

Kampkötter, Patrick

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Patrick Kampkötter

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German Socio-Economic Panel Study (SOEP)
DIW Berlin
Mohrenstrasse 58
10117 Berlin, Germany

Contact: Uta Rahmann | soeppapers@diw.de

Performance Appraisals and Job Satisfaction*

Patrick Kampkötter†

University of Cologne

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Abstract

Formal performance appraisals (PA) are one of the most important human resource management practices in companies. In this paper, we focus on the reaction of employees to these performance assessments. In particular, we investigate the effect between the incidence of being formally evaluated by a supervisor and job and income satisfaction. Building on a representative, longitudinal sample of more than 12,000 individuals from the German Socio-Economic Panel Study (SOEP), we apply fixed effects regressions and find a significantly positive effect of PA on job satisfaction, which is driven by appraisals that are linked to monetary outcomes. Furthermore, the moderating effects of personality traits (Big Five, locus of control) on the relationship between PA and job satisfaction are explored. We find a negative interaction term between PA without any monetary consequences and both employees scoring high on openness to experience and internal locus of control. This suggests that for these employees appraisals, which induce performance monitoring without any monetary consequences, have a detrimental effect on job satisfaction rates.

Keywords: Performance Appraisal; Job Satisfaction; Income Satisfaction; Big Five; Locus of Control; SOEP

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† University of Cologne, Seminar of Personnel Economics and Human Resource Management, Albertus-Magnus-Platz, D-50923 Köln, Germany, phone: +49-221-4702584, patrick.kampkoetter@uni-koeln.de

Formal performance appraisals³ (PA) of employees, which are typically scheduled annually or semiannually, are one of the most important human resource management practices and have been widely researched (Murphy & Cleveland, 1995). PA are used for a variety of reasons such as promotions, pay rises, detailed and valuable feedback, and career progression. They frequently consist of both a developmental and an evaluative dimension (Boswell & Boudreau, 2002). Developmental use focuses on experiences and skills that employees should acquire and which are identified by the use of PA (e.g., training and development needs). Furthermore, PA are well suited to detect strengths and weaknesses, i.e. room for improvement of employees, and help to set objectives and to improve employee performance. Especially poor performers can be identified and may receive feedback on how to improve in the longer run.

One important application of formal PA are performance-related pay (PRP) systems, which are often used to align the objectives of employees with those of the firm and to motivate and reward employees (Milkovich & Newman, 2004). Within these systems, performance assessments are often linked to individual, divisional, and firm-specific goals which are set at the beginning of a fiscal year. These goals give employees a more concrete perception of what is expected from them and helps to direct employees' efforts towards the goals of the organization. At the end of the fiscal year, goal achievement is then reviewed and either rewarded with bonus payments or used as a basis for future promotion decisions. But when performance is related to outcomes such as bonuses, pay increases or promotions, it is essential to measure individual performance as accurately and precisely as possible. Therefore, a regular assessment and a systematic monitoring of employees' performance is a precondition for an effective PRP scheme (Brown & Heywood, 2005).

An advantage of PA is that the provided feedback and communication may signal employees that they are being valued by their supervisors and the firm, which makes them feel more as part of the organization. The incidence of an individual being covered by a PA system is also of economic relevance, as it has been shown that employee participation, feedback, and clarity of goals are positively related to job satisfaction, a predictor of productivity and

³ Performance appraisal and performance assessment are used interchangeably.

performance (Nathan et al., 1991; Fletcher & Williams, 1996; Judge et al., 2001; Patterson et al., 2004; Whitman et al., 2010).⁴

We contribute to the literature by addressing two main research questions. First, we investigate the effect of being formally evaluated by a supervisor on employees' overall job and income satisfaction using longitudinal data, i.e. do performance assessments increase job satisfaction? This is important as there has been some debate as to whether performance appraisals do more good or bad for HR management in terms of 'soft' indicators such as job satisfaction. Furthermore, this study adds to the still active discussion on a possible undermining effect of extrinsic rewards on intrinsic motivation as proposed by self-determination theory, effects of reward contingency on feelings of autonomy, and the role of self-control (see, for instance, Eisenberger & Cameron, 1996; Deci et. al, 1999). We focus on a large-scale sample from a real work setting and are among the first who differentiate between monetary and non-monetary consequences of appraisals. In the second part we analyze whether a positive or negative impact of formal performance assessments on job satisfaction is moderated by the Big Five personality traits and locus of control, i.e. are the effects of different importance for employees with different personality traits? These research questions are highly relevant, because PA are characterized by huge investments of firms such as the amount of time supervisors and subordinates spend on the whole PA process (opportunity costs) as well as training and coaching time and costs to minimize possible rater biases and distortions.

In order to analyze the causal effect of PA on job satisfaction, individual-level longitudinal data sets are needed. Former research on this topic is mainly based on cross-sectional data sets where the direction of causality remains unclear and the influence of omitted variables is a severe problem. This is also true for the literature on high performance work practices, where many cross-sectional results even disappear when applying fixed effects to control for heterogeneity across establishments (Huselid and Becker, 1996). Up to our knowledge, we are the first to analyze the direct effects of PA on job satisfaction based on a representative, longitudinal individual-level data set. Our research design is based on the SOEP and allows us to tackle some of the econometric issues by applying panel data methods which account for individual, time-constant heterogeneity.

⁴ Lee & Son (1998), however, find no statistically significant impact of performance appraisals on future performance in a study of a Korean company.

Theory

Performance Appraisals and Job Satisfaction

Different theories may help to understand the relation between performance appraisals and job satisfaction. Research in cognitive psychology shows that measurable and challenging goals help to align individuals' and companies' goals leading to higher levels of motivation and, hence, employees' work effort (see Locke and Latham (2002) for an overview). Furthermore, goal-setting theory implies that the level of goal achievement is closely related to employee satisfaction. Frequently, organizations link goal achievement to remuneration systems such as performance-related pay. Previous studies have shown that performance-related pay is associated with higher levels of overall (job) satisfaction (see, for instance, Heywood & Wei, 2006; Green & Heywood, 2008). In a recent paper, Bryson et al. (2012) empirically investigate the relationship between piece-rate, team-incentive, or profit-sharing schemes and job satisfaction and show that workers under PRP schemes are more satisfied with their job, controlling for wage levels as well as individual, business unit, and country fixed effects.

