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ORIGINAL PAPER

The relation between employees' self-evaluations of performance and job satisfaction

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Abstract
Using panel data from middle-managers in the German chemical industry, we investigate the relationship between employees' self-evaluations of performance with job satisfaction. Self-evaluations are made in comparison to colleagues' performance. Results based on individual fixed effects panel estimations reveal a positive relation between self-evaluations and job satisfaction with the exception that employees with particularly high self-evaluations do not show particular high levels of job satisfaction. We cannot find evidence to support our presumption that employees' disappointment or inequity perceptions regarding their compensation may play a meaningful role for this relationship. We discuss our findings and suggest implications for practice as well as avenues for future research.

Keywords Job satisfaction · Self-evaluations · Social comparisons · Equity concerns

JEL Classification D63 · J28 · M5

1 Introduction

In recent years, 360-degree feedback as part of performance evaluation systems have become increasingly popular in many firms (Morgeson et al. 2005). These systems include receiving feedback from subordinates, colleagues, and supervisors as well as employees assessing themselves (Fletcher 1999; Millmore et al. 2007). In spite of its

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practical relevance, employees' self-evaluations of performance have attracted much less attention in research than performance appraisals by others, supposedly due to lack of appropriate data. In general, self-evaluations regarding job performance can be made absolutely or relatively to a comparison group. In the job context, it is common for employees to evaluate themselves regarding work performance against their colleagues working on similar jobs, so that social comparisons are relevant (Clark and Senik 2010; Downes et al. 2021; Mumford 1983). In congruence with this, we study relative self-evaluations, i.e., in comparison to colleagues as a reference group.

Self-evaluations are not only reflections of past behavior, but can also be related to motivation or well-being (Diel et al. 2021; Suls et al. 2002; Thornton 1980). Problems can arise, for instance, if self-evaluations deviate from ratings made by others and people perceive received feedback as unfair or useless (Brett and Atwater 2001; Carver et al. 2021), resulting in lower levels of goal achievement and higher degrees of absenteeism (Narciss et al. 2011; Yammarino and Atwater 1997). Besides, accompanying overconfidence can result in inadequate approaches to error handling and less effective strategic decision-making (Kunz and Sonnenholzner 2023). From a corporate perspective, it is therefore important to examine outcomes of employees' self-evaluations to be able to deal with possible negative consequences following (inaccurate) self-evaluations.

We argue that self-evaluations of performance can be related to job satisfaction. Job satisfaction describes employees' feelings with regard to their work (Almatrooshi et al. 2016) or an individual's utility from work in general (Clark 1997). It is important for individuals and companies alike. For instance, dissatisfaction with the job increases sickness absence, e.g., because of burnout or depression (Böckerman and Ilmakunnas 2008; Faragher et al. 2005), and is positively related to turnover intentions (Frederiksen 2017; Lambert et al. 2001). Therefore, it is important for the management of firms to be aware of drivers of employees' job satisfaction.

There is a huge literature on the determinants of job satisfaction including a variety of individual and job characteristics (see e.g., Dormann and Zapf 2001 or Sousa-Poza and Sousa-Poza 2000 for overviews). Past research on the relation between social comparisons and job satisfaction rather focuses on comparisons regarding job outcomes such as compensation or career progression (e.g., Clark et al. 2009; Collischon and Eberl 2021; Eddleston 2009; Grund and Rubin 2017). According to equity theory (Adams 1963), social comparisons regarding employees' perceived job inputs can be equally relevant for satisfaction, though. Previous empirical research which addresses the specific relation between employees' self-evaluations of performance and job satisfaction is rather scarce and limited to the educational context. Nhundu (1992) analyzes self-appraisals among teacher interns and finds a positive correlation with job satisfaction. Robins and Beer (2001) show that students' self-enhancing evaluations of own performance decrease the more general aspect of well-being. To the best of our knowledge, we provide first evidence on the link between private sector employees' relative self-evaluations of performance and job satisfaction.[1] By

[1] Few additional studies consider the link between comparisons regarding performance and job satisfaction: Reiff et al. (2022) study the effect of receiving social comparison information concerning actual performance, while Brown et al. (2007) analyze the link between frequency of performance comparisons and job satisfaction. Yet, these studies do not analyze self-assessed performance in particular.

doing so, we complement previous studies that emphasize job outcomes rather than inputs.

In this study, we make use of individual unique panel data from a yearly income survey among middle managers of large firms in the German chemical sector. We consider self-evaluations of performance in comparison to colleagues' performance. In contrast to the aforementioned (experimental) studies, this allows us to examine the direct relationship between relative self-evaluations regarding job performance and job satisfaction using a homogenous employee sample. By analyzing this relation, we provide a meaningful step towards a better understanding of the consequences of self-evaluations regarding job satisfaction. We consider perceptions regarding person-job fit and future goal success as potential channels for a positive relationship. This relation may be undermined by disappointment from unfulfilled expectations as well as social comparisons of input-outcome relations and potential feelings of inequity, though.

Building on our results, we strive for deriving practical implications for companies in order to ensure employee satisfaction or avoid potential dissatisfaction. By taking these insights into account, companies can benefit, for example in terms of increased productivity or lower fluctuation costs due to satisfied employees.

2 Theoretical considerations and hypotheses

Employees can evaluate their own performance either in an absolute or in a relative way. Clark and Senik (2010) find that colleagues in the firm act as the most important peer group when evaluating one's own performance relative to the performance of others. We refer to this view and focus on self-evaluations of individuals' performance relative to that of colleagues in a similar position.[2]

For deriving our hypothesis regarding the relation between employees' self-evaluations and their job satisfaction, we argue that self-evaluations affect employees' perceptions concerning their abilities and successes. More precisely, our assumption is that self-evaluations are positively related to employees' perceptions about their (i) person-job fit and (ii) their perceived future goal success. Both will presumably be related to employees' current job satisfaction.

