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Less is Sometimes More: Consequences of Overpayment on Job Satisfaction and Absenteeism

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Abstract This article investigates the responsive and purposive consequences of overpayment by studying changes in job satisfaction and absenteeism over time. Overpayment is defined as the positive deviation from the net earnings subjectively considered being fair. Two theoretical approaches are tested providing differing predictions: The self-interest model predicts that any increase in earnings always increases individual job satisfaction and that no changes arise in the number of days absent. The justice model predicts that overpayment reduces individual job satisfaction, and that absenteeism decreases in the period that follows. These predictions are tested with longitudinal data from a large-scale survey by means of fixed-effects regression analysis. The results show that increases in pay that are perceived as overpayment decrease job satisfaction and reduce absenteeism in the subsequent period.

Keywords Overpayment · Self interest · Justice · Job satisfaction · Absenteeism · SOEP

Introduction

Money is generally considered as the quintessential good of which having more is preferred to having less. Moreover, personal earnings are supposed to be important

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for individual job satisfaction. It is therefore reasonable to assume that employees evaluate increasing earnings as something positive. The question is, however, whether pay raises are always perceived as favorable or if there is an optimum in wages that maximizes individual job satisfaction. An additional question is whether employees change their behavior at work when they get paid beyond this optimum meaning that they feel overpaid.

We use two theoretical approaches to predict how people may react to overpayment: (1) the self-interest model and (2) the justice model (we follow the terminology of Younts & Mueller, 2001). The self-interest model assumes that human behavior (and thus evaluations of own rewards) is goal-oriented to maximize own outcomes, whereas the justice model assumes that the evaluation of own outcomes is additionally affected by comparison processes between individuals and groups. Furthermore, as reactions to overpayment, we investigate (a) responsive and (b) purposive behavior. Responsive behavior is an affective or cognitive reaction not intended to alter the situation, whereas purposive behavior is intended to do so (Jasso, 1986; Randall & Mueller, 1995).[1] We consider job satisfaction as a responsive behavior and absenteeism as a purposive behavior.

Regarding earnings that are perceived as too low, the self-interest model and the justice model predict similar responsive and purposive consequences: Employees are less satisfied with their job and increase absenteeism. On the other hand, regarding earnings that are perceived as too high, the self-interest model and the justice model predict opposing responsive and purposive consequences: According to the self-interest model employees are more satisfied with their job and do not change their days absent, and according to the justice model employees are less satisfied with their job and reduce their days absent.

We test these theoretical predictions for overpayment with data from the German Socio-Economic Panel Study (SOEP) of the years 2005–2010. Our analysis sample covers more than 12,000 respondents surveyed all over Germany. The longitudinal design allows regressing changes in job satisfaction and absenteeism on changing justice evaluations. We use fixed-effects regressions to control for time-constant heterogeneity.

The article is organized as follows: First, we describe the theoretical approaches of the self-interest model and the justice model and derive hypotheses on responsive and purposive consequences of overpayment. Following this, we present the methodological approach, report the results, and end with a discussion of our findings.

The Self-interest Model

The self-interest model assumes that rewards are always assessed to be favorable, meaning that each additional unit of reward is evaluated as positive and each unit less as negative. The underlying model of man is the *homo oeconomicus* that defines individuals as utility maximizers who behave egoistically and socially autistic.

[1] The term purposive action was introduced by Coleman (1973).

Regarding the responsive consequence job satisfaction neo-classical utility functions predict a nonlinear relation between a good and the satisfaction gained from consuming it. The strictly monotonically increasing utility function suggests a positive correlation between earnings and job satisfaction with a decreasing marginal rate (the 1st to 500th Euro earned has a greater "value" than the 2001st to 2500th Euro) meaning that the function has a quasi-concave slope. It is evident that any additional Euro earned has a positive effect on individual welfare (Layard, Mayraz, & Nickell, 2008), and, thus, any increase in earnings increases individual job satisfaction. Consequently, people perceive overpayment as something positive and are in this case more satisfied with their job.