Previous research has broadly analyzed the impact of the social context of performance appraisals on employee reactions to these appraisals (Levy & Williams, 2004; Pichler, 2012). One dimension focuses on the rater-ratee relationship comprising topics such as supervisor support, trust, rating accuracy, and reliability as a precondition for the acceptance and usefulness of formal appraisal systems. Rating distortions, which are very prominent in organizations (Kane et al., 1995; Moers, 2005), lead to less acceptance among employees and decrease the economic incentives to provide effort (Prendergast & Topel, 1996). These rating distortions may have very different reasons including strategic incentives of the raters such as favoritism or punishment (Poon, 2004) or interpersonal motives (see, for instance, Murphy and Cleveland, 1991, 1995). Furthermore, it has been shown that raters' personality traits influence overall rating decisions (Krzystofiak et al., 1988).

Other contextual factors include, for instance, employees' satisfaction with the PA process as a whole, the performance appraisal feedback, or employees' evaluations of the perceived quality, justice, and fairness of the performance appraisal regime (Greenberg, 1986; Nathan et al. 1991; Blau, 1999; Pettijohn et al., 2001; Jawahar, 2006; Kuvaas, 2006; Lau et al., 2008; Sommer & Kulkarni, 2012; Gupta & Kumar, 2013). Furthermore, employee participation

in the PA process is positively related to the satisfaction with the PA system, perceived fairness, and acceptance of such a practice (Cawley et al., 1998). Brown et al. (2010) analyze the relationship between PA quality measured by clarity, communication, trust, and fairness of the PA process and job satisfaction and commitment based on a sample of more than 2,300 Australian non-managerial employees of a large public sector organization. They find that employees who report a low PA quality (lowest levels of trust in supervisor, poor communication, lack of clarity about expectations, perception of a less fair PA process) also report lower levels of job satisfaction and commitment.

But there may also be drawbacks of formal performance appraisals systems. Due to the continuous monitoring of employees' effort and behavior, some employees might feel restricted in the way they can organize and execute their work, which might induce a negative impact on job satisfaction. As laid out in the beginning, PA are often linked to direct monetary consequences. Especially in the case of variable payments, employees face a higher income risk as the bonus may be cut in times of economic downturns. Furthermore, PA may induce higher levels of pay dispersion within a company, which potentially reduces employee satisfaction when employees, for instance, dislike inequity. A number of studies have shown that relative pay comparisons among employees, especially the individual rank in income distributions, have a negative impact on job and pay satisfaction and negatively affect effort provision (Brown et al., 2008; Clark et al., 2010; Card et al., 2012; Ockenfels et al. (forthcoming)). Another drawback of formal PA might be a crowding out of intrinsic motivation due to the pronounced focus on extrinsic incentives (Deci et al., 1999; Frey & Jegen, 2001).

To conclude, a voluminous literature is devoted to the analysis of single, contextual factors of the PA process or the rater-ratee relationship which are then related to overall job satisfaction. Second, prior studies are examining differences within situations that all had appraisal systems in place. Hence, the overall question, i.e. the effect an implementation of a formal PA system has on job satisfaction, has not been studied yet. Furthermore, it is important to note that existing research is mainly based on cross-sectional data sets with a small number of observations, which reveals major identification problems "making it impossible to draw inferences of causality or rule out the possibility of reverse causality." (Kuvaas 2006). Based on these considerations we formulate the following hypothesis:

Hypothesis 1: The incidence of being covered by a performance appraisal has a positive impact on employees' job satisfaction compared to a situation with no appraisals. This effect is more pronounced when monetary incentives are linked to appraisal outcomes.

The Moderating Effects of Personality Traits

Big Five. As laid out in the above, personality traits, especially of the ratee, are important individual difference variables which have largely been ignored in the previous literature on appraisal systems. In this section, we derive hypotheses on the moderating effects of personality traits on the relationship between PA and job satisfaction. We start with the Big Five personality traits (Costa & McCrae, 1995), a well-established taxonomy that has been validated in a series of psychological studies (see, for instance, Barrick & Mount, 1991). The five dimensions comprise conscientiousness, neuroticism, openness to experience, extraversion, and agreeableness. Extraversion describes a person characterized by attributes such as communicative, talkative, assertive, active, outgoing, sociable as well as by status-seeking behavior (Barrick & Mount, 1991). For employees scoring high on extraversion, the effect of receiving regular performance assessments on job satisfaction should be stronger as they typically show a higher level of self-confidence and are more inclined to being monitored, because appraisals may have a stronger effect on the status or relative performance within a work unit. Indeed, for managers and sales people, extraversion has been shown to be positively related to job performance (Barrick & Mount, 1991, Tett et al., 1991). Additionally, extroverted people like social interactions such as a bilateral relationship between a supervisor and her subordinate and are more likely to seek direct feedback from a supervisor (Krasman, 2006). A stronger competition between colleagues, which may partly be driven by performance appraisals, is also more likely to be positively evaluated, because extroverted people tend to apply more aggressive (self-oriented) conflict handling styles when it comes to conflict solutions (Antonioni, 1998).

People scoring high on conscientiousness do a thorough job, are careful, responsible, organized, and do things effectively and efficiently (Barrick & Mount, 1991). Conscientious employees are more successful in their jobs, show higher levels of performance motivation, and are detail-oriented with a high level of task and goal orientation (Barrick & Mount, 1991; Judge & Ilies, 2002). As appraisals also provide detailed feedback, a key driver of job performance, we expect conscientious employees to be more satisfied with their own job when being evaluated.