Firstly, the concept of person-job fit is relevant. It describes the alignment between employees' abilities and skills and the requirements of their jobs (abilities-demands fit, Wong and Tetrick 2017).[3] In their meta-analysis, Kristof-Brown et al. (2005) find that this alignment can be measured either by (i) comparing personal characteristics with existing job requirements (leading to an assessment of *actual* fit) or (ii) individuals stating their *perceived* fit with their jobs. In our study, we focus on the assessment

[2] Previous research addresses and measures other facets of employees' self-evaluations in a different way: The concept of core self-evaluations is a joint measure of the four personality traits self-esteem, self-efficacy, locus of control, and neuroticism (Judge et al. 1997).

[3] In addition to the abilities-demands fit, person-job fit can be achieved through the needs-supplies fit. The latter describes if the opportunities a job entails match employees' needs (Wong and Tetrick 2017). As our study deals with self-evaluations of performance, the abilities-demands fit aligns better with our line of argumentation. Therefore, we focus on the abilities-demands fit when referring to the person-job fit.

in the form of a *perceived* person-job fit. Research indicates that a poor fit between a person and their job is associated with low levels of job satisfaction, while high person-job fit is positively related to job satisfaction (Kristof-Brown et al. 2005; Warr and Inceoglu 2012). Empirically validated explanations include that employees with high fit receive more support by organizational members and have more comfortable working environments (Bretz and Judge 1994). Besides, individuals are more confident to successfully do their jobs based on their competencies and abilities (Judge et al. 2001). Similarly, Deci and Ryan (2000) argue that employees' well-being depends on the fulfillment of the need for competence. We propose that employees' high self-evaluations reflect this experience of competence, for instance by perceptions of possessing relevant abilities and the capability to meet job demands. This can enhance the well-being of employees in their job.

Individuals' expectations about future goal success can be an important additional dimension of reasoning: Bretz and Judge (1994) state that the degree of alignment between individual and organizational requirements is related to the perceived probability that effort will lead to successful goal achievement. This perceived probability of future goal success is found to be a predictor of job satisfaction (Bühler et al. 2019; Roberson 1990). Then, the perceived probability of future goal success can be considered as an expectation which is affected by employees' self-evaluations.[4] In this sense, also high self-evaluations can emphasize expected successes (Scholer et al. 2014), and finally job satisfaction.

The arguments regarding perceived person-job fit, the need for competence, and perceptions regarding future goal success may not only be relevant independently, but also reinforce each other in their effect on the relation between self-evaluations of performance and job satisfaction. Therefore, we formulate:

Hypothesis 1 *Employees' self-evaluations are positively related to their job satisfaction.*

Our reasoning up to now has focused on (perceived) comparisons of individuals' performance. In addition to this, the disappointment model proposed by Loomes and Sugden (1986) states that individuals form expectations regarding uncertain prospects and experience disappointment if the actual outcome of the prospect is lower than expected. Employees' self-evaluations of performance can be linked to these expectations. We assume that employees who consider themselves as better performers than peers will have high expectations regarding their rewards. If these expectations are not met, employees might be affected by disappointment. In turn, this could lead to lower job satisfaction. Accordingly, equity theory by Adams (1963) suggests that individuals compare relative inputs, such as performance at the job, to relative outcomes, such as remuneration, in relation to their peers.[5] With regard to the deri-

[4] For this relationship to hold, we assume that individuals have a positive self-efficacy. This implies the evaluation to perform effectively in specific situations (Lane and Herriot 1990). This argument can even be reinforced if self-efficacy is also positively affected by self-evaluations as indicated by Lane and Herriot (1990).

[5] Note that comparing relative inputs to relative outcomes is equivalent to comparing one's own input-outcome ratio to those of peers, as formulated by Adams (1963).

vation of hypothesis 1, we did not take considerations regarding relative inputs and outcomes as described in equity theory by Adams (1963) into account. According to this theory, a balanced input-outcome ratio fosters satisfaction. However, if these ratios are imbalanced because of perceived levels of own work inputs and insufficient outcomes in relation to these inputs, the hypothesized positive relation between self-evaluations and job satisfaction might be weakened or even reversed.

We illustrate this reasoning by an extended version of a utility function comprising social comparisons (inequity aversion) as suggested by Fehr and Schmidt (1999). For simplicity, we consider the utility U of individual i as contingent upon relative inputs and outcomes in comparison to just one other individual j.

$$U_i = f\left(w_i\right) + \frac{y_i}{y_j} - \alpha_i \max\left\{\frac{y_i}{y_j} - \frac{w_i}{w_j}, 0\right\} - \beta_i \max\left\{\frac{w_i}{w_j} - \frac{y_i}{y_j}, 0\right\}, i \neq j$$

We can think of job satisfaction as a proxy for employees' utility from work. This utility depends on the outcome w_i of individual i. We consider an employee's remuneration as the outcome of a job, whereas the perceived performance acts as the input y. The fraction y_i/y_j describes the ratio of the input of individual i compared to the input of individual j. This relative input ratio is represented by self-evaluations relative to others in this case and can have a utility enhancing effect as argued above. The relative outcome ratio of individual i compared to individual j is represented by w_i/w_j. The parameters α and β represent the magnitude of equity aversion, respectively. The function captures disutility arising from potential inequity if α and β are positive. This includes both cases of disadvantageous inequity aversion (under-reward, with relevance of the α-term) and advantageous inequity aversion (over-reward, with relevance of the β-term). Utility attains its maximum if relative input ratios are equal to relative outcome ratios, resulting in a state of equity.

