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Nicolai Suppa[1]

Job Characteristics and Subjective Well-Being in Australia – A Capability Approach Perspective

Abstract

Using the capability approach as conceptual framework, the present study examines empirically the effect of job characteristics on subjective well-being. First, I suggest a measurement model for four latent job characteristics, using a confirmatory factor analysis. Then, I examine the job characteristics' influence on life and job satisfaction, using Australian panel data. The results suggest that (i) the four latent job characteristics are valid constructs, (ii) favourable job characteristics increase life and job satisfaction significantly, (iii) job characteristics account for some of the unemployed's dissatisfaction, and (iv) controlling for unobserved heterogeneity is crucial in such exercises.

JEL Classification: I31, J20, D60

Keywords: Job characteristics; life satisfaction; capability approach; factor analysis

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1   Introduction

The objective of the present paper is to examine the effects of job characteristics on general life satisfaction, taking a capability approach (CA) perspective. So far, distinct fields of research have studied various aspects of jobs, or work in general. Their research questions, however, vary in part substantially. Sen (1975) distinguished the income, the production, and the recognition aspect. Traditional labor economics, for instance, studies among other things the amount of work (i.e., labor supply); for an introduction see Cahuc & Zylberberg (2004). The International Labor Organization (ILO), instead, emphasizes the quality of work (e.g., aspects of workers' protection and safety); see ILO (2012) but also Sehnbruch (2008), Lugo (2007). Moreover, the motivation for work (Hackman & Oldham (1980)) and satisfaction with one's job have also been studied (Benz & Frey (2004)). Finally, both selected job characteristics (e.g., job security) and differences in employment statuses (e.g., self- or unemployment) have also been examined using the life satisfaction approach (LSA).

From a CA point of view, four shortcomings of the previous work, analysing the link between job characteristics and subjective well-being, seem relevant. Much of the previous research focussed on the narrow notion of job satisfaction, rather than overall subjective well-being (SWB), since often a worker's well-being is of instrumental interest only. Moreover, studies frequently motivate their working hypothesis rather ad hoc. Although intuitive and appealing, they typically could benefit from a more systematic approach. The empirical approaches taken often address issues related to employment statuses rather than to specific characteristics of labor, and frequently do not control for unobserved heterogeneity, although previous studies suggest this to be relevant. Admittedly, the latter two shortcomings regularly arise from data limitations. The data I use, however, provide detailed information about job characteristics and allow me to control for unobserved heterogeneity. To motivate hypotheses more systematically, I make use of the CA's conceptualization of well-being.

The CA's notion of human well-being rests upon the key concepts of func-

tioning achievements and capabilities, but also explicitly allows i.a. for the role of resources, individual heterogeneity, freedom of choice, and utility. See Sen (1987, 1992, 1999) for more details. Taking this perspective, job characteristics are conceived as inputs for functioning achievements, which individuals ultimately have reason to value. Therefore, job characteristics are only of instrumental rather than intrinsic relevance. Thus the hypothesis the present paper examines empirically—viz., whether job characteristics are associated with higher SWB—is motivated by the characteristics' instrumental relevance for achieving functionings.

The paper's research questions are as follows: First, is it possible and reasonable to operationalize specific job characteristics, such as access to situations which provide opportunity for autonomous choice or the amount of workload, using a latent variable approach? Second, do job characteristics provide a source of general life satisfaction—i.e. *overall* SWB as well—that is beyond their purported domain of job satisfaction? Third, do job characteristics account for the differential life satisfactions of different employment statuses? More specifically, does the unemployed's dissatisfaction arise from being deprived of functionings that some job characteristics are key to achieving? Fourth, does controlling for unobserved heterogeneity matter for analysing the effect of self-assessed job characteristics on subjective well-being?

Answering these questions (i) sheds some light on the anatomy of well-being, specifically on the complexity of the work–well-being link. Moreover, the presented evidence may (ii) provide an additional justification for scrutinizing selected job characteristics or for using them in well-being or poverty measures. Finally, answering these research questions may provide evidence against adaptive preferences and thereby may help to link LSA and CA more closely.[1]

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[1]The CA's concern for adaptation or adaptive preferences renders bringing both literatures together an intricate endeavor; see Comim (2005). However, significantly higher life satisfaction precisely indicates the sensitivity of the individual's valuation to variation in job characteristics, i.e. they are in fact valued. Moreover, to examine individuals' valuation of things like characteristics or achievements is also a first step towards a dynamic perspective, i.e., adaptational analysis, as, e.g., in Clark *et al.* (2008), Powdthavee (2009), Suppa (2012a).