Regarding purposive behavior the self-interest model predicts that underpaid employees reduce their work efforts. Expectancy theory (Atkinson & Reitman, 1956; Lawler, 1968, 1971; Vroom, 1964), e.g., assumes that lower payment reduces the individual motivation to perform. On the other hand, the self-interest model predicts no counteractive purposive behavior if people perceive that they are overpaid because this would reduce their net utility (Lawler, 1968). Consequently, the number of days absent should not change if employees feel overpaid.

The Justice Model

The justice model assumes that reward evaluations are always guided by a comparison process (Mussweiler, 2003) meaning that individuals judge their earnings against the backdrop of a reference standard. The underlying model of man can be described as the *homo socio-oeconomicus* that defines individuals as utility maximizers who are not only egoistic but also affected by other individuals and their behavior (Becker, 1974; Lindenberg, 1990).

Equity theory and related concepts (such as status-value theory, Berger, Zelditsch, Anderson, & Cohen, 1972) propose that justice (or equity) is given if the own effort-reward ratio is proportional to the effort-reward ratio of a specific or generalized other. Inequity (or injustice), therefore, not only occurs when people are underpaid but also when they are overpaid.

In contrast to the self-interest model, one could interpret the justice model in a way that it assumes an optimum (i.e., equity), meaning that a reward is only a "good" up to a certain point and beyond this point is assessed as a "bad." In case of overpayment not only is marginal utility decreasing but also utility itself becomes negative (each additional unit of a good is then perceived as a burden). This is because the individual utility function does not only depend on own rewards but also on rewards of others.

According to equity theory, underpaid individuals feel anger and overpaid individuals feel guilt (Adams, 1965; Adams & Freedman, 1976; Walster, Walster, & Berscheid, 1978). In case of underpayment, the responsive consequence predicted by the justice model—employees are less satisfied with their job—is similar to the prediction of the self-interest model. The assumed consequences to perceived overpayment, however, rely on a more complex understanding of human behavior. Peters, van den Bos, and Karremans (2008) propose (following, e.g., Messick &

Sentis, 1983; van den Bos, Wilke, Lind, & Vermunt, 1998) that overpayment is a source of a positive and a negative affect. On the one hand, it is positive from a self-interest perspective to receive more from something good, so the hedonic pleasure increases. On the other hand, there is a negative source of a justice-based feeling of guilt because one is unjustly advantaged in comparison to others (Peters, van den Bos, & Bobocel, 2004; Peters et al., 2008).

Furthermore, both types of inequity also lead to purposive consequences meaning that people try to adapt their behavior to restore equity (Adams, 1965; Walster, Berscheid, & Walster, 1973; Walster et al., 1978).[2] Therefore, the justice model predicts that the responsive reaction to overpayment is a decrease in job satisfaction and the purposive reaction is to regain equity by reducing absenteeism.

Previous Research and Hypotheses

Previous studies show mixed results concerning responsive and purposive consequences of overpayment.[3] Hegtvedt (1990) hardly finds any differences in distress between overpaid and equitably paid respondents. Whereas, Markovsky (1988) using a skin conductance measure finds heightened arousal for under- and overpaid subjects, while there was no effect in the equity condition. Peters et al.'s (2008) analysis of response latencies shows that participants in an overpayment condition took longer to decide whether they were satisfied with their reward than participants in the other conditions. This indicates that overpayment leads to a conflict of how to respond. Randall and Mueller (1995) report for a number of qualitative and non-transferable rewards (not for pay) that there seems to be no difference between a self-interest and a justice model for several consequences. The authors, thus, conclude that the self-interest model as the more parsimonious one should be considered. There is, however, no hint whether their findings would also apply for over- and underpay. Several experimental studies indicate that people are most satisfied with their rewards when they feel equitably paid, and that they are more satisfied with overpay than with underpay (Peters et al., 2004; van den Bos, Lind, Vermunt, & Wilke, 1997; van den Bos et al., 1998). In a field study, Vecchio (1984) finds no effect suggesting that overpayment leads to less pay satisfaction. Sweeney (1990) in several larger field studies, however, shows that people who are overpaid, indeed, are less satisfied with their payment than equitably paid respondents.

[2] In addition, equity can also be reached psychologically without changing actual inequity. If there is no possibility to influence actual conditions, individuals can assess own efforts as more important, devalue the actual rewards, devalue the efforts of others or overrate own rewards. Besides, individuals can select other reference standards which provide a more favorable ratio. The opposite is assumed for people who feel underpaid.

