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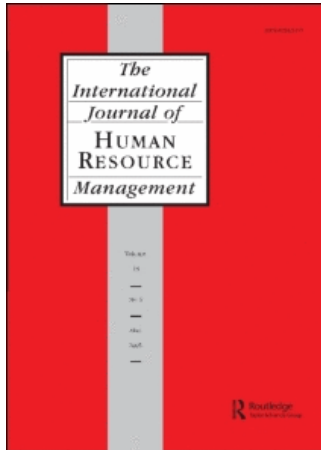
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# Participation in continuous, on-the-job training and the impact on job satisfaction: longitudinal evidence from the German labour market

*Yannis Georgellis and Thomas Lange*

**Abstract** A number of studies in the human resources literature acknowledge the importance of workplace training for inducing organizational commitment on the part of workers. However, small sample sizes and the absence of relevant panel data have raised concerns about the general validity of results and highlighted the need for further research to explicitly include on-the-job training as an important facet of job satisfaction. A similar empirical gap exists in the economics and industrial organization literature, where, despite the importance of both on-the-job training and job satisfaction to influence labour productivity, the relationship between the two has received surprisingly little attention. The aim of this paper is to bridge this gap in our knowledge and assess the impact of further training on job satisfaction in the western regions of Germany. We use data derived from the German Socio-economic Panel, which covers the period 1984 to 2002. Concentrating on full-time employed individuals, we focus in particular on the 1989, 1993 and 2000 interview waves, which include a number of questions on work-related training and offer detailed information on the type and duration of training received, and whether employers sponsored such training. The empirical results of the study provide information about the decision to participate in further training and the latter's impact on job satisfaction. Gender inequality issues in Germany's segmented labour market are explained by reference to discrepancy theory, equity theory, social exchange theory and the perception of a breach in the psychological contract between firms and female trainees.

**Keywords** Continuous, on-the-job training; job satisfaction; German labour market; segmentation; gender inequality; psychological contract.

## Introduction

Continuous training in Germany, received after completion of initial vocational education and entry in the labour market, is increasingly understood by both employers and trade unions as an important mechanism to develop and retain a productive workforce (Institut Arbeit und Technik, 1998). Employees too share this belief. According to survey evidence,

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of those who participate in further training, the majority does so in order to enhance their occupational status and knowledge while on the job (Georgellis and Lange, 1997) and 58 per cent of employees point to some form of continuous training or on-the-job learning as 'the single most important place for acquiring job skills' (Pischke, 2001: 524). These results are consistent with findings by Blechinger and Pfeiffer (2000) who show in their study of the German apprenticeship system that the longer the work experience, the less applicable the skills acquired during initial training. For example, about 60 per cent of employees in their first year of employment could apply 'very much' of their apprenticeship training in their current work, whereas the corresponding figure is only 39 per cent after 6 years of employment. Through further training, therefore, the trainee acquires valuable, marketable skills, which are not necessarily firm-specific, although sometimes firm-sponsored, and which may at some stage allow the worker to leave current employment, a fact recognized and accepted by both employers and trainees (Franz and Soskice, 1995).

Notwithstanding this observation, it is unremarkable to state that employers prefer their employees to be satisfied, since employees' satisfaction has been shown to be closely related to their labour market behaviour, such as productivity, quits and absenteeism. In fact, several studies conclude that job satisfaction is as good a predictor of quits as wages (Akerlof *et al.*, 1988; Clark *et al.*, 1998; Freeman, 1978).

The view that opportunities for training and development are major factors in decisions regarding peoples' careers is widely accepted among human resources managers and employers. A number of studies in the human resources literature also acknowledge the impact of workplace training on job satisfaction and the latter's importance for inducing organizational commitment on the part of workers, but they also highlight the need for further research to explicitly include on-the-job training as an important facet of job satisfaction (see Bartlett, 2001; Nordhaug, 1989). A similar gap exists in the economics and industrial organization literature where, despite the importance of both on-the-job training and job satisfaction to influence labour productivity, the relationship between the two has received surprisingly little attention. What is more, the small number of studies that utilizes substantive data sets to address the relationship has failed to distinguish the outcomes by type of training recipient (e.g. by gender) or source of financing of further training.

It is our aim in this paper to bridge this gap in our knowledge and assess the impact of further training on job satisfaction. To this end, we use data derived from the German Socio-economic Panel (hereafter GSOEP), which covers the western regions of Germany over the period 1984 to 2002. The data set has the main advantage of providing detailed information on demographics, household composition and labour market characteristics, including information on earnings, further training participation and job satisfaction. We use this information to determine who participated in further training. Our analysis further extends to include an assessment of the impact of further training, specifically employer-sponsored training, on job satisfaction, thus answering the call for further research on training as a determining aspect of job satisfaction.

