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Control and job satisfaction

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Data:
This study uses the Linked Personnel Panel (LPP), wave 1213, 1415 and 1617, DOI: 10.5164/IAB.LPP1617.de.en.v1. Data access was provided via on-site use at the Research Data Centre (FDZ) of the German Federal Employment Agency (BA) at the Institute for Employment Research (IAB) and subsequently remote data access.

Abstract

Job satisfaction has been found to affect firm commitment, absenteeism, turnover and therefore firm productivity. Automatically, this stresses the importance of what drives job satisfaction. One potential driver of job satisfaction to which little research has been conducted is control. In this paper, I define control as discretion, the control one has over him- or herself in doing his or her work, and supervisory control, the control one has over others in his or her work. Using both a panel dataset (LPP) and a repeated cross-sectional dataset (EWCS), I find that discretion and supervisory power are positively related to job satisfaction. In addition, there is some evidence that the relation between supervisory power and job satisfaction is inversely u-shaped. Moreover, the results suggest that the degree to which employees enjoy supervisory power is determined by their cultural background. Lastly, I find some indication that women draw more satisfaction from supervisory power as compared to men. This difference, however, is not statistically significant.

Keywords:

Control, job satisfaction, discretion, power, gender, Power Distance index (PDI)

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1 Introduction

Two major streams of literature can be identified regarding job satisfaction. Over the last few decades, research in the field has been dominated by job satisfaction in relation to other economic concepts. The most prominent and widely known is the relation between job satisfaction and performance, which was dubbed the 'Holy Grail' of industrial and organizational psychology (Landy, 1989)[1]. Often, rather than establishing a direct link, later studies attempted to establish links between job satisfaction and known drivers of performance. Job satisfaction was found to increase firm commitment (Mathieu & Hamel, 1989; Lok & Crawford, 2001[2]; Meyer *et al*., 2002; Srivastava, 2013), and lower absenteeism (Sagie, 1998; Wegge *et al*., 2010) and turnover (Shore & Martin, 1989; Tarigan & Ariani, 2015). Overall, evidence from these studies leads us to conclude that job satisfaction is related to firm performance, whether that being direct or indirect.

Prior to relating job satisfaction with other economic concepts, a large body of literature was dedicated to identifying the drivers of job satisfaction[3]. Pioneers in this particular field were Hoppock (1935) and Kornhauser & Sharp (1932), who both made use of questionnaires and interview methods. Ever since, hundreds of studies have been conducted and theories have been developed. The most prominent to date is the Herzberg two-factor model that distinguishes between two types of factors that drive employee satisfaction (Herzberg, 1959):

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[1] Some studies concluded that there was no relationship (Iaffaldano & Muchinsky, 1985), some concluded the relationship was spurious (Bowling, 2007) and others suggested there was indeed a causal relationship: Strauss (1968) suggested that satisfaction leads to performance, while Lawles & Porter (1967) hypothesized the other way around. In addition, e.g. Wanous (1974) suspected a bidirectional, causal relationship.

[2] Lok & Crawford found that job satisfaction had a mediating role in the relation between organizational culture and commitment when investigating.

[3] Still, lots of research is devoted to this topic the last few decades.

Motivators, like recognition and career advancement, and extra-job factors, like salary, job security and working conditions. While it is nearly impossible to designate all influences of one's job satisfaction, identifying its key drivers remains important work for the reason that job satisfaction matters for firm performance.

In this paper, I attempt to find a relationship between control and job satisfaction and seek by what variables such a relation is affected. I make a distinction between discretion, the control one has over him- or herself in doing his or her work, and supervisory control, the control one has over others in his or her work. Whereas the first has been subjected to research, often referred to as discretion in literature, the latter has not.

For testing these relationships, I make use of two datasets. The first being a panel dataset from the Linked Personnel Panel (LPP) provided by the Institute for Employment Research (IAB) in Germany. Although this dataset consists of questionnaire responses from German employees only, it has the advantage that I can use individual fixed effects in regression analyses. The second dataset is a repeated cross-sectional dataset from the European Working Conditions Survey (EWCS). Among other things, using this dataset I can incorporate country dummies in the analyses and some important variables that are not present in the LPP dataset.

I find that discretion is positively related to job satisfaction, but I find no evidence that men and women enjoy discretion differently in their jobs. For supervisory power, I find contrasting results from the analyses of both datasets. Using a fixed-effects approach with the LPP data, I find a negative coefficient on my supervisory control variables, while an OLS regression with EWCS reveals a positive link between supervisory power and job satisfaction.

This discrepancy is found to be a result of available control variables, e.g. workplace size, and the degree to which hierarchy is accepted and power is distributed equally. The latter I find by controlling for Hofstede's Power Distance index. On the contrary, there was no statistical difference between men and women in experiencing supervisory power and I find little evidence for an inversely u-shaped relation between supervisory power and job satisfaction.

This research, consisting of two analyses that examine the relation between control and job satisfaction, contributes to existing literature in several respects. First of all, this paper contributes to a large stream of literature on what drives job satisfaction. Remarkably, only one paper has attempted to put the relation between discretion and job satisfaction to the test by means of a fixed-effects regression (Wheatly, 2017). Moreover, supervisory power has not been considered as a determinant of job satisfaction in previous researches yet. The importance of establishing drivers of job satisfaction is as important as the effect job satisfaction has on firm performance. This paper answers whether we should regard discretion and supervisory control as (important) factors. Secondly, I build on a stream of literature that considers cultural differences in perceived job satisfaction and factors relating to job satisfaction. I use the concept of Power Distance, which was brought up by a pioneer in this particular field, Geert Hofstede. Thirdly, I find circumstantial evidence for why agents become self-employed. I contribute to the literature regarding this specific topic by finding that control plays an important part in satisfaction with one's occupation. Lastly, I explore the relationship between control and job satisfaction with respect to gender differences, thereby contributing to the field of organizational economics. Especially with regard to gender differences, this field has gained in popularity fast lately.

The strength of this paper lies in the ability to compare analyses of two vastly different datasets. Therefore, rather than discussing the analyses separately, I will be comparing the analyses on each hypothesis. I continue my paper in the following manner. In chapter 2, I present the theoretical motivation for my hypotheses. In chapter 3, I present and discuss the differences between the datasets. In chapter 4, I will address the relation between discretion and job satisfaction and in chapter 5, the relation between supervisory power and job satisfaction. Chapter 6 is the conclusion chapter of this paper.

2 Literature review/hypothesis development

2.1 Discretion and job satisfaction

While being mentioned a few times in literature, the first and most prominent to stress the importance of autonomy for job satisfaction were Hackman and Oldham (1971)[4]. They believed that mapping the drivers of what makes a job intrinsically motivating would allow for specifying consequences of these drivers. Using responses of 270 supervisors and employees from telephone companies, they predicted and found that when jobs are high on the four core dimensions (autonomy, task identity, task variety, and feedback[5]), employees experience more job satisfaction.

Hereafter, papers that have attempted to test the relation between discretion and job satisfaction have used multiple approaches. Arches (1991) made use of a small-scale dataset of

[4] Even though there is a mild difference between discretion and autonomy, in this paper I use the terms interchangeably.

[5] Later they added a fifth dimension, task significance, to their model (Hackman and Oldham, 1976).

275 observations. Using regression analysis, she found that social workers show a positive relation between perceived autonomy and job satisfaction. Katsikea *et al.* (2011) found a similar positive link for export salesmen using a mailed survey to which 160 firms responded. Green (2004), who looked into the effect of work intensification, found that work intensification comes at the cost of discretion. A lower level of discretion resulted in lower job satisfaction. Bradley *et al*. (2003)*,* examined the effect of job autonomy on different dimensions of job satisfaction. After controlling for a wide range of personal and job-related variables, they were able to conclude that job autonomy was an important determinant of all of the job satisfaction dimensions. Ducharme & Martin (2000) concluded from U.S National Survey data that lower levels of (job) control are the strongest predictor of lower job satisfaction. Like Green (2004), Bradley *et al.* (2003), and Ducharme & Martin (2000), Skaalvik & Skaalvik (2014) also exploited a large-scale survey dataset. With over 2400 observations, they found support for their expectation that autonomy would positively predict job satisfaction, even when controlled for the effect of self-efficacy.

In a similar way to Skaalvik & Skaalvik, who used teacher data, many researchers have used employees with social occupations for their analysis. A recent paper by Chang *et al.* (2015) about principal's perceived autonomy support from superintendents, affective commitment, and job satisfaction found that principles are more committed to their school district and more satisfied with their jobs when they perceive more support of autonomy by their superintendents. Another occupation often used for analysis is that of a nurse. Zangaro & Soeken[6] (2007) conducted a meta-analysis of 31 nurse studies representing 14,567 subjects regarding job satisfaction. They concluded that job satisfaction and autonomy were strongly

correlated. Another meta-analysis, not necessarily related to social workers, used the data of 219,625 participants from 259 studies (Humphrey *et al.,* 2007). They reported that higher levels of perceived job control may have a positive impact on an employee's job satisfaction and job performance, amongst other things.

In addition to studies using readily available survey data, some make use of survey data obtained from case-studies. Jurik & Halemba (1984) found that the working conditions for 179 correctional officers in a men's prison, measured by an index which consisted of discretion for 1/3, were significantly related to job satisfaction[7].

All previously discussed papers used cross-sectional data for their analysis. In contrast, Wheatly (2017) is to this day the only one who explores the relation between autonomy and job satisfaction using panel data. An interesting feature of this paper is that Wheatly distinguishes between certain types of control, which he categorizes into 'job control' and 'schedule control'. The first refers to control over the completion of tasks and work conduct, the latter refers to the control over the timing and location of work[8]. Due to the construction of the questionnaire I use for my analysis, I make no distinction between job and schedule control. Instead, discretion comprises both job and schedule control. Additionally, this paper differs from my paper with respect to the fact its main focus lies in the effect of control on *employee wellbeing* instead of *job satisfaction.* Wheatly uses job satisfaction as part of an employee's

[6] In this study, Zangaro & Soeken define autonomy as the extent to which nurses have the freedom to act on what they know. Although this definition is slightly different from how I define discretion, I still consider this paper worth mentioning.

[7] To my knowledge, few experiments have been conducted regarding this matter. McAfee et al. (1995) conducted an experiment using only 70 subjects over two waves. Due to insignificant results, they were not able to conclude that discretion along with outcome feedback improve job satisfaction.

[8] A second interesting feature I will discuss shortly, is the distinction between men and women in the analysis.

well-being in ordered choice panel probit models. His results show that aspects of job control, tasks, and pace of work, increase both job satisfaction and leisure satisfaction.

Why employees value control intrinsically makes sense from an evolutionary standpoint. Equivalent to being in control is (the feeling of) reduced risk. In addition, people likely value control because they enjoy leaving their mark on the job or task they have been given. This would add to the feeling that what they do matters.

I concur with the findings of previous studies and I hypothesize the following;

Hypothesis 1: Higher levels of perceived discretion lead to higher job satisfaction

2.2 Power and job satisfaction

Unlike discretion and job satisfaction, no link has yet been established between supervisory control and job satisfaction. However, a research note by Verriet (2019) strongly indicates there is a link between the two. In this research note, Verriet uses an argument of McClelland and Burnham in their book *Power is the Great Motivator* (1976). They argue that power should be a manager's largest motivator. Examples of (wo)men enjoying power in real life are not hard to find, but does this also translate to the work floor? I hypothesize that enjoying supervisory power increases one's job satisfaction.

Hypothesis 2a: Higher levels of supervisory power lead to higher job satisfaction.

Alternatively, one might suspect an inversely U-shaped relation. In this situation, gaining

supervisory power is most likely the result of a promotion. Verriet names three forces that are at play that could potentially decrease employees' job satisfaction. Firstly, according to the Peter Principle, people are promoted to their level of competence (Peter & Hull, 1969; Lazear, 2000; Grabner & Moers, 2013; Benson *et al.,* 2019). Supervisors are promoted up to the point where they are no longer or less competent to perform their supervisory work. Their incompetence might result in the manager's receiving less job satisfaction from their supervisory power.

Secondly, in a similar way, with gaining supervisory power comes greater responsibility. Greater responsibility might outweigh the joy derived from supervisory power after a certain threshold.

Lastly, employees might get a different perception of the manager when he has been given more power. The manager, in turn, might feel a loss of social connection to the 'normal' employees. Verriet gives the example of a simple chat around the coffee machine being different with employees you directly supervise compared to when these employees are only two out of a few dozen. In other words, gaining more supervisory power and stepping up in the firm's hierarchy possibly results in a loss of social touch with the employees lower in the firm's hierarchy. The bigger the steps between the manager and 'normal' employees, the greater the loss of social connection. Hence, an inversely U-shaped curve might be caused by a *lack of competence, excessive responsibility,* and *loss of social connection*[9].