[3] Many studies investigate perceptions of distributive justice as determinants for various outcomes like organizational trust (DeConinck 2010), job performance (Janssen, Lam, & Huang, 2010), job satisfaction (Fields, Pang, & Chiu, 2000), OCB (Karriker & Williams, 2007; Johnson, Selenta, & Lord, 2006), turnover (Brashear, Manolis, & Brooks, 2005), psychological distress (Tepper 2001), among others (for meta-analyses, see Cohen-Charash & Spector, 2001; Colquitt, Conlon, Wesson, Porter, & Ng, 2001). However, the focus of these studies is mainly on underpayment.

With regard to purposive behavior several experimental studies show that respondents rewarded on a piece rate tend to increase their work quality when they perceive being overpaid (Andrews & Valenzi, 1970; Garland, 1973; Goodman & Friedman, 1969; Lawler, Koplin, Young, & Fadem, 1968). By increasing their work quality they try to legitimize their higher payment and, hence, to regain equity. The experiments on overpayment conducted by Lawler et al. (1968) show mixed results that partly support the predictions of the justice model and partly the predictions of the self-interest model.[4]

Figure 1 presents the competing theoretical predictions of job satisfaction as a function of the evaluation of pay. The self-interest model with decreasing marginal utility (dashed line) assumes a positive relationship (monotonically increasing) that weakens with each additional unit (quasi-concave function). The justice model (solid line) assumes that individual job satisfaction increases if payments rise (underpay to equity), but decreases again beyond a certain threshold (equity to overpay). As illustrated in the graph the part to the right is especially relevant, because this is where theories make differing predictions. While the self-interest model predicts an increase in job satisfaction, the opposite is proposed by the justice model. Furthermore, it is evident that in case of underpayment both models make similar predictions.

Hypotheses regarding job satisfaction as responsive behavior:

H1a Increases in earnings always increase job satisfaction at a positive but decreasing rate (self-interest model).

H1b Overpayment leads to more job satisfaction than underpayment or equitable payment (self-interest model).

H2a Increases in earnings increase job satisfaction if employees feel underpaid or equitably paid and decrease job satisfaction if employees feel overpaid (justice model).

H2b Overpayment leads to less job satisfaction than equitable payment (justice model).

Figure 2 illustrates the competing theoretical predictions of the number of days absent per year as a function of the evaluation of pay. The self-interest model (dashed line) assumes that employees increase their number of days absent if they feel underpaid, but do not change their behavior if they feel overpaid (to maximize

[4] Our study focuses only on the influence of perceived justice on job satisfaction and absenteeism; however, there are lots of other determinants of job satisfaction and absenteeism. Other determinants of job satisfaction are, e.g., co-workers wages (Clark, Kristensen, & Westergård-Nielsen, 2009), performance-related pay (Green & Heywood, 2008), person-organization fit (Bright, 2008), work-role inputs and outputs (Sousa-Poza & Sousa-Poza, 2000), work values (Knoop, 1994), promotional opportunity, role overload (Agho, Mueller, & Price, 1993), and relations to co-workers (Kalleberg, 1977). Other determinants of absenteeism are, e.g., task interdependence, locus of control (Johns, 2011), wage levels (Pfeifer, 2010), job demands (Schaufeli, Bakker, & Van Rhenen, 2009), psychological and physical illness (Darr & Johns, 2008), work–family characteristics (Väänänen et al., 2008), age, marriage, job satisfaction (Cohen & Golan, 2007), work arrangements (Dionne & Dostie, 2007), organizational commitment (Sagie, 1998; Gellatly, 1995), job motivation, supervisory support (Deery, Erwin, Iverson, & Ambrose, 1995), and working conditions (Leigh, 1991).