Ceteris paribus, variations in y_i will then have different effects on utility depending on perceived input-outcome ratios. In the case of perceived advantageous inequity (over-reward: $y_i/y_j < w_i/w_j$), a higher y_i will clearly lead to an increase in utility (since $\partial U_i/\partial y_i$ equals $(1+\beta)/y_j$). The effect is not that clear for the case of under-reward ($y_i/y_j > w_i/w_j$), depending on the magnitude of inequity aversion α. The partial derivative $\partial U_i/\partial y_i$ then equals $(1-\alpha)/y_j$. Most important, this effect is smaller (and possibly negative) than without considering inequity concerns in terms of input-outcome ratios. It has often been argued that disadvantageous inequity perceptions are much more relevant than perceived over-rewards, i.e., $\alpha > \beta$ (Fehr and Schmidt 1999). Besides, a utility enhancing effect of perceived advantageous inequity ($\beta < 0$) can even be relevant (c.f. Cox 2013; Huseman et al. 1987). The hypothesized relation of hypothesis 1 can then be undermined by inequity concerns. Expectations regarding job outcomes will be higher for individuals with perceived exceptional performance. In this sense, hypothesis 1 does not include a ceteris paribus assumption regarding job outcomes and the prospected positive relation between self-evaluations of performance and job satisfaction is supposed to be smaller or even negative if accounting for job outcomes such as remuneration. Consequently, we formulate:

Hypothesis 2: *The relation between employees' self-evaluations and job satisfaction becomes smaller (or even negative) when controlling for job outcomes such as remuneration.*

The link between self-evaluations and job satisfaction is likely to be context specific. During recent years, we have observed major shifts in the organization of work, including much more opportunities of remote work. The COVID-19 pandemic has acted as an accelerator of this development as many employees were forced to work from home during the years 2020 and 2021 (Naumann et al. 2020). Concurrently, the specific circumstances of the pandemic are shown to be related to emotional exhaustion and in turn reduced job performance (Sarwar et al. 2023). These aspects might influence how employees perceive their person-job fit, their expected future goal success, or how they assess their job satisfaction and could impede comparisons of own performance to colleagues' performance due to less physical contact (cf. Wang et al. 2021). We will address this issue in our empirical analysis below.

3 Data, variables, and methodology

3.1 Dataset

We make use of unique panel data from a yearly income survey among professionals and managers in the German chemical sector. We conduct this yearly survey in cooperation with the German Association of Employed Academics and Executives in the Chemical Industry (Verband angestellter Akademiker und leitender Angestellter der chemischen Industrie e.V. (VAA)). In Germany, about 467,000 employees work in the chemical sector (Bundesministerium für Wirtschaft und Klimaschutz 2021). According to information we received from the VAA, approximately 10 percent of these employees work in a job which is relevant to the VAA. The about 18,000 members of the VAA are representative for those employees in the chemical industry and cover nearly 40 percent of respective employees. Yearly, about 20 to 24 percent of all VAA members respond to the income survey. We consider data from the survey years 2020 to 2025 as the question regarding self-evaluations of performance is included in the survey since 2020. The data is collected in retrospect and, therefore, refers to the years 2019 to 2024.

By utilizing the data from the income survey in the German chemical industry, we are able to focus on middle managers who share a similar educational background, work in companies with comparable compensation policies and organizational goals, and have long tenures.[6] This results in a homogenous sample for our analysis. To further increase the homogeneity of the sample, we restrict the data to participants with a STEM university degree working full-time in Western Germany. Survey participants who are older than 67 are eliminated as this is currently the statutory age of

[6] The German chemical industry is characterized by long employee-employer relationships. Accordingly, our sample includes only firm stayers, i.e., individuals who did not change companies during observation years.

retirement in Germany. We exclude top managers (corresponding to hierarchy level 1), since they often have different compensation schemes than middle managers on levels 2 to 4. In addition, employees working at level 1 have fewer or no colleagues to whom they might compare their job performance. Both aspects are essential for our analysis. Further, we delete observations of employees who work in the company for less than one year. We think that those are not comparable to employees who worked at the company for a whole year. The remaining sample includes 12,442 observations from 6,607 individuals. For 2,820 of these individuals, we have at least two observations (n = 8,655). Over three quarter of these individuals report changes in job satisfaction (n = 2,202). A number of 1,529 individuals report variations in self-evaluations. The observations of these panel cases identify the coefficients in our within-person analysis using fixed effects estimations.

3.2 Variables and bivariate descriptives

Our dependent variable – job satisfaction – is measured by asking participants how satisfied they are with their job on a 10-point scale ranging from *totally unhappy* (0) to *totally happy* (10). Average job satisfaction in our sample is 6.809 (overall standard deviation = 2.104). Here, the standard deviation between persons is twice as large (2.006) than the within-person standard deviation (0.960).

Our main independent variable is self-evaluation of employees' job performance in comparison to the performance of their colleagues. The corresponding question in the income survey is "How would you rate your work performance in [year] compared to your colleagues?". The ordinal variable has five categories: *much lower* (1), *somewhat lower* (2), *similar* (3), *somewhat higher* (4), and *much higher* (5). Due to few responses in the lowest categories, i.e., *much lower* and *somewhat lower*, we combine these two into a single category. This results in four categories that we use in our empirical analysis. Many participants evaluate themselves as having a *similar* performance compared to their colleagues (38 percent). However, a majority perceives itself as having a higher performance than their colleagues: Next to 41 percent of observations with a *somewhat higher* evaluation, about 18 percent consider their own performance even as *much higher* than that of their colleagues. Only about 3 percent evaluate themselves as having a *somewhat lower* or *much lower* performance in comparison to their colleagues. Table 1 shows these and other descriptive statistics for our main variables.

Figure 1 shows a simple illustration of average job satisfaction for the four categories of self-evaluations. Mean job satisfaction is higher among employees who evaluate their performance as being *similar* to that of their peers than it is for individuals with lower self-evaluations. In contrast, employees who evaluate themselves as having a *much higher* job performance than their colleagues report even lower job satisfaction, on average, than employees with *similar* or *somewhat higher* self-evaluations. Bivariate differences for the categories *much/somewhat lower* (mean = 5.9) and *much higher* (mean = 6.6) as compared to *similar* (mean = 6.8) or *somewhat higher* (mean = 7.0) are meaningful and significant (T-test, $p < 0.001$, respectively).