For more responsible and thorough employees, PA may be perceived as fair especially when higher efforts are translated into higher bonus payments or promotions. These employees may invest higher efforts into reaching pre-defined goals and performing tasks more properly. This might especially be true when performance appraisals are linked to monetary outcomes.

Hypothesis 2: For more extroverted and conscientious employees, we expect a positive effect of PA on overall job satisfaction. The positive effect should be stronger for PA related to monetary outcomes.

Agreeableness is characterized by traits such as being cooperative, tolerant, trusting, having a forgiving nature, as well as being considerate and kind to others (Barrick & Mount, 1991). People scoring high on this dimension are also described as being concerned about other peoples' well-being, especially of those who live or work closely with them. Formal appraisal systems reveal information on the relative performance of employees within a work unit and, therefore, may induce inequality between coworkers. For agreeable employees, who care about their co-workers and try to prevent relative performance evaluations, being regularly assessed in a formal process may decrease job satisfaction, especially when it is related to monetary consequences. PA may also be perceived as a barrier in cooperative work relationships, when cooperation is not incentivized, for instance, via target agreements.

Hypothesis 3: For more agreeable employees, we expect a negative effect of PA on overall job satisfaction. This effect should be stronger for PA related to monetary outcomes.

Common traits of the dimension neuroticism (emotional instability) are being anxious, emotional, insecure, getting nervous easily, and worrying a lot (Barrick & Mount, 1991). Being formally appraised may decrease the amount of job satisfaction, because neurotic employees may fear negative consequences from performance feedback. Especially performance assessments that are related to monetary outcomes provide uncertainty about goal achievement and, hence, future payoffs. It has also been shown that these employees tend to be less successful in jobs (Barrick & Mount, 1991), prefer the avoiding style in conflicts (Antonioni, 1998), and are less goal-oriented (Judge & Ilies, 2002). Based on these arguments, we expect a negative moderating effect for more neurotic employees. On the other hand, feedback may reduce uncertainty as it helps to provide employees with clarifying information (Krasman, 2010). This implies that feedback may be valued as being helpful to clarify goals and, in turn, this should lead to a positive interaction

term for more neurotic employees. Here, the net effect is unclear from the outset and remains an empirical question.

Research question 4a (b): For employees scoring high on neuroticism, we expect a negative (positive) effect of PA on overall job satisfaction.

Openness to experience comprises being curious, intelligent, original, coming up with new ideas, having an active imagination (Barrick & Mount, 1991) and being creative and unconventional (Judge & Ilies, 2002). Performance assessments, which may define a clear and narrow working environment, are likely to be perceived as a barrier for innovative behavior, as they also mostly rely on short-term oriented performance indicators. But as financial performance and customer acceptance of new products are more important in the long-term (Hultink & Robben, 1995), more creative and open-minded employees may feel restricted in their working environment when being formally appraised which then may lead to lower levels of job satisfaction. On the other hand, Krasman (2010) has shown that people who are more open to experience are more likely to seek reflective feedback, a kind of indirect feedback based on information how one is treated by a supervisor, instead of receiving direct and explicit feedback. Furthermore, if performance appraisals have a developmental character, for instance, are linked to training investments, we would expect a positive effect on job satisfaction for more open employees (Barrick & Mount, 1991). Especially for appraisals linked to monetary outcomes, employees being curious, intelligent or creative may find it easier to reach their goals and earn additional money (for instance in product development). Here, the net effect is unclear from the outset and remains an empirical question.

Research question 5a (b): For employees scoring high on openness to experience, we expect a positive (negative) effect of PA on overall job satisfaction which should be stronger in the case of PA linked to monetary payments.

Locus of control. Dating back to Rotter (1966), locus of control describes the perception of individuals how far they are able to control crucial decisions in their life. People scoring high on the internal dimension (“internals”) believe that they have control over critical situations in their life through their own efforts and abilities. External locus of control describes a situation where individuals perceive to be heteronomous, i.e. they have no or only little control over crucial events in their lives. In jobs with performance-related pay, a feeling of self-determination

seems to be a precondition for employees to provide effort or to be satisfied. As internals often perceive a strong link between their actions and consequences and are convinced that certain goals are actively achievable by themselves, the process of performance monitoring becomes a useful management tool. It has been shown that internal locus of control is positively associated with task performance (rated by supervisors, objective performance measures, and self-rated performance), job feedback and job autonomy (Ng et al., 2006). Furthermore, internal locus of control is shown to have a positive effect on job satisfaction (Spector, 1986; Spector et al., 2002) as well as motivation and commitment (Ng et al., 2006). Additionally, internals are more likely to become leaders and also show a superior leader performance (Anderson & Schneier, 1978). But for internals, it seems to be a precondition that PA are linked to monetary outcomes implying that internals who receive PA without any monetary outcomes might show lower levels of job satisfaction. Employees scoring high on external locus of control will most likely view performance appraisals rather negative as there is a high uncertainty of not reaching the pre-defined goals.

Hypothesis 6: For employees scoring high on internal locus of control a positive moderating effect between overall job satisfaction and PA which are related to monetary consequences is expected. For PA without monetary consequences, we may even expect a negative effect of PA on job satisfaction.

Method

Sample

We make use of the German Socio Economic Panel Study (SOEP, v28), a large, representative, longitudinal survey of approximately 20,000 individuals per year in the Federal Republic of Germany from 1984 to 2012. Each year, the same persons are being interviewed. The survey covers, among others, information on current and previous jobs, education, living standards, demographics, and personality traits.⁵ Our sample includes the waves 2004, 2008, and 2011 and consists of 12,609 employed individuals with a mean age of 43.21 ($SD = 10.62$).