The paper is organized as follows: in the following section we present a brief overview of results from previous studies of job satisfaction. We then describe our data, followed by a presentation of the econometric framework. The final two sections provide our findings and conclusions.

### **Job satisfaction: results from previous studies**

Traditionally, mainstream economists view subjective variables such as job satisfaction with some suspicion and as outside the purview of economic analysis. In an area that

'has chiefly been the domain of social psychologists' (Hammermesh, 1999: 1), economists, while usually lamenting subjective measurements as being too noisy to be of analytical value, have nevertheless admitted job satisfaction into the economic realm because of its impact on economic behaviour. As such, economists have grown accustomed to think of job satisfaction as a sub-utility function, which represents the utility of working as one factor of the overall utility function (Clark and Oswald, 1996). Human resource management researchers, industrial relations experts and organizational behaviour and psychology scholars, to take very different examples, have acknowledged job satisfaction for several decades as an important result of human resource practices to develop employee job fit, improve organizational performance and build an employee's affective response to aspects of the job and the employer (Blau, 1964; Cotton and Tuttle, 1986; Happpock, 1935; Lawler and Porter, 1967; Lee and Bruvold, 2003; Locke, 1976; Smith *et al.*, 1969; Tietjen and Myers, 1998; Wright and Hamilton, 1978). Recently, Judge *et al.* (2001) reviewing 301 studies found that the average correlation between job satisfaction and job performance is about .30, with even higher correlations for more complex jobs (e.g. in professional sectors). In a similar vein, numerous studies support the view that there is a strong link between job satisfaction and withdrawal behaviours such as turnover, absenteeism and early retirement.<sup>1</sup>

Against this background and in previous empirical analyses, Hammermesh (1977) tested a theory of overall job satisfaction and Freeman (1978) and Borjas (1979) investigated the effects of unionization on overall job satisfaction. Wright and Hamilton (1978) examined age-related satisfaction and Bartel (1981) linked satisfaction with the race of the respondent. In the context of general productivity, absenteeism and turnover have been reported to be influenced by job satisfaction (Hall and Buttram, 1994) and Spector (1997) observed that job satisfaction can be a reflection of the quality of organizational functioning. Clark (1997) tried to explain why women are, on average, happier at work than men and Hammermesh (1999) indicated that changes in wages also have an impact on job satisfaction. Godechot and Gurgand (2000), in turn, argue that parents' occupations influences their children's satisfaction. However, Verhofstadt and Omey (2003) remind us that causalities of any job satisfaction 'spillover' into other spheres of life may run in both directions.

In recent years, analysts' renewed attention to job satisfaction has also been extended to educational achievements. Verhofstadt and Omey (2003), for example, examined the impact of education on job satisfaction in the first job and found that higher educated people seem more satisfied than lower educated people, primarily because the former get a better job. However, after controlling for various characteristics of the job, their analysis points to a 'reversal of fortunes', with higher educated people being less satisfied about their first employment than their lower educated counterparts. While giving young employees the possibility to use their skills in a varied job contributes strongly to job satisfaction, they concede that the relationship between educational mismatch and job satisfaction is ambiguous – a result confirmed by Allen and van der Velden (2001), who find skill mismatches to be a better predictor of job satisfaction than educational mismatches. By contrast, they conclude that educational mismatches strongly affect wages.

Despite a plethora of studies focusing on job satisfaction, the role of training, especially continuous, further training<sup>2</sup> remains empirically ambivalent. To be fair, a number of occupation-specific studies has been developed, usually by way of cross-sectoral surveys, to try and disentangle the impact of different types of training on job satisfaction (e.g. Chen *et al.* (2003) on different career development programmes for R&D personnel, or the analysis by Garrido *et al.* (2005) on traditional and non-traditional

training programmes for sales managers). However, the absence of longitudinal data together with the constraints of relatively small sample sizes has raised concerns about the general validity of respective results. What is more, several studies with evidence on the effect of training remain surprisingly superficial in nature and barely extend beyond a simple, functional relationship between the provision of training and satisfaction, despite O'Brien's assertion (1986) that skill utilization is the strongest predictor of job satisfaction.

This omission is surprising considering that already in some of the early analyses of job satisfaction and with the acceptance of the latter as an economic variable Hammermesh (1977) contends that job satisfaction is an increasing function of training opportunities. This finding has recently been supported by Gazioglu and Tansel (2002: 10) who show that 'training availability during the past year leads to higher levels of job satisfaction as compared to no training'. However, no further breakdown of training by, for example, recipient characteristics or funding method is being attempted. With a similar absence of attention to further detail and in the context of retaining workers in Britain's National Health Service, Shields and Ward (2001: 677) find that 'dissatisfaction with promotion and training opportunities have a stronger impact than workload or pay'.<sup>3</sup>

Only indirectly have some attempts being made to shed some light on this issue, for example by measuring the impact of funding source. So finds Bauer (2004) in a recent study and by reference to high performance workplace organizations (HPWOs) and supplementary human resources practices that the involvement in HPWOs substantially increases the level of job satisfaction, but that *employer-provided* training contributes little to increased satisfaction levels in this context.