Table 1 Descriptive statistics (n = 12,442)

Variables	Mean (Standard Deviation)/Share
Job satisfaction	6.809 (2.104)
Self-evaluation of performance	
Much/somewhat lower	0.028
Similar	0.380
Somewhat higher	0.408
Much higher	0.184
Gender	
Female	0.135
Male	0.865
Age	50.31 (9.11)
Doctoral degree	0.741
No doctoral degree	0.259
Level of hierarchy	
Level 2	0.099
Level 3	0.513
Level 4	0.388
Field of study	
Chemistry	0.581
Engineering	0.246
Biology	0.051
Physics	0.022
Medical science	0.015
Pharmaceutics	0.050
Other natural science	0.035
Functional area	
Production	0.160
Research & development	0.323
Engineering technology, process engineering	0.103
Technical marketing, application technology	0.055
Sales and distribution, commercial marketing, logistics, procurement	0.087
Finance, controlling, accounting, human resources, law, organization	0.036
Product safety, technical monitoring, HSEQ, regulatory affairs	0.127
Information technology, data processing	0.025
Other functional area	0.084
Total compensation [in € 1,000]	144.695 (55.636)
Fixed salary [in € 1,000]	115.384 (31.171)
Contingent pay [in € 1,000]	29.311 (30.753)
Year	
2019	0.236
2020	0.178
2021	0.148
2022	0.158
2023	0.147
2024	0.133

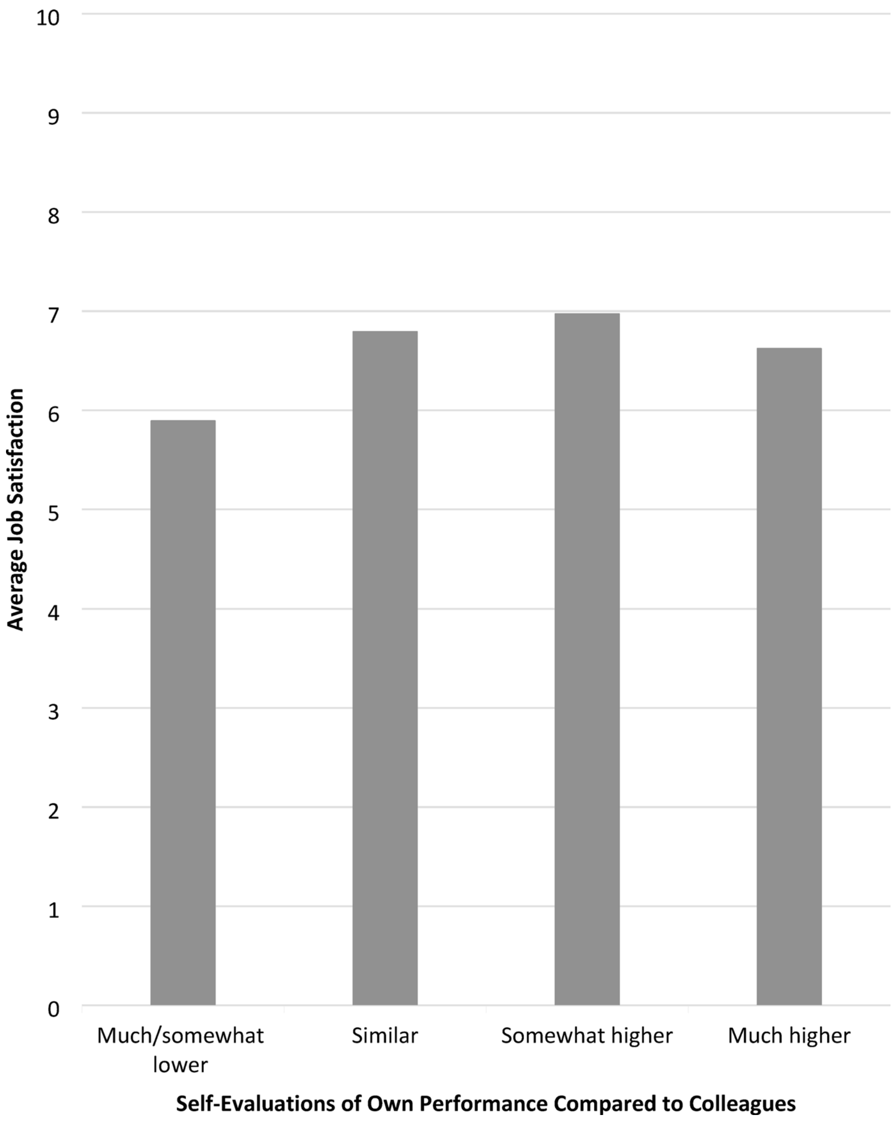

Fig. 1 Average job satisfaction for categories of self-evaluations (n = 12,442)

We also use information on employees' compensation as measure for the amount of outcome they received in the sense of equity theory.[7] As mentioned above, previous evidence shows that compensation relative to peers is indeed related to employees' job satisfaction (e.g., Clark et al. 2009). More precisely, we consider total compensation as well as fixed salary and contingent pay as outcome measures. Contingent pay mainly consists of employees' bonus payments, but there are also other possible components, for example premiums for

[7] The relation of remuneration and subsequent self-evaluations is addressed by Grund and Soboll (2025).

inventions. On average, employees' total compensation in our sample is about € 145,000 per year. Annual fixed salary is about € 115,000, on average, while contingent pay is about € 29,000.

We include gender, age, doctoral degree, hierarchy level, functional area, and field of study in order to control for individual and job characteristics. Year dummies are included as well. The sample is male-dominated with the female share being 14 percent. In our sample, mean age is approximately 50 years. Most of the participants hold a doctoral degree (74 percent) and about 51 percent work at hierarchy level 3. The majority has a degree in chemistry (about 58 percent), while about 32 percent work in research and development. Again, we exclude employees at hierarchy level 1 to reach a homogenous sample.

3.3 Empirical methodology

Our empirical analysis starts with OLS estimations in order to examine the relationship between self-evaluations and job satisfaction across individuals. However, it is important to keep in mind that certain personality traits might lead to biased self-evaluations, which in turn could be linked to (overly) high/low job satisfaction. Fischer and Sliwka (2018) show in their experimental study that confidence in own abilities positively affects subsequent relative self-evaluations. Besides, in their review, Heckman and Kautz (2012) state that personality traits, such as the big five domains, are predictors of specific outcomes, for instance performance. Hence, personality facets could be relevant for employees' self-evaluations of performance as well as their job satisfaction. In a second step, we apply individual fixed effects panel estimations to observe the relation of changes in employees' self-evaluations and their job satisfaction within persons as our main analysis. Thus, we account for unobserved heterogeneity by controlling for time-invariant individual characteristics such as personality traits. This reduces the problem of omitted variable bias and tackles related endogeneity concerns. Using fixed effects models, we identify our results by exploiting the within-person variance.