The results suggest that (i) the four latent job characteristics are valid constructs, (ii) favourable job characteristics increase life and job satisfaction significantly, (iii) job characteristics account for some of the unemployed's dissatisfaction, and (iv) controlling for unobserved heterogeneity is crucial in such exercises. The remainder is structured as follows: Section 2 presents the related literature and illustrates its shortcomings from a CA point of view. Section 3 contains the CA's conceptual underpinnings; section 4, the empirical strategy. The results are presented in section 5 and discussed in section 6. Finally, section 7 concludes.

2 Related Literature

Previous studies on job satisfaction explicitly examined selected job aspects, one of the first being Hackman & Oldham (1980). While some used directly observable indicators such as type of contract (e.g., Hanglberger (2011)), others used satisfaction with various job characteristics (e.g., Skalli *et al.* (2008))[2]. Most studies, however, employ self-assessed job characteristics, either in combination with an exploratory factor analysis (e.g., Cassar (2010), Fahr (2011), Poggi (2008)) or without (e.g., Cornelißen (2009)). Others studies, such as Andersson (2008), Benz & Frey (2004, 2008), Hanglberger & Merz (2011), found higher job satisfaction for the self-employed, suggesting evidence for procedural utility, such as being one's own boss. Recently, there has also been interest in examining the job satisfaction of part-time employed; see, e.g., Booth & van Ours (2008), Willson & Dickerson (2010). Studies on job satisfaction are, however, often motivated by a human-resource perspective, meaning that high job satisfaction is of instrumental rather than intrinsic interest, since it is found to increase productivity and to reduce absenteeism and the probability of quitting (see, e.g., Fahr (2011)). Moreover, within this framework the job characteristics' influence on well-being is confined a priori to some specific domain.

In contrast, the life satisfaction literature (i) is directly concerned with

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[2]Leßmann & Bonvin (2011), however, reckon that in particular inferring the quality of job characteristics from the workers' satisfaction with these characteristics might be flawed.

individuals' well-being and (ii) broadens the scope of the analysis beyond one specific domain. Some studies in this field of research have also focussed on differences among employment statuses in reported life satisfaction. For instance, the unemployed have been found to report a lower life satisfaction (see, e.g., Clark & Oswald (1994), Winkelmann & Winkelmann (1998), Gerlach & Stephan (1996)). Other studies, such as Binder & Coad (2012), Andersson (2008) have found significantly higher life satisfaction associated with self-employment, thus providing additional evidence for procedural utility. Finally, studies on part-time employment provide mixed and not yet conclusive results (Berger (2009), Booth & van Ours (2008), Gash *et al.* (2010), Willson & Dickerson (2010)). Most studies examine differences among employment statuses, but occasionally, selected job aspects are also examined explicitly in life satisfaction research. For instance, Geishecker (2010), Knabe & Rätzel (2010), Lüchinger *et al.* (2008) study the influence of job security or job worries on life satisfaction. Their results suggest job security is appreciated, i.e., increases life satisfaction.

3   Conceptional Background

To evaluate human well-being from the CA perspective, it is the functionings space that is of key interest; see Sen (1987, 1992).[3] The functioning vector b_i describes the achievements in doings and beings that individuals have reason to value. Resources allow the individual to choose a commodity vector x_i, which provides a certain mix of characteristics $c(\cdot)$. Characteristics in turn are converted into achievements, given the conversion function $f(\cdot)$, which depends on individual, social, and environmental conversion factors $z_\bullet$. The following equation summarizes these aspects:

$$b_i = f(c(x_i), z_i, z_s, z_e) \tag{1}$$

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[3]Sen (1993) emphasizes that analyzing well-being achievements is only one of several distinct exercises the capability approach allows for. The conceptual framework, however, remains the same.

Finally, Sen (1987) put forward the valuation function $v(\cdot)$ and the happiness function $h(\cdot)$, which are obviously well suited for linking the CA and the LSA more closely. The present approach, however, builds upon their common feature of being defined on the functionings space, leaving the issue of a closer link for future research.[4] Several aspects related, more specifically, to work from a capability perspective are discussed, e.g., in Leßmann & Bonvin (2011), Leßmann (2012).