The present study attempts to examine the impact of further training on job satisfaction in more detail. We consider the participation in and impact of further training and various participant characteristics of German workers, and present our results and interpretations, for which the data and variables, and our empirical framework, are brought forward in the following sections.

### **The data**

Our empirical analysis is based on data from the West German sub-sample of the GSOEP. The GSOEP is a nationally representative panel data set of individuals and households, with the original sample in 1984 selected following a stratified random sampling procedure. The panel is periodically refreshed with new samples so that successive waves are representative of the relevant population in Germany. In 2002 there were approximately 12,000 households and 22,000 persons in the panel. The data set provides detailed information on demographics, household composition and labour market characteristics, including information on earnings and job satisfaction.<sup>4</sup>

The 1989, 1993 and 2000 interview waves include a number of questions on work-related training, offering detailed information on the type and duration of training received, and whether employers sponsored such training. More specifically, in each of the above three interview years, respondents were asked whether they had participated in any continuous education or work-related training during the past three years. Those who responded that they had participated in such training were asked more detailed questions about the goals, content, cost and duration of training. Additional questions about the organizer and the financing of training are asked for the most important course, according to the respondents' own evaluation, in the past three years.

Any training questions were posed to all respondents aged 16 to 64. However, given our primary interest in work-related training and the latter's funding mechanism, we consider only the responses from employed workers. At the outset, it is worth mentioning that the training questions concentrate on rather formal avenues of learning, such as written learning materials, courses, seminars and conferences. The available data, therefore, do not allow us to investigate the effect of more informal training on job satisfaction, although we acknowledge that informal learning, for example through social networks, may have a moderating impact on the level of job satisfaction (for evidence of the impact of social networks on job satisfaction, see the survey by Sullivan and Bhagat, 1992).

Previous studies have indicated that variables on gender, age, marital status, nationality of participant, previous education/skills, occupation and firm size may have an impact on both the decision to participate in training and the level of an individual's job satisfaction. Accordingly, we include these variables in our regressions. In a similar vein, the analysis by Clark (1996) suggests that poor health is likely to influence an individual's general life satisfaction. Since this may also influence judgement on job satisfaction, we include disability status in our analysis. Following Pischke (2001), the information on funding has been taken directly from questions about financial assistance or wage subsidies for training purposes, with training being classified as employer-sponsored if the answers to survey questions reveal that the employer is the organizer of the course, that the employer provided financial assistance for the course, or that training took place during work hours. To be consistent, employer sponsorship, reported benefits and the duration of training refer exclusively to the self-designated most important course.

Definitions and sample statistics of all variables used are given in the Appendix. We restrict our sample to include only those workers who were in full-time employment in the public or in the private sector. Workers in the agricultural or fishing industries are excluded from the sample. These restrictions yield an effective sample of 8,644 and 3,678 person-year observations for men and women, respectively.

### The empirical framework

We commence the empirical analysis by estimating a training participation equation based on standard personal and firm characteristics, adopting a pooled logit regression model. A latent regression is specified as:

$$y^* = b'x + \varepsilon, \quad (1)$$

and the observed counterpart to  $y^*$  is  $y = 1$  if  $y^* > 0$ . The reduced form of the model is

$$\text{Prob}[y_i = 1] = \frac{e^{b'x}}{1 + e^{b'x}}, \quad (1a)$$

where  $x$  is a vector of individual and firm characteristics, and  $y = 1$  indicates participation in training. The estimated coefficients of (1a) are reported in column 1 of Table 1. The reported t-ratios are based on robust standard errors and adjusted for intragroup correlation. We estimate the same model for the probability of participating in employer-sponsored training and report the results in column 2 of Table 1. In an attempt to assess the quality of training received, we then estimate a censored regression model for the duration of training, with the estimated coefficients shown in column 3 of Table 1.

Our choice of the censored model is driven by the fact that the duration variable includes many zeros, for the workers who did not receive training.

To uncover the relationship between training and job satisfaction, we use the ordered probit specification, which is theoretically superior to most other models for the ordinal, categorical job satisfaction data we aim to analyse.<sup>5</sup> We assume that a latent and continuous measure of job satisfaction, a proxy for utility, is given by:

$$S_i^* = \beta' z_i + e_i, \quad (2)$$

where  $z_i$  is a vector of explanatory variables describing individual and firm characteristics,  $\beta$  is a vector of parameters to be estimated and  $e_i$  is a random error term (assumed to follow the normal distribution).