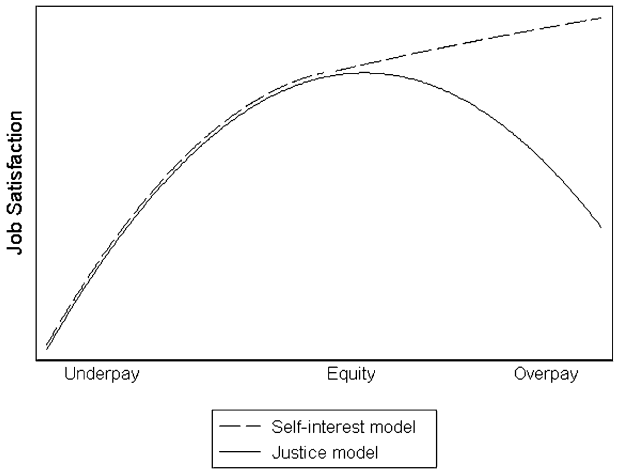

Fig. 1 Job satisfaction and evaluation of pay in the self-interest model and the justice model

individual net utility). The justice model (solid line) assumes that employees increase absenteeism if they feel underpaid (more days absent) but decrease absenteeism if they feel overpaid (fewer days absent) to regain balance. Again, the theories only make differing predictions for the case of overpayment.

Hypotheses regarding the number of days absent per year as purposive behavior:

H3 Overpayment does not lead to changes in the number of days absent (self-interest model).

H4 Overpayment leads to a decrease in the number of days absent (justice model).

Data, Variables, and Methods

Data

The data is provided by the Socio-Economic Panel Study (SOEP; Schupp, 2009; SOEP, 2011; Wagner, Frick, & Schupp, 2007). The SOEP is a representative longitudinal large-scale survey of private households and is administered by the German Institute for Economic Research (DIW) in Berlin. Every year the fieldwork organization TNS Infratest Sozialforschung surveys all members of around 11,000 households adding up to more than 20,000 individuals. The Panel was started in 1984 and covers a wide array of topics such as household composition, occupational biographies, employment, and earnings, as well as health and satisfaction indicators. As the relevant variables for testing our hypotheses were queried in 2005–2010, our study only covers these years. The analysis sample solely includes respondents who were employed for at least two of the observational periods (full-time, part-time, or marginal employment; no self-employed individuals or people in vocational

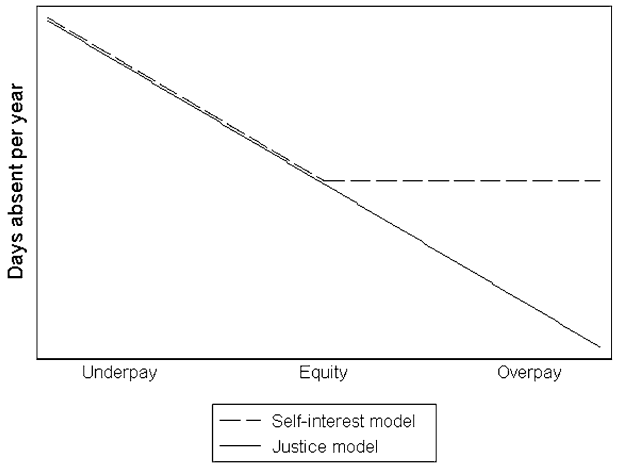

Fig. 2 Days absent per year and evaluation of pay in the self-interest model and the justice model

training) and who provided information on their actual net earnings as well as on what they considered to be fair net earnings for themselves ($n = 12{,}470$).

Dependent Variables

To test the responsive and purposive consequences of overpayment two dependent variables are analyzed. (1) Individual job satisfaction as a responsive consequence is surveyed in question of different domain satisfactions (Wagner, 2007) on an eleven-point rating scale ranging from 0 (totally dissatisfied) to 10 (totally satisfied). It is ascertained by the following question: "How satisfied are you with your job?" The respondents of our analysis sample report an average level of job satisfaction of $\bar{x} = 7.05$ (standard deviation $SD = 1.99$; median $\tilde{x} = 7.00$).

(2) The number of days absent is analyzed as a purposive consequence and is ascertained by the following question: "How many days were you not able to work in 2005 (2007; 2009) because of illness? Please state all the days, not just those for which you had an official note from your doctor." The respondents in our analysis sample report an average number of days absent per year of $\bar{x} = 8.29$ (standard deviation $SD = 24.65$; median $\tilde{x} = 1.00$). This count variable follows a Poisson distribution. As information on the number of days absent in the respective survey year can only be given in the following year, this variable is technically a lead variable that is surveyed in 2006, 2008, and 2010.[5]

[5] According to the hypotheses 3 and 4 the evaluation of pay influences absenteeism. Therefore, we need to measure the number of days absent after the evaluation of pay. Thus, spell data reporting days absent on a monthly basis would be needed (not available in the SOEP) to disentangle the causal order. Due to the fact that about 75 % of the annual fieldwork of the SOEP is conducted within the first 3 months of a year, we assume that most of the days absent occurred after the interview. Re-analysis of the data accounting only for interviews surveyed in the first 2 months of the year resulted in resembling but insignificant effects.