[9] Although this paper marked some interesting results, the analysis was not flawless. Respondents were seldom interviewed more than once and the analysis suffered from omitted variables bias. In addition, the data contained gaps and only covered people over the age of 50 who had often stopped working already.

Hypothesis 2b: Supervisory power and job satisfaction are inversely U-shape related

2.3 Control, gender and job satisfaction

Much of the current literature regarding the topic of organizational economics and organizational psychology pays particular attention to differences between men and women. In similar fashion, I will check for the differences in job satisfaction derived from control between men and women. In compliance with male stereotypes, we would expect that men draw more satisfaction from having supervisory power. However, this argument is hard to apply to discretion.

Only a few studies have been conducted about this specific topic. Miller (1980) concluded there are some differences between men and women with respect to their view of particular jobs. At the same time, she also hypothesized a direct correlation between job conditions and job satisfaction. Her results indicated that men value discretion more and women the complexity of the tasks. Jurek & Haremba (1984) found that, for correctional officers, the frequency of using discretion had no impact on their respective job satisfaction. Although not significant, the degree of association between discretion and job satisfaction was 0.06 for females and 0.30 for males. In contrast, Lyness *et al.* (2012) put forward the argument that schedule control offers the ability to better manage the dual responsibilities of work and home. Evidently, this would be more beneficial to women. The findings of Wheatly (2017) are mixed and that is mainly due to the fact Wheatly divided control into a subset of categories. He found that control over the nature of job tasks is relevant to both men and women, while autonomy over the pace of work is more important to men. In some cases, the manner of work

appears more relevant to women. The way the questionnaires that I use are constructed, I am not able to distinguish between types of discretion. Combined with the fact that previous studies report ambiguous results when it comes to discretion & gender, I state the following hypothesis:

Hypothesis 3: Men and women do not differ with respect to the satisfaction they draw from having discretion in their jobs.

Although comparing between men and women with respect to the satisfaction they draw from their working conditions is nothing new, this has not been done regarding supervisory control. However, as has been argued before, we would expect men to derive more satisfaction from having supervisory control than women based on male stereotypes. A paper by Varca *et al.* (1983) comes closest to the topic of supervisory power, job satisfaction, and gender. Using questionnaire data of 393 men and women 5 years after their graduation, men report that they derive more satisfaction from being promoted than women. One could argue that men derive more satisfaction from promotions because they enjoy the prestige and power that are accompanied by such a promotion. To give a definitive answer to question whether gender plays a role in receiving job satisfaction from supervisory power, I will test the following hypothesis:

Hypothesis 4: Men draw more satisfaction from having supervisory power in their jobs than women.

3 Data

3.1 LPP data

For my main analysis, I will make use of panel data from the Linked Personnel Panel (LPP) provided by the Institute for Employment Research (IAB) based in Germany. The LPP questionnaire was brought to life for personnel economic research and consists of mostly work-related questions. The dataset comprises data from 21.054 surveys all conducted in Germany. The sample from which these interviewees were drawn were based on the IAB Establishment Panel, an *employer* survey. This panel consists of all German establishments with at least one employee subject to social insurance contributions. Subsequently, the LPP *employer* survey was randomly drawn based on the IAB Establishment Panel, but with firms with less than 50 employees and firms in particular sectors like agriculture and forestry exempted. The sample for the LPP *employee* survey was based on the selection that was made for the LPP *employer* survey[10]: Of the 1231 establishments surveyed for the LPP *employer* survey, 229 were not willing to participate for a second time in 2014 and were, therefore, not qualified for the panel. Individuals were only eligible for sampling when an annual notification on social insurance was available and the individual made social insurance contributions. On the grounds of these criteria, 24 more establishments were dropped out of the panel. The resulting population consisted of 869 establishments with 300881 employees, because 109 establishments did not

[10] Not all establishments involved in the employer survey were considered for the drawing of employee samples. Due to the fact that the final dataset of the LPP employer survey was not yet available at the time the employees were chosen for the survey, the drawing of employees took place based on a preliminary overview of the establishment's survey.

meet the standard of having at least 50 employees. From this residual population, a sample of around 38000 addresses was drawn. Then, by means of stratified sampling, the researchers assured that a sufficient number of employees could be surveyed for each establishment. Due to a subset of criteria, phone interviews were taken for 7508 individuals for the first wave. Over the three waves in which interviews were conducted, an interviewee responds 1.5 times on average. The interviewers underwent training courses beforehand and the questionnaire was pretested.

To establish a (causal) link between control, whether that is discretion or supervisory control, and job satisfaction, one needs to take into account other variables that explain job satisfaction and might be correlated with discretion and supervisory control. For example, for a relation between supervisory control and job satisfaction, you need to take into account other factors associated with a potential gain in supervisory power. When an employee has been given a promotion, not only does his or her supervisory power increase, he or she also likely gets more wage and the nature of his or her work changes.

The variables I will focus on are core job characteristics, like wage and hours worked weekly, and working conditions, like task variety and working under time pressure. In addition, I also construct four indices: Indices for work floor culture, firm commitment, mental well-being, and work-life balance. Not only do these indices give a more reliable variable than converting single questions into variables, but they also impede overfitting of the model and are more likely to differ in value from year to year (as they are made up of multiple questions), which would make them more suitable when using a fixed-effects model. In general, most variables are measured on a 5- or 6-point Likert scale. The variables used for the indices have all been

weighted equally in the indices. If there are *n* variables, each variable accounts for 1/*n* of the index.

Summary statistics for the variables and indices can be found in Table 1. Important to note is that males are overrepresented (71.2% vs 28.8%) in this panel. I have to be cautious interpreting the results, especially when examining differences between males and females with respect to the satisfaction drawn from control in their respective job. The dependent variable in all analyses, *job satisfaction,* is measured on a scale from 0 to 10. However, for ease of interpretation of the indices, in the analyses I let it run from 0 to 100. *Discretion*, is measured on a scale from 0 to 4 (1 to 5) based on the agreement to the statement 'The job allows me to make a lot decisions on my own'. Supervisory control is measured as the number of employees one supervises and for some cases, supervisory control is conceptualized as a dummy variable equaling 1 if an employee has at least 1 other employee under his or her supervision. Moreover, *number of people supervising* and *wage* note high averages. To reduce the influence outliers have, I log both these variables in the analyses.

Table 1 Summary statistics LPP data

Demographics

Variable	Obs	Mean	Std.Dev.	Min	Max
Gender[1] (d)	21054	.712	.452	0	1
Age	21054	46.659	10.467	18	74
Education	13848	2.293	1.069	0	4

[1] *Gender dummy equals 1 if employee is male and 0 if employee is female*

Core job characteristics

Variable	Obs	Mean	Std.Dev.	Min	Max
Job satisfaction	21033	7.529	1.704	0	10
# of people supervising	21025	7.211	51.675	0	3210
Weekly hours	19808	40.527	8.365	1	90

Wage	17734	3649.675	5165.045	1	500000
Wage satisfaction	21026	6.836	2.057	0	10
Paid overtime (d)	20731	.885	.319	0	1
Flexible hours (d)	21045	.483	.500	0	1
Working from home (d)	21041	.193	.394	0	1
% performance pay[2]	6456	20.736	19.853	1	99

[2] *Performance pay dummy equals 1 if % performance pay is at least 1*

Working conditions

Variable	Obs	Mean	Std.Dev.	Min	Max
Discretion	21038	2.976	1.016	0	4
Task variety	21032	3.218	0.944	0	4
Physical work	21028	1.332	1.464	0	4
Unpleasant environment	21036	1.760	1.228	0	4
Time pressure	21030	2.577	1.228	0	4
Training opportunity (d)	21030	.388	.487	0	1
Concerned about job security	21019	.433	.624	0	2

Work floor culture index

Variable	Obs	Mean	Std.Dev.	Min	Max
Work floor culture index	20539	74.035	15.566	0	100
Supervisor confidence	20976	2.817	1.001	0	4
Supervisor guidance	20962	2.583	1.034	0	4
Supervisor understanding	20997	2.760	.979	0	4
Supervisor chat	20862	2.793	1.070	0	4
Supervisor communication	21001	2.816	1.032	0	4
Supporting colleagues	20972	3.299	.868	0	4
No discrimination	20826	3.266	1.088	0	4
Treated wrongly	20935	.646	.840	0	4

Firm commitment index

Variable	Obs	Mean	Std.Dev.	Min	Max
Firm commitment index	20918	62.886	24.052	0	100
Firm has personal meaning	21009	2.786	1.167	0	4
Problems are my own	21012	1.862	1.305	0	4
Feeling of belonging	20974	2.897	1.177	0	4

Health (mental and physical)

Variable	Obs	Mean	Std.Dev.	Min	Max
Wellbeing index	20865	62.560	20.551	0	100
Feeling cheerful	20986	3.412	1.203	0	5
Feeling relaxed	20989	3.221	1.275	0	5

Feeling active	20954	2.986	1.320	0	5
Feeling fresh	20992	2.808	1.431	0	5
Feeling interested	20950	3.205	1.260	0	5
Physical health	21033	2.643	.945	0	4

Work-life balance

Variable	Obs	Mean	Std.Dev.	Min	Max
Work-life balance index	20999	67.821	25.884	0	100
Interference personal life	21023	2.811	1.169	0	4
Harder fulfilling responsibilities	21030	2.737	1.206	0	4
Interference family duties	21031	2.590	1.206	0	4

All formulated positively, e.g. a higher score means lower interference in personal life

3.2 EWCS data

Although the European Working Conditions Survey (EWCS) provides repeated cross-sectional data, an analysis of such data might give a fruitful insight additional to the LPP panel data analysis. The EWCS is a survey regarding the working conditions of workers in countries that are member states of the European Union and is conducted roughly every 5 years. Similar to the LPP questionnaire, a stratified clustered sampling design was used. Countries were divided into sections based on region and degree of urbanization. In each of these sections, sampling units were randomly drawn, and within these sampling units, households were drawn randomly. Targeted were country residents above the age of 15 that were in employment. The questionnaires were taken face-to-face, which could have led to more biased answers due to the fact that face-to-face interviews are more personal than long-distance phone calls. However, the participation rate is likely higher when employees are confronted personally.

This particular survey has various benefits as compared to the LPP survey for testing my

hypotheses. First of all, I am able to make use of country and industry dummies in my analysis. The LPP survey was conducted in Germany only, so country fixed effects could not be filtered out. Industry dummies allow me, to some extent, to control for the type of work. Secondly, the survey is more extensive, which allows me to control for more relevant factors. The most important are: *Workplace size*, which possibly conflicts with the absolute number an employee supervises and *tenure*, which is likely to conflict with age. Other interesting variables are a *skill match dummy*, which equals one if employees find that their skills do not match for their job, a *development index*, *a prospect index*, an *involvement index*, a *recognition index* and a *rewarding work index*. In addition, the independent variable discretion is now indexed using 5 relevant factors. Those being, the *ability to change the order of tasks*, the *ability the choose the working method*, *colleagues* & *breaks* and whether one can *apply his or her own ideas*. Lastly, the dataset contains more observations.

In spite of these merits, the dataset has its weaknesses. As I have mentioned, the data is cross-sectional, so no use of fixed effects can be made. Also, data for most variables is only available for 2015, others for 2010 and 2015 and some for 2005 through 2015. In Table 2, where the summary statistics for the ECWS data can be found, this is indicated with asterisks. Variables with data available for 2005 through 2015 have 3 asterisks and variables with data available for 2015 only have 1. The last disadvantage of using the EWCS survey compared to using the LPP survey is that job satisfaction is measured over 4 categories only. Again, for ease of interpretation, I let the values from job satisfaction run from 0 to 100.

From the gender dummy, which has the same interpretation as with the LPP data, I can conclude that the data is better balanced with respect to gender: Men account for 51% of the

questioned. *Wage* in absolute numbers had only been added to the questionnaire in 2010. Therefore, I also make use of a categorized variable of wage, for which 2005 data is available. Again both *wage* (absolute) and *number of people supervising* are logged for the sake of reducing the influence outliers have.