The observed and coded discrete job satisfaction variable  $S_i$  is determined from the model as follows:

$$S_i = \begin{cases} 0 & \text{if } -\infty \leq S_i^* \leq \mu_1 \\ 1 & \text{if } \mu_1 < S_i^* \leq \mu_2 \\ 2 & \text{if } \mu_2 < S_i^* \leq \mu_3 \\ & \vdots \\ 10 & \text{if } \mu_{10} < S_i^* \leq \infty \end{cases} \quad (2a)$$

where  $\mu_i$  represents thresholds to be estimated (along with the parameter vector  $\beta$ ). Positive signs for the estimated parameters  $\beta$  indicate higher levels of job satisfaction as the value of the associated variables increases. Negative signs suggest the converse. The results of the ordered probit estimation are shown in Table 3.

### The results

Based on the above sample and empirical specifications, we first estimate separate logit models for the probability of a worker participating in any type of continuous training and the probability of participating in firm-sponsored training, controlling for personal and firm characteristics, previous skills and qualifications, industrial sector and region. Given the great variety of types of training reported, we also assess whether a clear pattern emerges regarding the length of training received, presuming that training duration is a proxy for training quality. We then examine whether participation in continuous training can explain workers' overall job satisfaction, even after controlling for wages and other job and personal characteristics.

As the results in Table 1 show, important gender differences in further training participation are evident in that men are more likely to participate in continuous training than women, with such differences being particularly prominent when it comes to participation in training schemes sponsored by employers. This is consistent with the earlier findings by Georgellis and Lange (1997), suggesting that gender differences in further training participation remain a salient feature of the German labour market. As expected, there is an inverse U-shaped relationship between age and training participation, implying that recently trained young individuals are unlikely to participate immediately in further training but that participation probabilities increase when a number of years of labour market experience have been accumulated. There is also strong evidence that German nationals are more likely to participate in continuous

**Table 1** *Training incidence and duration*

	<i>Participation in training (logit model)</i>		<i>Censored regression model</i>
	<i>Any training</i>	<i>Employer sponsored training</i>	<i>Duration of training (in weeks)</i>
Constant	-3.220 (0.495)***	-4.014 (0.530)***	1.883 (0.590)
Male	0.101 (0.606)*	0.273 (0.066)***	0.097 (0.073)
Age	0.534 (0.019)***	0.057 (0.020)***	-0.005 (0.020)
Age <sup>2</sup>	-0.001 (0.0002)***	-0.001 (0.0002)***	-0.001 (0.0002)*
German national	0.939 (0.897)***	0.894 (0.107)***	0.492 (0.081)***
Disabled	-0.059 (0.106)	-0.078 (0.114)	-0.136 (0.130)
Number of children	-0.112 (0.292)	-0.005 (0.031)	-0.044 (0.035)
<i>Marital status</i>			
Never married	-0.382 (0.180)**	-0.360 (0.190)*	-0.713 (0.255)***
Divorced	-0.241 (0.193)	-0.210 (0.201)	-0.331 (0.263)
Widowed	-0.132 (0.286)	-0.140 (0.301)	-0.405 (0.362)
<i>Skills/occupation</i>			
Semi-skilled	0.062 (0.179)	0.026 (0.209)	0.022 (0.120)
Skilled	1.197 (0.169)***	1.139 (0.199)***	0.554 (0.123)***
Foreman	1.756 (0.190)***	1.483 (0.222)***	1.260 (0.175)***
Qualified professional	1.970 (0.168)***	1.768 (0.199)***	1.621 (0.126)***
Highly qualified professional	2.503 (0.173)***	2.319 (0.203)***	2.294 (0.136)***
Manager	2.246 (0.218)***	2.025 (0.253)***	1.951 (0.252)***
Public/higher rank	1.894 (0.199)***	1.844 (0.228)***	2.261 (0.208)***
Public/upper rank	2.656 (0.193)***	2.215 (0.222)***	3.306 (0.174)***
<i>Firm size</i>			
Small (20–200)	0.039 (0.081)	0.040 (0.093)	0.008 (0.088)
Medium (200–2000)	0.306 (0.083)***	0.360 (0.094)***	0.254 (0.092)***
Large (>2000)	0.654 (0.083)***	0.702 (0.092)***	0.749 (0.097)***
<i>Sector</i>			
Mining	-0.766 (0.354)***	-0.701 (0.350)**	-0.990 (0.441)**
Manufacturing	-0.367 (0.211)*	-0.428 (0.210)**	-0.238 (0.299)
Construction	-0.738 (0.233)***	-0.863 (0.239)***	-0.524 (0.314)*
Trade	-0.384 (0.224)*	-0.348 (0.224)	-0.451 (0.309)
Transport	-0.303 (0.238)	-0.354 (0.239)	-0.296 (0.330)
Bank, insurance	0.226 (0.230)	0.299 (0.226)	0.629 (0.334)*
Services	-0.006 (0.214)	-0.054 (0.212)	-0.031 (0.302)
<i>Federal state</i>			
Schleswig-Hols	-0.466 (0.184)**	-0.271 (0.204)	-0.557 (0.244)**
Hamburg	-0.220 (0.209)	0.121 (0.222)	-0.193 (0.284)
Lower Saxony	-0.181 (0.147)	-0.028 (0.167)	-0.170 (0.197)
Bremen	-0.135 (0.256)	-0.122 (0.293)	-0.265 (0.369)
N-Rhein-Westfa.	-0.322 (0.135)**	-0.234 (0.155)	-0.412 (0.185)**
Hessen	-0.200 (0.149)	-0.013 (0.167)	-0.385 (0.201)*
R-Pfalz, Saarl	-0.141 (0.153)	-0.091 (0.174)	-0.332 (0.210)
Baden-Wuerttemb	-0.412 (0.142)***	-0.231 (0.162)	-0.489 (0.189)**
Bavaria	-0.343 (0.139)**	-0.278 (0.160)	-0.541 (0.190)***
Pseudo R <sup>2</sup>	0.190	0.161	0.035