⁵ See Wagner et al. (2007) for a detailed description of the SOEP. The data used in this paper were extracted using the Add-On package PanelWhiz v4.0 (Oct 2012) for Stata. PanelWhiz was written by Dr. John P. Haisken-DeNew (john@panelwhiz.eu). The PanelWhiz generated DO file to retrieve the SOEP data used here is available upon request. Any data or computational errors in this paper are my own. Haisken-DeNew and Hahn (2010) describe PanelWhiz in detail.

Temporary workers, self-employed, free-lancers, apprentices, and trainees are not part of the sample as performance appraisals are not common for these groups of employees.

Measures

Performance appraisals. Information on performance assessment is available for the waves 2004, 2008, and 2011 and is measured by the item “Is your own performance regularly assessed by a superior as part of an agreed procedure?”. Those respondents who answer “Yes” are subsequently asked whether this assessment influences their monthly gross salary, a yearly bonus, future salary increases, or a potential promotion. Based on this information, we construct three binary variables: First, performance assessment, which takes the value 1 if an individual’s performance is assessed in general. Second, performance assessment with monetary consequences, which takes the value 1 if an individual’s performance is assessed and this directly influences one of the four categories mentioned above. The third dummy variable captures employees whose performance is assessed, but without any relation to (one of the four mentioned) monetary consequences.⁶

Job satisfaction. Job satisfaction is measured by the item “How satisfied are you with your job?” on an 11-point Likert scale ranging from 0 (*totally unhappy*) to 10 (*totally happy*). Information is available for all waves of the SOEP with a mean value of 7.0 ($SD = 1.95$).

Big Five. The Big Five personality traits are measured applying a 15-item version of the Big Five Inventory (BFI-S) developed for the SOEP. Each of the five personality dimensions is measured by 3 items beginning with “I see myself as someone who ...” on a 7-point Likert scale ranging from 1 (*Does not apply to me at all*) to 7 (*Applies to me perfectly*).⁷ The Big Five items are available for the waves 2005 and 2009. Taken into account the rather small number of items to measure personality, internal consistency, measured via Cronbach’s alpha, is acceptable for all personality dimensions (between $\alpha=.61$ and $\alpha=.68$) except agreeableness ($\alpha=.53$). Values of the test-retest reliability for the Big Five in 2005 and 2009 range between $r=.51$ and $r=.63$, which can be seen as rather acceptable taken into account the large time gap of four years for this construct

⁶ The reference groups are defined as follows: (1) All employees with no performance assessments, (2) all employees without appraisals or those whose appraisals have no monetary consequences, and (3) all employees with no performance assessments. Note that differences in the number of observations are related to differences in the responsiveness of employees.

⁷ Items that are reverse-coded are rescaled before the computation of the means.

in the SOEP.⁸ As personality traits are quite constant over time (Lucas & Donnellan, 2011; Hahn et al., 2012), we match individual means of the respective items for each of the five personality dimensions: Conscientiousness, Neuroticism, Openness to Experience, Extraversion, and Agreeableness to the years for which we have information on appraisals. To facilitate the interpretation, these variables are then standardized with zero mean and unit variance.

Locus of control. In the SOEP, locus of control is measured by 10 items on a 7-point Likert scale ranging from 1 (*disagree completely*) to 7 (*agree completely*) based on Rotter (1966). Following Caliendo et al. (forthcoming), we exclude one single item that does not load on both factors. Internal consistency of the remaining 9-item construct, measured by Cronbach's alpha, is sufficient ($\alpha=.68$ for 2005 and $\alpha=.69$ for 2010). Similar to the Big Five, we standardize each item and match individual means to the years with information on performance appraisals.

Control variables. Further control variables include female (0/1), age (three categories: 17-34 years, 35-49 years, and 50-67 years), years of schooling, years of firm tenure, risk attitude, job change (0/1), part-time (0/1), permanent contract (0/1), public sector (0/1), West Germany (0/1), as well as controls for occupational status (10 dummies of blue and white collar workers as well as managerial employees with different levels of responsibility and task complexity), 2-digit NACE industry sector (7 dummies), firm size (6 dummies), and year. We further include the logarithm of the monthly net income, children (0/1), marital status (5 dummies), and an item on worries about job security (three categories ranging from *very concerned* to *not concerned at all*) into the regressions. All controls are frequently used in regressions with job satisfaction as dependent variable (Brown et al., 2008; Green & Heywood, 2008).

There is a large debate whether the implementation of single HRM practices or the use of high performance work systems, i.e. the simultaneous combination of different HR practices, is more effective (Huselid, 1995; Combs et al., 2006). Overall, results are quite heterogeneous. Focusing on single practices allows isolating the effect of the analyzed instrument, but potential synergies due to a simultaneous implementation of different practices are not addressed. To tackle this point, we also include information related to other HR practices available in the data set such as firm trainings as well as provided overtime as additional controls in the regressions.

⁸ We only consider individuals with non-missing values for all items.

Statistical Analyses

In our baseline specification we analyze the effects of the different types of performance appraisals on job satisfaction. To identify the causal effect, we run individual fixed effects regressions applying the probit-adapted OLS (POLS) approach (van Praag & Ferrer-i-Carbonel, 2004). With the POLS transformation, which is quite often used in studies on job satisfaction, ordinal information on job satisfaction is transformed into a cardinal variable. This allows applying linear panel models such as a fixed effects model in order to control for individual, time-constant heterogeneity. Hence, the causal effect of PA on job satisfaction is estimated by within-person changes in appraisals over time. This longitudinal nature of our research design is important, as most of the previous literature has used cross-sectional data sets. To analyze the moderating role of personality, we include interaction terms between PA and 1) the Big Five personality traits and 2) locus of control into further specifications of the estimation model. Robust standard errors clustered on individual level are reported in all specifications.

Descriptive Statistics

Figure 1 shows the distribution of the different types of performance appraisals in Germany over time. The proportion of employees receiving PA has increased from 32% in 2004 to 39% in 2011, which is equal to a growth rate of 22%. A similar development can be found for PA with monetary consequences. Appraisals without monetary consequences seem to play a minor role with a proportion of 11% in 2011.