Independent Variables and Controls

The main explanatory variable is the subjective justice evaluation of own earnings. The justice evaluation is a generated variable that consists of two measures: the actual and the just earnings. The actual earnings are queried in the SOEP by the question: "How high was your income from employment last month? If you received extra income such as vacation pay or back pay, please do not include this. Please do include overtime pay." The respondents have to specify the amount of their respective gross and net incomes in Euros. The perceived fairness of earnings is established by asking two questions. First it is ascertained by asking: "Is the income that you earn at your current job just, from your point of view?" If the earned income is assessed to be unjust, respondents are supposed to answer a follow up question: "How high would your net income have to be in order to be just?" The respondents have to specify the amount of Euros per month. The question on the fairness of earnings is asked in a 2-year interval which started in 2005. We calculate the individual justice evaluation using the logarithmic ratio of actual and just earned income (Jasso, 1978, 2007):

$$J = \ln\left(\frac{A}{C}\right) \tag{1}$$

J represents the justice evaluation, A the actual monthly net earned income, and C the monthly net income subjectively considered to be fair. For respondents who assess their earnings to be fair, the actual and just earnings are the same, therefore J is 0. If just earnings exceed actual earnings, J is negative; the respondent feels underpaid. If actual earnings exceed just earnings, J is positive; the respondent feels overpaid. The mean justice evaluation is $\bar{x} = -.1445$ ($SD = .3226$; $\tilde{x} = 0$) meaning that on average respondents perceive that they earn 13.45 % ($100 * (1 - e^{-.1445})$) less than they should. To distinguish between perceived over- and underpayment as well as equitable payment, this continuous measure was trichotomized.[6] In the three waves of the sample (2005, 2007, and 2009), 22,219 observations represent respondents perceiving themselves to be equitably paid, 10,463 as underpaid, and 164 as overpaid.

In addition, gross hourly earnings are included in the models to test the influence of pay raises. The mean gross hourly earnings in Euro for justly paid employees of the analysis sample is $\bar{x} = 17.27$ ($SD = 11.52$; $\tilde{x} = 15.38$), for underpaid employees $\bar{x} = 13.30$ ($SD = 7.19$; $\tilde{x} = 12.14$), and for overpaid employees $\bar{x} = 18.90$ ($SD = 12.25$; $\tilde{x} = 17.01$). To account for increases with a decreasing rate the square root of gross hourly earnings is included in the models on job satisfaction.

The following variables are controlled for in the regressions: A measure of taxes and social security contributions—calculated by the difference of the logarithmized gross and net hourly wages—is included to separate the influence of market income on job satisfaction from the influence of duties. Subjective health perception is ascertained by the question: "How would you describe your current health?" The

[6] Negative J values refer to underpayment; J values of 0 to equitable payment, and positive J values to overpayment.

response consists of the categories "very good," "good," "satisfactory," "poor," and "bad." We use a representation of this item ranging from 1 = "poor" to 5 = "very good." The respondents of the analysis sample report an average level of health of $\bar{x} = 3.36$ ($SD = .96$; $\tilde{x} = 3.00$). Moreover, in longitudinal studies, unobserved macro changes (such as fluctuations in economic conditions) are assumed. The current economic situation influences the perceived fairness of earnings (Liebig, Valet, & Schupp, 2010) and job satisfaction (Hamermesh, 2001). For this reason the additional inclusion of period dummies in longitudinal models is recommended (Allison, 2009; Brüderl, 2010). In the job satisfaction analyses, period dummies are used controlling for year and month of the interview, because the assessment of job satisfaction refers to the current situation of the interview. In the analysis of days absent, we control for the year of survey, because the number of days absent refers to the complete survey year. Additional control variables are occupational status (ISEI),[7] employment status (1 = full-time), overtime hours per week [$\bar{x} = 2.33$ ($SD = 3.65$; $\tilde{x} = .90$)], job changes (1 = yes), and marital status (1 = married).