Notes: Robust standard errors in parentheses; (\*) significant at 10%; (\*\*) significant at 5%; (\*\*\*) significant at 1 per cent. Reference categories: married, unskilled, firm size very small (<20 employees), energy sector, West Berlin.



training, including employer sponsored training, than non-nationals, while other factors such as disability and the number of children in the household are not statistically significant at conventional levels of significance. Interestingly, compared to married individuals, non-married workers are less likely to participate in training.

There is also a strong link between participation in further training and previous skills or qualifications. Skilled workers, foremen and those with professional or managerial qualifications are significantly more likely than semi-skilled or unskilled workers to receive continuous training, including training sponsored by employers. This is also true for higher or upper-rank public sector workers. The link between training participation and previous skills or qualifications is well documented, both in the literature on German training and elsewhere. In a German context, Nuissl and Pehl (2004) report that participation in continuing vocational education is above average among those with higher levels of initial education – in 1999, only 3.1 per cent of people with lower secondary leaving certificates took part in such training, while the proportion was 20.6 per cent among those who had successfully completed upper secondary education. Our results confirm that previous education and skills serve as strong predictors for the likelihood of future participation in further training.

Continuous training is most prevalent in medium-sized and large firms, where such training is also likely to be of higher quality than training in smaller firms. This conjecture is supported by the results in column 3 reaffirming the existence of a positive relationship between firm size and the duration of continuous training. Numerous studies, focusing on apprenticeship training, examine the link between firm size and training, arguing that firm size is not only a proxy for the overall quality but also the nature of training – whether mostly general or specific (see Bougheas and Georgellis, 2004; Harhoff and Kane, 1997; Winkelmann, 1996, among others). There seems to be a consensus among these studies that training in large firms, with a larger concentration in the industrial sectors, tends to be of higher quality than training in small firms, mostly in the crafts sector. However, the debate about the nature of training is yet to be settled. Although training in large firms tends to be mostly general, it also incorporates a substantial firm-specific component, raising the issue of how transferable the skills acquired through continuous training really are.

The job satisfaction variable in the panel is compiled by responses to the question: 'How satisfied are you today with the following areas of your life? Please answer by using the following scale in which 0 means totally unhappy and 10 means totally happy. If you are partly happy and partly not, select a number in between.' Our summary in Table 2 offers some first tentative evidence of the link between training and job satisfaction, indicating that mean satisfaction scores and proportions reporting higher satisfaction increase with training and whether training is being sponsored by the employer.

Turning to the determinants of job satisfaction, the results in Table 3 confirm the existence of a strong relationship between age and job satisfaction, consistent with the findings of previous studies. Such studies tend to find that the effect of age on overall job satisfaction is greater than the effect of gender, ethnicity, education or earnings. Most notably, our results support the hypothesis of a U-shaped relationship between job satisfaction and age, which Clark *et al.* (1996) attribute to individuals' personal circumstances and life-stage, non-job factors that affect job satisfaction. Disability has a significant negative effect on job satisfaction, reflecting perhaps the fact that those workers limited by poor health or disability tend to report low levels of satisfaction with all aspects of their life or because they are generally more likely to be in generally unsatisfying jobs (Clark, 1996). The effect of marital status is generally not statistically significant, with the exception of widowhood for men and being never married for

**Table 2** *On-the-job training and job satisfaction*

	<i>Males</i>			<i>Females</i>		
	<i>Participated in training</i>		<i>Participated in employer-sponsored training</i>	<i>Participated in training</i>		<i>Participated in employer-sponsored training</i>
	<i>No</i>	<i>Yes</i>		<i>No</i>	<i>Yes</i>	
Mean job satisfaction score	7.20	7.23	7.42	7.15	7.29	7.32
Proportion reporting high job satisfaction (>7)	52.78%	54.21%	57.56%	51.89%	54.3%	54.8%