*** Insert Figure 1 about here ***

Figure 2 presents the distribution of the different types of PA with monetary consequences for those employees who actually receive a performance assessment in the respective year. Note that multiple answers are possible. The importance of PA with an impact on bonus payments is growing over time, with an increase of around 15% from 2004 to 2011. On the other hand, the impact of appraisals related to fixed salaries or pay raises is declining in the observed period. PA are mostly relevant for promotion decisions, with a proportion ranging between 54% in 2004 and 51% in 2011.

*** Insert Figure 2 about here ***

Results

Table 1 includes the means and standard deviations of the main variables as well as their correlations.

*** Insert Table 1 about here ***

Performance Appraisals and Job Satisfaction

We now investigate the impact of formal performance assessments on the degree of job satisfaction applying individual fixed effect regressions. Table 2 reports three different specifications: Column (1) represents the baseline model for PA in general, column (2) considers only assessments related to monetary outcomes, and column (3) finally shows results for PA which are related to non-monetary outcomes.

Receiving formal performance appraisals in general has, on average, a positive and both economically and statistically highly significant effect on job satisfaction. Focusing on PA related to monetary consequences, this effect even gets stronger providing support for hypothesis 1. Based on the sample average for job satisfaction, this equals a 1.3% increase in satisfaction rates. In contrast to these results, we observe no statistically significant coefficient for PA without monetary outcomes. Concerning the other control variables, we find a significantly negative effect of firm tenure on job satisfaction, but no age effects. Furthermore, in line with previous studies, net income is positively related to job satisfaction. We also find a significantly positive effect of internal or external job changes on individual satisfaction levels.

*** Insert Table 2 about here ***

We also run different robustness checks. First, as within-person variance in appraisals is analyzed, a change in the appraisal system might be due to a job and/or employer change. Even though we control for these changes in all regressions, we re-estimate the baseline regressions 1) without job and employer changes and 2) only without employer changes. In all cases, the results remained unchanged. Second, one could also argue that rather focusing on job satisfaction, income satisfaction, a specific domain of job satisfaction, might also be important in the case of performance appraisals. Hence, we rerun the baseline specifications with income satisfaction as dependent variable. Similar to job satisfaction, income satisfaction is measured by the item “How satisfied are you with your personal income?” on an 11-point Likert scale ranging from 0 (totally

unhappy) to 10 (totally happy) with a mean value of 6.4 (SD = 2.11). As can be seen in Table 3, the results of the baseline specification are broadly confirmed. Moreover, the coefficients of pay satisfaction are, compared to job satisfaction, even larger. Linking performance appraisals to monetary outcomes leads, on average, to a 2.4% increase in income satisfaction rates, which is again both economically and statistically highly significant.

*** Insert Table 3 about here ***

To get closer to the possible mechanism which drives the positive effect of PA on job satisfaction, we make use of an interesting feature of the data set: In the wave 2006, information on job-related recognition and performance assessments is jointly available. In detail, we use information on 1) job-related recognition from an employee's supervisor and 2) an employee's perception whether the recognition is in accordance with the provided effort. Respondents were asked whether the following statements are applicable to them or not (answer possibilities: yes or no): "I receive the recognition I deserve from my superiors" and "When I consider all my accomplishments and efforts, the recognition of I've received seems fitting". We estimate marginal effects of a probit regression with the dummy for job-related recognition as dependent variable, as can be seen in Table 4. It is important to note that we apply a lagged dependent variable approach, i.e. we include recognition in $t-1$ (here: the available year is 2006) as control variable in the model to come closer to the causal effect. The results show that performance assessments with monetary consequences are, on average, positively related to a feeling of job-related recognition from superiors, controlling, among others, for job satisfaction and previous recognition levels. These employees are also significantly more likely to state that the recognition is in accordance with their provided efforts. This supports prior research on the importance of contextual factors of appraisal systems such as supervisor feedback, participation, and recognition within the appraisal process. However, for PA without monetary consequences, no significant results are observable.

*** Insert Table 4 about here ***

The Moderating Effects of Personality Traits

In a next step we are interested in potential moderating effects of personality traits on the positive relationship between performance assessments and job satisfaction. We therefore include interaction terms for the different personality traits into the baseline regression model. Table 5

shows a strong, positive effect of PA on job satisfaction for a person with average levels of all Big Five dimensions, which is again driven by appraisals linked to monetary consequences. But almost all personality dimensions show no statistically significant interaction coefficients. However, column (3) reveals that receiving a PA which is not at all related to any monetary consequence significantly decreases job satisfaction for employees scoring high on openness to experience. Hence, we find no statistically significant evidence for hypotheses 2 and 3 and research questions 4 and 5.

As personality traits are time-constant, the direct effects of the Big Five traits on job satisfaction cannot be estimated by fixed effects regressions. To get an understanding of how personality is related to job satisfaction, we also estimate random effects and pooled OLS models.⁹ These results show that all dimensions except neuroticism are positively related to job satisfaction applying the same set of control variables, with the largest effects for conscientiousness and agreeableness. For more neurotic employees, we find a highly negative effect on satisfaction, which is of double size compared to the other dimensions. This is in line with previous studies showing that emotional stability is one of the key predictors of job satisfaction (Judge & Bono, 2001; Judge et al., 2002)

*** Insert Table 5 about here ***

Table 6 reports regression results for the internal and external dimension of locus of control. Again, the positive effect of appraisals on job satisfaction is strongly supported. Hypothesis 6 is partly supported by the results: We find no significant moderating effect of internal locus of control on the relationship between PA with monetary consequences and job satisfaction. But looking at appraisals without any monetary link, we observe a significantly negative interaction term for internals implying that for those employees, it may have detrimental effects for satisfaction rates when formal PA systems are in place that are not linked to any monetary outcomes. The results on the moderating effects of personality highlight that PA without any monetary consequences may have detrimental effects for employees with certain types of personality. In this case, performance appraisals may be perceived as an extrinsic monitoring device without any monetary consequences which might crowd out self-control or intrinsic motivation.