The present approach, however, considers labour as an activity which provides Lancaster-type characteristics, i.e., characteristics are conceived as objectively attached to the goods or activities in question. The underlying idea is that an individual's endowment of time can be spent on various activities, each providing a certain mix of characteristics, which in turn are inputs for the production of functionings.[5] Other recognized aspects associated with labour, such as hours worked, are not considered as characteristics in Lancaster's sense. The key motivation for such an approach is that the activity of labor may affect several distinct functioning achievements, such as being healthy or appearing in public without shame. Thus, this framework has the merit of not reducing the influence of work to some employment dimension a priori, and thereby allowing for the holistic nature of the CA. This point clearly shows why job satisfaction is a too narrow concept for SWB from a CA point of view. Second, to conceive labor as a characteristic-providing activity allows for a dependence of the conversion of characteristics into functionings on various factors. For instance, the enforcement of employment protection requires also a working judicial system. Finally, as labor may show up in various manifestations, such as wage labor, self-employment, or housework, these different manifestations are, in principle, also straightforward to in-

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[4]How to link the (rather empirical) subjective well-being literature more closely to the CA is not yet clear. For a discussion see Comim (2005, 2008), Schokkaert (2007), Stewart (2012). The present study does not explicitly address this issue. Nonetheless, it illustrates how to employ the widely used life satisfaction framework to analyze questions from a CA perspective. From the CA perspective the LSA may provide valuable insights regarding (i) what people in fact do value (evidential interest), (ii) information about preferences, (iii) how to conceive happiness and life satisfaction within the CA, and (iv) the nature and prevalence of adaptive preferences.

[5]More details are provided in Suppa (2012b), but also see Lancaster's characteristics approach to occupational choice.

clude, namely as additional activities. Regarding the various manifestations of labor, the present study confines itself to *regular jobs*, i.e., wage labor and self-employment. A more comprehensive approach allowing for several activities is left for future research.

For the present exercise characteristics, like goods as well, are of derived interest only, as they are used as means for achieving functionings; see Sen (1984). The hypothesis the present study examines empirically—whether favourable job characteristics are associated with a higher life satisfaction—is, therefore, not motivated by an intrinsic valuation of the characteristic itself. Instead, job characteristics are valued *for* helping functionings to achieve, i.e., they are of instrumental interest only. Clearly, we expect the job characteristics to be correlated with life satisfaction only as long as the relevant functioning achievements themselves are not controlled for. Taking explicit account of functioning achievements is, however, beyond the scope of the present paper and is thus left for future research.

4   Data and Empirical Approach

I use the HILDA waves 2005–2010, in which the indicators of job characteristics of interest are asked for yearly.[6] I confine the sample to individuals who are aged 20–60 and are in the labor force. The unemployed are included in life satisfaction regressions but excluded from job satisfaction ones. Thus, the sample for life satisfaction analysis contains roughly 20,000 person-year observations from 5,500 each males and females, while for the job satisfaction regression there are roughly 18,000 person-year observations from roughly 5,000 each males and females.

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[6]This paper uses unit record data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA Project was initiated and is funded by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) and is managed by the Melbourne Institute of Applied Economic and Social Research (Melbourne Institute). The findings and views reported in this paper, however, are those of the author and should not be attributed to either FaHCSIA or the Melbourne Institute. Wooden & Watson (2007), Summerfield *et al.* (2011) provide more details. The data was extracted using PanelWhiz Haisken-DeNew & Hahn (2010).

[Table 1 about here.]

Table 1 shows the indicators of job characteristics, the wording of the corresponding questions, and the latent constructs they are expected to load on. A prior exploratory factor analysis suggested the existence of four factors, based on both the Kaiser-Meyer-Olkin criterion and a scree plot (data not shown). Some indicators have been discarded (indicated by a dash in Table 1), either because they are conceptually unrelated to the constructs or because of their poor empirical performance or both.

The setup of the confirmatory factor analysis (CFA) is congeneric. Factors are allowed to be correlated, whereas errors are not. Factor variances are normalised to 1. To ease interpretation of the results later on, I collapse the factor score variable into a binary, using individual thresholds.[7] The econometric model for analyzing the job characteristics' influence on life satisfaction is given by

$$LS_{it} = \beta_1 PT_{it} + \beta_2 SE_{it} + \beta_3 UE_{it}$$
$$+ \sum \theta_j \widetilde{\gamma}_{jit} \times working_{it} + \boldsymbol{X}'\beta + \epsilon_{it}, \qquad j = 1, \dots, 4 \qquad (2)$$