Table 2 Summary statistics EWCS data

Demographics

Variable	Obs.	Mean	Std.Dev.	Min	Max
Gender***	117337	.51	.5	0	1
Age***	116925	42.156	12.408	15	85
Education***	114845	2.605	1.27	0	6
Country***	117346	16.47	10.191	1	36

Core job characteristics

Variable	Obs.	Mean	Std .Dev.	Min	Max
Job satisfaction***	116235	2.01	.73	0	3
Job satisfaction index*[1]	43371	72.24	18.22	0	100
Job satisfaction***	116235	2.01	.73	0	3
Enthusiastic about job*	43608	2.84	.99	0	4
Time flies at job*	43666	3.08	.91	0	4
# of people supervising***	115766	2.27	51.57	0	13000
Workplace size***	86452	3.96	1.95	1	8
Hours per week***	113455	38.59	13.07	1	100
Wage in deciles***	92208	5.41	2.90	1	10
Wage absolute**	63016	7335	24028.9	0	2500000
Commuting time***	105824	40.25	32.41	1	230
Tenure***	114276	10.24	10.01	1	70
Nightshift*** (d)	117346	.20	.40	0	1
No second job***	117346	.95	.23	0	1
Public firm*** (d)	116884	0.33	.47	0	1
Skills don't match job*** (d)	117346	.43	.49	0	1
Industry** (Nace Rev 2)	86846	9.99	5.59	1	21

[1]*For the upcoming indices, again all factors/variables account for the same share of the index, including dummy variables.*

Working conditions

Variable	Obs.	Mean	Std.Dev.	Min	Max
Discretion index***	101404	57.19	28.71	0	100
Change order tasks***	115851	.67	.47	0	1
Choose method***	115820	.69	.46	0	1
Choose colleagues***	103698	1.4	1.56	0	4
Choose break***	115585	2.23	1.48	0	4
Apply own ideas***	114939	2.62	1.35	0	4
Physical work index***	115525	27.74	20.88	0	100
Tiring positions***	116328	1.99	2.01	0	6
Lifting***	116412	.41	1.18	0	6
Carrying heavy loads***	116462	1.35	1.76	0	6
Repetitive movements***	116254	2.92	2.29	0	6
Stress in job**	86267	1.85	1.18	0	4
Time pressure index***	114561	65.6	24.31	0	100
Tight deadlines***	115688	2.61	2.08	0	6
Not enough time***	115608	2.99	1.04	0	4
Development index***	114931	49.94	36.76	0	100
Learn new things (d)***	115489	.69	.46	0	1
Training offered (d)***	116180	.31	.46	0	1
Prospect index***	102426	57.82	23.87	0	100
Job security***	106195	1.16	1.25	0	4
Career prospects***	109887	1.78	1.28	0	4
Involvement index**	74296	55.43	31.7	0	100
Involved in improving processes and org.**	78843	2.24	1.47	0	4
Consulted before objectives are set**	76330	2.24	1.44	0	4
Recognition index*	34056	68.74	25.45	0	100
Boss appraisal*	41806	2.65	1.17	0	4
Appraisal direct supervisor*	34289	2.88	1.16	0	4
Rewarding work index***	114802	81.93	20.78	0	100
Feeling of doing useful work***	115578	3.33	.92	0	4
Feeling of work well done***	115348	3.22	.94	0	4

Work floor culture

Variable	Obs	Mean	Std.Dev.	Min	Max
Support index***	92855	71.65	26.42	0	100

Supporting colleagues***	104191	2.99	1.14	0	4
Supporting manager***	95417	2.71	1.27	0	4
Social environment index*[2]	34108	86.19	15.69	0	100
Nice colleagues*	38531	3.42	.78	0	4
Treated fairly**	78017	1.86	1.61	0	4
Discrimination*** (d)	116884	.07	.25	0	1
Supervisor quality index*	31009	73.33	20.19	0	100
Supervisor:					
Respects workers*	34381	3.42	.85	0	4
Can let people work together*	33592	2.95	1.07	0	4
Is helpful*	33940	2.72	1.25	0	4
Provides useful feedback*	34110	2.88	1.14	0	4
Supports development*	33947	2.86	1.16	0	4
Appreciates workers*	34917	2.92	1.06	0	4
Resolves conflicts fairly*	33876	2.9	1.05	0	4
Distributes work fairly*	34437	2.9	1.06	0	4
Is trusted by workers*	34531	2.85	1.09	0	4

[2] *For the social environment index, in case of no discrimination on the work floor one-third of 100 points are added to the social environment index.*

Health (mental and physical)

Variable	Obs	Mean	Std.Dev.	Min	Max
Well-being index**	86122	66.85	20.74	0	100
Feeling cheerful**	86857	3.47	1.17	0	5
Feeling relaxed**	86853	3.3	1.26	0	5
Feeling active**	86800	3.36	1.24	0	5
Feeling fresh**	86821	3.13	1.36	0	5
Feeling interested**	86584	3.42	1.26	0	5
Physical health**	87517	2.99	.78	0	4

Work-life balance

Variable	Obs	Mean	Std.Dev.	Min	Max
Work-life balance index*	42266	73.51	19.70	0	100
Too tired after work to do household jobs*	43129	1.7	1.15	0	4
Job prevented family time*	42960	1.14	1.14	0	4
Hard to concentrate on job due to family responsibilities*	42972	.76	.91	0	4
Less time for job	42859	.64	.89	0	4

due family responsibilities*	

4 Methodology

Like briefly mentioned before, to test the relationship between control and job satisfaction, I need to properly control for factors that are correlated with control and also explain job satisfaction. With the use of the LPP data, I can run a fixed-effects analysis. By construction, this panel only consists of employees who are with the same employer when they are interviewed more than once. Using fixed effects, I can observe what effect a difference in control has on job satisfaction, while controlling for time-invariant unobserved individual characteristics. Therefore, I only need to control for effects that are accompanied by an increase in job satisfaction. To clarify, an increase in reported discretion or supervisory control is likely never an increase that stands on its own but is often the result of a promotion or different job description. In the case of a promotion, I need to control for other facets related to a promotion, e.g. higher wage and more task variety. Strictly speaking, all job aspects can potentially be affected when given a promotion. Therefore, I will control for those I have data on.

Important to note is that even when finding significant results, it is not possible to speak of a causal relationship, because I cannot completely rule out that the relationship is spurious. In addition, most variables are predominantly proxies and people report their own values. For that reason, the focus of my analysis will be to find evidence of a correlation between control and job satisfaction and seek by what variables this correlation is affected.

Moreover, to mitigate the effect of the survey response bias, I have concluded a 'mood'

variable in both analyses. By doing so, I make a possible correlation less prone to reflecting the propensity of a person to answer the question in a particular way. In both the LPP and the EWCS analyses, I measure this mood or mental *well-being* in the same way (see Table 1 and 2). On the grounds that physical health could potentially cloud one's judgment, I also include a physical health variable.

Equation 1 is my baseline specification for the fixed-effects analyses using LPP data. The dependent variable is job satisfaction, α is the constant, C_{it} is the control variable of interest (reported discretion, logged supervisory power or a supervisory power dummy), X_{it} represents all control variables, η_i are the individual fixed effects, η_t are the time dummies and ε_{it} is the error term. I use i to denote the individual and t to denote the wave. For testing hypothesis 2b, a squared term $\beta_3 C_{it}^2$ is added.

$$Job\ Sat_{i,t} = \alpha + \beta_1 C_{i,t} + \beta_2 X_{i,t} + \eta_i + \eta_t + \varepsilon_{i,t} \quad (1)$$

In contrast to the specification above, I want to explore the influence gender has on the relation between control and job satisfaction. As *gender* is a time-invariant variable, I cannot perform tests using fixed effects. Also, the EWCS data is cross-sectional of nature, which makes it not possible to perform such analyses. Below are the baseline specifications for OLS regressions with the LPP data (equation 2) and EWCS data (equation 3).

$$Job\ Sat_{i,t} = \alpha + \beta_1 C_{i,t} + \beta_2 C_{i,t} * Gender_i + \beta_3 Gender_i + \beta_4 X_{i,t} + \eta_t + \varepsilon_{i,t} \quad (2)$$

$$Job\ Sat_{i,t,c,\theta} = \alpha + \beta_1 C_{i,t,c,\theta} + \beta_2 C_{i,t,c,\theta} * Gender_{i,t,c,\theta} + \beta_3 Gender_{i,t,c,\theta} + \beta_4 X_{i,t,c,\theta} + \eta_t + \eta_c + \eta_\theta + \varepsilon_{i,t,c,\theta} \quad (3)$$

I will test my gender hypotheses by using an interaction term with $Gender$. I denote the

country and industry level with c and θ, respectively. Correspondingly, η_c and η_θ are the country and industry dummies.

5 Analyses

5.1 Discretion and job satisfaction

Firstly, I explore the relationship between *discretion* and job satisfaction and the difference between men and women with respect to this relationship by using a simple, OLS regression. The results of OLS regressions with LPP data are shown in Table 3. According to these results, discretion is highly correlated with job satisfaction. A one-point increase in experienced discretion, which is measured on five-point scale, is associated with a 4.35% increase in job satisfaction in column 1. This reduces to 1.39% when controlled for demographics, working conditions, and job aspects. This is in line with my first hypothesis. Most working conditions show the expected sign: *task variety*, *training opportunity dummy, paid overtime dummy* and *wage* are positively related to job satisfaction, while working in an *unpleasant environment*, working under *time pressure* and *concerned about job security* are negatively related with job satisfaction. The sign and significance of *physical work* changes in column 5, most likely due to controlling for *wage,* as white-collar workers tend to be paid less than blue-collar workers. Strikingly, *education* is found to be negatively related to job satisfaction. Rather than assuming that this is the result of higher educated people enjoying their job less, I suspect this relates to the type of job higher educated people have. In column 5, it can be seen that mental *well-being* and *physical health* are significantly related to how

Table 3 Discretion, Gender & Job Satisfaction OLS/LPP

	(1) OLS Job sat.	(2) OLS Job sat.	(3) OLS Job sat.	(4) OLS Job sat.	(5) OLS Job sat.	(6) OLS Job sat.
Discretion	4.348***	4.085***	3.410***	3.262***	1.385***	1.702***
	(0.134)	(0.233)	(0.170)	(0.276)	(0.165)	(0.260)
Gender * Discretion		0.384		0.223		-0.476
		(0.286)		(0.335)		(0.315)
Gender		-0.980	0.395	-0.256	-1.377***	0.010
		(0.915)	(0.308)	(1.089)	(0.339)	(1.026)
Education			-1.653***	-1.653***	-0.981***	-0.980***
			(0.139)	(0.138)	(0.138)	(0.138)
Task variety			1.966***	1.963***	0.652***	0.658***
			(0.180)	(0.180)	(0.175)	(0.175)
Physical work			-0.260**	-0.259***	0.047	0.048
			(0.122)	(0.122)	(0.127)	(0.127)
Unpleasant environment			-1.567***	-1.568***	-0.471***	-0.466***
			(0.112)	(0.112)	(0.113)	(0.113)
Time pressure			-2.231***	-2.232***	-0.733***	-0.730***
			(0.120)	(0.120)	(0.128)	(0.123)
Training opportunity dummy			2.370***	2.371***	0.939***	0.936***
			(0.272)	(0.272)	(0.258)	(0.258)
Concerned about job security			-3.807***	-3.807***	-1.484***	-1.484***
			(0.254)	(0.290)	(0.244)	(0.244)
Weekly hours					-0.023	-0.022
					(0.020)	(0.020)
Age					-0.023*	-0.023*
					(0.013)	(0.013)
Wage (log)					2.127***	2.130***
					(0.367)	(0.368)
Performance pay dummy					-0.146	-0.155
					(1.234)	(1.235)
Paid overtime dummy					1.548***	1.540***
					(0.463)	(0.463)
Flexible working hours					-0.170	-0.164
					(0.297)	(0.297)
Working from home dummy					-0.108	-0.100
					(0.360)	(0.360)
Work floor culture index					0.320***	0.319***
					(0.012)	(0.012)
Firm commitment index					0.170***	0.170***
					(0.007)	(0.007)
Well-being index					0.106***	0.106***
					(0.008)	(0.008)
Physical health					0.607***	0.610***
					(0.176)	(0.176)
Work-life balance index					0.072***	0.072***
					(0.007)	(0.007)
Constant	62.351***	63.003***	72.193***	72.625***	11.574***	10.541***
	(0.438)	(0.734)	(0.836)	(1.065)	(3.222)	(3.320)
Number of obs.	21026	21026	13771	13771	10392	10392
R-squared	0.067	0.067	0.162	0.162	0.420	0.420
Year FE	NO	NO	NO	NO	YES	YES

Robust standard errors are in parenthesis
*** *p<0.01*, ** *p<0.05*, * *p<0.1*

someone experiences job satisfaction. A 10-point increase in the *well-being index* is accompanied by an increase in job satisfaction of 1.06%, which is a considerable number. This holds for all other indices. In particular the *work floor culture index,* with a 3.19% respective increase in job satisfaction, appears to be of great importance to job satisfaction.

In Table 4, I test a similar relation, but with the use of individual fixed effects. On average, an interviewee responded 1.5 times meaning that a fairly large share of the questioned only filled out the questionnaire once. A one-point increase in discretion is related with a 2.08% increase in job satisfaction in column 1 and when controlled for relevant factors, this lowers to 1.01%. In both the models discussed, discretion alone explains about 6.7% of the variation in job satisfaction; The full specification about 40%. In column 3 of Table 4, the model explains only 2.7% of the variation in job satisfaction. I have no explanation for this other than that the model used is a bad fit.

