondents want to work fewer, the same or more hours. Because of the different working time patterns of women and men (Jensen et al. 2017, Landivar 2015) I expect interactions for gender and working hour discrepancies with respect to working time satisfaction. Moreover I included the amount of the working hour discrepancy as absolute value. The measures for atypical working time arrangements and flexibility are working shifts, working on standby duty or on-call duty, working on Saturdays, Sundays and public holidays and working overtime. Overtime is differentiated depending on whether there is compensation for overtime, for example, whether remuneration and time off are paid. Furthermore, I control for work breaks that are often skipped on workdays, because the respondent has too much work to do. This measure works as a dummy variable for high intensity of work. In the same direction works the variable "workload", where the respondent assesses if the amount

of work complies with the requirements of the job or if the amount of work is rather overwhelming respectively sub-challenging the employee.

In addition to these working time characteristics, some variables characterize a job in general. I included the type of work contract, which addressed whether a respondent is employed at a temporary work agency, in the public service or is a blue- or white-collar employee. I control also if the respondent has a temporary contract and is interested in converting that into a permanent one. The two variables, short working-in period at the workplace and leading position, control for the complexity of the job and the replaceability of the employee. Furthermore, I control for variables that are connected with health and the working conditions of the job. The health status seems to play a major role for the rating of job satisfaction and therefore perhaps also for working time satisfaction: a bad health status is connected with lower levels of job satisfaction (Lesch et al. 2013, Booth 2008, Booth 2009. However the causality is not clear, because some studies (Fischer/Sousa-Poza 2009, Faragher/Cass/Cooper 2005) found a reverse relationship of cause and effect. Therefore I didn't include the reported subjective general state of health but rather the working conditions and work demands of the job as an index for work strains. The questionnaire contains approximately 30 questions on working conditions and work demands. To reduce the number of variables, I performed a factor analysis and found three different scales (see Table B1 in the Supplementary Appendix): one that is related to physical working conditions (= proxy for health risks), a second one that is related to work demands (= proxy for work-intensity and stress), and a third one that is related to mental working conditions (= proxy for communication, openness and team-work). In my model, I considered the scores of these three scales: the higher the score, the more favorable the conditions. In addition to these scales, I included a dummy variable to determine whether work pressure and stress have increased in the last two years. Another dummy indicates whether a company is in a bad or less-good economic situation as an indication of job-uncertainty. Furthermore, I included other job-related variables, such as firm size coded in three categories and branches coded in six categories. This is an effort to control, at least in part, for unmeasured differences in other job characteristics.

5   Estimation Results

The parameter estimates for working time satisfaction and job satisfaction that were obtained by the ordered logit model (ologit) and the heterogeneous choice model (oglm) are presented in Table 6. The table provides odds ratios, which gives the multiplicative value for the odds if the independent variable increases by one unit. In comparing the odds ratios of the regular ordered logit model (homoscedastic) and the heterogeneous choice model (heteroskedastic), I noticed that the results appear to be more or less the same. To answer the question of which model uses information in the data optimally, I performed information criteria comparisons between the models: a smaller value indicates a better fit while penalizing for the escalation of parameters. The AIC and BIC criteria are reported at the bottom of Table 6. As can be observed,

these criteria suggest that the oglm model, which corrects for heteroscedasticity, should be favored over the other.

Some variables violate the proportional odds assumption. The oglm-model corrects for heteroscedasticity, therefore, in addition to the choice equations in the upper part, variance equations can be found in the lower part of Table 6. Significant variance equations show, for each variable, whether a group is more or less variable in its satisfaction than the reference group. Odds ratios > 1 reveal that a group is more variable, and odds ratios < 1 reveal that a group is less variable in its satisfaction than the reference group.

5.1 Working Time Satisfaction

The upper part of the first column of Table 6 shows that there are no satisfaction effects on working time based on sex, age or a potential (employed) partner in the household. Working time satisfaction tends to be higher among employees in West Germany and when one child is living in the household although the effect is rarely statistically significant. In further analysis I found no interaction effects for partnership and children and the three-way-interaction partnership, children and gender was as well not significant. Years of school education shows a weak negative effect on working time satisfaction, and increasing hourly gross wages have a positive impact on satisfaction. A review of the personal subjective variables reveals that, working in a desired profession and the preference of having a secure job have a positive effect on working time satisfaction.

Self-determined working hours with control over the timing of working hours are important for working time satisfaction. With diminishing autonomy the level of working time satisfaction is strongly decreasing. This indicates the importance of time-sovereignty and the ability to influence the timing of work for employees as preconditions to achieve a good work-life balance. Besides autonomy over working time also autonomy over work planning is important: employees having less autonomy over work planning in their job report lower levels of satisfaction.

Reduced hours per week seems to have a positive effect on working time satisfaction. These findings are in line with Booth/van Ours (2009), where women and men who work part-time are found to be more satisfied. No interaction effects for gender and working hours were found, but for gender and working hour discrepancies. While over-employment leads to lower time satisfaction for men and women, underemployment shows the same effect only for women. Underemployed men seems to have higher satisfaction levels, but this effect is statistically not significant. Not surprisingly, also the extent of working hour discrepancy matters, working time satisfaction is negatively linked to a growing discrepancy between current and preferred working hours. Working time satisfaction tends to be lower in atypical working time arrangements like working shifts or on weekends. Jobs that are felt as stressful because of a high work-intensity characterized by breaks that are often skipped, unpaid overtime, increased

stress at the workplace or an overwhelming amount of work have negative effects on working time satisfaction.

While white- and blue-collar employees were found to be significantly more satisfied with working times than civil servants, working at a work agency shows no statistically relevant effect as well as having a temporary contract. Good mental working conditions are evidence of a good and respectful work atmosphere in which teamwork, openness and communication in the workplace have a high priority; this variable positively affects working time satisfaction, as does less stressful work demands. Employees who can easily be replaced, as identified by a short working-in period report lower levels of satisfaction. In contrast being in a leading position shows no significant effect on satisfaction.

In general the results indicate that for working time satisfaction personal characteristics are less important. Satisfaction with working time is related not only with the actual working hours but also to the way working time is managed. Dissatisfaction is linked also to the increasing prevalence of unpaid overtime, atypical working time arrangements, less autonomy over timing of working hours, an overwhelming workload and increasing intensity of work. Finally, when looking at the job characteristics in general the work demands and mental working conditions are highly relevant for working time satisfaction.

5.2 Job Satisfaction

This section will consider the estimates for job satisfaction. There is a great deal of research that addresses different aspects of job satisfaction and its correlates (for an overview, see, e.g., Haile 2015, Linz/Semykina 2012).The results of this study mostly accord with previous research on job satisfaction. I am especially interested as to whether the significant working time satisfaction determinants are also important for job satisfaction; therefore I focus in particular on just that aspect.

The third column of Table 6 shows that the relevant variables are in contrast to working time satisfaction socio-demographic variables such as gender, age and squared age. Men as well as employees in the eastern part of Germany were found to be less satisfied with their job. Hauret/Williams (2017) find differences in occupational characteristics in particular appear to play an important part in explaining gender differences in job satisfaction. The variable age is also included as a squared variable to determine the nature of its relationship with satisfaction. The significant squared age variable indicates that satisfaction increases are not linear with age. The estimates suggest that age is related to job satisfaction in a U-shaped pattern, as other studies also indicate (Perales/Tomaszewski 2016). Years of school education show a negative effect on job satisfaction, Clark and Oswald (1996) explained that by the fact that education induces higher aspirations. An increasing hourly gross wage has a positive

impact on satisfaction.[4] Job satisfaction tends to be higher among employees when one child and a working partner is living in the household although the effects are rarely statistically significant. The personal subjective variables are also relevant for job satisfaction. Working in a desired profession greatly impacts job satisfaction as well as the preference for a secure job is positively linked with job satisfaction.

The results suggest that there is a positive association between satisfaction and a high level of time-sovereignty as well as self-directed work planning. This indicates that an essential element to balance work and other life spheres is some autonomy in planning work and working hours and that these factors are beneficial for satisfaction. Working time characteristics that positively affect job satisfaction are in contrast to working time satisfaction increasing working hours, which is a surprising finding. At first, this might appear to be paradoxical; however, in this case, there must be something in the job that explains the differences in working time and job satisfaction direction between overemployed persons. A possible explanation is that we may find employees, who are satisfied by the work itself, which is expressed by such employees – even if they are dissatisfied with their working time, they nevertheless have great commitment and engagement with the job. They find work is intrinsically rewarding and that these intrinsic rewards give the employee job satisfaction but not working time satisfaction. Part-time jobs also might differ in their quality and that could influence the job satisfaction of employees (van der Meer/Wielers 2013). Jobs that requires skill variety and career advancements increases job satisfaction and this could be more likely with longer working hours.