The dependent variable is the response to the general life satisfaction question, recorded on a 0–10 scale. I distinguish four different employment statuses: part-time (PT), self-employed (SE), unemployed (UE), and full-time, the last serving as the reference group. The predicted values for latent job characteristics are interacted with a dummy for working, which is 0 for the unemployed. The control set includes dummies for age groups, martial status, and years, a dummy for long-term health conditions, log equivalent real household income to capture consumption, and years of education. Finally, I also control for a mismatch of desired and actual hours worked.[8] Ferrer-i-Carbonell & Frijters (2004) demonstrate that controlling for unobserved het-

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[7]More specifically, $\widetilde{\gamma}_{jit} = \mathbb{1}(\widehat{\gamma}_{jit} > \overline{\widehat{\gamma}}_{ji})$ with $\overline{\widehat{\gamma}}_{ji} = \frac{1}{T_i} \sum \widehat{\gamma}_{ijt}$ for $j = 1, \dots, 4$, where $\widehat{\gamma}_{jit}$ is the factor score for characteristic j of individual i in year t. Moreover, I also used common thresholds for all, which, however, failed to affect the findings substantially.

[8]To do so, I construct two dummies, indicating desired hours of work being greater and smaller than actual hours worked (under- and overemployed); actually working the desired amount serves as the reference group.

erogeneity in life satisfaction regressions is crucial, which is why I use the linear fixed effects estimator. To examine the role of unobserved heterogeneity in the present context explicitly, I employ a bootstrap-adapted Hausman test.[9] As the effects might be gender-specific, all estimations are carried out separately for men and women. Although the key objective is to analyse the effect on *overall* SWB, I also examine the effect on domain-specific well-being for reasons of consistency. The econometric model for analyzing job satisfaction,

$$
\begin{aligned}
JS_{it} = \beta_1 PT_{it} + \beta_2 SE_{it} \\
+ \sum \theta_j \widetilde{\gamma}_{jit} + \boldsymbol{X}'\beta + \epsilon_{it}, \qquad j = 1,\dots,4
\end{aligned}
\tag{3}
$$

is basically the same as (2), but now the group of unemployed is dropped and I additionally include job-related control variables, common in that literature, such as tenure, tenure squared, occupation and industry dummies, and the firm's number of workers. The answers to the question about one's satisfaction with one's job are also recorded on a 0–10 scale. The expectation for the effect of a *good* job characteristic on job and life satisfaction, such as access to autonomous decisions, is $\widehat{\theta}_j > 0$. For a *bad* job characteristic, such as a high workload, the expectation is $\widehat{\theta}_j < 0$. The underlying motivation for this expectation is that job characteristics that are vital for some functioning achievement, which individuals have reason to value, are of derived interest, as outlined in the previous section. Therefore, a favourable job characteristic is expected to increase life satisfaction, conditional on the respective functioning not being controlled for.

5   Results

Table 2 shows the CFA's factor loadings, the factor correlations, and some goodness-of-fit statistics. All but two indicators (JC_stress and JC_stillbusy)

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[9]The standard Hausman test fails to be applicable in the present context, since it requires the random effects estimator to be efficient, which is an invalid assumption in a setting where standard errors are required to be robust or to account for clustering.

show a factor loading greater than 0.5, therefore being a first indication of convergence validity. Squaring the factor loadings reveals that for eight indicators the share of variation explained by factors is greater than 0.5. The mid part of Table 2 suggests that allowing the factors to be correlated is justified.

[Table 2 about here.]

The lower part of Table 2 suggests that the model's overall fit is acceptable or good; see, e.g., Brown (2006). To assess convergent and discriminant validity in more detail, Table 3 provides information about the average variance extracted (AVE), the construct reliability (CR), and the squared interconstruct correlations. Since for most factors $AVE(\psi_j) > 0.5$ and $CR(\psi_j) > 0.7$, this adds further evidence for the constructs being convergently valid. Moreover, the Fornell-Larcker criterion, $AVE(\psi_j) > \phi_{kj}^2 \ \forall k \neq j$, aiming to assess discriminant validity, is also fulfilled for all factors. Finally, additional evidence for the validity of self-assessed job characteristics is provided by studies that demonstrate them to be, in fact, related to observed choices.[10]

[Table 3 about here.]

[Table 4 about here.]

Table 4 provides the results of the life satisfaction regressions, separately for males and females. The results show, first, that without any control variables of the labor force status, only unemployment is associated with a significantly lower life satisfaction than is full-time employment. Second, this result holds irrespective of including the controls. Third, the job characteristics' coefficients all appear with the expected sign, and are significantly different from zero. The aforementioned results hold for both males and females. Therefore, the results of Table 4 indicate that characteristics associated with the activity of labor contribute to satisfaction with life in general, i.e., to overall subjective well-being.