In contrast to Table 3, being paid for performance and *wage* are no longer significantly related to job satisfaction. The latter might have interesting complications. A disappearing effect for wage when using worker fixed effects is indicative of the relationship between discretion and job satisfaction being driven by cross-worker comparisons rather than between-worker comparisons. A logical explanation could be that the wage corresponds to the type of job workers have. Higher paying jobs could be equivalent to more job satisfaction. It would be interesting to see the baseline regressions for workers who show up more than once, but due to limited access to the data, I am no longer able to run such an analysis[11].

[11] During several points of the thesis, I was unable to access the LPP data. The 31st of October, my data access expired. Also, data access was only possible on-site and via a remote execution program (JoSuA).

Table 4 Discretion & Job Satisfaction FE/LPP

	(1) FE Job sat.	(2) FE Job sat.	(3) FE Job sat.	(4) FE Job sat.
Discretion	2.080***	1.848***	1.831***	1.011***
	(0.236)	(0.237)	(0.285)	(0.254)
Task variety		0.883***	0.993***	0.483*
		(0.226)	(0.268)	(0.252)
Physical work		-0.589**	-0.322	-0.003
		(0.229)	(0.267)	(0.254)
Unpleasant environment		-1.071***	-1.177***	-0.598***
		(0.176)	(0.207)	(0.185)
Time pressure		-0.885***	-0.864***	-0.398**
		(0.176)	(0.201)	(0.185)
Training opportunity dummy		1.209***	1.531***	0.871**
		(0.351)	(0.420)	(0.384)
Concerned about job security		-3.267***	-3.669***	-2.353***
		(0.375)	(0.450)	(0.413)
Weekly hours			-0.073*	-0.028
			(0.037)	(0.034)
Age			1.366**	0.112
			(0.540)	(0.110)
Wage (log)			1.334	0.671
			(1.052)	(0.915)
Performance pay dummy			-1.559	-1.769
			(1.472)	(1.432)
Paid overtime dummy			2.136**	1.139
			(0.866)	(0.800)
Flexible working hours			0.465	0.396
			(0.711)	(0.660)
Working from home dummy			0.465***	1.998***
			(0.761)	(0.680)
Work floor culture index				0.282***
				(0.021)
Firm commitment index				0.148***
				(0.013)
Well-being index				0.070***
				(0.012)
Physical health				0.849***
				(0.285)
Work-life balance index				0.075***
				(0.011)
Constant	69.103***	72.848***	3.420	23.100***
	(0.702)	(1.055)	(25.423)	(8.543)
Number of observations	21026	20939	16552	16136
Number of groups	13988	13949	11424	11193
R-squared	0.067	0.137	0.027	0.400
Worker FE	YES	YES	YES	YES
Year FE	NO	NO	YES	YES

Robust standard errors are in parenthesis
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Additionally, I would control for the type of job but there is no data in the questionnaire that

would allow for a distinction between types of jobs or industries. Luckily, the EWCS data is more extensive with regard to this aspect.

Table 5 shows the results of an OLS regression with a discretion index as the main independent variable. A correlation between *discretion index* and job satisfaction shows positive and significant results. An increase in the *discretion index* is accompanied by a relative increase in job satisfaction of 20.8 percent. Control variables are added to the specification based on the years for which data is available. In columns 3 and 4, I add controls to the specification for which data is available for 2005 through 2010. In columns 5 and 6, all controls added have data for the years 2010 and 2015. Controls in the last two columns all have data for 2015. In a full specification, a one-point increase on the *discretion index* is accompanied by a 0.03 point increase in job satisfaction. The difference between having no discretion and having full discretion is 2.6 points on the job satisfaction index. In Table 4, I found that a one-point increase in *discretion* was correlated with a 1.01% increase in job satisfaction. A difference between no discretion and full discretion, would then be 4.04 points on the job satisfaction index. Size-wise, these results for the two different datasets are quite similar. Overall, I can conclude that discretion is positively associated with job satisfaction.

Aside from discretion, there are similar variables that appear in both analyses and show similar results. Compared with Table 3, I find that *physical work, time pressure, concerned about job security*[12]*, wage, well-being, physical health,* and *work-life balance* are still significantly related and show the same sign.

[12] The *prospects index* consists of a question regarding concerns about job security. However, the index is formulated positively, hence the different sign in Table 5.

Table 5 Discretion, Gender & Job Satisfaction OLS/EWCS

	(1) OLS Job sat.	(2) OLS Job sat.	(3) OLS Job sat.	(4) OLS Job sat.	(5) OLS Job sat.	(6) OLS Job sat.	(7) OLS Job sat.	(8) OLS Job sat.
Discretion index	0.207***	0.222***	0.050***	0.051***	0.037***	0.039***	0.026***	0.029**
	(0.003)	(0.004)	(0.004)	(0.005)	(0.006)	(0.007)	(0.010)	(0.012)
Discretion index * Gender		-0.023***		-0.001		-0.003		-0.005
		(0.005)		(0.007)		(0.009)		(0.015)
Gender		-0.541	-0.661***	-0.593	-0.686**	-0.523	-1.483***	-1.216
		(0.349)	(0.204)	(0.445)	(0.269)	(0.561)	(0.439)	(0.951)
Education			-0.430***	-0.429***	-0.283**	-0.270**	-0.289	-0.288
			(0.095)	(0.095)	(0.123)	(0.123)	(0.208)	(0.208)
Physical work index			-0.136***	-0.136***	-0.093***	-0.093***	-0.060***	-0.060***
			(0.005)	(0.005)	(0.007)	(0.007)	(0.012)	(0.012)
Stress in job					-2.595***	-2.611***	-1.578***	-1.577***
					(0.128)	(0.127)	(0.224)	(0.224)
Time pressure index			-0.106***	-0.106***	-0.058***	-0.058***	-0.039***	-0.039***
			(0.004)	(0.004)	(0.006)	(0.006)	(0.010)	(0.010)
Development index			-0.002	-0.002	0.003	0.003	0.007	0.007
			(0.003)	(0.003)	(0.004)	(0.004)	(0.006)	(0.006)
Prospects index			0.242***	0.242***	0.204***	0.204***	0.133***	0.133***
			(0.005)	(0.005)	(0.006)	(0.006)	(0.010)	(0.010)
Involvement index					0.045***	0.046***	0.030***	0.030***
					(0.005)	(0.005)	(0.009)	(0.009)
Recognition index							0.124***	0.124***
							(0.014)	(0.014)
Rewarding work index			0.205***	0.205***	0.159***	0.157***	0.098***	0.098***
			(0.006)	(0.006)	(0.008)	(0.008)	(0.013)	(0.013)
Support index			0.103***	0.103***	0.106***	0.105***	0.005	0.005
			(0.004)	(0.004)	(0.006)	(0.006)	(0.012)	(0.012)
Tenure			-0.088***	-0.088***	-0.071***	-0.071***	-0.053**	-0.053**
			(0.012)	(0.012)	(0.016)	(0.016)	(0.025)	(0.025)
Age			0.025**	0.026**	0.065***	0.065***	0.024	0.024
			(0.010)	(0.010)	(0.013)	(0.013)	(0.022)	(0.022)
Weekly hours			-0.114***	-0.114***	-0.090***	-0.092***	-0.079***	-0.079***
			(0.011)	(0.011)	(0.015)	(0.015)	(0.026)	(0.026)
Wage (log)[1]			0.570***	0.570***	1.441***	1.447***	2.030***	2.031***
			(0.046)	(0.046)	(0.281)	(0.280)	(0.500)	(0.500)

Table 5 – continued -

	(1) OLS Job sat.	(2) OLS Job sat.	(3) OLS Job sat.	(4) OLS Job sat.	(5) OLS Job sat.	(6) OLS Job sat.	(7) OLS Job sat.	(8) OLS Job sat.
Commuting time (min)			-0.020***	-0.020***	-0.008**	-0.008**	-0.001	-0.001
			(0.003)	(0.003)	(0.004)	(0.004)	(0.006)	(0.006)
Workplace size			-0.266***	-0.266***	-0.002	-0.000	0.298**	0.298**
			(0.058)	(0.058)	(0.077)	(0.077)	(0.122)	(0.122)
Public firm dummy			-0.664***	-0.666***	0.180	0.196	0.585	0.582
			(0.209)	(0.210)	(0.342)	(0.341)	(0.555)	(0.555)
Nightshift dummy			-1.683***	-1.683***	-0.794*	-1.377***	-0.951*	-0.956*
			(0.249)	(0.249)	(0.469)	(0.322)	(0.506)	(0.506)
Skills don't match dummy			-1.864***	-1.864***	-1.724***	-1.741***	-0.623	-0.619
			(0.192)	(0.192)	(0.243)	(0.243)	(0.396)	(0.396)
Social environment index[2]			-6.066***	-6.067***	-3.826***	-3.816***	0.124***	0.124***
			(0.419)	(0.419)	(0.508)	(0.505)	(0.017)	(0.017)
Supervisor quality index							0.137***	0.137***
							(0.018)	(0.018)
Well-being index					0.101***	0.102***	0.101***	0.101***
					(0.006)	(0.006)	(0.011)	(0.011)
Physical health					3.292***	3.291***	2.481***	2.480***
					(0.194)	(0.193)	(0.316)	(0.316)
Work-life balance index							0.066***	0.066***
							(0.013)	(0.013)
Constant	55.493***	55.624***	42.468***	42.432***	18.109***	18.110***	-1.964	-2.102
	(0.174)	(0.248)	(0.935)	(0.958)	(2.245)	(2.254)	(4.280)	(4.316)
Number of obs.	101098	101090	46043	46043	25871	26016	8799	8799
R-squared	0.061	0.063	0.316	0.316	0.371	0.370	0.420	0.420
Year FE	NO	NO	YES	YES	YES	YES	NO	NO
Country FE	NO	NO	YES	YES	YES	YES	YES	YES
Industry FE	NO	NO	NO	NO	YES	YES	YES	YES

Robust standard errors are in parenthesis
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

[1] *In columns 3 and 4 'wage' is measured in deciles (wage falls within one of the ten categories) due to the unavailability data on absolute wage in 2005.*
[2] *In columns 3-6,'social environment' only consists of a discrimination in the workplace dummy due to unavailability of data on 'treated fairly' and 'nice colleagues' in 2005 and 2010 (see summary statistics table).*

Some variables in the EWCS analysis are slightly different from those in the LPP analysis. The *work floor culture index* has been divided into the *support index*, a *social environment index* and a *supervisor quality index* as the EWCS data makes such a distinction possible. All these indices are positively and significantly related to job satisfaction, except for the *support index* in column 7. *Concerned about job security* is now incorporated in the job *prospects index*[12].

For some variables, the results differ with respect to the OLS regression using LPP data. A *physical work index* is found to be negatively related to job satisfaction and significant, while *physical work* did not appear significant in a full specification in Table 3. *Education* is no longer significant, which could be indicative of me being better able to control for types of jobs. Results are mixed for *tenure* and *age*. *Tenure* appears to be negatively correlated with job satisfaction and *age* positively. However, the significance is limited in the last specification with full controls. *Age* is positively related to job satisfaction and significant for a 90%-confidence interval while being negatively related in Table 3. This confirms that *age* likely picked up variation of *tenure* in Table 3 and 4 . *Weekly hours* was already negatively related to job satisfaction but is significant now.

Among the new controls*, the development index, the involvement index, the recognition index,* and *the rewarding index* are positively related to job satisfaction and are (partially) significant. *Stress in job, commuting time* and *skills don't match* with the job are all negatively and significantly related to job satisfaction. Shortly, I will address the control variable *workplace size* when discussing the relation between supervisory control and job satisfaction.

5.2 Discretion, gender and job satisfaction.

As discussed in the literature review, examining the influence gender has on the link between control and job satisfaction might yield interesting results. However, the OLS regressions using LPP data (Table 3) provide little support for a gender difference in experiencing discretion judging from the *gender * discretion* interaction term.

Interestingly, what stands out is that the size and sign of the *gender* differs substantially when controls are added. I suspect this is due to the fact that the variable gender coincides with some of the control variables. It is commonly known that women work more part-time and get paid relatively less than men[13]. Controlling for these variables would affect the relationship between gender and job satisfaction too. Men and women possibly differ on more of the variables controlled for. If this is the case, the results in column 5, the column with the most control variables, would be most appropriate to make any assumptions about the relation between gender and job satisfaction. This would be that men enjoy their jobs considerably less than women.