Methods

To test our hypotheses, we estimate fixed-effects panel models.[8] In these regressions, only changes within survey units are considered. Using a within regression estimator unobserved heterogeneity through time-invariant factors can be excluded (Antonakis, Bendahan, Jacquart, & Lalive, 2010; Cameron & Trivedi, 2005). Due to differing distributions of the dependent variables, we estimate linear and count regressions.

Although job satisfaction is surveyed on an ordinal scale, we apply linear regression models designed for continuous response variables. Ferrer-i-Carbonell and Frijters (2004) show that assuming cardinality of satisfaction scores on an eleven-point rating scale makes little difference to the results of regression analyses. Therefore, changes in an individual's job satisfaction over time are estimated with an OLS regression approach:

$$(y_{it} - \bar{y}_i) = a + \beta(x_{it} - \bar{x}_i) + (\epsilon_{it} - \bar{\epsilon}_i) \quad (2)$$

A constant term a is estimated based on all observations. The time-demeaning of the left-hand side and right-hand side variables ensures that no differences between persons are correlated with changes over time. In addition, standard errors that are robust against heteroskedasticity and (serial) within panel correlations are estimated (Arellano, 2003; Wooldridge, 2009).

We estimate four different models: (1) Individual variation in square-rooted gross hourly wages over time is the only predictor variable in the first model. (2) The variation of individual justice evaluations of earnings is then additionally included.

[7] The occupational status is represented by the "International Socio-Economic Index of Occupational Status" (ISEI) ranging from 16 to 90 (Ganzeboom, De Graaf, Treiman, & De Leeuw, 1992).

[8] The data was analyzed using the statistics software Stata (StataCorp, 2011). The user written Stata programs scheme_lean (Juul, 2003) and estout (Jann, 2005, 2007) were used to generate graphics and tables.

(3) An interaction effect of gross hourly earnings and the individual justice evaluation is estimated. (4) Individual perceptions of over- and underpay are tested along with square-rooted earnings in the last model.

As the second dependent variable (number of days absent) is a count variable, the changes are estimated with a fixed-effects Poisson regression model as shown in Formula 3 (Allison, 2009; Cameron & Trivedi, 2005). To ensure conservative significance tests of the regression coefficients the models are also estimated with robust standard errors (Wooldridge, 1999).

$$\prod_i \prod_t \left(\frac{\exp(\mu_t + \beta x_{it})}{\sum_s \exp(\mu_s + \beta x_{is})} \right)^{y_{it}} \tag{3}$$

Given that fixed-effects Poisson regressions are no-constant models, the analysis of the number of days absent is based on fewer observations than the analysis of job satisfaction. There are 3,516 observations from 1,460 respondents that have a constant number of days absent (usually none) over the investigated years and are, thus, excluded from the model. This is different to the linear model described above in which a constant term is estimated on the basis of all observations. We run one model testing the influence of the evaluation of pay (over- or underpaid and equitably paid) on the number of days absent.

Results

Table 1 shows the mean job satisfaction scores per year according to the evaluation of pay. Also attached are the respective standard deviations as well as row and column means. Mean job satisfaction across all years in our sample is 7.05. The aggregated scores do not vary much over the three observed periods but there are remarkable differences between the distinguished groups: Equitably paid employees show an average job satisfaction score of 7.35. Employees who perceive themselves to be overpaid rate their job satisfaction overall at about 6.31 with the lowest value in 2005 when mean job satisfaction is below 6. The means of overpaid employees

Table 1 Mean values of job satisfaction by year and evaluation of pay

Evaluation of pay	Years			Total
	2005	2007	2009	
Equitable pay[a]	7.31 (1.87)	7.38 (1.81)	7.37 (1.87)	7.35 (1.85)
Overpay[b]	5.97 (1.99)	6.55 (2.07)	6.26 (2.41)	6.31 (2.20)
Underpay	6.42 (2.14)	6.46 (2.04)	6.41 (2.18)	6.43 (2.11)
Total	7.06 (1.99)	7.04 (1.95)	7.06 (2.02)	7.05 (1.99)