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[10]Cornelißen (2009) shows job characteristics to be associated with quitting and changing jobs, using German data. Kunze & Suppa (2012) show that job characteristics affect labor supply behaviour in Australia.

[Table 5 about here.]

Do job satisfaction regressions provide consistent findings? Table 5 contains the results, separately for men and women. Qualitatively, the evidence supports the previous findings: while good job characteristics (e.g., autonomy) increase job satisfaction, bad characteristics (e.g., stress) decrease it. Moreover, there is no evidence for significant differences in job satisfaction attached to the employment status as such. Indeed, job characteristics seem to have a larger influence on job than on life satisfaction. Presumably, this finding is due to other domains' relevance for life satisfaction as well. However, since the results emerge from different regressions, using different dependent variables, caution is appropriate for such an interpretation.

Are the previous findings sensitive to unobserved heterogeneity, such as personality traits? In the seminal study of Ferrer-i-Carbonell & Frijters (2004), the authors demonstrated the key relevance of controlling for fixed effects in life satisfaction regressions. Many studies examining the link between job characteristics and subjective well-being, however, use cross-sectional data. Since the use of subjective assessment of job characteristics is both widespread and particularly prone to an observed heterogeneity bias, the question of their empirical relevance immediately arises. Table 6 shows the results for the life satisfaction regression using a random effects approach. Since this approach exploits between variation only, the results are biased if fixed effects matter, i.e., are correlated with the covariates. The key findings, a significant influence of job characteristics on life satisfaction and their accounting for the unemployed's dissatisfaction with life, are supported. However, the results also suggest that fixed effects, such as being optimistic, in fact are correlated with both job characteristics and employment status. For instance, the coefficients of job characteristics from the random effects results are up to four times larger than those from the within effects results.

[Table 7 about here.]

More specifically, Table 7 contains the differences between the point estimates provided by the fixed and the random effects model, along with their

bootstrapped standard errors. Since I focus on the self-assessed job characteristics, I omit the other coefficients' differences. The results suggest that the differences for all but the autonomy coefficient for women are statistically significant. Finally, the hypothesis that the differences for all job characteristics are jointly zero can be rejected for both men and women. Therefore, results on the effects of job characteristics, measured by subjective evaluation, on life or job satisfaction, if they do not control for unobserved heterogeneity, should be treated with caution.

Summing up, the results suggest that the job characteristics in question are valid constructs, which contribute to both domain-specific job satisfaction and general life satisfaction. In particular, this holds although the employment statuses are controlled for. Finally, since unobserved heterogeneity is correlated with most covariates, results based on between variation are inclined to be biased.

6   Discussion

To put the results in perspective, figure 1 illustrates the composite effects of job characteristics relative to being full-time employed, where all job characteristic dummies equal zero, i.e., in the reference group. First, the graph shows that the composite effect on life satisfaction may be up to 0.2. Second, for men this composite effect is roughly 75% of the (absolute) psychic cost associated with unemployment. However, as the present study considers only selected job characteristics, future studies may find job characteristics to be even more important for subjective well-being.

[Figure 1 about here.]

The results also indicate that the dissatisfaction associated with unemployment decreases after controlling for job characteristics for both men and women. Thus the evidence suggests that unemployed are deprived of characteristics provided by the activity of labor. From a CA perspective these characteristics are, however, of a derived interest or value only. Against this

background, unemployed are deprived of functionings for which the considered job characteristics are pivotal to achieve, which ultimately leads to a lower life satisfaction.

The present study's limits are the following. First, I confine myself to two manifestations of labor, namely, regular jobs, i.e., wage labor and self-employment. They are important, but other important manifestations of labor, such as informal work, volunteering work, or housework, are neglected. Moreover, only a subset of job characteristics is considered. This selection is due to (i) a narrow concept of characteristics (based on Lancaster's approach), (ii) a focus on job characteristics being latent, and (iii) data availability. Other aspects of labor, such remuneration or amount of work, are not examined explicitly, although being controlled for.

Future studies may improve the measurement models by adding objective indicators for the same constructs considered here (e.g., type of contract). Moreover, other directly observable job characteristics, such as entitlements or eligibilities associated with a job, may be added as well. Once the measurement models for some latent job characteristics have been set up, it is straightforward to conduct structural equation model approaches to the effect of job characteristics on selected functioning achievements. Moreover, adaptational analysis might yield new insights into the presence or absence of adaptive preferences. Finally, a more comprehensive approach may extend the analysis to other manifestations of labor.