We complement our analysis by addressing possible disappointment or inequity perceptions. As aforementioned, we consider employees' compensation to be a reasonable and natural outcome measure in the sense of equity theory. Thereby, we aim to examine whether there are differences in the roles that various compensation measures play in the relationship between self-evaluations and job satisfaction.

Our individual fixed-effects panel estimation equation is as follows, where $controls$ contain individual and job characteristics as described above. In the fixed effects estimations, time-invariant variables (here: gender, doctoral degree, field of study) are omitted, though. Individual fixed effects are represented by α_i, while λ_t represents time fixed effects.

$$Job\ Satisfaction_{i,t} = \beta_o + \beta_1 * self\ evaluation_{i,t} + \gamma * controls_{i,t} + a_i + \lambda_t + \varepsilon_{i,t}$$

4 Results

Individuals who assess their performance as *similar* to that of their colleagues act as the reference in our analysis. As aforementioned, we begin our analysis by providing a between-person analysis using OLS estimations. Model (1) of Table 2 includes the independent and control variables as described above. Results show that employees with lower self-evaluations have lower job satisfaction, while employees who assess themselves as having a *somewhat higher* performance than their colleagues report higher levels of job satisfaction. However, exceptionally high self-evaluations are

Table 2 Estimations on job satisfaction

Variables	(1)	(2)	(3)	(4)
	OLS	Individual fixed effects panel		
Self-evaluation of performance (base: similar to colleagues)				
Much/somewhat lower	-0.873***	-0.571***	-0.563***	-0.562***
	(0.148)	(0.170)	(0.169)	(0.169)
Somewhat higher	0.148***	0.140**	0.136**	0.136**
	(0.047)	(0.057)	(0.057)	(0.057)
Much higher	-0.206***	0.050	0.049	0.049
	(0.072)	(0.090)	(0.090)	(0.090)
Total compensation [in € 1,000]			0.002**	
			(0.001)	
Fixed salary [in € 1,000]				0.001
				(0.002)
Contingent pay [in € 1,000]				0.003**
				(0.001)
Age	-0.013***	-0.109**	-0.112**	-0.111**
	(0.003)	(0.053)	(0.050)	(0.051)
Level of hierarchy (base: level 3)				
Level 2	0.373***	0.429***	0.402***	0.407***
	(0.082)	(0.145)	(0.146)	(0.146)
Level 4	-0.226***	-0.163*	-0.158*	-0.159*
	(0.058)	(0.086)	(0.087)	(0.087)
Further controls†	Yes	Yes	Yes	Yes
R^2	0.021	0.026	0.027	0.027
Total sample	12,442	12,442	12,442	12,442
Number of individuals		6,607	6,607	6,607
Number of individuals with repeated survey participation (panel cases)		2,820	2,820	2,820
Number of observations of individuals with repeated survey participation		8,655	8,655	8,655

Dependent variable: job satisfaction. Robust standard errors clustered at the individual level (in parentheses). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. With regard to the OLS estimation in model (1), the overall R^2 is shown, while for the fixed effects estimations in models (2) to (4), the within R^2 is shown

†Further controls include the variables gender, doctoral degree, field of study, functional area, and year. In the individual fixed effects panel estimations, only the coefficients for the variables functional area and year are relevant, as the other time-invariant variables are omitted

negatively related to employees' job satisfaction, reflecting that, on average, a person with *much higher* self-evaluations is less satisfied with their job compared to another employee who assesses themselves as having a *similar* performance. These results are in line with the bivariate differences across categories of self-evaluations reported above in Fig. 1. Yet these findings represent between-person effects which do not account for unobserved heterogeneity, for instance with regard to personality traits.

Individual fixed effect panel estimations in models (2) to (4) address this issue and refer to within-person relations using the same variables as in the OLS estimations in model (1). Here, the coefficients are identified by observations from individuals with repeated survey participation and reported variations in our variables of interest. Starting with model (2), results largely confirm the bivariate relation between self-evaluations of performance and job satisfaction: Employees' lower than average self-evaluations are related to lower levels of job satisfaction. Besides, an increase of self-evaluation from *similar* to *somewhat higher* comes along with an increase in job satisfaction. Contrary to our expectations, having *much higher* self-evaluations is not accompanied by higher job satisfaction. In sum, we find hints for a positive link between self-evaluations of performance and job satisfaction as formulated in hypothesis 1, with the exception of *much higher* self-evaluations for which we do not find a significant relation.[8]

We considered possible feelings of disappointment and perceptions of inequity among employees when comparing relative inputs to relative outcomes above, resulting in hypothesis 2. Accordingly, models (3) and (4) report re-estimations of model (2) and include variables measuring compensation to account for these outcomes, namely total compensation, fixed salary, and contingent pay. Models (3) and (4) suggest a significantly positive relation between total compensation and contingent pay with job satisfaction. More importantly, however, results regarding employees' self-evaluations do hardly change as compared to the estimations without controlling for compensation. Hence, we do not find evidence for our second hypothesis. We will discuss possible reasons for this finding below in Sect. 5. Besides, even the point estimates of self-evaluation categories remain constant. An increased self-evaluation from *much/somewhat lower* to *similar* is related to an increase in job satisfaction of more than half a point on the 11-digit scale from 0 to 10. This is equivalent to about 60 percent of its within-person standard deviation and, for instance, exceeds the relation of a promotion from level 3 to 2.