⁹ The results are available upon request.

*** Insert Table 6 about here ***

Discussion

The aim of the present study was to analyze the effects of performance appraisals on employees' job satisfaction using a large and representative longitudinal data set. Our results show that receiving formal performance appraisals has a positive and highly significant effect on job satisfaction. For PA related to monetary consequences, this effect even gets stronger. These results are in line with previous findings on the positive association of performance-related pay and overall (job) satisfaction (Heywood & Wei, 2006; Green & Heywood, 2008). They imply that performance appraisals are a direct driver of job satisfaction, which has not frequently been analyzed yet, especially using a longitudinal data set. The positive effect seems to be driven by appraisals related to monetary outcomes. On the other hand, appraisals without monetary consequences seem to have neither an economically nor statistically significant effect on job satisfaction. Additionally analyzing survey items on job-related recognition we find evidence that an appraisal culture may lead to a positive recognition by employees, which, in turn, might positively influence job satisfaction. It could be one possible explanation for the previous estimation results.

In a second step, the moderating effects of personality traits on the performance appraisal-job satisfaction relationship were analyzed. We would have expected a positive moderating effect for employees scoring high on extroversion, who are typically more inclined to being monitored, show a higher level of self-confidence as well as status-seeking behavior.

We find that for employees scoring high on openness to experience, receiving a PA which is not related to any monetary consequences has a detrimental effect on job satisfaction rates. Interestingly, we find no statistically significant moderating effect of locus of control on appraisals linked to monetary consequences. Based on our hypothesis one could have concluded that for employees, who perceive to have more control over their life (internals), the use of performance assessments should have a stronger effect on job satisfaction (Spector et al., 2002; Ng et al., 2006). But for PA not linked to any monetary rewards, internals are significantly less satisfied when being appraised which is in line with our hypothesis. These results imply that PA without any monetary consequences may be seen as useless or dispensable, because, in this case,

performance assessment and feedback are not linked to any further, explicit actions which, in turn, might induce a significant decrease in job satisfaction.

Practical Implications

To conclude, our results imply that performance appraisals related to monetary outcomes are a powerful HR management tool which seems to be honored by employees. On the other hand, appraisals without monetary consequences have no impact on job satisfaction and even a negative one for employees scoring high on openness to experience. The results also suggest that extrinsic rewards such as performance appraisals seem to be powerful and do not negatively affect employee satisfaction rates.

Companies should therefore strengthen their efforts to implement formal appraisal systems within their set of high performance work practices, as it has been shown that these practices have a significant impact on firm performance (Huselid, 1995; Huselid & Becker, 1996). As we are among the first who differentiate between monetary and non-monetary outcomes of the performance appraisal process, we can draw some implications for firms with regard to potential consequences of appraisal systems. Hence, it seems to be really important that appraisals are linked to any kind of monetary outcomes such as bonuses, promotions, or pay rises. Performance appraisals related to monetary outcomes also lead to a stronger feeling of job-related recognition from superiors, which seems also to be an interesting finding for firms with respect to the implementation of PA systems. On the other hand, appraisals with no clear link to monetary outcomes even seem to have detrimental effects for some types of employees.

Our results support research on the positive impact of contextual factors such as feedback, employee participation and recognition on appraisal reactions (Pichler, 2012). Firms that aim at using performance appraisals therefore should make clear that this is done in an environment of participation, feedback, and recognition to ensure a high quality of the rater-ratee relationship.

Furthermore, personality does not play a major role for the performance appraisal-job satisfaction relationship except for employees scoring high on openness to experience and internal locus of control in case that appraisals are not linked to any monetary outcomes, which is interesting news for HR professionals. When implementing appraisal systems, our results indicate that they are optimal for employees of every type of personality covered by the Big Five, given that they are related to measurable outcomes. This is an important result as it is sometimes

claimed that collecting information on personality traits of employees, for instance based on test scores from recruiting instruments, is of high priority for HR professionals in firms.

Limitations and Suggestions for Further Research

Although our study is based on a large, representative panel data set, some limitations may explain why the results for the moderating effect of personality traits are rather weak. In large, longitudinal surveys, typically shorter scales of personality constructs such as the Big Five are applied due to time and budget constraints (e.g., the BFI-S in the SOEP with 15 items compared to the NEO-FFI comprising 60 items) leading to an increasing measurement error in the respective construct and lower internal consistency. Gosling et al. (2003) point out that the use of short scales may be inevitable in surveys with limited time and budget constraints, which is also true for the SOEP. But even if shorter scales may reach acceptable psychometric properties such as test-retest reliability and discriminant validity, former studies also report substantial differences compared to longer scales in terms of reliability (Rammstedt & John, 2007). Additionally, it is important to note that in fixed effects models, an attenuation bias is likely to occur due to measurement error in the independent variable. This will cause the estimated coefficient to be downward biased leading to smaller coefficients (Angrist & Pischke, 2008). Hence, the results presented here may be interpreted as lower boundaries for the true effects. Furthermore, in subjective survey questions, problems of measurement error may be common due to cognitive problems or social desirability. Especially when the measurement error is correlated with unobservable characteristics, the effects of personality traits have to be interpreted with care (Bertrand & Mullainathan, 2001).

We have shown a direct effect of performance appraisals on employees' job satisfaction based on a longitudinal data set. Based on results from the previous literature, one may assume which contextual factors are responsible for this positive relationship. As we have no detailed information on, for instance, satisfaction or perceived fairness with the appraisal process, further research should explore the mechanisms driving the positive effect of PA on job satisfaction in more detail.