Moreover, we can observe that the sign of *gender* flips when the interaction term *gender * discretion* is added. The *gender* coefficient flips from positive to negative in columns 3 and 4, while this happens the other way around in columns 5 and 6. I have no explanation for this.
In contrast to the results from the LPP data, the results from EWCS data analysis provides us with less ambiguous results. In all columns of Table 5, *gender* is found to be negatively related to job satisfaction. As discussed, this analysis has the benefit that it contains more observations and more job-specific controls. Even though I am better able to control for job factors that

[13] It would be convenient to omit these two variables and see if this would lead to overestimation of the *gender* coefficient. However, data access expired at that time and I do not have those results.

affect men and women in different ways, it is impossible to control for all of them. Within industries and types of jobs, differences between men and women might still be sufficiently large to make men enjoy their jobs relatively less. Therefore, it is not possible to conclude that men like their jobs less than women.

Additionally, the results are inconsistent with a gender difference in how discretion relates to job satisfaction. The interaction term is insignificant for all specifications.

5.3 Supervisory power and job satisfaction

To test the relationship between supervisory power and job satisfaction, I will take a similar approach as with discretion and job satisfaction. Table 6 contains the OLS regression results using LPP data with a supervise dummy as the main independent variable. Supervising at least one other person is correlated with a 2.76% increase in job satisfaction, as can be seen in column 1. Adding demographics and core job characteristics to the equation only slightly reduces the coefficient of the supervise dummy to 2.01 and does not affect its significance level. However, after controlling for the working conditions and the indices, the supervise dummy becomes negative and not significant. Most likely, the difference between having supervisory power and having none is associated with a substantial difference in wage. Consequently, controlling for *wage* leads to a loss of significance and a change of direction in the coefficient for supervising.

On closer inspection, by adding one control variable at a time, it becomes evident that not only *wage* influences the relationship between supervising and job satisfaction. *The work*

Table 6 Supervisory Power Dummy, Gender & Job Satisfaction OLS/LPP

	(1) OLS Job sat.	(2) OLS Job sat.	(3) OLS Job sat.	(4) OLS Job sat.	(5) OLS Job sat.	(6) OLS Job sat.
Supervise dummy	2.755***	2.178***	2.011***	2.300***	-0.143	0.099
	(0.245)	(0.573)	(0.303)	(0.643)	(0.290)	(0.588)
Supervise d. * Gender		0.620		-0.361		-0.303
		(0.636)		(0.715)		(0.649)
Gender		0.317	0.652**	0.727**	-1.267***	-1.199***
		(0.599)	(0.319)	(0.366)	(0.341)	(0.388)
Education			-1.748***	-1.749***	-1.026***	-1.027***
			(0.141)	(0.141)	(0.138)	(0.138)
Task variety			2.883***	2.883***	0.987***	0.987***
			(0.178)	(0.178)	(0.172)	(0.173)
Physical work			-0.429***	-0.431***	-0.012	-0.013
			(0.124)	(0.124)	(0.128)	(0.127)
Unpleasant environment			-1.722***	-1.722***	-0.476***	-0.476***
			(0.115)	(0.115)	(0.114)	(0.116)
Time pressure			-2.183***	-2.183***	-0.641***	-0.641***
			(0.124)	(0.124)	(0.129)	(0.129)
Training opportunity dummy			2.598***	2.595***	1.018***	1.016***
			(0.280)	(0.280)	(0.261)	(0.261)
Concerned about job security			-4.460***	-4.460***	-1.675***	-1.675***
			(0.257)	(0.257)	(0.245)	(0.245)
Weekly hours					-0.017	-0.017
					(0.020)	(0.020)
Age					-0.023*	-0.023*
					(0.013)	(0.013)
Wage (log)					2.250***	2.248***
					(0.372)	(0.372)
Performance pay dummy					-0.009	-0.009
					(1.246)	(1.245)
Paid overtime dummy					1.466***	1.459***
					(0.465)	(0.465)
Flexible working hours					-0.089	-0.086
					(0.299)	(0.299)
Working from home dummy					0.128	0.128
					(0.361)	(0.361)
Work floor culture index					0.333***	0.333***
					(0.012)	(0.012)
Firm commitment index					0.175***	0.175***
					(0.007)	(0.007)
Well-being index					0.109***	0.109***
					(0.008)	(0.008)
Physical health					0.662***	0.662***
					(0.176)	(0.176)
Work-life balance index					0.074***	0.074***
					(0.007)	(0.007)
Constant	74.454***	74.245***	79.444***	79.401***	11.476***	11.470***
	(0.145)	(0.251)	(0.754)	(0.761)	(3.270)	(3.270)
Number of obs.	21013	21013	13759	13759	10390	10390
R-squared	0.006	0.006	0.129	0.129	0.415	0.415
Year FE	NO	NO	NO	NO	YES	YES

Robust standard errors are in parenthesis

*** *p<0.01*, ** *p<0.05*, * *p<0.1*

floor culture and *firm commitment index*, which contain information on the relation with other workers and the feeling of belonging to the firm respectively, also cause a substantial drop in the supervise dummy coefficient[14]. These results point in the direction of people not enjoying supervisory power intrinsically, but rather the merits that come with increasing supervisory power.

In Table 7, use of fixed effects is made to test the relation between supervisory power and job satisfaction. Rather than examining what an increasing value of supervisory power means for job satisfaction, this table provides what the difference between having and not having supervisory power implies for one's job satisfaction. Fixed effects allow us to observe this shift *within* employees. Surprisingly, from the negative coefficients on *supervise dummy* in columns 1-4 we can conclude that gaining supervisory power is associated with a drop in job satisfaction instead of an expected increase. Supervising at least one other person is associated with a drop in job satisfaction between 0.04% and 0.64%, which is rather small. However, the coefficient of the *supervise dummy* is not significant in all 4 specifications.

Table 8 is similar to Table 7 except for the fact that an absolute number of employees supervised is used as independent variable and a squared term is added to check for the possibility of a inversely u-shaped relationship. For convenience, controls are left out of the table. In columns 3 and 4, working conditions are incorporated and in columns 5 and 6, regressions are run for full specifications. In column 7, *discretion* is added to the analysis as an increase in discretion might go hand in hand with an increase in supervisory power, e.g. a promotion. The fact that the coefficients in columns 1-4 are positive stresses the importance to

[14] I do not have these results available due to inaccessibility of the data (see footnote 13)

Table 7 Supervisory Power Dummy & Job Satisfaction FE/LPP

	(1) FE Job sat.	(2) FE Job sat.	(3) FE Job sat.	(4) FE Job sat.
Supervise dummy	-0.132	-0.038	-0.051	-0.643
	(0.587)	(0.577)	(0.685)	(0.616)
Task variety		1.185***	1.255***	0.623**
		(0.222)	(0.266)	(0.250)
Physical work		-0.586**	-0.321	0.003
		(0.230)	(0.269)	(0.255)
Unpleasant environment		-1.116***	-1.194***	-0.598***
		(0.177)	(0.208)	(0.185)
Time pressure		-0.825***	-0.803***	-0.347**
		(0.176)	(0.202)	(0.186)
Training opportunity dummy		1.287***	1.621***	0.909**
		(0.354)	(0.424)	(0.384)
Concerned about job security		-3.385***	-3.831***	-2.404***
		(0.377)	(0.452)	(0.414)
Weekly hours			-0.071*	-0.025
			(0.038)	(0.034)
Age			1.298**	-0.001
			(0.561)	(0.122)
Wage (log)			1.491	-0.772
			(1.054)	(0.923)
Performance pay dummy			-1.571	-1.764
			(1.503)	(1.443)
Paid overtime dummy			2.145***	1.117
			(0.873)	(0.802)
Flexible working hours			0.400	0.360
			(0.716)	(0.661)
Working from home dummy			2.477***	2.119***
			(0.770)	(0.682)
Work floor culture index				0.291***
				(0.021)
Firm commitment index				0.150***
				(0.013)
Well-being index				0.071***
				(0.012)
Physical health				0.910***
				(0.286)
Work-life balance				0.076***
				(0.011)
Constant	75.326***	77.326***	9.815	28.862***
	(0.177)	(0.917)	(26.255)	(8.767)
Number of observations	21013	20924	16551	16134
Number of groups	13981	13941	11424	11192
R-squared	0.006	0.103	0.020	0.402
Worker FE	YES	YES	YES	YES
Year FE	NO	NO	YES	YES

Robust standard errors are in parenthesis
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 8 Supervisory Power (log) & Job Satisfaction FE/LPP

	(1) FE Job sat.	(2) FE Job sat.	(3) FE Job sat.	(4) FE Job sat.	(5) FE Job sat.	(6) FE Job sat.	(7) FE Job sat.
Supervise (log)	0.057	0.066	0.112	0.117	-0.430*	-0.430*	-0.468**
	(0.240)	(0.242)	(2.232)	(0.234)	(0.226)	(0.228)	(0.227)
Supervise^2		0.000*		-0.000		-0.000	-0.000
		(0.000)		(0.000)		(0.000)	(0.000)
Discretion							1.020***
							(0.255)
//							
Constant	75.246***	75.241***	77.260***	77.259***	27.945**	27.938**	24.025**
	(0.171)	(0.171)	(0.917)	(0.917)	(8.803)	(8.820)	(8.865)
Number of obs.	21013	21013	20924	20924	16134	16134	16132
Number of groups	13981	13981	13941	13941	11192	11192	11191
R-squared	0.007	0.004	0.104	0.104	0.401	0.401	0.403
Worker FE	YES	YES	YES	YES	YES	YES	YES
Year FE	NO	NO	NO	NO	YES	YES	YES

Robust standard errors are in parenthesis
*** p<0.01, ** p<0.05, * p<0.1

* For convenience, not all variables are presented.

control for factors that are affected by an increase in supervisory power. In a full specification, it shows that supervisory power is negatively and significantly related to job satisfaction. A one-percent increase in the number of people supervised is related to a 0.005% decrease in job satisfaction (column 7). Correspondingly, a one-hundred-percent increase in the number of people supervised is related to a 0.47% decrease in job satisfaction. This is quite substantial. Overall, the results seem to support the argument that employees favor the benefits that come with an increase in supervisory power rather than the power itself.

One possible explanation of why we observe a negative coefficient is that I am not controlling properly for negative factors accompanied by an increase in supervisory power, like stress and nonmatching skills. Also, workplace size should be controlled for, because the chance that one supervises (more) employees is higher when he or she works in a place with more employees. Lastly, the findings might be country-specific.

In Table 9, the results of OLS regressions that account for all these possible explanations are shown. A plain correlation between *supervise dummy* and job satisfaction reveals that supervising at least one other employee is related to an increase of 6.16 points on the job satisfaction. In columns 7 and 8, when controlling for all relevant factors, this decreases to 1.24-2.23 points but remains significant. In Table 10, *supervise (log)* is used instead of a dummy. In a full specification, I find that a one-percent increase in number of people supervised is associated with a 0.01 percent increase in job satisfaction. This is about the same size as the coefficient on *supervise (log)* in Table 8, but with a positive sign instead. It is hard to draw conclusions from these two contradictory results. Therefore, it is worth investigating what causes these conflicting signs.

In Appendix A, I attempt to find the source of this discrepancy. In column 1, I only use similar variables for which I also have LPP data on. In columns 2 and 3, I leave out *skills don't match dummy* & *stress in job* and *workplace size* respectively. In column 4, I exclude the country dummies and in column 5, I only run the regression for German observations. For the latter, I do not include all controls, because this results in an insufficient number of observations.