Dissatisfaction with working hours are an important aspect of job satisfaction. The desire to work fewer hours for females and males is negatively linked with job satisfaction as well as the desire to work more hours for females. In contrast the coefficient of underemployed males is statistically insignificant. Further, the results indicate that job satisfaction seems to be largely independent of the remaining working time variables, especially atypical working time arrangements. Job satisfaction tends to be slightly higher among employees with on-call duty.

The general job characteristics have also a great impact. Blue- and white-collar employees and especially employees working at a work agency tend to be less satisfied with their jobs than civil servants, whereas holding a temporary contract has no significant effect on satisfaction. Stress predictors, such as the frequent incidence of

---

[4]   We know form happiness research the absolute income level hardly affects happiness and the relative income level is much more important (see van der Meer/Wielers 2013), I tried to include also a measure of subjective income as explanatory variable in the estimates. Respondents were asked "How satisfied are you with your income from this activity? This variable was positively linked with working time and job satisfaction. While the absolute hourly gross wage still was significant in the working time satisfaction model, this variable got insignificant in the job satisfaction model, when including the subjective income variable. But because of reverse causality (dissatisfaction with income and therefore dissatisfaction with working time) I decided not to include this variable in the estimates.

mental working conditions, have a strong effect on job satisfaction and illustrate the important role of psychological stress on satisfaction. A good work atmosphere and got relation with colleagues improve satisfaction. The number of days of incapacity to work due to mental problems has increased in Germany over the last years, and mental illness has by far presented the highest absenteeism figures (Knieps/Pfaff 2016). Although physical working conditions also have a significant impact, they affect employees to a lesser extent than psychological working conditions. In addition, employees with increased stress in the workplace and where breaks are often skipped are less satisfied at work than those who have fewer of these conditions. The exception is overtime, which shows no significant impact on job satisfaction in the estimates. The results suggest that employees overwhelmed or sub-challenged by their workload are also less satisfied with their job because jobs become stressful or boring if the amount of work as seen by the employee is unbalanced. The complexity of the job also has significant effects: a leading position has strong positive effects on job satisfaction. In contrast insecurity like working at a firm that facing a bad economic situation is negative for job satisfaction.

In general the results indicate that personal and job characteristics are most important for job satisfaction. When considering the working time characteristics especially decreasing autonomy over work and working time, increasing working hours and the intensity of work was negatively and significantly linked with job satisfaction. Conversely atypical working time arrangements do not appear to be detrimental to job satisfaction.

Regressing working time satisfaction and job satisfaction on the detailed socio-demographics, working time and job characteristics shows that when judging from the number of statistically significant coefficients, the working time characteristics mainly explain working time satisfaction, while the personal and job characteristics are more important for the explanation of job satisfaction.

Table 6
Ordered Logit Estimates of Satisfaction with Working Time and with the Job, Odds Ratios (Standard Errors)

	Satisfaction with Working Time				Satisfaction with Job				
	Oglm		Ologit		Oglm			Ologit		
Personal characteristics										
Male	1.031	(0.041)	1.027	(0.063)	0.886	**	(0.034)	0.817	**	(0.055)
Age	0.997	(0.009)	0.990	(0.014)	0.960	***	(0.009)	0.925	***	(0.014)
Age²	1.000	(0.000)	1.000	(0.000)	1.000	***	(0.000)	1.001	***	(0.000)
Residence in West Germany	1.060 *	(0.032)	1.102 *	(0.050)	1.143	***	(0.034)	1.269	***	(0.062)
Years of school education	0.982 **	(0.005)	0.976 **	(0.008)	0.981	***	(0.005)	0.962	***	(0.008)
Hourly gross wage	1.005 **	(0.002)	1.008 *	(0.003)	1.008	***	(0.002)	1.014	***	(0.003)
Partnership										
No partner (reference)										
Working partner	0.965	(0.026)	0.950	(0.039)	1.052	*	(0.026)	1.089	*	(0.047)
No working partner	0.945	(0.036)	0.914	(0.053)	1.038		(0.038)	1.072		(0.071)
Number of children										
No children (reference)										
One child	1.072 *	(0.038)	1.132 *	(0.061)	1.064	*	(0.033)	1.101		(0.062)
Two children	0.999	(0.039)	1.027	(0.062)	1.048		(0.037)	1.076		(0.069)

	Satisfaction with Working Time						Satisfaction with Job					
	Oglm			Ologit			Oglm			Ologit		
More than three children	1.012		(0.070)	1.046		(0.114)	1.124		(0.074)	1.228		(0.148)
Goal: Secure job	1.180	***	(0.033)	1.290	***	(0.046)	1.194	***	(0.034)	1.406	***	(0.054)
Desired profession	1.238	***	(0.046)	1.387	***	(0.066)	2.410	***	(0.232)	4.590	***	(0.272)
Working time characteristics												
Time-sovereignty												
Often (reference)												
Sometimes	0.574	***	(0.035)	0.426	***	(0.018)	0.819	***	(0.026)	0.688	***	(0.030)
Never	0.438	***	(0.045)	0.262	***	(0.023)	0.802	***	(0.048)	0.680	***	(0.065)
Self-directed work planning												
Often (reference)												
Sometimes/rarely	0.864	***	(0.029)	0.795	***	(0.037)	0.853	***	(0.028)	0.737	***	(0.037)
Never	0.748	***	(0.050)	0.641	***	(0.058)	0.809	***	(0.047)	0.676	***	(0.065)
Weekly working hours	0.983	***	(0.002)	0.975	***	(0.002)	1.006	***	(0.002)	1.010	***	(0.003)
Working hour discrepancies x gender (interactions)												
Less hours x female	0.778	***	(0.038)	0.652	***	(0.041)	0.823	***	(0.035)	0.695	***	(0.046)
Less hours x male	0.754	***	(0.037)	0.631	***	(0.039)	0.850	***	(0.035)	0.732	***	(0.050)
Same hours (reference)												
More hours x female	0.747	***	(0.049)	0.605	***	(0.055)	0.875	*	(0.046)	0.777	**	(0.072)
More hours x male	1.058		(0.067)	1.053		(0.106)	0.939		(0.056)	0.880		(0.094)
Working hour discrepancy (absolute)	0.983	***	(0.003)	0.979	***	(0.004)	1.004		(0.002)	1.007	*	(0.004)
Overtime												
No overtime (reference)												
Compensation for overtime	1.020		(0.027)	1.023		(0.043)	1.004		(0.024)	0.995		(0.044)
Unpaid overtime	0.734	***	(0.039)	0.616	***	(0.041)	0.979		(0.040)	0.956		(0.070)
Shift work	0.666	***	(0.036)	0.535	***	(0.030)	0.959		(0.031)	0.941		(0.054)
Standby/On-call duty	0.959		(0.031)	0.952		(0.047)	1.081	*	(0.033)	1.149	*	(0.062)
Weekend work	0.835	***	(0.027)	0.737	***	(0.030)	0.991		(0.024)	0.991		(0.044)
Breaks often skipped	0.741	***	(0.036)	0.629	***	(0.037)	0.898	**	(0.035)	0.831	**	(0.055)
Workload												
Complying (reference)												
Overwhelming	0.663	***	(0.034)	0.526	***	(0.026)	0.706	***	(0.034)	0.561	***	(0.031)
Sub-challenging	1.093		(0.070)	1.131		(0.114)	0.843	**	(0.054)	0.720	**	(0.076)
Job characteristics general												
Occupational status												
Civil servant (reference)												
White-collar employee	1.167	**	(0.059)	1.275	***	(0.094)	0.888	**	(0.038)	0.818	**	(0.062)
Blue-collar employee	1.157	*	(0.072)	1.278	**	(0.121)	0.845	**	(0.048)	0.766	**	(0.076)
Work agency	1.104		(0.125)	1.197		(0.205)	0.672	**	(0.083)	0.493	***	(0.099)
Temporary contract	0.969		(0.051)	0.935		(0.077)	0.996		(0.046)	0.993		(0.084)
More favorable physical working conditions	1.036		(0.022)	1.053		(0.034)	1.089	***	(0.024)	1.173	***	(0.042)
More favorable work demands	1.098	**	(0.032)	1.165	***	(0.050)	1.009		(0.026)	1.037		(0.049)
More favorable mental working conditions	1.302	***	(0.054)	1.494	***	(0.074)	2.587	***	(0.268)	5.355	***	(0.318)
Short working-in	0.914	**	(0.032)	0.866	**	(0.046)	1.043		(0.033)	1.073		(0.061)
Leading position	1.031		(0.026)	1.051		(0.042)	1.113	***	(0.029)	1.223	***	(0.052)
Bad economic situation of firm	0.954		(0.044)	0.910		(0.064)	0.763	***	(0.041)	0.640	***	(0.052)
Stress increased	0.846	***	(0.025)	0.773	***	(0.030)	0.808	***	(0.026)	0.672	***	(0.028)
ln(sigma*) variance equations												
Partnership												
No partner (reference)												
Working partner	0.964		(0.020)				0.925	***	(0.022)			
No working partner	0.906	**	(0.028)				0.953		(0.034)			
Goal: secure job	1.086	***	(0.020)				1.086	***	(0.024)			
Time-sovereignty												
Often (reference)												
Sometimes	0.987		(0.020)				0.962		(0.022)			