Next to the main analysis, we conduct several robustness checks: We begin by considering the specific circumstances in which our data have been measured. In the theoretical section, we already indicate that the COVID-19 pandemic may affect our results, for instance due to an increased prevalence of working from home. Our data set does not allow to control for the extent employees work from home which calls for the consideration in future research. Yet, our observation period covers the years of the COVID-19 pandemic that came along with a meaningful increase in the

[8] Due to the fact that our dependent variable – job satisfaction – is ordinal in nature, we re-estimate our model using ordered probit estimations. Results are consistent to those found using OLS estimations, although significance levels and coefficient sizes are lower. Corresponding results are available by the authors upon request.

relevance of remote work. Therefore, we split our sample into (i) pandemic years up to 2021, including the pre-pandemic year 2019 as a control to address deviations, and (ii) post-pandemic years, i.e., 2022 to 2024. Corresponding estimation results can be found in Table 3 in the Appendix. Even though significance levels are slightly lower in part, results confirm those of the main analysis of Table 2 with the negative link between self-evaluations of the categories *much/somewhat lower* as well as the positive link for *somewhat higher* self-evaluations being present both during the pandemic and the post-pandemic years. This shows that our results are robust, irrespective of the specific circumstances of the pandemic, which supports the validity of our results.[9]

Interestingly, there are some differences when looking at the results across individuals. In Table 4 in the Appendix, we conduct OLS estimations for each of the observation years 2019 to 2024 separately. These show a negative link between *much/somewhat lower* self-evaluations and job satisfaction similar to those found within-participants, though coefficient sizes are much higher. However, in the years 2020 to 2022, having *much higher* self-evaluations is negatively related to job satisfaction, which is at first glance in contrast to our theoretical considerations. The between-person differences seem to stem from the pandemic situation with its unique circumstances. Indeed, evidence shows that there is a huge heterogeneity among people caused by the pandemic situation (Crossley et al. 2021; Li et al. 2025).

To address remaining concerns regarding endogeneity despite the use of fixed effects estimations, we re-run these estimations using the lag of self-evaluations as an additional variable. This should mitigate potential common method bias that may result from measuring both the dependent and independent variable within the same time period. Corresponding results show quite similar results as those found in our main analysis, which strengthens the validity of our findings. Results are available by the authors upon request.

As an additional robustness check, we want to consider possible firm fixed effects. Our data contain information on the firms of employees. By restricting our sample to observations from the ten companies with the highest number of survey participants and adding firm fixed effects, we take advantage of being able to account for unobserved heterogeneity between firms. Table 5 in the Appendix shows corresponding individual fixed effects estimations for the subsample of n = 4,276 observations. The results are largely robust compared to those found using the full sample. Significance levels are slightly lower which may be attributed to the reduced number of observations.

[9] For further analyzing the pandemic situation, we add interaction terms with gender since the pandemic might have hit men and women differently. While the relation between lower self-evaluations and job satisfaction is negative for males ($p < 0.01$), similar to the main analysis, this relation is positive for females ($p < 0.1$). A possible explanation for this finding might be that women with a (perceived) lower performance than their colleagues might in turn benefit from having less stress, more leisure time etc. This could lead to an improved work-life balance, which may be more relevant for women than for men since women tend to take on more childcare responsibilities, for instance. Differentiating between pandemic and post-pandemic years shows that this result holds in both time periods. The coefficients are higher for the post-pandemic years, though.

Using the subsample with the ten largest companies, we also attempt to account more explicitly for the relative perspective regarding input-outcome ratios, as argued by equity theory, by constructing additional variables for the compensation components fixed salary and contingent pay. We follow the approach described by Grund and Soboll (2025) and utilize residuals of fixed salary and contingent pay, rather than their absolute values. To this end, we estimate models in which either fixed salary or contingent pay acts as the dependent variable. Hierarchy level, tenure, and functional area are included as independent variables. These estimations are performed separately for each of the ten companies in our sample in order to account for different compensation systems between companies, thereby generating an expected value of fixed salary or contingent pay for employees within each firm. The individual difference between an employee's actual and expected fixed salary or contingent pay is then used as fixed salary residual and contingent pay residual, respectively. If the respective residual is positive, this means that an employee received a higher fixed salary or contingent pay than peers in the same hierarchy level and functional area with the same tenure in a specific firm. Corresponding results can be found in Table 6 in the Appendix, where we differentiate between fixed salary and contingent pay in absolute terms (see model (1)) and their respective residuals (see model (2)). The results do not change in comparison to the usage of the absolute outcome measures, though.

5 Discussion, limitations, and conclusion

In this study, we use panel data from an annual income survey in the German chemical sector. We use OLS and individual fixed effects panel estimations to explore the relation between employees' self-evaluations of performance in comparison to their colleagues and their job satisfaction. We take into account perceptions of person-job fit and future goal success which leads to our assumption of a positive relation between self-evaluations and job satisfaction. In a second step, we consider expectation-based reference points (cf. Loomes and Sugden 1986) and possible inequity considerations regarding relative input-outcome ratios (cf. Adams 1963) by including information on employees' remuneration, which is supposed to undermine the aforementioned positive link.

In summary, our results are partially in line with our hypotheses. We find evidence for a negative link between individuals with lower self-evaluations versus those who evaluate their performance as *similar* to their colleagues' performance as well as a positive relation between *somewhat higher* self-evaluations and job satisfaction, corresponding to our first hypothesis. We observe no evidence for the assumption that the consideration of input-outcome ratios undermines the positive relationship between self-evaluations and job satisfaction. In the following, we discuss these findings. Since our data was collected during the COVID-19 pandemic, we did several additional estimations to account for the specific circumstances the pandemic brought. Our main results are robust when we differentiate between pandemic and post-pandemic years which underlines the validity of our findings.

Even though we find a negative relationship between low-self-evaluations and a positive relationship for *somewhat higher* self-evaluations with job satisfaction, exceptionally high self-evaluations do not seem to lead to higher job satisfaction within participants. Cross-sectional estimation results show that *much higher* self-evaluations even lead to lower satisfaction. We propose several factors that may diminish the presumed positive relationship and could explain these findings.

First, it is conceivable that employees with particularly high self-evaluations feel underchallenged in their job. If employees perceive their skills and competencies as exceeding job requirements, this might lead to an unfavorable assessment of the person-job fit. Indeed, Johnson and Johnson (2000) find that employees' perceived overqualification is negatively related to their job satisfaction. Hence, our assumption that high self-evaluations are associated with perceptions of a high person-job fit may not be entirely accurate.