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Table 1: Means, Standard Deviations, and Pairwise Correlations Among the Main Variables

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1 PA (1 = yes)	.35													
2 PA with monetary cons. (1 = yes)	.26		.85***											
3 PA without mon. cons. (1 = yes)	.09		---	---										
4 Job satisfaction (0 - 10)	6.99	1.95	.01*	.03***	-.03***									
5 Internal locus of control	3.78	2.26	-.02***	-.03***	-.00	.12***								
6 External locus of control	4.83	.84	-.06***	-.08***	-.00	-.19***	-.10***							
7 Extraversion	4.83	1.06	.03***	.02***	.04***	.10***	.13***	.20***						
8 Conscientiousness	5.98	.78	-.05***	-.07***	.02**	.11***	-.06***	.15***	.18***					
9 Neuroticism	3.77	1.11	-.04***	-.07***	.02**	-.21***	-.10***	-.35***	-.15***	-.11***				
10 Openness to experience	4.46	1.07	.02**	.01	.02***	.08***	.16***	.10***	.38***	.14***	-.06***			
11 Agreeableness	5.34	.90	-.05***	-.07***	.03***	.12***	-.13***	.14***	.10***	.29***	-.13***	.14***		
12 Age	43.21	10.62	-.02***	-.05***	.06***	-.05***	-.16***	-.04***	-.07***	.10***	.02***	.03***	.04***	
13 Years of education	12.80	2.73	.14***	.15***	.03***	.06***	.15***	.16***	-.01***	-.12***	-.07***	.16***	.01***	.04***

Note. N = 12,609. For binary variables, no SD reported. * $p < .10$. ** $p < .05$. *** $p < .01$.

Table 2: Fixed Effects Regression Results for Job Satisfaction

Dependent variable:	Job satisfaction		
	(1) PA	(2) PA with MC	(3) PA without MC
Performance appraisal	0.0670*** (0.0219)	0.0798*** (0.0248)	-0.0108 (0.0413)
Age (35-49 years) ¹	0.0269 (0.0364)	0.0268 (0.0371)	0.0614 (0.0482)
Age (50-67 years)	0.0305 (0.0494)	0.0326 (0.0502)	0.0782 (0.0640)
Firm tenure (11-20 years) ²	-0.131*** (0.0252)	-0.131*** (0.0257)	-0.112*** (0.0322)
Firm tenure (more than 20)	-0.105** (0.0410)	-0.102** (0.0418)	-0.0621 (0.0528)
Ln net income	0.0598 (0.0425)	0.0636 (0.0434)	0.0797 (0.0513)
Job change	0.264*** (0.0379)	0.269*** (0.0389)	0.317*** (0.0523)
Industry FE	Yes	Yes	Yes
Job status FE	Yes	Yes	Yes
Firm size FE	Yes	Yes	Yes
Observations	19,947	19,470	14,254
Number of individuals	10,453	10,341	8,379
R-squared within	0.049	0.049	0.051

Constant not displayed. Additional control variables include part-time, permanent contract, years of education, public sector, marital status, number of children, job security, firm training, overtime, West Germany, and year. Reference groups: 1 17-34 years, 2 0-10 years. Robust standard errors clustered on individuals in parentheses.

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

Table 3: Fixed Effects Regression Results for Income Satisfaction

Dependent variable:	Income Satisfaction		
	(1) PA	(2) PA with MC	(3) PA without MC
Performance appraisal	0.1371*** (0.0270)	0.1550*** (0.0315)	0.0576 (0.0499)
Age (35-49 years) ¹	0.0488 (0.0596)	0.0319 (0.0605)	-0.0360 (0.0842)
Age (50-67 years)	0.0919 (0.0739)	0.0748 (0.0753)	-0.0142 (0.1016)
Firm tenure (11-20 years) ²	-0.0687** (0.0323)	-0.0602* (0.0331)	-0.0404 (0.0435)
Firm tenure (more than 20)	-0.0313 (0.0499)	-0.0388 (0.0506)	-0.0438 (0.0681)
Ln net income	0.439*** (0.0684)	0.434*** (0.0705)	0.390*** (0.0781)
Job change	0.0031 (0.0442)	0.0104 (0.0455)	0.0780 (0.0633)
Industry FE	Yes	Yes	Yes
Job status FE	Yes	Yes	Yes
Firm size FE	Yes	Yes	Yes
Observations	11,926	11,637	8,339
Number of individuals	7,515	7,423	5,756
R-squared within	0.064	0.064	0.060

Constant not displayed. Additional control variables include part-time, permanent contract, years of education, public sector, marital status, number of children, job security, firm training, overtime, West Germany, and year. Reference groups: 1 17-34 years, 2 0-10 years. Robust standard errors clustered on individuals in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 4: PA and Job-related Recognition

Dependent variable:	Job-related recognition from superior		Job-related recognition in accordance with efforts	
	PA with MC	PA without MC	PA with MC	PA without MC
Performance appraisal	0.0774*** (0.0190)	0.0136 (0.0322)	0.0447** (0.0193)	0.0414 (0.0262)
Job satisfaction	0.0872*** (0.0048)	0.0885*** (0.0058)	0.0831*** (0.0047)	0.0842*** (0.0057)
Lagged dependent var.	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Job status dummies	Yes	Yes	Yes	Yes
Firm size dummies	Yes	Yes	Yes	Yes
Observations	4,137	2,827	4,131	2,822
Pseudo R-squared	0.180	0.191	0.142	0.153

Marginal effects reported. Constant not displayed. Additional control variables include female, risk attitude, age, part-time, permanent contract, firm tenure, years of education, ln net income, job change, job security, firm training, overtime, public, West Germany, and year. Robust standard errors clustered on individuals in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 5: Moderating Effects of Big Five Personality Traits