7 Concluding Remarks

The present study has examined the influence of job characteristics on general life satisfaction, using the capability approach as the conceptional framework. A CA point of view suggests that job characteristics are associated with higher life satisfaction, since job characteristics may help to achieve functionings that individuals have reason to value. The results of the CFA suggest that the four constructs of job characteristics in question are valid, as the evidence indicates both convergence and discriminant validity. The job characteristics affect job and life satisfaction in the expected direction

and turn out to be statistically and economically significant. More specifically, they account for some heterogeneity in life satisfaction among working people, since for men the difference in life satisfaction between a good job and a bad one seems to be of roughly the same size as between a bad job and being unemployed. Moreover, job characteristics, to some extent, account for the dissatisfaction associated with unemployment. This finding suggests that unemployed, who are likely to be deprived of characteristics provided by a labor activity, are therefore less satisfied with their life in general. In sum, the results suggest that individuals do, in fact, appreciate job characteristics. The CA emphasizes that job characteristics are appreciated, since they are the vital inputs for achieving functionings that individuals ultimately have reason to value. Finally, the results indicate that controlling for unobserved heterogeneity is crucial in exercises which examine the effect of self-assessed job characteristics on subjective well-being.

Limits of the present study are as follows. First, it confines itself to two manifestations of labor, namely wage labor and self-employment. Other types of labor, possibly providing similar characteristics, such as housework, volunteering, and informal work, are neglected. Second, the selection of job characteristics was data-driven, and therefore the present study has to be considered as partial. Third, this study controlled for unobserved heterogeneity using a within estimator. For many exercises, however, panel data may not be available.

Future studies may improve the measurement models by adding objective indicators for the same constructs considered here (e.g., type of contract). Moreover, other directly observable job characteristics, such as entitlements associated with a job, may be added as well. Once accepted measurement models are available, studies may focus on the job characteristics' effect on specific functioning achievements or pursue an adaptational analysis. Finally, future research may also extend the analysis to characteristics provided by other manifestations of labor.

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Table 1: Indicator Variables for Job Characteristics

Variable	Question	latent JC
since 2001		
JC_stress	My job is more stressful than I had ever imagined	stress
JC_makesill	I fear that the amount of stress in my job will make me physically ill	—
JC_fairpay	I get paid fairly for the things I do in my job	—
JC_secure	I have a secure future in my job	security
JC_stillbusy	The company I work for will still be in business 5 years from now	security
JC_worryjob	I worry about the future of my job	security
JC_complex	My job is complex and difficult	—
JC_newskills	My job often requires me to learn new skills	—
JC_useskills	I use many of my skills and abilities in my current job	skills
JC_freedomhow	I have a lot of freedom to decide how I do my own work	autonomy
JC_lotsay	I have a lot of say about what happens on my job	autonomy
JC_freedomwhen	I have a lot of freedom to decide when I do my work	autonomy
since 2005		
JC_choicewhat	I have a lot of choice in deciding what I do at work	autonomy
JC_flex	My working times can be flexible	autonomy
JC_decidebreak	I can decide when to take a break	autonomy
JC_repitive	My job requires me to do the same things over and over again	—
JC_variety	My job provides me with a variety of interesting things to do	skills
JC_initiative	My job requires me to take initiative	skills
JC_fast	I have to work fast in my job	stress
JC_intensity	I have to work very intensely in my job	stress
JC_notime	I don't have enough time to do everything in my job	stress

Note: The responses of the statements above have been recoded on a 7-point Likert-type scale,
a 1 meaning to 'strongly disagree' and a 7 'strongly agree'

Table 2: CFA: Factor Loadings and Factor Correlations

	AUTON	STRES	SECUR	SKILL
Gamma				
JC_decidebreak	0.603	0	0	0
JC_choicewhat	0.825	0	0	0
JC_freedomhow	0.814	0	0	0
JC_freedomwhen	0.738	0	0	0
JC_lotsay	0.839	0	0	0
JC_fast	0	0.683	0	0
JC_stress	0	0.415	0	0
JC_notime	0	0.555	0	0
JC_intensity	0	0.893	0	0
JC_stillbusy	0	0	0.496	0
JC_worryjob	0	0	0.539	0
JC_secure	0	0	0.909	0
JC_initiative	0	0	0	0.789
JC_useskills	0	0	0	0.650
JC_variety	0	0	0	0.736
Phi				
AUTON	1			
STRES	0.0579	1		
SECUR	0.210	0.0636	1	
SKILL	0.561	0.441	0.359	1
goodness of fit				
std root mean resid	0.0580			
root mean sq error	0.0784			
CFI	0.909			
TLI	0.886			
CD	0.999			

Notes: Data from HILDA 2005–2010; all coefficients are standard-ized and significantly different from 0 at the 1% level . Estimation method: maximum likelihood.