Source SOEP (2011), casewise deletion of missing values, standard deviations in parenthesis

[a] All means are significantly higher (two-sided *t*-test; $p < .001$) than the means of overpaid and underpaid employees

[b] The differences between over- and underpaid employees are statistically insignificant

are always lower than those of equitably paid employees. The average job satisfaction score of respondents who feel underpaid is 6.43 and, therefore, also lower than the job satisfaction of equitably paid respondents in all years. The differences in the levels of job satisfaction between over- and underpaid employees are insignificant. The descriptive results indicate that employees are most satisfied with their jobs when they feel equitably paid.

These descriptive findings, however, do not pinpoint whether differences in job satisfaction occur because of selection processes or whether there is indeed a causal relation of the evaluation of pay and job satisfaction. Table 2, therefore, presents the results of fixed-effects analyses. The first model shows the effect of gross hourly earnings on job satisfaction. The positive coefficient indicates that an increase in earnings increases job satisfaction. Model 2 includes the justice evaluation in the metric notation. Changing justice evaluations of earnings have a strong effect on job satisfaction indicating that increasing injustice perceptions decrease individual job satisfaction. Model 3 tests the interaction effect between gross hourly earnings and the justice evaluation. The coefficient of this interaction indicates that increases in gross hourly earnings are indeed related to justice evaluations. To highlight this finding the marginal effects are calculated for underpaid, equitably paid, and overpaid respondents. The graphical representation in Fig. 3 (Appendix) shows that for those who are underpaid an increase in gross hourly wages is assessed to be highly positive, for those who are equitably paid somewhat positive, and for those who are overpaid it is rated as negative. Thus, an increase in earnings is indeed perceived as a burden for overpaid employees. Finally, in Model 4, the trichotomized evaluation of pay is used instead of the metric justice evaluation. Hence, it is possible to test the predicted differences between the groups directly. The reference group consists of equitably paid observations. The coefficient for overpayment is negative indicating a reduction of job satisfaction in comparison to equitable payment. The coefficient for underpayment is also significantly negative; however, the difference between the two coefficients of overpayment and underpayments is statistically insignificant as reported by the F test in the table. The respondents who are most satisfied with their jobs are those who perceive themselves to be equitably paid. Moreover, the coefficient of gross hourly earnings is in models 2–4 smaller than in the first model indicating that the job satisfaction is not only determined by the absolute amount of earnings but also by the justice evaluation. The control variables show the following effects: The coefficients of taxes and social security contributions are negative, indicating a decrease of job satisfaction when duties increase. This effect is, however, only significant in the first and fourth model. Full-time employment, health status, and job changes have positive and significant effects on job satisfaction. The other controls have no significant influences.

Second, we focus on the number of days absent as a purposive consequence of overpayment. Table 3 shows the mean number of days absent per year according to the evaluation of pay with attached standard deviations and row and column means. The mean number of days absent across all years and pay groups is 7.13. This value is quite stable over the three waves (between 6.94 and 7.46 days, differences statistically insignificant) but there are again remarkable differences between the

Table 2 Coefficients from the fixed-effects regression of job satisfaction on actual pay, the evaluation of pay, and controls

	(1)	(2)	(3)	(4)
Actual pay				
Gross hourly earnings (square-rooted)	.146*** (.039)	.107** (.040)	.093* (.040)	.118** (.039)
Evaluation of pay				
Justice evaluation (*J*) (metric)	–	.442*** (.091)	.916*** (.230)	–
Gross hourly earnings × justice evaluation	–	–	−.139* (.061)	–
Equitable pay				Ref.
Overpay	–	–	–	−.727*** (.197)
Underpay	–	–	–	−.356*** (.042)
Controls				
Taxes and social security contributions	−.269* (.106)	−.185 (.109)	−.198 (.110)	−.245* (.106)
Full-time employment	.242** (.091)	.231* (.090)	.228* (.090)	.241** (.090)
Overtime hours (weekly)	−.002 (.006)	−.000 (.006)	−.001 (.006)	.001 (.006)
Job change	.384*** (.063)	.379*** (.063)	.380*** (.063)	.365*** (.062)
ISEI	.003 (.002)	.003 (.002)	.003 (.002)	.003 (.002)
Health status	.371*** (.027)	.366*** (.027)	.366*** (.027)	.366*** (.027)
Married	.094 (.090)	.098 (.090)	.100 (.090)	.094 (.089)
Constant	4.463*** (.961)	4.700*** (.986)	4.783*** (.990)	4.763*** (.999)
R^2	.075	.091	.090	.103
F value (overpay − underpay)				3.472
p value (overpay − underpay)				.062
Observations	23,658	23,658	23,658	23,658
Respondents	12,470	12,470	12,470	12,470