**Table 3** *Further training and job satisfaction: ordered probit regressions*

	<i>All</i>	<i>Males</i>	<i>Females</i>
Male	0.011 (0.024)	–	–
Age	–0.045 (0.007)***	–0.045 (0.009)***	–0.051 (0.013)***
Age <sup>2</sup>	0.0005 (0.00001)***	0.0005 (0.0001)***	0.0006 (0.0002)***
German national	–0.036 (0.026)	–0.031 (0.031)	–0.048 (0.048)
Disabled	–0.186 (0.041)***	–0.176 (0.048)***	–0.214 (0.807)***
Log (earnings)	0.114 (0.026)***	0.163 (0.035)***	0.043 (0.040)
Tenure	–0.0006 (0.001)	–0.002 (0.001)*	0.003 (0.002)
<i>Training participation</i>			
Any training	–0.096 (0.038)**	–0.105 (0.047)**	–0.070 (0.064)
Firm-sponsored training	0.084 (0.037)**	0.100 (0.045)**	0.046 (0.065)
Duration of training	0.007 (0.004)	0.006 (0.005)	0.008 (0.008)
<i>Marital status</i>			
Never married	–0.027 (0.027)	0.016 (0.034)	–0.086 (0.449)**
Divorced	0.025 (0.039)	0.014 (0.054)	0.024 (0.058)
Widowed	0.064 (0.086)	0.289 (0.143)**	–0.069 (0.106)
<i>Firm size</i>			
Small (20–200)	0.0006 (0.031)	0.017 (0.038)	–0.020 (0.052)
Medium (200–2,000)	–0.027 (0.032)	–0.004 (0.040)	–0.065 (0.054)
Large (>2,000)	0.022 (0.033)	0.041 (0.040)	–0.001 (0.055)
<i>Log likelihood</i>	–24227.24	–16889.07	–7307.67

*Notes:* Robust standard errors in parentheses; (\*) significant at 10 per cent; (\*\*) significant at 5 per cent; (\*\*\*) significant at 1 per cent. Reference categories: married, unskilled, firm size very small (<20 employees). Regressions include sector, occupation and region dummies.

women. As Clark (1996) points out, widowhood is probably the only marital status that can be considered as exogenous, and that widowed individuals may value highly the social contact associated with work. The negative coefficient of being single for women is generally consistent with previous results supporting the view that marriage has a positive effect on job satisfaction.

Earnings are positively associated with overall job satisfaction, but this result is stronger for men. The results in Table 3 provide only very weak evidence of a positive link between earnings and job satisfaction for women. Previous studies find that women tend to report higher levels of job satisfaction despite generally lower earnings than men. A possible explanation is that women experience labour market success that is greater than their expectations (Clark, 1997) or that women value other aspects of a job more highly than earnings. For example, women may have different occupational strategies and desires for non-standard work schedules, due to child-care concerns and responsibilities (see for example, Bianchi, 2000).

Turning to the main coefficients of interest, the results in Table 3 also show that while there is an inverse relationship between participation in any training and job satisfaction, organization-sponsored training has a positive impact on job satisfaction for men but this is not the case for women. This is true even after controlling for earnings and other factors that affect job satisfaction.

These findings have important organizational and human resource implications. After controlling for earnings, wage growth differentials between men and women in Germany following further training cannot be held responsible for our findings. However, by drawing appreciably on the psychology and human resources literature, the result may be explained by reference to pre-training expectations of increased self-confidence and occupational mobility once training has been completed. Self-confidence, in this context,

has been interpreted as the ability to influence what happens to oneself, often referred to as 'self-actualization' and the realization of ambitions (Knudsen and Sklaalvik, 1979; Nordhaug, 1989). As such, it is possible that both men and women anticipate a greater degree of occupational mobility post training, but that this ambition becomes a reality primarily for male participants. This interpretation is consistent with recent findings by Fitzenberger and Kunze (2005) who show that despite a narrowing gender wage gap in Germany after completion of training, occupational mobility remains a barrier for women, largely due to Germany's persistent and gender-enforced labour market and training segmentation (Georgellis and Lange, 1997). It also supports earlier findings by Blossfeld (1987) and Schömann (1993) who observe that further training in Germany operates as a confirmation of existing lines of labour market segmentation rather than making borders between labour market segments more transparent. Both authors argue that labour market segmentation is particularly evident between male and female workers as the German system of initial vocational education and apprenticeship places young men and women in non-overlapping, sex-typed career lines, which further training only reinforces. Our sample means of further training by gender and industrial sector (see Appendix) also show a disproportionately high level of participation of women in stereotypically female sectors (banking, insurance and services sectors) and low participation rates in typically male dominated sectors (manufacturing, construction, mining), which adds further credence to these assertions. Low levels of job satisfaction among German women post training may thus be seen as a consequence of unfulfilled career development and mobility expectations and, compared to their male counterparts, may be particularly pronounced if women interpret employer-sponsored training as an opportunity to facilitate respective career moves, which fail to materialize.