Table 3: Statistics on Discriminant Validity

	AUTON	STRES	SECUR	SKILL
AVE	0.591	0.436	0.454	0.529
CR	0.877	0.742	0.698	0.770
PhiSQ				
AUTON	1			
STRES	0.00335	1		
SECUR	0.0443	0.00404	1	
SKILL	0.315	0.195	0.129	1

Table shows average variance extracted (AVE), construct reliability (CR), and squared interconstruct correlations.

Table 4: Life Satisfaction—Linear Fixed Effects Results

	males			females		
	(1)	(2)	(3)	(4)	(5)	(6)
PT	-0.0215	-0.00674	0.0109	0.0449	0.0296	0.0382
	(-0.44)	(-0.13)	(0.22)	(1.62)	(1.00)	(1.29)
SE	-0.0330	-0.0341	-0.0529	0.0245	0.0143	-0.000147
	(-0.70)	(-0.73)	(-1.14)	(0.40)	(0.23)	(-0.00)
UE	-0.279***	-0.386***	-0.270***	-0.223***	-0.227**	-0.137
	(-4.65)	(-5.13)	(-3.53)	(-3.48)	(-2.90)	(-1.72)
underemp		-0.112**	-0.104**		-0.0685*	-0.0604
		(-3.02)	(-2.80)		(-2.22)	(-1.96)
overemp		-0.132***	-0.128***		-0.146***	-0.137***
		(-6.52)	(-6.38)		(-6.64)	(-6.26)
hhlndispinc		0.0745**	0.0725**		0.0606*	0.0560*
		(2.83)	(2.77)		(2.22)	(2.06)
highAUTON			0.0394**			0.0475**
			(2.69)			(3.08)
highSTRES			-0.0400**			-0.0302*
			(-2.81)			(-2.05)
highSKILL			0.0884***			0.0495**
			(5.61)			(3.05)
highSECUR			0.0948***			0.0716***
			(6.81)			(4.98)
Cons	7.779***	7.216***	7.141***	7.802***	7.006***	6.975***
	(711.96)	(20.53)	(20.37)	(543.10)	(19.93)	(19.86)
Year dummies	No	Yes	Yes	No	Yes	Yes
soc-dem controls	No	Yes	Yes	No	Yes	Yes
r2_a	0.00318	0.0183	0.0272	0.00300	0.0154	0.0199
aic	45006.1	44721.0	44542.6	43920.6	43703.6	43619.6
N	19999	19999	19999	19078	19078	19078
N_g	5500	5500	5500	5397	5397	5397
scorecol			indiv			indiv

Notes: Sample HILDA waves 2005–2010; t-statistics in parenthesis. Dependent variable is reported life satisfaction in general on a 0–10 scale. All models estimated using linear fixed effects. Indicated levels of significance are $*$ $p < 0.05$, $**$ $p < 0.01$, $***$ $p < 0.001$.