	Satisfaction with Working Time						Satisfaction with Job					
	Oglm			Ologit			Oglm			Ologit		
Never	1.228	***	(0.052)				1.161	***	(0.052)			
Weekly working hours	0.994	***	(0.001)									
Working hour discrepancy (absolute)	1.012	***	(0.001)									
Shift work	1.148	***	(0.029)									
Workload												
Complying (reference)												
Overwhelming	1.108	***	(0.026)				1.111	***	(0.028)			
Sub-challenging	1.216	***	(0.058)				1.221	***	(0.059)			
Occupational status												
Civil servant (reference)												
White-collar employee	0.885	***	(0.030)									
Blue-collar employee	0.869	***	(0.035)									
Work agency	0.873		(0.075)									
More favorable mental working conditions	0.934	**	(0.023)				0.860	***	(0.025)			
Desired profession							0.907					
Overtime												
No overtime (reference)												
Compensation for overtime							0.933	**	(0.022)			
Unpaid overtime							1.005		(0.038)			
Bad economic situation of firm							1.105	**	(0.040)			
Cut point 1	0.070	***	(0.025)	0.018	***	(0.007)	0.602	*	(0.150)	0.657		(0.289)
Cut point 2	0.260	***	(0.074)	0.116	***	(0.045)	3.441	***	(0.926)	8.508	***	(3.699)
Cut point 3	2.785	***	(0.755)	4.773	***	(1.848)	53.829	***	(25.342)	1015.117	***	(447.673)
Industry dummies	YES			YES			YES			YES		
Firm size dummies	YES			YES			YES			YES		
Pseudo R2	0.154			0.144			0.188			0.182		
Observations	14,061			14,061			14,061			14,061		
Degrees of freedom	63			49			61			49		
AIC	24,747.5			24,993.2			19,386.9			19,504.6		
BIC	25,245.9			25,385.8			19,870.2			19,897.3		

Notes: Data from the German BIBB/BAuA-Employment Survey 2012. Odds-Ratios and standard errors are in parentheses. Oglm: Heterogeneous choice model. Ologit: Ordered logit model; Dependent variables: Working time satisfaction / Job satisfaction coded: score 1 = not satisfied, score 4 = very satisfied. Significant at * $p<0.05$; ** $p<0.01$; *** $p<0.001$

5.3 Average Marginal Effects

Ordinal logit models can be difficult to interpret, and average marginal effects can make the results more plausible. To understand the substantive and practical significance of the different variables on working time and job satisfaction and how this impact changes across satisfaction levels, I present the predicted changes in probabilities to be very satisfied with working time and the job in general in Table 7. The average marginal effects of all satisfaction levels of the two oglm models can be found in Appendix Table C1. The average marginal effects also illustrate the results of the variance equations and the variation in the satisfaction levels.

Table 7
Predicted Changes in Probabilities of being very satisfied with Working Time and the Job

	Satisfaction with Working Time		Satisfaction with Job	
Personal characteristics				
Male	1.38	*	-3.00	***
Age	-0.04		0.06	
Residence in West Germany	1.17	*	3.97	
Years of school education	-0.37	***	-0.57	***
Hourly gross wage	0.11	**	0.23	***
Partnership				
No partner (reference)				
Working partner	-1.32	*	0.55	
No working partner	-2.69	**	0.51	
Number of children				
No children (reference)				
One child	1.44	*	1.90	*
Two children	-0.03		1.44	
More than three children	0.24		3.62	
Goal: secure job	4.71	***	6.46	***
Desired profession	4.10	***	19.50	***
Working time characteristics				
Time-sovereignty				
Often (reference)				
Sometimes	-10.67	***	-6.57	***
Never	-10.37	***	-4.38	**
Self-directed work planning				
Often (reference)				
Sometimes/rarely	-2.91	***	-4.75	***
Never	-5.44	***	-6.23	***
Weekly working hours	-0.45	***	0.17	***
Working hour discrepancies				
Less hours x women	-5.43	***	-5.98	***
Less hours x men	-5.36	***	-4.96	***
Same hours (reference)				
More hours x women	-6.23	***	-4.16	**
More hours x men	1.25		1.98	
Working hour discrepancy (absolute value)	-0.16	***	0.12	
Overtime				
No overtime (reference)				
Compensation for overtime	0.40		-0.74	
Unpaid overtime	-5.62	***	-0.59	
Shift work	-4.98	***	-1.25	
Standby/On-call duty	-0.84		2.40	**
Weekend work	-3.73	***	-0.28	
Breaks often skipped	-5.50	***	-3.20	**
Workload				
Complying (reference)				
Overwhelming	-5.66	***	-8.28	***
Sub-challenging	5.08	***	-2.28	
Job characteristics general				
Occupational status				
Civil servant (reference)				
White-collar employee	0.97		-3.73	**
Blue-collar employee	0.50		-5.19	**

	Satisfaction with Working Time		Satisfaction with Job	
Work agency	-0.35		-11.50	***
Temporary contract	-0.62		-0.12	
More favorable physical working conditions	0.72		2.58	***
More favorable work demands	1.90	***	0.28	
More favorable mental working conditions	4.28	***	27.01	***
Short working-in	-1.78	**	1.28	
Leading position	0.62		3.27	***
Bad economic situation of firm	-0.95		-6.11	***
Stress increased	-3.37	***	-6.52	***
Industry dummies				
Public service (reference)				
Industry	-0.01		2.92	**
Craft	-1.82		3.09	**
Trade	-3.74	***	1.15	
Other services	-1.73	**	0.61	
Other sectors	0.68		4.61	**
Firm size dummies				
1-49 employees (reference)				
50-249 employees	1.34	**	-0.65	
250 employees and more	2.65	***	1.47	

Notes: Data from the German BIBB/BAuA-Employment Survey 2012. Average Marginal Effects of the oglm-models (heterogeneous choice model) of being score 4 = very satisfied with the dependent variables Working time and job satisfaction. Significant at * $p<0.05$; ** $p<0.01$; *** $p<0.001$

The predicted changes in probabilities of being very satisfied with working time and the job in Table 7 differ from the overall results in Table 6. For example the probability to be very satisfied with working time is 1.3 percentage-points lower for employees with a working partner and 2.7 percentage-points for employees with no working partner compared to single workers. A glance at Table C1 reveals that the effect is weak and for the major part of satisfaction levels there is no significant effect as also indicated by the variance equations of the coefficients in Table 6.

On the other hand there is no significant effect for the highest satisfaction level for the occupational status and as the variance equation in Table 6 indicates white- and blue-collar employees are less variable in their satisfaction levels than the respective reference group the civil servants. As can be seen from Table C1 the probability for being satisfied with working time is 3.5 percentage-points higher for white-collar employees and 4.2 percentage-points for blue-collar employees compare to civil servants and this predicted probabilities are significant.

With regard to the impact of self-determined working hours, it is found that having only sometimes impact on planning one's own working hours decreases the probability of high working time satisfaction by 10.7 percentage-points and no impact by 10.4 percentage-points compared to the reference group, which are strong explanatory variables in the model.

Generally, the probability of high working time satisfaction increases significantly with growing hourly gross wages, with individual time-sovereignty, working in a desired

profession, and with more favorable mental working conditions; conversely, the probability decreases if the employee faces working hour discrepancies, works unsocial working hours like shifts or on weekends, and under high work-intensity and stress.

The second column presents the estimates of the predictive margins of job satisfaction. The probability for very high job satisfaction decreases significantly with little or no impact on self-determined working hours and self-directed work planning, and increases with working in a desired profession (+ 19.5 percentage-points), and more favorable mental working conditions (+ 27.0 percentage-points). Surprisingly, the length of working hours show a positive significant effect on the job satisfaction level.