Against this background, the arguments popularized in discrepancy theory (Locke, 1976), equity theory (Adams, 1965) and social exchange theory (Blau, 1964) add further strengths to our reasoning. Drawing on these theoretical developments we contend that job satisfaction derives from employees' perception of the correspondence between what they expect and what they receive at work (discrepancy) and whether a balance exists between what the employer gives and what the employee receives from the firm (equity) together with considerations of what other employees receive from the firm (relative equity). Along similar lines, the motivational processes of social exchange theory incentivize employees who believe that committed organizations provide employer-sponsored training for the benefit of employees (e.g. to support career development ambitions) to reciprocate by way of attitudinal and behavioural commitments that are of benefit to the firm. The provision of funded training opportunities and respective expectations can thus lead to an emotional attachment to the firm and the development of a psychological contract between the firm and employees (Wright and Boswell, 2002), which can be interpreted as a consequence of a satisfactory exchange. As such, and based on the analysis by Tekleab and Taylor (2001), it can be argued that in the absence of a high level of agreement about the obligation of the firm, employees may perceive this situation to constitute a contract violation, with foreseeable consequences for the level of job satisfaction.

Returning to our empirical findings, we deduce that despite participation in employer-sponsored further training women in Germany do not enjoy the same expected benefits as men do in the form of career development opportunities and occupational mobility – a discrepancy between expected and actual returns to the investment. The reciprocal exchange, driven by the perception of a breach in the psychological contract, is thus likely to take the form of a cost rather than a benefit for the firm, which may lead to low levels of job satisfaction, in turn leading to low levels of motivation, commitment and productivity. As mentioned previously, the copious literature on the effects of low levels

of job satisfaction responds to our interpretation in the affirmative and demonstrates that low job satisfaction is a strong predictor for lateness behaviour, absenteeism, quits, productivity and a lacking commitment to the goal of the firm.

### **Conclusion**

The job satisfaction of employees has grown in importance. In a world where capital is mobile as never before and where the nation state seems impotent in the face of economic change, attracting, developing and retaining a skilled, motivated and satisfied workforce seems to be all an organization has going for it if it wishes to maintain and improve its productivity and competitiveness. In fact, 'it seems intuitively likely that on average a more highly trained labour force will be better equipped to meet the rapid change in technology, tastes and organisations, which are characteristic of modern economies' (Lange, 2006: 73–4). Continuous vocational training for a firm's workforce has been held up as a human resource practice, which will do precisely that. However, our research findings suggest that German firms committed to providing funded training opportunities for employees may encounter rather different results for different target groups. Specifically, when designing and implementing further training programmes they need to be aware that significant gender inequality issues may arise.

Due to the availability of a large-scale, longitudinal data set, our analysis enabled us to provide a relatively comprehensive account of the participation of German workers in further training and the latter's impact on job satisfaction. Consistent with previous studies, we have shown that participation depends heavily on individual labour market characteristics, such as age, gender, previous qualifications, marital status, nationality of the individual and the size of the firm in which the employee operates.

The richness of our data also allowed us to examine the impact of further training, including the role of employer-sponsored training, on job satisfaction. Our analysis supported a U-shaped relationship with age and demonstrated statistically significant relationships between job satisfaction and health, marital status and earnings. After controlling for earnings and other job and personal characteristics, our results indicated that employer-sponsored further training has a positive, statistically significant effect on the job satisfaction of men, but that the same does not hold true for women. By drawing on such established approaches as discrepancy theory, equity theory and social exchange theory, we interpreted our findings by reference to Germany's well-documented labour market segmentation, which may result in a perceived breach in the psychological contract between the sponsoring firm and female trainees, and an occupational lock-in effect for women. Compared with their male counterparts, women's lower levels of job satisfaction post training were explained on this basis.

Our results and respective interpretations have significant implications for the German labour market, which experienced a growth in female labour market participation from 52.3 per cent in 1984 to 64.5 per cent in 2002 (Bundesagentur für Arbeit, 2005). Unions, firms and policy makers who understand the issues involved have a responsibility to address this inequality sooner rather than later.

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**Notes**

- 1 See Saari and Judge (2004) for a systematic summary of the causes and consequences of job satisfaction in the HR and organizational psychology literature.
- 2 Throughout our analysis, 'continuous training' and 'further training' are used interchangeably.
- 3 To be fair, the study by Shields and Ward (2001) differentiates by recipient characteristics but fails to distinguish the results by funding method.
- 4 For a detailed description of the GSOEP data see Burkhauser *et al.* (2001).
- 5 See McKelvey and Zavoina (1975) for a description of the ordered probit model.