Using the same variables as the LPP analysis, excluding *skills don't match* & *stress in job* and excluding country fixed effects barely affects the coefficient on *supervise (log).* On the contrary, the coefficient is highly affected by leaving out *workplace size.* The coefficient of 0.215 is considerably lower than in Table 10 (0.540) and is no longer significant. Strikingly, a regression including German observations only results in a negative, insignificant coefficient for the supervise variable. While the *workplace size* finding makes sense from an econometrical

Table 9 Supervise Dummy, Gender & Job Satisfaction OLS/EWCS

	(1) OLS Job sat.	(2) OLS Job sat.	(3) OLS Job sat.	(4) OLS Job sat.	(5) OLS Job sat.	(6) OLS Job sat.	(7) OLS Job sat.	(8) OLS Job sat.	(9) OLS Job sat.
Supervise dummy	6.162***	5.055***	0.738***	0.693*	0.870**	0.882*	1.239**	2.233***	1.310**
	(0.182)	(0.291)	(0.264)	(0.392)	(0.341)	(0.498)	(0.544)	(0.790)	(0.705)
Supervise dummy * Gender		2.258***		0.079		-0.013		-1.742*	-0.863
		(0.375)		(0.499)		(0.640)		(1.012)	(0.904)
Gender		-2.152***	-0.679***	-0.691***	-0.711***	-0.716**	-1.507***	-1.204**	-0.894**
		(0.158)	(0.205)	(0.222)	(0.269)	(0.288)	(0.439)	(0.475)	(0.419)
Education			-0.436***	-0.437***	-0.299**	-0.286**	-0.303	-0.302	0.021
			(0.095)	(0.095)	(0.124)	(0.123)	(0.208)	(0.209)	(0.184)
Discretion index			0.048***	0.048***	0.036***	0.036***	0.024**	0.024**	0.027***
			(0.004)	(0.004)	(0.006)	(0.006)	(0.010)	(0.010)	(0.009)
Physical work index			-0.135***	-0.135***	-0.092***	-0.092***	-0.058***	-0.058***	-0.070***
			(0.005)	(0.005)	(0.007)	(0.007)	(0.012)	(0.012)	(0.011)
Stress in job					-2.607***	-2.624***	-1.594***	-1.587***	-1.857***
					(0.128)	(0.127)	(0.224)	(0.224)	(0.197)
Time pressure index			-0.107***	-0.107***	-0.059***	-0.059***	-0.040***	-0.040***	0.047***
			(0.004)	(0.004)	(0.006)	(0.006)	(0.010)	(0.010)	(0.009)
Development index			-0.003	-0.003	0.003	0.003	0.007	0.007	0.006
			(0.003)	(0.003)	(0.004)	(0.004)	(0.006)	(0.006)	(0.006)
Prospects index			0.241***	0.241***	0.203***	0.203***	0.132***	0.132***	0.136***
			(0.005)	(0.005)	(0.006)	(0.006)	(0.010)	(0.010)	(0.009)
Involvement index					0.044***	0.045***	0.028***	0.028***	0.022***
					(0.005)	(0.005)	(0.009)	(0.009)	(0.008)
Recognition index							0.124***	0.124***	0.135***
							(0.013)	(0.013)	(0.012)
Rewarding work index			0.205***	0.205***	0.159***	0.157***	0.098***	0.098***	0.097***
			(0.006)	(0.006)	(0.008)	(0.008)	(0.013)	(0.013)	(0.012)
Support index			0.103***	0.103***	0.107***	0.106***	0.006	0.005	0.022**
			(0.004)	(0.004)	(0.006)	(0.006)	(0.012)	(0.012)	(0.010)
Tenure			-0.089***	-0.089***	-0.073***	-0.073***	-0.055**	-0.055**	-0.023
			(0.012)	(0.012)	(0.016)	(0.016)	(0.025)	(0.025)	(0.022)
Age			0.025**	0.025**	0.064***	0.064***	0.023	0.023	0.038*
			(0.010)	(0.010)	(0.013)	(0.013)	(0.022)	(0.022)	(0.020)
Weekly hours			-0.116***	-0.116***	-0.093***	-0.094***	-0.082***	-0.082***	
			(0.011)	(0.011)	(0.015)	(0.015)	(0.026)	(0.026)	
Wage (log)[1]			0.558***	0.558***	1.395***	1.400***	1.938***	1.933***	
			(0.046)	(0.046)	(0.281)	(0.280)	(0.499)	(0.499)	

Table 9 – continued -

	(1) OLS Job sat.	(2) OLS Job sat.	(3) OLS Job sat.	(4) OLS Job sat.	(5) OLS Job sat.	(6) OLS Job sat.	(7) OLS Job sat.	(8) OLS Job sat.	(9) OLS Job sat.
Commuting time (min)			-0.020***	-0.020***	-0.008**	-0.008**	-0.001	-0.001	-0.003
			(0.003)	(0.003)	(0.004)	(0.004)	(0.006)	(0.006)	(0.005)
Workplace size			-0.267***	-0.267***	-0.003	-0.002	0.299**	0.300**	0.302***
			(0.058)	(0.058)	(0.077)	(0.077)	(0.122)	(0.122)	(0.110)
Public firm dummy			-0.633***	-0.632***	0.191	0.209	0.616	0.619	0.610
			(0.210)	(0.210)	(0.342)	(0.341)	(0.554)	(0.554)	(0.494)
Nightshift dummy			-1.701***	-1.701***	-0.820*	-1.388***	-0.962*	-0.958*	-1.155**
			(0.249)	(0.249)	(0.469)	(0.322)	(0.506)	(0.506)	(0.457)
Skills don't match dummy			-1.867***	-1.868***	-1.724***	-1.742***	-0.625	-0.622	-0.750**
			(0.192)	(0.192)	(0.243)	(0.243)	(0.396)	(0.396)	(0.356)
Social environment index[2]			-6.087***	-6.087***	-3.858***	-3.846***	0.125***	0.125***	
			(0.419)	(0.419)	(0.508)	(0.505)	(0.017)	(0.017)	
Supervisor quality index							0.137***	0.137***	0.171***
							(0.018)	(0.018)	(0.017)
Well-being index					0.101***	0.102***	0.101***	0.102***	0.114***
					(0.006)	(0.006)	(0.011)	(0.011)	(0.010)
Physical health					3.294***	3.294***	2.478***	2.473***	3.030***
					(0.194)	(0.193)	(0.316)	(0.316)	(0.287)
Work-life balance index							0.067***	0.067***	
							(0.013)	(0.013)	
Constant	66.092***	67.133***	42.730***	42.737***	18.672***	18.764***	-1.146	-1.390	9.917***
	(0.079)	(0.108)	(0.941)	(0.943)	(2.255)	(2.248)	(4.289)	(4.291)	(3.201)
Number of obs.	116235	116226	46043	46043	25871	26016	8799	8799	10853
R-squared	0.009	0.011	0.316	0.316	0.371	0.371	0.421	0.421	0.407
Year FE	NO	NO	YES	YES	YES	YES	NO	NO	NO
Country FE	NO	NO	YES	YES	YES	YES	YES	YES	YES
Industry FE	NO	NO	NO	NO	YES	YES	YES	YES	YES

Robust standard errors are in parenthesis
**** p<0.01, ** p<0.05, * p<0.1*

[1]*In columns 3 and 4 'wage' is measured in deciles (wage falls within one of the ten categories) due to the unavailability of data on absolute wage in 2005.*
[2] *In columns 3-6,'social environment' only consists of a discrimination in the workplace dummy due to unavailability of data on 'treated fairly' and 'nice colleagues' in 2005 and 2010 (see summary statistics table).*

Table 10 Supervisory Power (log) & Job Satisfaction OLS/EWCS

	(1) OLS	(2) OLS	(3) OLS 2005-2015	(4) OLS 2005-2015	(5) OLS 2010 & 2015	(6) OLS 2010 & 2015	(7) OLS 2015	(8) OLS 2015
	Job sat.	Job sat.	Job sat.	Job sat.	Job sat.	Job sat.	Job sat.	Job sat.
Supervise (log)	3.083***	3.086***	0.290**	0.279**	0.429***	0.448***	0.502**	0.540**
	(0.086)	(0.086)	(0.116)	(0.117)	(0.151)	(0.151)	(0.236)	(0.237)
Supervise^2		-0.000		0.000		-0.000		-0.000*
		(0.000)		(0.000)		(0.000)		(0.000)
Discretion Index			0.048***	0.048***	0.035***	0.035***	0.023**	0.023**
			(0.004)	(0.004)	(0.006)	(0.006)	(0.010)	(0.010)
//								
Constant	66.251***	66.251***	42.772***	42.772***	18.619***	18.745***	-1.507	-1.485
	(0.077)	(0.077)	(0.948)	(0.948)	(2.266)	(2.258)	(4.318)	(4.319)
Obs.	114760	114760	45689	45689	25693	25833	8750	8750
R-squared	0.010	0.010	0.317	0.317	0.371	0.371	0.421	0.421
Year FE	NO	NO	YES	YES	YES	YES	NO	NO
Country FE	NO	NO	YES	YES	YES	YES	YES	YES
Industry FE	NO	NO	NO	NO	YES	YES	YES	YES

Robust standard errors are in parenthesis
*** *p<0.01*, ** *p<0.05*, * *p<0.1*

* For convenience, not all variables are presented. However, the regressions are run with control variables, based on the years for which data is available.

point of view, the latter possibly highlights an underlying cause.

A potential explanation lies in the cultural view on power distances as described by Hofstede (1980). He explains his concept of Power Distance as 'the extent to which the members of a society accept that power in institutions and organizations is distributed unequally' (Hofstede, 1984). In Large Power Distance societies, people accept that they are a part of a hierarchal order, while in Small Power Distance societies people question this order and attempt to distribute power. Germany scores 35 on the Power Distance index (PDI), which is lower than the average of 53 in this sample. Thus, it seems plausible that German employees care less for power, but more for equality. To test this proposition, I add the Power Distance index instead of country dummies to the regression. The Power Distance index has a negative

and significant relation to job satisfaction. By itself, this is not necessarily an interesting finding. However, the coefficient on supervise increases from 0.540 (Table 10, column 8) to 0.690 (Appendix A, column 6) by adding the Power Distance index.

In Table 11, I do not only control for the PDI, but also for an interaction term between PDI and supervisory power. This controls for the extra effect of having supervisory power on job satisfaction, moderated for the degree to which inequality is accepted. It becomes apparent that this is a major factor. The coefficient of these interaction terms is negative which indicates that the higher the score on the PDI of the country where the employee is from, the lower the satisfaction derived from supervisory power. Oddly, in societies where a hierarchy is more accepted by those on the bottom of the pyramid and power is distributed unequally, the people draw less satisfaction from having supervisory power. Vice versa, people draw more satisfaction from having supervisory power in societies where the hierarchy is less accepted and power is distributed more equally. Therefore, it appears that those who do end up higher in this hierarchy, which is being less accepted, enjoy their power relatively more.

One possible explanation relates to the scarcity of this power. If power is scarcer, this could make it more exclusive and therefore more desired. After controlling for this effect, I find that supervisory power is positively and significantly related to job satisfaction. Supervising at least one other employee is related to a 1.60% - 3.93% increase in job satisfaction (columns 2, 4 and 6). A one-percent increase in the number of employees a supervisor supervises is accompanied by 0.02% increase in satisfaction of one's job (column 8). These findings are in favor of the hypothesis that supervisory power is positively related to job satisfaction.

So far, I have not discussed hypothesis 2b which states that supervisory power and job

Table 11 Supervisory Power, Power Distance index & Job Satisfaction OLS/EWCS

	(1) OLS 2005-2015 Job sat.	(2) OLS 2005-2015 Job sat.	(3) OLS 2010 & 2015 Job sat.	(4) OLS 2010 & 2015 Job sat.	(5) OLS 2015 Job sat.	(6) OLS 2015 Job sat.	(7) OLS 2015 Job sat.	(8) OLS 2015 Job sat.
Supervise dummy	0.749*	1.598**	1.179**	2.211**	2.551***	3.927***		
	(0.397)	(0.708)	(0.503)	(0.910)	(0.795)	(1.418)		
Supervise (log)							1.016***	1.635***
							(0.308)	(0.560)
Supervise^2							-0.000**	-0.000**
							(0.000)	(0.000)
Power distance index (PDI)	-0.613***	-0.609***	-0.095***	-0.092***	-0.076***	-0.070***	-0.075***	-0.070***
	(0.082)	(0.082)	(0.007)	(0.007)	(0.011)	(0.012)	(0.011)	(0.012)
PDI * Supervise dummy		-0.017		-0.021		-0.030		
		(0.012)		(0.016)		(0.026)		
PDI * Supervise (log)								-0.014
								(0.011)
Supervise dummy * Gender	-0.114	-0.110	-0.360	-0.337	-2.054**	-1.996*	-1.715*	-1.622*
	(0.508)	(0.508)	(0.656)	(0.656)	(1.031)	(1.032)	(0.929)	(0.930)
Gender	-0.509**	-0.507**	-0.222	-0.223	-0.603	-0.597	-0.694	-0.693
	(0.226)	(0.226)	(0.294)	(0.294)	(0.481)	(0.481)	(0.475)	(0.475)
Discretion index	0.048***	0.048***	0.035***	0.035***	0.021**	0.022**	0.021**	0.021**
	(0.004)	(0.004)	(0.006)	(0.006)	(0.010)	(0.010)	(0.010)	(0.010)
//								
Constant	82.479***	82.235***	28.147***	27.979***	10.762***	10.534***	10.475***	10.245***
	(5.542)	(5.532)	(1.763)	(1.766)	(3.414)	(3.418)	(3.426)	(3.430)
Number of obs.	43877	43877	24358	24358	8357	8357	8312	8312
R-squared	0.317	0.317	0.362	0.362	0.412	0.412	0.413	0.413
Year FE	YES	YES	YES	YES	NO	NO	NO	NO
Country FE	NO	NO	NO	NO	NO	NO	NO	NO
Industry FE	NO	NO	YES	YES	YES	YES	YES	YES

Standard errors are in parenthesis
**** p<0.01, ** p<0.05, * p<0.1*

* For convenience, not all variables are presented. However, the regressions are run with control variables, based on the years for which data is available.