Second, colleagues' competence can contribute to employees' job satisfaction (see Oshagbemi (2000) for evidence in academia). Employees with exceptionally high self-evaluations, by definition, view their colleagues' performance as relatively poor compared to their own. In consequence, they may suffer from having to work with weaker peers.

Third, psychological contract violations can be another reason for dissatisfaction (Robinson and Rousseau 1994). If employees with high self-evaluations are promised certain benefits, such as career progression, which are subsequently not provided by the employer, dissatisfaction may be the consequence.[10]

Lastly, employees with high relative self-evaluations may work longer hours and exert significantly high effort. In consequence, they may experience disutility from having an actual higher performance in comparison to their colleagues. This would be in line with utility theory, irrespective of potential inequity considerations.

Even though these possible explanations do not seem significant enough to decrease employees' job satisfaction within participants, they appear to prevent particularly high self-evaluations from leading to the expected greater satisfaction. Potential positive impacts of high perceived person-job fit and expected future goal success associated with high self-evaluations might be outweighed by the above mentioned negative aspects.

The described relationship between self-evaluations and job satisfaction remains unchanged when adding variables measuring compensation in order to reflect potential disappointment due to unfulfilled expectations or inequity concerns. Thus, we cannot confirm our second hypothesis. In the following, we describe possible explanations for this finding.

One explanation could be that colleagues' outcomes, more precisely their wages, may not be transparent. If employees do not know their colleagues' remuneration, they are not able to assess possible in(equity). We do not know the extent to which employees in our sample are aware of their colleagues' compensation. Future

[10] Broken career promises could be testable using fixed effects panel estimations since an increase in hierarchy level can be interpreted as promotion. Unfortunately, in our sample there is insufficient variation in hierarchy levels to test this explanatory approach. Thus, this remains a task for future research using datasets in which promotions are more frequent.

research might take this aspect into account, for instance by using experiments in which information on wages of a reference group could be disclosed. Related thereto, the significance of compensation for evaluating relative input-outcome ratios might be low. Compensation policies considerably differ across firms (Grund and Hofmann 2019). If firms determine income components on some firm instead of individual performance measures, wages may not be useful to evaluate relative input-outcome ratios. Even if firms use individual performance measures (Frederiksen et al. 2017), evaluations made by supervisors may be inaccurate due to (i) lacking differentiation across employees by the incentive system of a firm or (ii) biases in performance appraisals made by supervisors (e.g., Bol 2011; Trapp and Trapp 2019). These aspects could explain the lack of relevance of our compensation measures for the relationship between self-evaluations and job satisfaction.

Next, we want to point out limitations of our study which mainly arise from data restrictions. First, there could be validity issues. Our main variables of interest are self-reported measures: Job satisfaction as well as self-evaluations are based on subjective assessments made by employees. However, the related common method bias is found to be more present in situations in which survey participants are not able or willing to provide accurate ratings (Podsakoff et al. 2024). As participants decide for themselves if they take part in the survey underlying this study, and do not provide information to their employer but rather to their employee association, we believe that lack of ability or willingness is not a major issue in our data. In addition, Carver et al. (2021) describe several research findings which show that relative self-evaluations have a higher validity than absolute self-evaluations, which is an additional advantage of our study compared to other studies using absolute self-ratings. However, future research may use complementary variables to test the validity of our results, for example measures regarding the extent of congruence between self-evaluations and evaluations by a third party, e.g., supervisors, or adding variables such as life satisfaction as control which might reveal additional insights.

Second, we argue that employees evaluate their own performance in comparison to their colleagues' performance. Past research confirms the relevance of colleagues as a reference group (Clark and Senik 2010). In addition, Lawrence (2006) describes employees' tendency to compare themselves with colleagues who work at the same hierarchy level. However, we are unware of the specific group of colleagues that employees in the underlying survey use as a reference for comparing their performance. Colleagues at different hierarchy levels or even in other firms might act as reference group. The choice of the reference group could result in varying levels of self-evaluations. Therefore, future research might explore if relations between self-evaluations and job satisfaction change depending on the reference group chosen. Experiments might be a fruitful avenue to explore this as, ideally, the reference group can be exogenously specified.

Although we consider our work as a meaningful step towards an understanding of the role of self-evaluations for job satisfaction, we have to be cautious with deriving general implications. In the following, we derive first suggestions for practice and describe avenues for necessary future research in order to enable further specific implications and recommendations.

Our main finding is a positive relationship between self-evaluations and job satisfaction, except for exceptionally high self-evaluations. This result implies lower job satisfaction for employees with lower self-evaluations. In particular, an increase from *much/somewhat lower* to *similar* self-evaluations is economically meaningfully related to changes in job satisfaction. Hence, the group of employees with low self-evaluations should be given particular consideration by companies to avoid dissatisfaction and related negative consequences for companies, for example increased sickness absence (Böckerman and Ilmakunnas 2008). Yet we cannot differentiate cases of low self-evaluations that do or do not coincide with implicit or formal performance appraisals by the management. Nevertheless, assuming that low self-evaluations are accurate for some part of employees, companies should ensure that the abilities and competencies of employees match the requirements of their job, i.e., the person-job fit must be present. Otherwise employees might feel overwhelmed by their tasks or responsibilities which could lead to lower job satisfaction. In order to identify potential mismatches between the person and their job, regular feedback interviews or performance evaluations would be helpful. In this regard, promoting feedback literacy, including the ability to search for, process, and use feedback for self-assessments as suggested by Yan and Carless (2022) for the educational context can be a useful strategy for companies. This can be achieved, for instance, by (i) increasing feedback availability, (ii) employees and supervisors jointly establishing criteria for achieving good performance evaluations or (iii) implementing an organizational culture which promotes employees' efforts to seek feedback (c.f. Yan and Carless 2022). This feedback could help employees to recognize own strengths and good performance as well as weaknesses and areas requiring improvement. Consequences for persons with an identified person-job mismatch can then include participation in further training for personal development, transfers to another position, or a separation.