Dependent variable:	Job Satisfaction		
	(1) PA	(2) PA with MC	(3) PA without MC
Performance appraisal	0.0666*** (0.0219)	0.0752*** (0.0249)	0.0032 (0.0411)
PA * Extraversion	0.0078 (0.0256)	-0.0134 (0.0298)	0.0391 (0.0457)
PA * Conscientiousness	-0.0088 (0.0238)	-0.0129 (0.0267)	-0.0249 (0.0441)
PA * Neuroticism	-0.0112 (0.0247)	0.0121 (0.0280)	-0.0558 (0.0442)
PA * Open to Experience	-0.0006 (0.0270)	0.0448 (0.0303)	-0.102** (0.0501)
PA * Agreeableness	-0.0076 (0.0249)	-0.0031 (0.0274)	0.0035 (0.0468)
Industry FE	Yes	Yes	Yes
Job status FE	Yes	Yes	Yes
Firm size FE	Yes	Yes	Yes
Observations	18,602	18,149	13,195
Number of individuals	9,264	9,170	7,432
R-squared within	0.049	0.049	0.053

Constant not displayed. Additional control variables include ln net income, job change, age, part-time, permanent contract, firm tenure, years of education, public sector, marital status, number of children, job security, firm training, overtime, West Germany, and year. Robust standard errors clustered on individuals in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 6: Moderating Effects of Locus of Control

Dependent variable:	Job satisfaction		
	(1) PA	(2) PA with MC	(3) PA without MC
Performance appraisal	0.0618*** (0.0221)	0.0775*** (0.0253)	-0.0062 (0.0416)
PA * Internal locus of control	-0.0125 (0.0138)	-0.0090 (0.0151)	-0.0496** (0.0230)
PA * External locus of control	-0.0018 (0.0075)	0.0053 (0.0083)	-0.0036 (0.0146)
Industry FE	Yes	Yes	Yes
Job status FE	Yes	Yes	Yes
Firm size FE	Yes	Yes	Yes
Observations	18,153	17,710	12,869
Number of individuals	8,917	8,829	7,169
R-squared within	0.048	0.048	0.053

Constant not displayed. Additional control variables include ln net income, job change, age, part-time, permanent contract, firm tenure, years of education, public sector, marital status, number of children, job security, firm training, overtime, West Germany, and year. Robust standard errors clustered on individuals in parentheses. *** p<0.01, ** p<0.05, * p<0.1

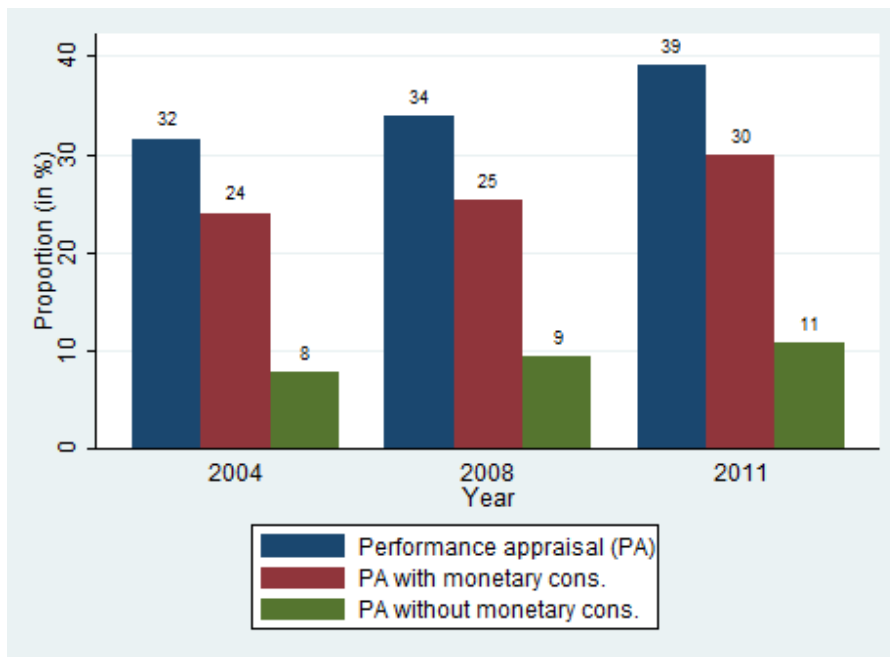


Figure 1: Distribution of Appraisals over Year

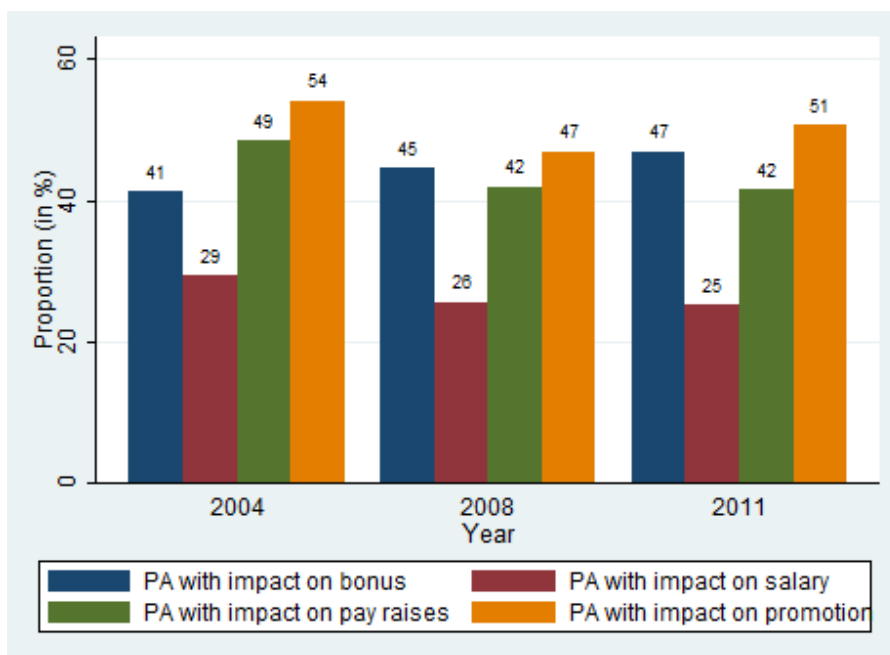


Figure 2: Distribution of Appraisals with Monetary Consequences