To better illustrate the average marginal effects for the continuous variables the predictive margins for working time and job satisfaction are plotted in Figure 1. They measure the instantaneous rate of change (Long/Freese 2006), if for example the instantaneous rate of change is similar to the change in P(Y=1) as X_k increases by one, this can be intuitive. Figure 1 shows the predicted margins of the continuous variables age, years of school education, hourly gross wage, weekly working hours, working hour discrepancy, working conditions and work demands for working time satisfaction on the left and for job satisfaction on the right side.

The predictive margins of age on the probability to be very satisfied with the job confirm the U-shape: younger and older employees have higher satisfaction levels. As Figure 1 shows every year of school education decreases the probability to be very satisfied with working time and the job, while every Euro hourly gross wage more increases the probability to be very satisfied.

The Figure illustrates also the different directions of working hours on working time and job satisfaction: while the probability to be very satisfied with working time decreases with every hour more the probability to be very satisfied with the job increases. The probability of high working time satisfaction increases significantly with more favorable work demands and mental working conditions whereas the probability of high overall job satisfaction increases significantly with more favorable physical and mental working conditions.

Figure 1
Predictive Margins for Satisfaction Levels of the Continuous Variables

Working Time Satisfaction   Job Satisfaction
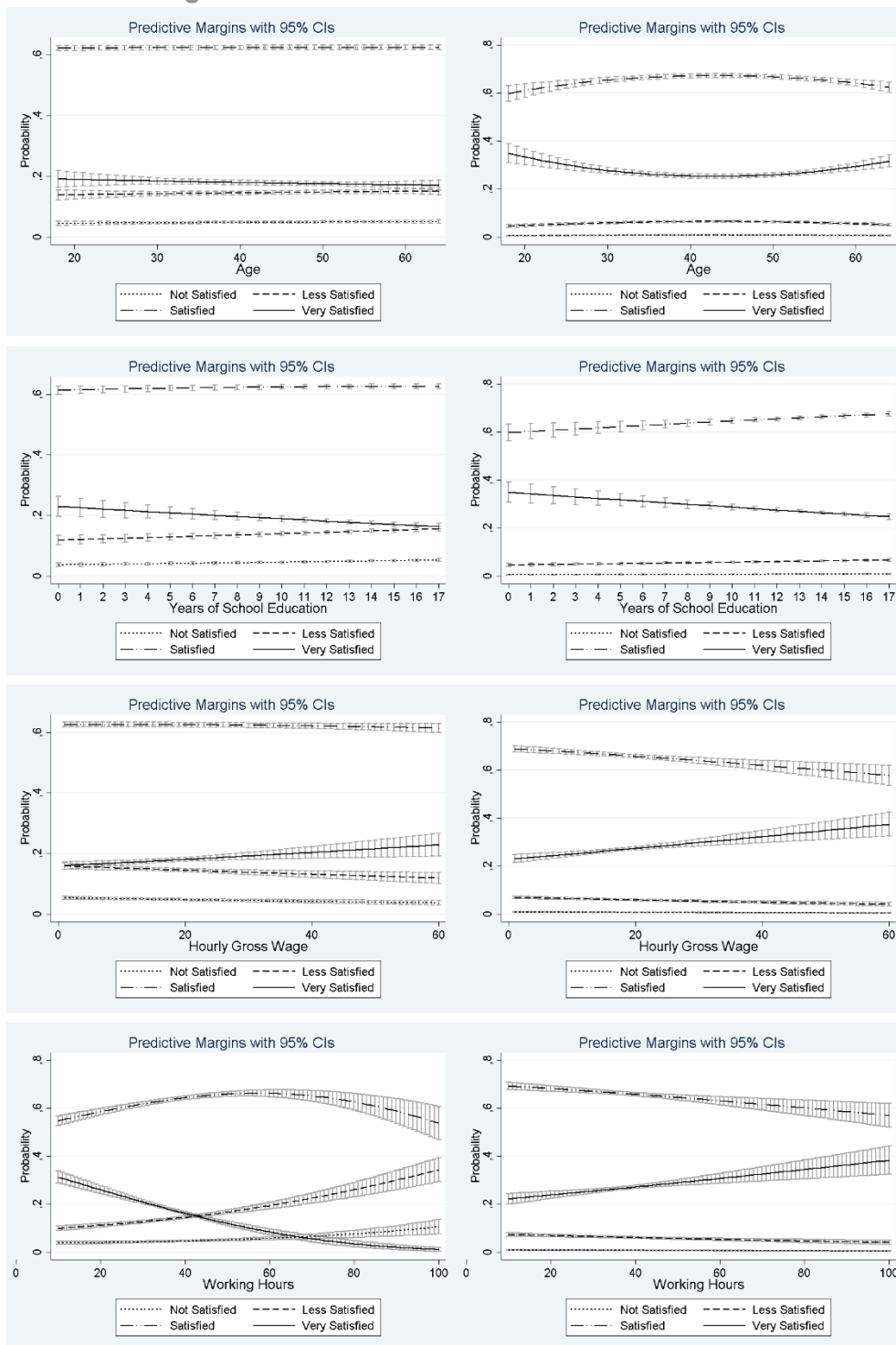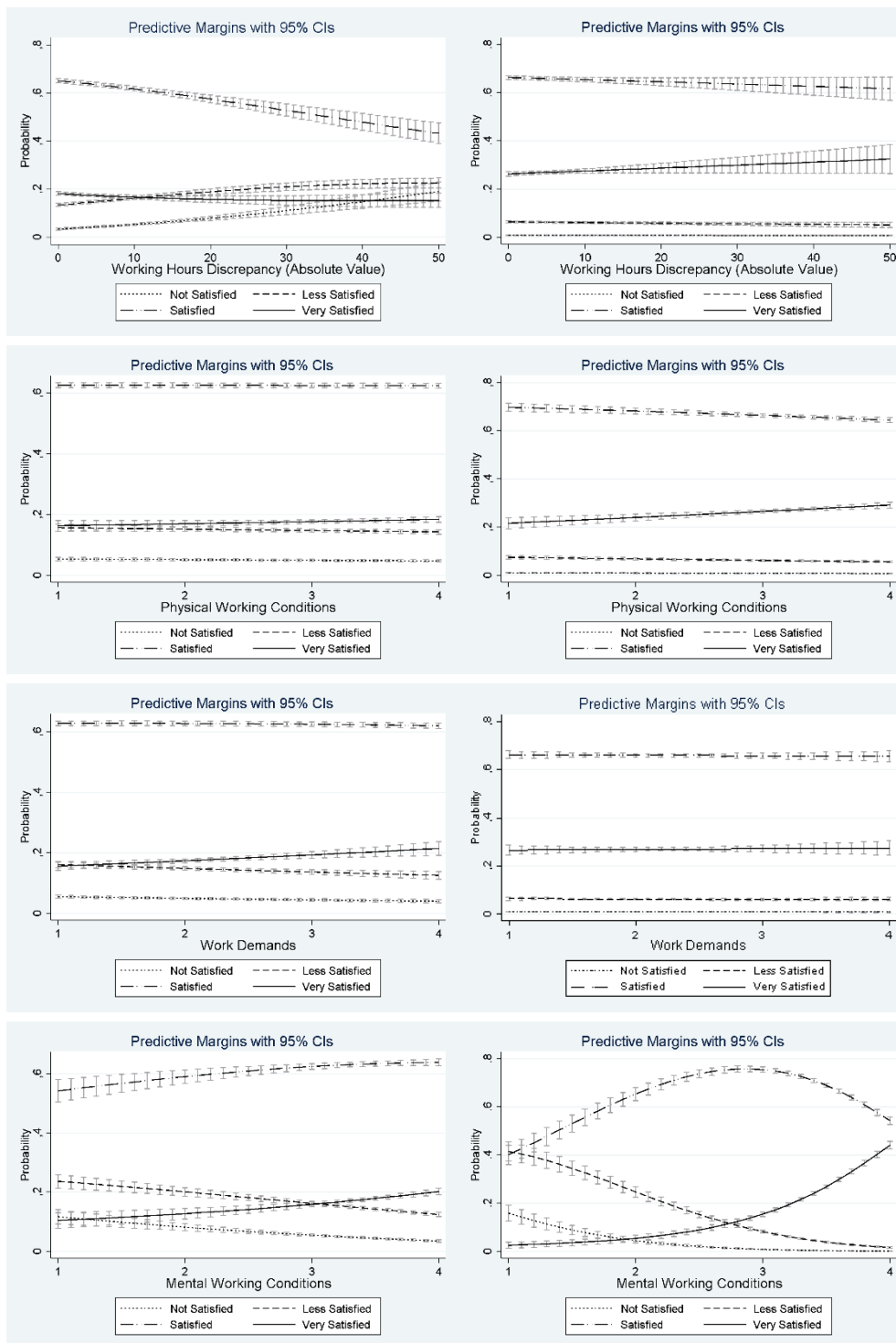
Notes: Data from the German BIBB/BAuA-Employment Survey 2012. Average Marginal Effects of the oglm-models (heterogeneous choice model) for working time and job satisfaction.