Future research should ideally incorporate data on whether self-evaluations are accurate to analyze whether the negative link to job satisfaction for employees with low self-evaluations stems from actual low performance, from employees underestimating themselves, or both. Our contribution can be seen as a starting point for further research aimed at gaining a deeper understanding of the consequences of employees' self-evaluations regarding their performance relative to peers in order to derive more specific implications for practice. These might allow companies to specifically avoid possible negative consequences of self-evaluations concerning employees' job satisfaction.

Appendix

See Tables 3, 4, 5 and 6.

Table 3 Individual fixed effects panel estimations on job satisfaction – differentiation between pandemic and post-pandemic years

Variables	(1) 2019–2021	(2) 2022–2024
Self-evaluation of performance (base: similar to colleagues)		
Much/somewhat lower	-0.392	-0.608**
	(0.250)	(0.306)
Somewhat higher	0.144*	0.224**
	(0.082)	(0.098)
Much higher	0.041	0.154
	(0.123)	(0.149)
Controls†	Yes	Yes
R^2 (within)	0.037	0.015
Total sample	6,992	5,450
Number of individuals	4,755	3,600
Number of individuals with repeated survey participation (panel cases)	1,675	1,320
Number of observations of individuals with repeated survey participation	3,912	3,170

Dependent variable: job satisfaction. Model (1) encompasses the pandemic years 2019, 2020, and 2021, while model (2) reflects the post-pandemic years 2022, 2023, and 2024. Robust standard errors clustered at the individual level (in parentheses). *** p < 0.01, ** p < 0.05, * p < 0.1

†Controls include the variables total compensation, gender, age, doctoral degree, hierarchy level, field of study, functional area, and year. As we apply individual fixed effects panel estimations, only the coefficients for the variables age, hierarchy level, functional area, and year are relevant, as the other time-invariant variables are omitted

Table 4 OLS estimations on job satisfaction for separate years

Variables	(1) 2019	(2) 2020	(3) 2021	(4) 2022	(5) 2023	(6) 2024
Self-evaluation of performance (base: similar to colleagues)						
Much/somewhat lower	-0.343	-0.692**	-1.125***	-1.102***	-1.310***	-0.889**
	(0.306)	(0.296)	(0.362)	(0.355)	(0.352)	(0.408)
Somewhat higher	0.090	0.144	0.121	0.147	0.223*	0.192
	(0.080)	(0.096)	(0.107)	(0.104)	(0.114)	(0.121)
Much higher	-0.150	-0.546***	-0.354**	-0.251*	0.055	0.022
	(0.116)	(0.143)	(0.149)	(0.141)	(0.150)	(0.154)
Controls†	Yes	Yes	Yes	Yes	Yes	Yes
Intercept	7.513***	7.280***	6.996***	7.278***	7.094***	7.603***
	(0.279)	(0.341)	(0.350)	(0.360)	(0.365)	(0.391)
R^2	0.026	0.036	0.038	0.037	0.038	0.028
Number of observations	2,935	2,214	1,843	1,970	1,833	1,647

Dependent variable: job satisfaction. Robust standard errors clustered at the individual level (in parentheses). *** p < 0.01, ** p < 0.05, * p < 0.1

†Controls include the variables total compensation, gender, age, doctoral degree, hierarchy level, field of study, and functional area

Table 5 Individual fixed effects panel estimations on job satisfaction for the sample including the ten largest companies

Variables	(1)	(2)	(3)
Self-evaluation of performance (base: similar to colleagues)			
Much/somewhat lower	-0.639**	-0.638**	-0.638**
	(0.269)	(0.269)	(0.269)
Somewhat higher	0.121	0.120	0.120
	(0.084)	(0.085)	(0.085)
Much higher	-0.039	-0.038	-0.039
	(0.151)	(0.151)	(0.151)
Total compensation [in € 1,000]		0.0003	
		(0.0014)	
Fixed salary [in € 1,000]			0.001
			(0.003)
Contingent pay [in € 1,000]			0.0003
			(0.0016)
Controls†	Yes	Yes	Yes
R^2 (within)	0.027	0.027	0.027
Total sample	4,276	4,276	4,276
Number of individuals	2,028	2,028	2,028
Number of individuals with repeated survey participation (panel cases)	1,019	1,019	1,019
Number of observations of individuals with repeated survey participation	3,267	3,267	3,267

Dependent variable: job satisfaction. Robust standard errors clustered at the individual level (in parentheses). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

†Controls include the variables gender, age, doctoral degree, hierarchy level, field of study, functional area, company dummies, and year. As we apply individual fixed effects panel estimations, only the coefficients for the variables age, hierarchy level, functional area, and year are relevant, as the other time-invariant variables are omitted

Table 6 Individual fixed effects panel estimations on job satisfaction for the sample including the ten largest companies – comparison of compensation variables in absolute terms and their residuals

Variables	(1)	(2)
Self-evaluation of performance (base: similar to colleagues)		
Much/somewhat lower	-0.638**	-0.646**
	(0.269)	(0.268)
Somewhat higher	0.120	0.124
	(0.085)	(0.084)
Much higher	-0.039	-0.043
	(0.151)	(0.151)
Fixed salary [in € 1,000]	0.001	
	(0.003)	
Contingent pay [in € 1,000]	0.0002	
	(0.0020)	
Fixed salary residual		0.001
		(0.003)
Contingent pay residual		-0.003
		(0.002)
Controls†	Yes	Yes
R^2 (within)	0.027	0.028
Total sample	4,276	4,276
Number of individuals	2,028	2,028
Number of individuals with repeated survey participation (panel cases)	1,019	1,019
Number of observations of individuals with repeated survey participation	3,267	3,267

Dependent variable: job satisfaction. Robust standard errors clustered at the individual level (in parentheses). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

†Controls include the variables gender, age, doctoral degree, hierarchy level, field of study, functional area, company dummies, and year. As we apply individual fixed effects panel estimations, only the coefficients for the variables age, hierarchy level, functional area, and year are relevant, as the other time-invariant variables are omitted

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Declarations

Conflict of interest The authors have no competing interests to declare that are relevant to the content of this article.

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