Table 5: Job Satisfaction—Linear Fixed Effects Results

	males			females		
	(1)	(2)	(3)	(4)	(5)	(6)
PT	-0.0989	-0.0308	0.0194	0.0393	-0.0483	-0.00518
	(-1.27)	(-0.40)	(0.27)	(0.85)	(-1.01)	(-0.11)
SE	0.118	0.135	0.0492	0.179	0.129	0.0341
	(1.35)	(1.58)	(0.60)	(1.64)	(1.23)	(0.34)
2.NemplC		-0.0363	-0.0279		-0.128**	-0.0909*
		(-0.81)	(-0.65)		(-2.67)	(-2.02)
3.NemplC		0.0476	0.0540		-0.0853	-0.0598
		(0.81)	(0.97)		(-1.38)	(-1.03)
underemp		-0.269***	-0.239***		-0.282***	-0.240***
		(-4.65)	(-4.33)		(-5.64)	(-5.09)
overemp		-0.386***	-0.365***		-0.541***	-0.494***
		(-12.15)	(-11.94)		(-15.14)	(-14.55)
tenemp		-0.0502***	-0.0501***		-0.0652***	-0.0612***
		(-6.60)	(-6.88)		(-7.47)	(-7.33)
tenempSQ		0.00103***	0.00103***		0.00170***	0.00161***
		(4.52)	(4.66)		(6.09)	(5.88)
hhlndispinc		0.0509	0.0434		-0.0233	-0.0556
		(1.33)	(1.20)		(-0.58)	(-1.46)
highAUTON			0.201***			0.298***
			(9.58)			(13.93)
highSTRES			-0.168***			-0.134***
			(-7.94)			(-6.18)
highSKILL			0.289***			0.280***
			(12.61)			(11.94)
highSECUR			0.291***			0.329***
			(14.04)			(14.93)
Cons	7.523***	7.219***	7.047***	7.675***	8.126***	8.122***
	(420.59)	(15.52)	(16.03)	(332.11)	(16.73)	(17.38)
Year dummies	No	Yes	Yes	No	Yes	Yes
ind. & occ.	No	Yes	Yes	No	Yes	Yes
soc-dem controls	No	Yes	Yes	No	Yes	Yes
r2_a	0.000483	0.0314	0.0932	0.000308	0.0398	0.113
aic	52749.7	52222.0	51022.6	51651.4	50997.7	49625.4
N	18259	18259	18259	17376	17376	17376
N_g	5025	5025	5025	4977	4977	4977
scorecol		indiv	indiv		indiv	indiv

Notes: Sample HILDA waves 2005–2010; t-statistics in parenthesis. Dependent variable is reported job satisfaction in general on a 0–10 scale. All models estimated using linear fixed effects. Indicated levels of significance are * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Figure 1: Predicted change in life satisfaction for different job characteristics

Notes: Graphs are based on the results of table 4. Reference line indicates a job with low autonomy, security, skills, and stress. Jobs are characterized as follows: A: high stress, low autonomy, security, and skills; B: low stress, high autonomy; C: high autonomy and security, low stress; D: high autonomy, skills, and security, low stress. Confidence intervals are 95%.

Table 6: Life Satisfaction Results—Random Effects

	males				females			
	(1)		(2)		(3)		(4)	
PT	0.00375	(0.09)	0.0956*	(2.32)	0.0550*	(2.41)	0.0716**	(2.95)
SE	-0.0332	(-1.01)	-0.0625	(-1.96)	0.102*	(2.33)	0.0547	(1.27)
UE	-0.415***	(-8.37)	-0.295***	(-4.43)	-0.354***	(-6.67)	-0.181**	(-2.68)
underemp			-0.139***	(-4.15)			-0.0986***	(-3.45)
overemp			-0.172***	(-9.35)			-0.177***	(-8.87)
hhlndispinc			0.0962***	(4.37)			0.0811***	(3.63)
highAUTON			0.0981***	(5.02)			0.0861***	(4.21)
highSTRES			-0.0539**	(-3.02)			-0.0712***	(-3.71)
highSKILL			0.157***	(7.90)			0.168***	(8.16)
highSECUR			0.194***	(11.19)			0.167***	(9.46)
Cons	7.791***	(450.03)	6.623***	(24.85)	7.800***	(417.87)	6.517***	(23.55)
Year d.	No		Yes		No		Yes	
soc-dem	No		Yes		No		Yes	
r2_a								
aic	.		.		.		.	
N	19999		19999		19078		19078	
N_g	5500		5500		5397		5397	
scorecol			com				com	

Notes: Sample HILDA waves 2005–2010; t-statistics in parenthesis. Dependent variable is reported life satisfaction in general on a 0–10 scale. All models estimated using random effects. Indicated levels of significance are * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 7: Bootstrap-adapted Hausman test

	males		females	
highAUTON	-0.0173*	(0.00800)	-0.0153	(0.00994)
highSTRES	0.0315***	(0.00777)	0.0277***	(0.00830)
highSKILL	-0.0668***	(0.00802)	-0.0653***	(0.00862)
highSECUR	-0.0797***	(0.00765)	-0.0849***	(0.00854)
Obs.	19999		19078	
Ind.	5500		5397	
Reps.	200		200	
pjoint	0.0000		0.0000	

Note: Coefficients indicate $\tilde{\theta}_j - \hat{\theta}_j$, where $\tilde{\theta}_j$ denote estimates from linear fixed effects, and $\hat{\theta}_j$ from random effects model. The underlying predicted factor scores are collapsed using a common threshold, for both models. pjoint shows p-value for the hypothesis that coefficients jointly equal zero. Indicated levels of significance are * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.