6   Summary and Conclusions

This study investigates which determinants affect working time satisfaction by addressing two main questions: Which factors influence the level of working time satisfaction and are the same factors that are accountable for working time satisfaction also accountable for job satisfaction?

The basis of the analysis is a generalized ordered logistic regression model using employee cross-data from Germany which provides a unique opportunity to examine

working time satisfaction in a broader context. The main contribution of this study is shedding light on employees' whishes regarding working time arrangements and working conditions. In general, the results indicate that individual time-sovereignty and autonomy over work planning are very important for the level of working time satisfaction. It is beneficial for satisfaction if employees are able to determine and organize their working hours and their work autonomously. Additionally, employees prefer reduced and paid working hours during the day. Worker-friendly working time arrangements with less stress, insecurity and mental pressure increase the level of satisfaction, whereas atypical working time arrangements such as unpaid overtime, working shifts and weekends and under high intensity reduce the level of working time satisfaction. But the results also show that job satisfaction seems to be largely independent of the location of working hours. Important working time variables for a high level of job satisfaction are also time-sovereignty, self-directed work planning and a good work atmosphere. Overemployment and a high work-intensity reduce the level of job satisfaction.

Finally, I also acknowledge that my interpretations must be considerate to the fact that the analysis is based on cross-sectional data. For an identification of causality and unobservable individual effects, I would require longitudinal data, which do not exist currently with respect to the working time satisfaction questionnaire for Germany or other countries. Thus, reversed causality cannot be excluded, for example in the association between working time satisfaction and the employee's state of health. Therefore I didn't include the reported subjective general state of health but rather the working conditions and work demands of the job as an index for work strains of the employee. Also unobserved heterogeneity could play a role. For instance, one may argue that more able persons both acquire more sovereignty in the job and are more satisfied. However, using concrete working time instead of general satisfaction, this argument seems less plausible. Indeed, the variable "having a leading position" as one indicator for an interesting activity for more able persons shows no significant impact on working time satisfaction.

Since the underlying study is the first on working time satisfaction, observed associations have to be verified in continued further analysis and the results of this study should therefore be viewed as prima facie evidence. Future research may explore satisfaction with working time from a longitudinal perspective, if such panel data can be obtained, to sharpen the identification of causal effects.

Dissatisfaction with working time creates challenges for work-life balance, family and leisure time. While it is of course not always possible to avoid unfavorable working time regulations, a number of policy options or initiatives on the firm level may be considered for working time policies. The first step is to try to improve the quality of working time arrangements, especially the possibility for employees to have an impact on their working times and to increase their individual time-sovereignty. This includes the consideration of private matters and the non-exclusive priority of work-related interests. The second step is to reduce job strain and work-related stress, which have

unhealthy consequences, to promote firm-level investments in job quality and internal health measures and to give greater attention to the health consequences of job stress.

The different interests and needs of employers and employees must be negotiated to ensure the necessary flexibility of firms and to protect employees against excessive workloads. A workplace that enables work-life-balance and reduces psychological stress increases the working time satisfaction and job satisfaction of employees, and this may also have positive effects on the firms' performance in terms of lower absenteeism, less staff turnover and the firm's productivity.

References

Absenger, Nadine; Ahlers, Elke; Bispinck, Reinhard; Kleinknecht, Alfred; Klenner, Christina; Lott, Yvonne; Pusch, Toralf; Seifert, Hartmut (2014): Arbeitszeiten in Deutschland. Entwicklungstendenzen und Herausforderungen für eine moderne Arbeitszeitpolitik. WSI the Institute of Economic and Social Research at the Hans Böckler Foundation (ed.) Düsseldorf (WSI-Report).

Alda, Holger; Rohrbach-Schmidt, Daniela (2011): Imputation fehlender Werte für die Einkommensvariable in der BIBB/BAuA-Erwerbstätigenbefragung 2006. BIBB FDZ Daten- und Methodenbericht Nr. 2.

Anttila, Timo; Oinas, Tomi; Tammelin, Mia;Nätti, Jouko (2015): Working-Time Regimes and Work-Life Balance in Europe. In: European Sociological Review, 31(6), p. 713–724.

Bijwaard, Govert; van Dijk, Bram; de Koning, Jaap (2008): Working time preferences, labour market transitions and job satisfaction. In: Muffels, Ruud J. A. (ed.): Flexibility and employment security in Europe. In: Labour markets in transition. Cheltenham: Elgar, p. 255–277.

Booth, Alison L.; Van Ours, Jan C. (2013): Part-time jobs: what women want? In: Journal of Population Economics, 26(1), p. 263–283.

Booth, Alison L.; Van Ours, Jan C. (2009): Hours of Work and Gender Identity: Does Part-Time Work Make the Family Happier? In: Economica, 76(301), p. 176–196.

Booth, Alison L.; Van Ours, Jan C. (2008): Job satisfaction and family happiness: the part-time work puzzle. In: The Economic Journal, 118(526), p. F77–F99.

Campbell, Iain; Van Wanrooy, Brigid (2013): Long working hours and working-time preferences: Between desirability and feasibility. In: Human relations, 66(8), p. 1131–1155.

Clark, Andrew E.; Oswald, Andrew J. (1996): Satisfaction and comparison income. In: Journal of public economics 61(3), p. 359–381.

Ehing, Daniel (2014): Unter- und Überbeschäftigung in Deutschland: Eine Analyse der Arbeitszeitwünsche von Erwerbstätigen vor dem Hintergrund des demografischen Wandels. In: Zeitschrift für Sozialreform, 60(3), p. 247–272.

Eichhorst; Werner (2015): The Unexpected Appearance of a New German Model. In: British Journal of Industrial Relations, 53(1), p. 49–69.

Faragher, E. Brian; Cass, Monica; Cooper; Cary L. (2005): The relationship between job satisfaction and health: a meta-analysis. In: Occupational and Environmental Medicine, 62(2), p. 105–112.

Fischer, Justina A. V.; Sousa-Poza, Alfonso (2009): Does job satisfaction improve the health of workers? New evidence using panel data and objective measures of health. In: Health economics, 18(1), p. 71–89.

Fullerton, Andrew S.; Xu, Jun (2012): The proportional odds with partial proportionality constraints model for ordinal response variables. In: Social science research, 41(1), p. 182–198.

Golden, Lonnie (2015): FLSA Working Hours Reform: Worker Well-Being Effects in an Economic Framework. In: Industrial Relations: A Journal of Economy and Society, 54(4), p. 717–749.

Golden, Lonnie; Okulicz-Kozaryn, Adam (2015): Work Hours and Worker Happiness in the US: Weekly Hours, Hours Preferences and Schedule Flexibility. Working paper https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2563374 [last downloaded 2017-02-16].

Greubel, Jana; Arlinghaus, Anna; Nachreiner, Friedhelm; Lombardi, David A. (2016): Higher risks when working unusual times? A cross-validation of the effects on safety, health, and work–life balance. In: International archives of occupational and environmental health, 89(8), p. 1205–1214.

Grözinger, Gerd; Matiaske, Wenzel; Tobsch, Verena (2008): Arbeitszeitwünsche, Arbeitslosigkeit und Arbeitszeitpolitik. SOEPpapers No. 103. DIW Berlin.

Haile, Getinet A. (2015): Workplace Job Satisfaction in Britain: Evidence from Linked Employer–Employee Data. In: Labour, 29(3), p. 225–242.

Hall, Anja; Siefer, Anke; Tiemann, Michael (2015): BIBB/BAuA Employment Survey of the Working Population on Qualification and Working Conditions in Germany 2012. suf_4.0; Research Data Center at BIBB (ed.); GESIS Cologne (data access); Bonn: Federal Institute for Vocational Education and Training.

Hanglberger, Dominik (2010): Arbeitszufriedenheit und flexible Arbeitszeiten. Empirische Analyse mit Daten des Sozio-oekonomischen Panels (Job Satisfaction and Flexible Working Hours-An Empirical Analysis with Data from the German Socio Economic Panel. SOEPpaper No. 304. DIW Berlin.