* Using the Power Distance index instead of country dummies results in a loss of observations due to the fact that no values of the PDI are available for Cyprus, North Macedonia, Kosovo and Montenegro.

satisfaction share an inversely u-shaped relation. If such a relationship were to exist, we should observe a negative and significant coefficient on the squared term for supervisory power, *supervise*^{2}*.* In Table 8, this is not the case. *Supervise*^{2} is negative, yet not significant. Knowing that the analysis of the LPP data lacks important controls, we should focus more on the analysis with EWCS data. In Table 11, I find that the squared term of *supervise* is both negatively and significantly related to job satisfaction (columns 7 and 8).

To assert how robust these results are, I test the relation between supervisory power and job satisfaction by using different categories based on the number of employees a supervisor supervises. In columns 1-4 of Appendix B, I have made use of the same arbitrary categories as Verriet (2019). The results from a plain regression using only these categories indicate a positive link between supervisory power and job satisfaction. However, when all controls are included, this relation appears to be inversely u-shaped. Coefficients on the categories are rising, until *supervise 16 to 24.* After this category, the coefficients drop again. Additionally, columns 5-8 contain categories based on quintiles. Of the employees who supervise other employees, the 20 percent that supervise the least amount of employees form the first quintile group. Subsequently, the second quintile is formed by the group of supervisors that supervise the next 20 percent. Again, a plain regression indicates a positive association. Unlike with the arbitrarily chosen categories, no evidence for an inversely u-shaped relation is present. Overall, the analyses provide some evidence for an inversely u-shaped relation.

5.4 Supervisory power, gender and job satisfaction

In the introduction, I argued that the influence of gender on the relation between

supervisory power and satisfaction might have interesting implications. If men were to enjoy supervisory power more than women, this might explain why we observe more men in management positions. In a similar way as with *discretion,* I test the influence of gender in this relationship by means of an interaction term. The results of *supervise dummy * gender* are fairly similar for both the LPP and EWCS data analysis in Table 6 and Table 9, respectively. The coefficients for the plain regressions are positive, which is indicative of men enjoying their jobs more. Including controls results in the coefficient becoming negative. As discussed in section 5.2, this is likely the result of variables coinciding with *gender.*

In column 9 of Table 9, I have left out the 4 variables that are found to coincide most with *gender.* These are *wage, weekly hours, social environment index* and *work-life balance index.* As a result, the coefficients on *gender* and *supervise dummy * gender* drop considerably, but stay negative.

Gender likely coincides with most other variables. The type of job men and women have differs, but, presumably, men and women also differ in how they are treated and regarded in their jobs. Therefore, it would be most appropriate to draw conclusions from how supervisory power is regarded between men and women by using the specification with the most control variables. In the 2015-specification in Tables 6, 9 and 11, the coefficients on *supervise dummy * gender* are all negative. This would indicate that women enjoy power more than men. These results are not consistent with hypothesis 2b.

A similar argument could apply to this finding as with the *Power Distance index.* It could be the case that, because power is scarcer among female employees, it is more desirable for women to gain supervisory power. In other words, women are underrepresented in

management positions, and therefore they enjoy the power of getting higher up in the ranking more than men.

5.5 Robustness checks

In section 5.3, I used an OLS regression to test the relation between a supervisory power dummy and job satisfaction (Table 6). Appendix C contains the OLS regression results of a similar regression but with *supervise (log)* and *supervise*^{2}*.* Like Table 6, columns 3-6 contain the specification with control variables. The results are very similar; Including all controls leads to a negative coefficient of *supervise (log).*

As job satisfaction is measured on a 10-point scale in both datasets, I run ordinal logistic regressions as a robustness check. Appendix D & E provide these results. For both datasets, *discretion* is positively and significantly related to job satisfaction. This means that having at least some discretion is related to higher job satisfaction than having no discretion. For *supervise (log),* Appendix E confirms the finding that supervisory power is positively related to job satisfaction.

Appendix F contains various checks to assess the robustness of the results found using fixed effects. In all columns, full specifications are used. In columns 1 and 2, an alternative job satisfaction variable is used as the dependent variable. Rather than rating their job satisfaction on a scale from 1 to 10, I use the answers to the questions where the interviewees are asked how much they agree with the statements: *I feel bursting with energy at my job*, *I am enthusiastic about my job*, *every morning I feel like going to work* and *I am proud of the work I do*. Also, I have incorporated how much an interviewee thinks about *changing jobs*. What

strikes is the positive coefficient on *supervise (log)*, which was negative in Table 8. Compared to Table 2, the size of the coefficient drops from 1.011 to 0.615, yet remains highly significant.

In columns 3 and 4, *wage* is replaced with *wage satisfaction.* In theory, this should be a better control as employees compare to the wage they think they should have rather than the absolute amount. With a positive and highly significant coefficient of 1.66, *Wage satisfaction* proves an important constituent of job satisfaction.

In columns 5 and 6, I assess the robustness of the results for *discretion* and *supervise (log)* for a sample of employees that work a minimum of 36 hours a week. This condition allows for a more accurate use of the wage variable as the question used for constructing the wage variable referred to income rather than wage. For people working over 36 hours, the wage is more likely to be their only source of income. Both the use of wage satisfaction and the 36-hours condition barely affect the results.

In columns 7 and 8, I only make use of *feeling cheerful* as a proxy for well-being, because it is possibly a more accurate for measuring well-being than a 5-component index. But even so, the main independent variables are unaffected by using an alternative measure for well-being.

Lastly, in column 9 I leave out *task variety* in the full specification to explore whether *task variety* and *discretion* make natural partners. The reasoning is that a job with multiple tasks requires more control in the form of deciding what task to do or the order in which they are done. *Discretion* is likely to pick up the variation of *task variety* if they make natural partners. However, given that the coefficient on *discretion* was 1.011 in Table 2, this does not seem the case.

Appendix G contains an analysis with supervisory power categories as main independent

variables as discussed in section 5.3 and shown in Appendix B but with the use of LPP data and fixed effects. However, there appears to no be no relation of any kind between supervisory power and job satisfaction.

6 Conclusion

Using two sets of data, I have explored the relationship between control and job satisfaction. Control, I defined as the control one has over himself or herself in doing his or her job (discretion) or the control one has over others in his or her job (supervisory power). The data for these analyses stem from the Linked Personnel Panel (LPP) and the European Working Conditions Survey (EWCS).

The results from both analyses are unambiguous with respect to the effect discretion has on job satisfaction. Discretion has shown to be an important factor of job satisfaction. As hypothesized, no evidence was found for a difference between men and women in experiencing job satisfaction.

In contrast to these results, the results involving supervisory power were ambiguous. Using the LPP data and individual fixed effects, I found that supervisory power was negatively related to job satisfaction. In contrast, OLS regressions with EWCS data provided positive coefficients on *supervise (log)*. Comparing analyses with both datasets, I found that the source of this discrepancy was twofold. *Workplace size* and country specificity proved to be important factors to control for in the EWCS analyses. In addition, I hypothesized and discovered that enjoying supervisory power is culturally embedded. By means of Hofstede's concept of Power Distance, I found that how the distribution of power is received matters for the satisfaction

drawn from supervisory power. In societies where hierarchy is less accepted and power is distributed more equally, people tend to enjoy having supervisory power more than in societies where hierarchy is accepted more and power is distributed unequally. I attribute this finding to the scarcity of power, which makes having power more exciting.

Moreover, I found some evidence for the existence of an inversely u-shaped relation between supervisory power and job satisfaction. A squared term on the absolute number of employees one has under his or her supervision was both negative and significant. Also, categorizing the number of employees one supervises yielded some interesting results. Rather than indicating that men enjoy supervisory power more than women, I found this is likely the other way around. Interaction terms between *supervisory power dummy* and *gender* all came back negative.

Overall, my findings add to a large stream of literature on what determines job satisfaction. To my knowledge, I am the first to test the effect of discretion on job satisfaction using a fixed-effects model and the first to consider supervisory power as a driver of job satisfaction. I find that both discretion and supervisory control are positively, significantly related to job satisfaction and that cultural background plays an important role in how supervisory power is perceived. These findings should be incorporated by managers, because what matters for job satisfaction, matters for productivity, retention, commitment, and absenteeism. In addition, these findings are in favor of the proposition that people sort themselves into self-employment, because they enjoy having control over themselves. Moreover, I find that supervisory power, aside from the benefits accompanied by it, matters for job satisfaction. Therefore, supervisory power should be considered an incentive on itself.

Lastly, this paper presents that enjoying a particular aspect of a job is culturally embedded.

For future research on a similar topic, it should be taken into consideration that culture plays a role in how particular aspects of a job are perceived. Also, because the evidence on an inversely u-shaped relation was not conclusive, I would like to make a recommendation for future research to delve deeper into this hypothetical relationship.

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Appendices

Appendix A Supervisory Power (log) & Job Satisfaction OLS/EWCS: In-depth analysis

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS
	Same variables as LPP	Less *skills don't match d.* & *stress*	Less *workplace size*	No Country FE	Germany only 2005-2015	Controlling for Power Distance Index
	Job sat.	Job sat.	Job sat.	Job sat.	Job sat.	Job sat.
Supervise (log)	0.666***	0.468**	0.215	0.688***	-0.755	0.690**
	(0.232)	(0.236)	(0.182)	(0.238)	(0.719)	(0.238)
Supervise^2	-0.000	-0.000	-0.000	-0.000**	0.000***	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Gender	-0.949**	-1.352***	-1.214***	-1.036**	2.035*	-0.612
	(0.403)	(0.440)	(0.291)	(0.434)	(1.192)	(0.423)
Education	-0.052	-0.422**	-0.209	-0.278	-0.739	-0.217
	(0.184)	(0.209)	(0.141)	(0.200)	(0.629)	(0.195)
Discretion index	0.057***	0.024**	0.033***	0.030***	0.039*	0.020**
	(0.009)	(0.010)	(0.006)	(0.010)	(0.022)	(0.010)
Physic work index	0.081***	-0.064***	-0.046***	-0.075***	-0.107***	-0.078***
	(0.012)	(0.012)	(0.008)	(0.012)	(0.036)	(0.012)
Stress in job			-1.738***	-1.543***		-1.442***

			(0.145)	(0.221)		(0.225)
Time pressure index	0.036***	-0.057***	-0.040***	-0.022**	-0.145***	-0.031***
	(0.010)	(0.010)	(0.007)	(0.010)	(0.027)	(0.011)
Development index		0.003	0.011***	0.012**	0.010	0.010
		(0.006)	(0.004)	(0.006)	(0.016)	(0.006)
Prospects index	0.178***	0.136***	0.138***	0.143***	0.286***	0.140***
	(0.010)	(0.010)	(0.007)	(0.010)	(0.029)	(0.010)
Involvement index		0.023**	0.022***	0.026***		0.030***
		(0.009)	(0.006)	(0.009)		(0.009)
Recognition index		0.126***	0.143***	0.140***		0.122***
		(0.014)	(0.009)	(0.013)		(0.014)
Rewarding index		0.096***	0.067***	0.084***	0.239***	0.095***
		(0.013)	(0.009)	(0.013)	(0.032)	(0.013)
Support index	0.024**	0.004	0.006	0.006	0.057***	0.004
	(0.011)	(0.012)	(0.008)	(0.012)	(0.021)	(0.012)
Tenure		-0.062**	-0.020	-0.065***	0.079	-0.039
		(0.025)	(0.017)	(0.025)	(0.068)	(0.025)
Age	0.053***	0.033	0.028**	0.053**	-0.084	0.031
	(0.017)	(0.022)	(0.014)	(0.022)	(0.054)	(0.022)
Weekly hours	0.111***	-0.087***	-0.070***	-0.090***	-0.044	-0.056**
	(0.022)	(0.026)	(0.016)	(0.023)	(0.073)	(0.024)
Wage (log)[1]	0.090	1.808***	1.716***	0.110	0.062	0.002
	(0.156)	(0.503)	(0.328)	(0.158)	(0.223)	(0.167)
Commuting time (min)		-0.001	-0.009**	0.001	0.009	0.004
		(0.006)	(0.004)	(0.006)	(0.019)	(0.006)
Workplace size	0.354***	0.286**		0.403***	-0.064	0.363***
	(0.113)	(0.123)		(0.121)	(0.325)	(0.117)
Public firm dummy		0.677	-0.227	0.282	-0.489	0.132
		(0.558)	(0.383)	(0.553)	(1.202)	(0.435)
Nightshift dummy		-1.132**	-0.988***	-0.795	-1.300	-1.041**
		(0.509)	(0.344)	(0.512)	(1.416)	(0.510)
Skills don't match dummy			-0.559**	-0.759*	-0.636	-0.638
			(0.266)	(0.398)	(1.140)	(0.405)
Social environment index[2]	0.161***	0.135***	0.109***	0.132***	-6.928***	0.135***
	(0.017)	(0.018)	(0.012)	(0.017)	(1.707)	(0.018)
Supervisor quality index	0.256***	0.143***	0.142***	0.120***		0.139***
	(0.014)	(0.018)	(0.013)	(0.018)		(0.019)
Well-being index	3.129***	2.655***	0.096***	2.927***		0.102***
	(0.308)	(0.317)	(0.007)	(0.313)		(0.317)
Physical health	0.121***	0.107***	2.693***	0.106***		2.782***
	(0.011)	(0.011)	(0.216)	(0.011)		(0.011)
Work-life balance index	0.095***	0.084***	0.055***	0.066***		0.059***
	(0.013)	(0.013)	(0.009)	(0.014)		(0.014)
Power distance index						-0.073***
						(0.110)
Constant	-1.333	-5.705	0.878	6.018*	45.369***	8.675***
	(2.362)	(4.275)	(2.729)	(3.257)	(4.866)	(2.757)
Number of obs.	9226	8756	19570	8750	1144	8312
R-squared	0.384	0.417	0.411	0.406	0.373	0.410
Year FE	YES	NO	NO	NO	YES	NO
Country FE	NO	YES	YES	NO	NO	NO
Industry FE	NO	YES	YES	YES	YES	YES