**Appendix Variable definitions and sample means**

	<i>Definitions</i>	<i>Means</i>		
		<i>All</i>	<i>Males</i>	<i>Females</i>
Male	Dummy variable: 1 for male; 0 otherwise.	0.702	–	–
Age	Age in years	39.233	40.115	37.159
German national	Dummy variable: 1 for German national; 0 otherwise	0.784	0.781	0.792
Disabled	Dummy variable: 1 for disability; 0 otherwise	0.059	0.061	0.054
Number of children	Number of children in household	0.707	0.850	0.372
Log (earnings)	Logarithm of gross hourly real wage calculated using monthly earnings and usual, weekly hours of work	10.917	11.020	10.673
Tenure	Job tenure in years	11.240	12.185	9.020
<i>Training participation</i>				
Any training	Dummy variable: 1 if received any training in last three years; 0 otherwise	0.284	0.285	0.283
Firm-sponsored training	Dummy variable: 1 if training was sponsored by employer; 0 otherwise	0.208	0.217	0.187
Duration of training	Duration of training in weeks	0.905	0.907	0.900
<i>Marital status</i>				
Never married	Dummy variable: 1 for never married; 0 otherwise	0.247	0.206	0.343
Divorced	Dummy variable: 1 for divorced; 0 otherwise	0.068	0.049	0.113
Widowed	Dummy variable: 1 for widowed; 0 otherwise	0.127	0.005	0.030
<i>Skills/occupation</i>				
Semi-skilled	Dummy variable: 1 for semi-skilled; 0 otherwise	0.208	0.199	0.229
Skilled	Dummy variable: 1 for skilled; 0 otherwise	0.219	0.262	0.117
Foreman	Dummy variable: 1 for foreman; 0 otherwise	0.050	0.068	0.006
Qualified professional	Dummy variable: 1 for qualified professional; 0 otherwise	0.224	0.155	0.387
Highly qualified professional	Dummy variable: 1 for highly qualified professional; 0 otherwise	0.124	0.143	0.082
Manager	Dummy variable: 1 for manager; 0 otherwise	0.019	0.022	0.010

**Appendix** (Continued)

	<i>Definitions</i>	<i>Means</i>		
		<i>All</i>	<i>Males</i>	<i>Females</i>
Public/higher rank	Dummy variable: 1 for higher rank public sector worker; 0 otherwise	0.038	0.045	0.020
Public/upper rank	Dummy variable: 1 upper rank public sector worker; 0 otherwise	0.055	0.061	0.040
<i>Firm size</i>				
Small (20–200)	Dummy variable: 1 for firm employing between 20 and 200 employees; 0 otherwise	0.283	0.278	0.295
Medium (200–2,000)	Dummy variable: 1 for firm employing between 200 and 2000 employees; 0 otherwise	0.272	0.265	0.290
Large (>2,000)	Dummy variable: 1 for firm employing more than 2000 employees; 0 otherwise	0.299	0.324	0.241
<i>Sector</i>				
Mining	Dummy variable: 1 for mining; 0 otherwise	0.008	0.012	0.001
Manufacturing	Dummy variable: 1 for manufacturing; 0 otherwise	0.419	0.460	0.325
Construction	Dummy variable: 1 for construction; 0 otherwise	0.082	0.112	0.012
Trade	Dummy variable: 1 for trade; 0 otherwise	0.092	0.073	0.134
Transport	Dummy variable: 1 for transport; 0 otherwise	0.040	0.049	0.020
Bank, insurance	Dummy variable: 1 for bank, insurance; 0 otherwise	0.044	0.036	0.064
Services	Dummy variable: 1 for services; otherwise	0.303	0.244	0.439
<i>Federal state</i>				
Schleswig-Hols	Dummy variable: 1 for Schleswig-Hols; otherwise	0.032	0.033	0.030
Hamburg	Dummy variable: 1 for Hamburg; 0 otherwise	0.019	0.016	0.026
Lower Saxony	Dummy variable: 1 for Lower Saxony; 0 otherwise	0.102	0.105	0.096
Bremen	Dummy variable: 1 for Bremen; 0 otherwise	0.009	0.009	0.010
N-Rhein-Westfa	Dummy variable: 1 for N-Rhein-Westfa.; 0 otherwise	0.267	0.270	0.258
Hessen	Dummy variable: 1 for Hessen; 0 otherwise	0.099	0.101	0.095
R-Pfalz, Saarl	Dummy variable: 1 for R-Pfalz, Saarl; 0 otherwise	0.071	0.073	0.066
Baden-Wuerttemb	Dummy variable: 1 for Baden-Wuerttemb; 0 otherwise	0.187	0.187	0.185
Bavaria	Dummy variable: 1 for Bavaria; 0 otherwise	0.185	0.181	0.195

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