Hauret, Laetitiy; Williams, Donald R. (2017): Cross-National Analysis of Gender Differences in Job Satisfaction. In: Industrial Relations: A Journal of Economy and Society, 56(2), p. 203–235.

Holly, Sarah; Mohnen, Alwine (2012): Impact of working hours on work-life balance. SOEPpapers No. 465. DIW Berlin.

Holst, Elke; Bringmann, Julia (2016): Arbeitszeitrealitäten und Arbeitszeitwünsche in Deutschland: Methodische Unterschiede ihrer Erfassung im SOEP und Mikrozensus (Desired and Actual Working Hours in Germany: Methodological Differences in Measurement between SOEP and Mikrozensus). Discussion Paper No. 1597. DIW Berlin.

Jahn, Elke (2013): Don't worry, be flexible. Job satisfaction among flexible workers. LASER Discussion Papers-Paper, No. 71.

Jensen, Per H.;Møberg, Rasmus Juul; Och, Ralf; Pfau-Effinger, Birgit (2017): Explaining differences in women's working time in European cities. In: European Societies, 19(2), p. 138–156.

Knaus, Michael C.; Otterbach, Steffen (2016): Work Hour Mismatch and Job Mobility: Adjustment Chanells and Resolution Rates. IZA Discussion Paper, No. 9735.

Knieps, Franz; Pfaff, Holger (Hg.) (2016): BKK Gesundheitsreport 2016. MWV Medizinisch Wissenschaftliche Verlagsgesellschaft, Berlin.

Kugler, Franziska; Wiencierz, Andrea; Wunder, Christoph (2014): Working hours mismatch and well-being: comparative evidence from Australian and German panel data. Labor and Socio-Economic Research Center, University of Erlangen-Nuremberg.

Landivar, Liana Christin (2015): The gender gap in employment hours: do work-hour regulations matter? In: Work, Employment & Society 29(4), p. 550–570.

Lesch, Hagen; Schäfer, Holger; Schmidt, Jörg (2013): Gute Arbeit oder zufrieden mit der Arbeit? Konzeptionelle Überlegungen und empirische Befunde für Deutschland. In: Sozialer Fortschritt 62(5), p. 139–148.

Linz, Susan J.; Semykina; Anastasia (2012): What makes workers happy? Anticipated rewards and job satisfaction. In: Industrial Relations: A Journal of Economy and Society 51(4), p. 811–844.

Long, J. Scott; Freese, Jeremy (2006): Regression models for categorical dependent variables using Stata. Stata press.

Merz, Joachim (2002): Time and economic well-being – a panel analysis of desired versus actual working hours. In: Review of Income and Wealth, 48(3), p. 317–346.

Oswald, Andrew J.; Proto, Eugenio; Sgroi, Daniel (2015): Happiness and productivity. In: Journal of Labor Economics, 33(4), p. 789–822.

Perales, Francisco; Tomaszewski, Wojtek (2016): Happier with the same: job satisfaction of disadvantaged workers. In: British Journal of Industrial Relations, 54(4), p. 685–708.

Plantenga, Janneke; Remery, Chantal; Mairhuber, Ingrid; Meulders, Danièle; Beleva, Iskra; Ellina, Chrystalla; Křížková, Alena; Emerek, Ruth (2010): Flexible working time arrangements and gender equality. European Commission.

Pollmann-Schult, Matthias (2009): Arbeitszeitwunsch und –wirklichkeit im Familienkontext. In: Soziale Welt, 60(2), p. 163–178.

Reynolds, Jeremy E. (2014): Prevailing preferences: actual work hours and work-hour preferences of partners. In: Industrial and Labour Relations Review, 67(3), p. 1017–1041.

Reynolds, Jeremy; Aletraris, Lydia (2010): Mostly Mismatched With a Chance of Settling: Tracking Work Hour Mismatches in the United States. In: Work and Occupations, 37(4), p. 476–511.

Reynolds, Jeremy; Johnson, David R. (2012): Don't blame the Babies: Work Hour Mismatches and the Role of Children. In: Social Forces, 91(1), p. 131–155.

Rohrbach-Schmidt, Daniela; Hall, Anja (2013): BIBB/BAuA Employment Survey 2012. Federal Institute for Vocational Education and Training, Bonn, BIBB-FDZ Data and Methodological Reports 1.

Rønsen, Marit; Kitterød, Ragni Hege (2010): What makes full-time employed women satisfied with their working hours. Statistics Norway, Research Department, Discussion Papers No. 632.

Seifert, Hartmut; Holst, Elke; Matiaske, Wenzel; Tobsch, Verena (2016): Arbeitszeitwünsche und ihre kurzfristige Realisierung, WSI-Mitteilungen, No. 04, 300–308.

Van der Meer, Peter H.; Wielers, Rudi J. J. (2013): What makes workers happy? In: Applied Economics, 45(3), p. 357–368.

Wanger, Susanne (2015): Frauen und Männer am Arbeitsmarkt: Traditionelle Erwerbs- und Arbeitszeitmuster sind nach wie vor verbreitet. IAB-Kurzbericht, No. 04.

Wanger, Susanne (2011): Ungenutzte Potenziale in der Teilzeit: Viele Frauen würden gerne länger arbeiten. IAB-Kurzbericht, No. 09.

Wanger, Susanne; Weber, Enzo (2016): Erwerbspotenziale von Arbeitslosen und Erwerbstätigen: Das Stundenvolumen bringt zusätzliche Information. IAB-Kurzbericht, No. 08.

Wielers, Rudi; Münderlein, Maria; Koster, Ferry (2014): Part-Time Work and Work Hour Preferences. An International Comparison. In: European Sociological Review, 30 (1), p. 76–89.

Williams, Richard (2010): Fitting heterogeneous choice models with oglm. In: Stata Journal, 10(4), p. 540–567.

Williams, Richard (2009): Using heterogeneous choice models to compare logit and probit coefficients across groups. In: Sociological Methods & Research, 37(4), p. 531–559.

Williams, Richard (2006): Generalized ordered logit/partial proportional odds models for ordinal dependent variables. In: Stata Journal, 6(1), p. 58–82.

Wolter, Stefanie; Broszeit, Sandra; Frodermann, Corinna; Grunau, Philipp; Bellmann, Lutz (2016): Befragung von Betrieben und Beschäftigten: Mehr Zufriedenheit und Engagement in Betrieben mit guter Personalpolitik. IAB-Kurzbericht, No. 16.

Wooden, Mark (2006): Who wants flexibility? Changing Work Hours Preferences and Life Events. IZA Discussion Paper No. 2404.

Wooden, Mark; Warren, Diana; Drago, Robert (2009): Working time Mismatch and Subjective Well-being. In: British Journal of Industrial Relations, 47(1), p. 147–179.

Wunder, Christoph; Heineck, Guido (2013): Working time preferences, hours mismatch and well-being of couples: Are there spillovers? In: Labour Economics, 24, p. 244–252.

Xing, Liu (2009): Ordinal regression analysis: Fitting the proportional odds model using Stata, SAS and SPSS. In: Journal of Modern Applied Statistical Methods, 8(2), p. 632–645.

Appendices

A   Data: German BiBB/BAuA-Employment Survey 2012

Table A1
Definitions, Means and Standard Derivation of Variables
(Observations: 14,061)

Variable	Definition	Mean	SD	Min	Max
Working time satisfaction		2.07	0.72	1	4
Overall job satisfaction		1.81	0.58	1	4
Personal characteristics					
Sex	Dummy: Male	0.47	0.50	0	1
Age	Respondent's age	45.2	10.3	18	64
Residence	Dummy: West Germany	0.79	0.41	0	1
Years of school education	Respondent's years of school education	13.1	2.7	4	17
Hourly gross wage	Respondent's hourly gross wage in Euro	16.99	8.19	1.30	194.41
Partnership	no partner is living in the household	0.36	0.48	0	1
	Working partner in the household	0.52	0.50	0	1
	No working partner in the household	0.12	0.33	0	1
Number of	No children in the household	0.69	0.46	0	1
children in the	One child	0.16	0.86	0	1
household	Two children	0.13	0.33	0	1
	Three and more children	0.03	0.16	0	1
Preference for secure job	Dummy: Respondent very strongly pursue to the goal "having a secure job"	0.47	0.50	0	1
Desired profession	Dummy: Respondent works in his chosen field	0.80	0.40	0	1
Working time characteristics					
Time-sovereignty	Respondent often succeed in taking private and family interests into account when planning working hours	0.60	0.49	0	1
	… sometimes …	0.34	0.47	0	1
	… never …	0.06	0.24	0	1
Self-directed work schedule	Respondent can often plan and schedule work on his own	0.73	0.44	0	1
	… sometimes / rarely …	0.22	0.41	0	1
	… never …	0.05	0.22	0	1
Weekly working hours	Respondent's actual weekly working hours	38.3	10.6	10	110
Working hour discrepancies	Respondent wants to work fewer hours	0.48	0.50	0	1
	Respondent wants to work same hours	0.39	0.49	0	1
	Respondent wants to work more hours	0.12	0.33	0	1
Working hour discrepancies (absolute)	Absolute value of weekly working hour discrepancy	5.6	7.2	0	64.9
Overtime	compensation for overtime	0.43	0.49	0	1
	unpaid overtime	0.10	0.30	0	1