Robust standard errors are in parenthesis
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Appendix B Supervisory Power Categories & Job Satisfaction OLS/EWCS: Robustness check hypothesis 2b

	(1) OLS Plain Job sat.	(2) OLS 2005-2015 Job sat.	(3) OLS 2010&2015 Job sat.	(4) OLS 2015 Job sat.	(5) OLS Plain Job sat.	(6) OLS 2005-2015 Job sat.	(7) OLS 2010&2015 Job sat.	(8) OLS 2015 Job sat.
Supervise 1 to 5	3.768***	1.797***	0.560	1.569				
	(0.442)	(0.634)	(0.821)	(1.346)				
Supervise 6 to 15	5.094***	0.817	0.365	1.722				
	(0.502)	(0.697)	(0.898)	(1.436)				
Supervise 16 to 24	6.802***	1.337	1.222	2.661				
	(0.834)	(1.075)	(1.299)	(1.851)				
Supervise 25 to 49	6.429***	1.796*	1.605	2.596				
	(0.804)	(0.999)	(1.300)	(1.976)				
Supervise 50 plus	7.769***	3.808***	3.041**	2.097				
	(0.873)	(1.138)	(1.493)	(2.327)				
Supervise 1st quintile					2.719***	2.133**	-0.970	0.493
					(0.574)	(0.861)	(1.109)	(1.755)
Supervise 2nd quintile					4.148***	2.509***	1.345	2.125
					(0.505)	(0.718)	(0.926)	(1.502)
Supervise 3rd quintile					4.335***	0.471	0.056	1.052
					(0.529)	(0.749)	(0.983)	(1.615)
Supervise 4th quintile					5.194***	0.783	0.662	2.187
					(0.546)	(0.747)	(0.964)	(1.557)
Supervise 5th quintile					6.680***	2.026***	1.726*	2.659*
					(0.547)	(0.735)	(0.937)	(1.430)
Power distance index (PDI)	-0.201***	-0.113***	-0.096***	-0.074***	-0.201***	-0.113***	-0.097***	-0.074***
	(0.004)	(0.005)	(0.007)	(0.012)	(0.004)	(0.005)	(0.007)	(0.012)
PDI * Supervise dummy	0.028***	-0.017	0.002	-0.011	0.029***	-0.017	0.003	-0.011
	(0.007)	(0.011)	(0.014)	(0.024)	(0.007)	(0.011)	(0.014)	(0.024)
//								
Constant	77.062***	45.916***	28.804***	13.114***	77.060***	45.864***	28.830***	13.106***
	(0.212)	(0.778)	(1.428)	(2.110)	(0.212)	(0.778)	(1.428)	(2.111)
Number of obs.	108616	56694	35255	18242	108616	56694	35255	18242
R-squared	0.037	0.300	0.358	0.402	0.037	0.300	0.358	0.402
Year FE	NO	YES	YES	NO	NO	YES	YES	NO
Country FE	NO	NO	NO	NO	NO	NO	NO	NO
Industry FE	NO	NO	YES	YES	NO	NO	YES	YES

Robust standard errors are in parenthesis
*** *p<0.01, ** p<0.05, * p<0.1**

Appendix C Supervisory Power (log) & Job Satisfaction OLS/LPP

	(1) OLS Job sat.	(2) OLS Job sat.	(3) OLS Job sat.	(4) OLS Job sat.	(5) OLS Job sat.	(6) OLS Job sat.
Supervise (log)	1.142***	1.149***	0.775***	0.782***	-0.161	-0.159
	(0.086)	(0.087)	(0.107)	(0.108)	(0.107)	(0.108)
Supervise^2		0.000		0.000		-0.000
		(0.000)		(0.000)		(0.000)
//						
Constant	74.475***	74.472***	79.489***	79.485***	10.942***	10.941***
	(0.630)	(0.139)	(0.755)	(0.755)	(3.292)	(3.293)
Obs.	21013	21013	13759	13759	10390	10390
R-squared	0.007	0.007	0.129	0.129	0.415	0.415
Year FE	NO	NO	NO	NO	YES	YES

Robust standard errors are in parenthesis
*** *p<0.01*, ** *p<0.05*, * *p<0.1*

*Regressions are run with all control variables, yet for convenience only relevant variables are shown

Appendix D Discretion, Supervisory Power (log) & Job Satisfaction O. LOGIT/LPP

	(1) O. LOGIT Job sat.	(2) O. LOGIT Job sat.	(3) O. LOGIT Job sat.	(4) O. LOGIT Job sat.	(5) O. LOGIT Job sat.	(6) O. LOGIT Job sat.
Discretion	0.493***		0.397***		0.183***	
	(0.014)		(0.018)		(0.022)	
Supervise (log)		0.129***		0.090***		-0.023
		(0.010)		(0.012)		(0.015)
Supervise^2		-0.000		-0.000		-0.000
		(0.000)		(0.000)		(0.000)
//						
Obs.	21026	21013	13771	13759	10392	10390
Pseudo R^2	0.020	0.002	0.052	0.042	0.157	0.155
Year FE	NO	NO	NO	NO	YES	YES

Robust standard errors are in parenthesis
*** *p<0.01*, ** *p<0.05*, * *p<0.1*

*Regressions are run with all control variables, yet for convenience only relevant variables are shown

Appendix E Discretion, Supervisory Power (log) & Job Satisfaction O. LOGIT/EWCS

	(1) O. LOGIT Plain Job sat.	(2) O. LOGIT Plain Job sat.	(3) O. LOGIT 2005-2015 Job sat.	(4) O. LOGIT 2005-2015 Job sat.	(5) O. LOGIT 2010 & 2015 Job sat.	(6) O. LOGIT 2010 & 2015 Job sat.	(7) O. LOGIT 2015 Job sat.	(8) O. LOGIT 2015 Job sat.
Discretion index	0.018***		0.005***	0.005***	0.004***	0.004***	0.003***	0.003**
	(0.000)		(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Supervise (log)		0.163***		0.125***		0.100**		0.125*
		(0.020)		(0.031)		(0.042)		(0.068)
Supervise^2		-0.000		0.000		-0.000		-0.000*
		(0.000)		(0.000)		(0.000)		(0.000)
Power distance index (PDI)		-0.017***		-0.012***		-0.011***		-0.069***
		(0.000)		(0.001)		(0.001)		(0.013)
PDI * Supervise (log)		0.001***		-0.002***		-0.001		-0.001
		(0.000)		(0.001)		(0.001)		(0.001)
//								
Number of obs.	101098	107313	46043	43558	26016	24204	8799	8312
Pseudo R^2	0.030	0.018	0.176	0.166	0.217	0.212	0.257	0.259
Year FE	NO	NO	YES	YES	YES	YES	NO	NO
Country FE	NO	NO	YES	NO	YES	NO	YES	NO
Industry FE	NO	NO	NO	NO	YES	YES	YES	YES

Standard errors are in parenthesis
*** p<0.01, ** p<0.05, * p<0.1*

[1]*In columns 3 and 4 'wage' is measured in deciles (wage falls within one of the ten categories) due to the unavailability of data on absolute wage in 2005*
[2] *In columns 3-6,'social environment' only consists of a discrimination in the workplace dummy due to unavailability of data on 'treated fairly' and 'nice colleagues' in 2005 and 2010 (see summary statistics)*
[3]*In columns 2,4,6 and 8, I used the Power Distance index instead of country dummies, which resulted in the loss of some observations. Cyprus, North Macedonia, Kosovo and Montenegro do not have ratings for the PDI.*

Appendix F Discretion, Supervisory Power and Job Satisfaction: Various robustness checks FE/LPP

	(1) FE	(2) FE	(3) FE	(4) FE	(5) FE	(6) FE	(7) FE	(8) FE	(9) FE
	Alt. Job Satisfaction		Wage Satisfaction		Work hours ≥ 36		Alt. Well-Being index		W/o Task V
	Job sat.	Job sat.	Job sat.	Job sat.	Job sat.	Job sat.	Job sat.	Job sat.	Job sat.
Discretion	0.615***		0.890***		0.781***		0.982***		1.075***
	(0.178)		(0.231)		(0.257)		(0.257)		(0.251)
Supervise (log)		0.131		-0.308		-0.385*		-0.413	
		(0.169)		(0.210)		(0.230)		(0.230)	
Supervise^2		0.000**		0.000		-0.000		-0.000	
		(0.000)		(0.000)		(0.000)		(0.000)	
Task variety	0.502***	0.580***	0.572**	0.699***	0.699***	0.813***	0.556**	0.693***	
	(0.178)	(0.178)	(0.225)	(0.222)	(0.258)	(0.254)	(0.252)	(0.249)	
//									
Wage (log)	0.073	0.062			0.621	0.633	0.624		0.624
	(0.589)	(0.588)			(0.812)	(0.811)	(0.915)		(0.911)
Wage satisfaction			1.653***	1.663***					
			(0.158)	(0.158)					
//									
Well-being index	0.060***	0.060***	0.072***	0.073***	0.061***	0.063***			0.070***
	(0.008)	(0.008)	(0.010)	(0.010)	(0.012)	(0.012)			(0.012)
Feeling cheerful							1.058***	1.073***	
							(0.190)	(0.190)	
Constant	31.157***	32.498***	6.743	11.188*	7.958	11.667*	25.407	30.087***	23.261***
	(6.024)	(5.922)	(6.925)	(6.380)	(7.346)	(6.737)	(8.533)	(8.688)	(8.531)
Number of obs.	15751	15748	18832	18826	15801	15796	16195	16193	16139
Number of groups	11076	11074	12795	12792	10946	10943	11223	11222	11195
R-squared	0.402	0.397	0.383	0.395	0.396	0.407	0.403	0.399	0.396
Worker FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Robust standard errors are in parenthesis

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

*Regressions are run with all control variables, yet for convenience only relevant variables are shown.

Appendix G Supervisory Power Categories & Job Satisfaction FE/LPP

	(1) FE Job sat.	(2) FE Job sat.	(3) FE Job sat.	(4) FE Job sat.	(5) FE Job sat.	(6) FE Job sat.
Supervise 1 to 5	-0.505	-0.327	-0.607			
	(0.665)	(0.653)	(0.706)			
Supervise 6 to 14	0.312	0.286	-0.743			
	(0.736)	(0.724)	(0.738)			
Supervise 15 to 24	-0.181	-0.561	-2.948**			
	(1.240)	(1.198)	(1.321)			
Supervise 25 to 49	0.371	0.298	-1.631			
	(1.225)	(1.183)	(1.161)			
Supervise 50 plus	-0.129	-0.580	-3.068**			
	(1.334)	(1.282)	(1.346)			
Supervise 1st quintile				0.279	0.249	0.603
				(0.839)	(0.818)	(0.904)
Supervise 2nd quintile				-0.611	-0.430	-1.426*
				(0.768)	(0.754)	(0.773)
Supervise 3rd quintile				-0.277	-0.156	-0.590
				(0.877)	(0.861)	(0.847)
Supervise 4th quintile				0.010	0.193	-1.649
				(0.990)	(0.973)	(1.044)
Supervise 5th quintile				-0.014	0.281	-2.014**
				(1.097)	(1.050)	(1.021)
//						
Constant	75.315***	78.673***	28.243***	75.327***	77.352***	21.822**
	(0.166)	(0.944)	(8.896)	(0.182)	(0.918)	(9.646)
Number of obs.	21033	20944	16138	21033	20944	16138
Number of groups	13993	13953	11194	13993	13953	11194
R-squared	0.000	0.101	0.400	0.000	0.103	0.391
Worker FE	YES	YES	YES	YES	YES	YES
Year FE	NO	NO	YES	NO	NO	YES

Standard errors are in parenthesis
**** p<0.01, ** p<0.05, * p<0.1*

*Regressions are run with all control variables, yet for convenience only relevant variables are shown.