Variable	Definition	Mean	SD	Min	Max
	no overtime	0.47	0.50	0	1
Shift work	Dummy: working shifts	0.15	0.36	0	1
Standby/On-call duty	Dummy: working on standby duty or on-call duty	0.17	0.38	0	1
Weekend work	Dummy: working on Saturdays. Sundays and public holidays	0.63	0.48	0	1
Breaks often skipped	Dummy: breaks are often skipped on workdays because the respondent has too much work to do	0.11	0.31	0	1
Workload	Amount of work complies requirements	0.75	0.43	0	1
	Amount of work is overwhelming	0.21	0.40	0	1
	Amount of work is subchallenging	0.04	0.21	0	1
Job characteristics general					
Occupational	Civil servant (reference)	0.09	0.28	0	1
status	White-collar employee	0.74	0.44	0	1
	Blue-collar employee	0.16	0.37	0	1
	Employed at a temporary agency	0.01	0.12	0	1
Temporary contract	Dummy: having a temporary contract and interested in converting that into a permanent one	0.06	0.24	0	1
More favorable physical working conditions	Scale for physical working conditions	3.07	0.73	1	4
More favorable work demands	Scale for work demands	2.14	0.50	1	4
More favorable mental working conditions	Scale for mental working conditions	3.38	0.41	1	4
Short working-in	Dummy: short working in period at the workplace	0.16	0.36	0	1
Leading position	Dummy: Respondent has a leading position	0.33	0.47	0	1
Economic situation of firm	Dummy: bad or less good economic situation of company	0.07	0.26	0	1
Stress increased	Dummy: work pressure and stress increased in the last two years	0.47	0.50	0	1
Industry	1: Public service	0.33	0.47	0	1
dummies	2: Industry	0.22	0.41	0	1
	3: Craft	0.09	0.29	0	1
	4: Trade	0.11	0.31	0	1
	5: Other services	0.19	0.39	0	1
	6: Other sectors	0.06	0.24	0	1
Firm size	1-49 employees	0.38	0.49	0	1
dummies	50-249 employees	0.27	0.44	0	1
	250 employees and more	0.35	0.48	0	1

Source: Author's calculations based on the BIBB/BAuA-Employment Survey in 2012

B Factor Analysis

I used a factor analysis to reduce the set of variables in the data set regarding physical working conditions, work demands and mental working conditions to three unobserved scales (Table B1).

The different scales vary between 1 (=often) and 4 (=never), which means that the higher the value, the less frequently the various working conditions / demands will occur.

Table B1
Scales used within the Multivariate Analysis

Scale	Number of items	Cronbachs alpha	Items	Question
Physical working conditions	12	0.8838	**I do often**	
			… work on my feet.	F600_01
			… lift and carry loads of more than < for male TP insert: 20 Kg, for female TP: 10 kg >.	F600_03
			… work exposed to fumes, dusts or gases, vapours.	F600_04
			… work exposed to cold, heat, moisture, humidity or draughts.	F600_05
			… work with oil, grease, dirt, grime.	F600_06
			… perform manual work that requires a high degree of skilfulness, fast movement, sequences or the use of great force.	F600_07a
			… work in a bent, squatting, kneeling or recumbent position, working overhead.	F600_07b
			… work exposed to powerful shocks, jolts and vibrations that can be felt physically.	F600_08
			… work under harsh light or in light conditions that are poor or too low.	F600_09
			… handle with hazardous substances.	F600_10
			… wear protective clothing or equipment.	F600_11
			… work exposed to noise.	F600_12
Work demands	10	0.7384	**It does often happen in my job that I**	
			… work under acute pressure to meet deadlines or to perform.	F411_01
			… face new tasks which you have to think through and get familiar with.	F411_04
			… improve existing procedures or try out something new.	F411_05
			… get disturbed or interrupted, e.g. by colleagues, inferior materials, machine malfunctions or phone calls.	F411_06

Scale	Number of items	Cronbachs alpha	Items	Question
			… get instructed to produce a precise number of items, provide a certain minimum performance or do a particular work in a specified time.	F411_07
			… am expected to do things you have not learned or you are not proficient in.	F411_08
			… have to keep an eye on different work processes or sequences at the same time.	F411_09
			… even a small mistake or a slight inattentiveness can lead to larger financial losses.	F411_11
			… have to reach the very limits of your capabilities.	F411_12
			… have to work very quickly.	F411_13
Mental working conditions	**7**	**0.639**	**It does often happen that**	
			… I feel that my work is not important.	F700_07
			… I'm not provided in time with information about far-reaching decisions, … changes or plans for the future.	F700_08
			… I don't receive all the information necessary for performing your work correctly.	F700_09
			… I don't feel as a part of a community in your workplace.	F700_10
			… I don't consider the collaboration between me and my colleagues is good.	F700_11
			… I don't receive help and support for my work from my colleagues if I require it.	F700_12
			… I don't receive help and support for my work from my direct supervisor if I require it.	F700_13

Source: Author's calculations based on the BIBB/BAuA-Employment Survey in 2012

C Average Marginal Effects

Table C1
Average Marginal Effects (from the oglm-models)

Personal characteristics	Male		Age		Residence in West Germany		Years of school education		Hourly gross wage		Working partner		No working partner	
											No partner (reference)			
Working time satisfaction														
not satisfied	-0.00225		0.00012		-0.00332		0.00101	***	-0.00030	**	-0.00127		-0.00534	
less satisfied	-0.00627		0.00027		-0.00758	*	0.00231	***	-0.00069	**	0.00299		0.00294	
satisfied	-0.00530	*	0.00004		-0.00082	*	0.00034	**	-0.00010	*	0.01151		0.02930	***
very satisfied	0.01382	*	-0.00042		0.01173	*	-0.00366	***	0.00110	**	-0.01323	*	-0.02690	**
Job satisfaction														
not satisfied	0.00096	***	-0.00002		-0.00145	***	0.00020	***	-0.00008	***	-0.00235	***	-0.00160	
less satisfied	0.00658	***	-0.00013		-0.00970	***	0.00133	***	-0.00054	***	-0.00873	***	-0.00598	
satisfied	0.02244	***	-0.00043		-0.02855	***	0.00422	***	-0.00171	***	0.00560		0.00252	
very satisfied	-0.02999	***	0.00058		0.03970	***	-0.00574	***	0.00232	***	0.00548		0.00507	

Personal characteristics	One child		Two children		Three and more children		Goal: Secure Job		Desired Profession	
	No children living in the household (reference)									
Working time satisfaction										
not satisfied	-0.00379	*	0.00008		-0.00065		-0.00200		-0.01264	***
less satisfied	-0.00882		0.00017		-0.00150		-0.01757	***	-0.02878	***
satisfied	-0.00179	*	0.00002		-0.00020		-0.02750	***	0.00038	
very satisfied	0.01440	*	-0.00027		0.00236		0.04708	***	0.04104	***
Job satisfaction										
not satisfied	-0.00064	*	-0.00049		-0.00116		0.00007		-0.01261	***
less satisfied	-0.00430	*	-0.00330		-0.00788		-0.00692	***	-0.09095	***
satisfied	-0.01402	*	-0.01061		-0.02716		-0.05774	***	-0.09142	***
very satisfied	0.01895	*	0.01440		0.03620		0.06459	***	0.19499	***

Working time characteristics	Time-sovereignty: Sometimes		Time-sovereignty: Never		Self-directed work planning: Some-times/rarely		Self-directed work planning: Never		Weekly working hours		Less hours x female		Less hours x male		More hours x female		More hours x male	
	Often (reference)				Often (reference)						Same hours (reference)							
Working time satisfaction																		
not satisfied	0.02717	***	0.08019	***	0.00835	***	0.01797	**	0.00045	***	0.01279	***	0.01550	***	0.01524	***	-0.00256	
less satisfied	0.07919	***	0.12236	***	0.01920	***	0.03956	**	0.00198	***	0.03045	***	0.03982	***	0.03589	***	-0.00716	
satisfied	0.00035		-0.09883	***	0.00151	*	-0.00315	*	0.00205	***	0.01109	***	-0.00176		0.01119	***	-0.00277	
very satisfied	-0.10671	***	-0.10372	***	-0.02906	***	-0.05437	**	-0.00448	***	-0.05432	***	-0.05356	***	-0.06231	***	0.01249	
Job satisfaction																		
not satisfied	0.00110		0.00698	***	0.00168	***	0.00232	***	-0.00006	***	0.00199	***	0.00162	***	0.00131	**	0.00059	
less satisfied	0.01151	***	0.02726	***	0.01151	***	0.01579	***	-0.00040	***	0.01343	***	0.01114	***	0.00892	**	0.00411	
satisfied	0.05309	***	0.00952		0.03429	***	0.04423	***	-0.00127	***	0.04437	***	0.03684	***	0.03140	**	0.01509	
very satisfied	-0.06571	***	-0.04375	**	-0.04748	***	-0.06234	***	0.00172	***	-0.05980	***	-0.04960	***	-0.04164	**	-0.01979	

Working time characteristics	Working hour discrepancy (absolute)		Compensation for overtime		Unpaid overtime		Shift work		Standby/On-call duty		Weekend work		Breaks often skipped		Overwhelming amount of work		Subchallenging amount of work	
	No overtime (reference)														Complies requirements (reference)			
Working time satisfaction																		
not satisfied	0.00196	***	-0.00103		0.01969	***	0.04157	***	0.00238		0.00965	***	0.01870	***	0.03601	***	0.01361	**
less satisfied	0.00267	***	-0.00247		0.04308	***	0.05977	***	0.00543		0.02307	***	0.04180	***	0.06282	***	0.00051	
satisfied	-0.00301	***	-0.00053		-0.00654	**	-0.05158	***	0.00062		0.00462	***	-0.00552	**	-0.04227	***	-0.06496	***
very satisfied	-0.00162	**	0.00403		-0.05623	***	-0.04976	***	-0.00843		-0.03734	***	-0.05498	***	-0.05656	***	0.05084	***
Job satisfaction																		
not satisfied	-0.00004	***	-0.00160	**	0.00037		0.00044		-0.00079	**	0.00009		0.00118	**	0.00642	***	0.00707	***
less satisfied	-0.00027	***	-0.00471	*	0.00189		0.00295		-0.00533	**	0.00063		0.00787	**	0.03491	***	0.02726	***
satisfied	-0.00087	***	0.01370		0.00360		0.00912		-0.01784	**	0.00202		0.02294	**	0.04146	***	-0.01150	
very satisfied	0.00119	***	-0.00738		-0.00585		-0.01251		0.02396	**	-0.00275		-0.03199	**	-0.08279	***	-0.02282	

Job characteristics general	Temporary contract	White-collar employee	Blue-collar employee	Work agency	More favorable physical working conditions	More favorable work demands
			civil servant (reference)			
Working time satisfaction						
not satisfied	0.00176	-0.02177 ***	-0.02284 ***	-0.01983 *	-0.00197	-0.00524 ***
less satisfied	0.00402	-0.02414 ***	-0.02383 **	-0.01751	-0.00453	-0.01203 ***
satisfied	0.00046	0.03622 ***	0.04166 ***	0.04083	-0.00067	-0.00177 **
very satisfied	-0.00625	0.00969	0.00501	-0.00349	0.00717	0.01904 ***
Job satisfaction						
not satisfied	0.00004	0.00114 **	0.00165 **	0.00457 ***	-0.00089 ***	-0.00010
less satisfied	0.00027	0.00786 **	0.01134 **	0.03031 ***	-0.00596 ***	-0.00065
satisfied	0.00085	0.02833 **	0.03891 **	0.08012 ***	-0.01895 ***	-0.00207
very satisfied	-0.00116	-0.03733 **	-0.05191 **	-0.11499 ***	0.02579 ***	0.00282

Job characteristics general	More favorable mental working conditions		Short working in		Leading position		Bad economic situation of firm		Stress increased	
Working time satisfaction										
not satisfied	-0.02079	***	0.00520	***	-0.00169		0.00271		0.00920	***
less satisfied	-0.03688	***	0.00617	**	-0.00389		0.00617		0.02179	***
satisfied	0.01488	**	0.00062	**	-0.00062		0.00062		0.00271	***
very satisfied	0.04278	***	-0.00950	**	0.00621		-0.00950		-0.03370	***
Job satisfaction										
not satisfied	-0.01343	***	-0.00043		-0.00109	***	0.00630	***	0.00216	***
less satisfied	-0.07654	***	0.02882		-0.00734	***	0.02882	***	0.01488	***
satisfied	-0.18009	***	0.02597		-0.02430	***	0.02597	**	0.04812	***
very satisfied	0.27006	***	-0.06109		0.03273	***	-0.06109	***	-0.06516	***

Control variables	Industry		Craft		Trade		Other Services		Other Sectors		50 - 249 employees		250 and more employees	
	public service (reference)										1 - 49 employees (reference)			
Working time satisfaction														
not satisfied	0.00002		0.00500		0.01134	***	0.00475	*	-0.00168		-0.00391	*	-0.00729	***
less satisfied	0.00004		0.01153		0.02538	***	0.01096	*	-0.00400		-0.00885	*	-0.01673	***
satisfied	0.00001		0.00165	*	0.00068		0.00162	*	-0.00116		-0.00068		-0.00248	**
very satisfied	-0.00007		-0.01818		-0.03741	***	-0.01734	*	0.00684		0.01344	*	0.02649	***
Job satisfaction														
not satisfied	-0.00101	**	-0.00106	*	-0.00042		-0.00023		-0.00152	***	0.00023		-0.00050	
less satisfied	-0.00673	**	-0.00709	*	-0.00278		-0.00149		-0.01022	***	0.00154		-0.00334	
satisfied	-0.02145	**	-0.02272	*	-0.00833		-0.00439		-0.03438	**	0.00468		-0.01091	
very satisfied	0.02919	**	0.03087	*	0.01152		0.00610		0.04612	**	-0.00646		0.01474	

Notes: Data from the German BIBB/BAuA-Employment Survey 2012. Average Marginal Effects of the oglm-models (heterogeneous choice model);

Dependent variables: Working time / Job satisfaction coded: score 1 = not satisfied, score 4 = very satisfied. Significant at * $p<0.05$; ** $p<0.01$; *** $p<0.001$

Recently published

No.	Author(s)	Title	Date
2/2017	Roth, D.	Cohort size and transitions into the labour market	01/17
3/2017	Wydra-Somaggio, G.	Early termination of vocational training: dropout or stopout?	01/17
4/2017	Zapf, I. Weber, E.	The role of employer, job and employee characteristics for flexible working time	2/17
5/2017	Hutter, C. Weber, E.	Labour Market Effects of Wage Inequality and Skill-Biased Technical Change in Germany	2/17
6/2017	Capuano, S. Externe	Offshoring and Firm Overlap	2/17
7/2017	Dauth, C.	Regional discontinuities and the effectiveness of further training subsidies for low-skilled employees	3/17
8/2017	Stockinger, B. Extern	Apprentice Poaching in Regional Labor Markets	3/17
9/2017	Fendel, T. Extern	Child care reforms and labor participation of migrant and native mothers	3/17
10/2017	Kracke, N. Reichelt, M. Vicari, B.	Wage losses due to overqualification: The role of formal degrees and occupational skills	4/17
11/2017	Externe	The relevance of personal characteristics and gender diversity for (eco) - innovation activities at the firm-level	4/17
12/2017	Promberger, M.	Resilience among vulnerable households in Europe	4/17
13/2017	Dauth, Ch. Lang, J.	Should the unemployed care for the elderly?	4/17
14/2017	Gehrke, B. extern	The German Labor Market in the Great Recession: Shocks and Institutions	4/17
15/2017	Bach, R Extern	Does Participating in a Panel Survey Change Respondent's Labor Market Behavior?	5/17
16/2017	Kruppe, T. extern	Weiterbildungsbeteiligung in Deutschland	5/17
17/2017	Konle-Seidl, R,	Retention and Re-integration of older workers into the labour market: What works?	6/17
18/2017	Rothe, T. extern	Where did all the unemployed go?	6/17
19/2017	Stockinger, B.	The effect of broadband internet on establishments' employment growth: evidence from Germany	6/17

As per: 2017-06-14

For a full list, consult the IAB website http://www.iab.de/de/publikationen/discussion-paper.aspx

For further inquiries contact the author:

Susanne Wanger
Phone +49.911.179.3024
E-mail Susanne.Wanger@iab.de