Robust standard errors in parentheses; controlled for year and month of the interview

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 3 Mean values of the number of days absent by year and evaluation of pay

Evaluation of pay	Years			Total
	2005	2007	2009	
Equitable pay[a]	6.57 (15.08)	6.21 (14.35)	6.86 (15.55)	6.55 (15.02)
Overpay	5.00 (12.35)	4.11 (5.71)	4.42 (7.77)	4.43 (8.27)
Underpay[b]	8.14 (17.41)	8.22 (17.04)	8.82 (18.26)	8.39 (17.55)
Total	7.01 (15.79)	6.94 (15.39)	7.46 (16.43)	7.13 (15.87)

Source SOEP (2011), casewise deletion of missing values; outliers (>180 days absent) excluded, standard deviations in parentheses

[a] The differences between the equitably paid and the overpaid employees are statistically insignificant

[b] The differences between the underpaid employees and the two other groups are statistically significant for most of the measurement points (one-sided *t*-test; $p < .05$; insignificant for over- and underpay in 2005)

distinguished groups (between 4.43 and 8.39 days). Equitably paid employees are on average 6.55 days absent per year; this value is about the same in all three survey waves. Employees who perceive themselves to be overpaid are on average 4.43 days absent per year with the lowest value in 2007. The means of the group of overpaid employees are always lower than those of equitably paid employees, although the differences are insignificant. The average number of days absent of respondents who feel underpaid is 8.39 and, therefore, significantly higher than the number of days absent of equitably and overpaid employees. The descriptive results indicate that people have fewer days absent when their wages are perceived to be

Table 4 Coefficients from the fixed-effects Poisson regression of days absent on actual pay, the evaluation of pay, and controls

	Days absent
Actual pay	
Gross hourly earnings	.002 (.006)
Evaluation of pay	
Equitable pay	Ref.
Overpay	−.617* (.304)
Underpay	.012 (.062)
Controls	
Full-time employment	.303* (.120)
Job change	−.186* (.079)
ISEI	.001 (.003)
Health status	−.377*** (.039)
Job satisfaction	−.047** (.015)
Married	.063 (.115)
χ^2 value	179***
χ^2 value (overpay – underpay)	4.237*
Observations	13,156
Respondents	5,193

Robust standard errors in parentheses; controlled for survey year of the interview

* $p < .05$, ** $p < .01$, *** $p < .001$

above equitable payment and more days absent when their wages are below equitable payment.

The following fixed-effects Poisson model focuses only on within-person changes in number of days absent. Table 4 presents the coefficients and robust standard errors. The effect of overpayment is significant and negative meaning that a change to a perception of overpayment leads to a reduction in the number of days absent. This is in line with the prediction of the justice model. While the difference between over- and underpayment is significant (shown by the χ^2 value in the table), the difference between underpayment and equitable payment is insignificant indicating that the number of days absent does not change when employees begin to feel underpaid. This is contrary to the predictions of both theoretical approaches. The differences reported in Table 3, and in previous cross-sectional studies (Liebig & Schupp, 2008), seem to represent differences between rather than changes within individuals.

The control variables show the following effects: An increase in gross hourly earnings does not lead to changes in the number of days absent, while a change to full-time employment increases absence. The reason might be that part-time workers rearrange their shifts with colleagues when required. A job change reduces the number of days absent. This is plausible, as employees are usually motivated in their new surroundings and want to be "present." The health status shows an expected relation: A better health status decreases the number of days absent. Moreover, job satisfaction also has a negative effect on absenteeism meaning that increases in job satisfaction lead to fewer days absent.

Discussion and Conclusion

This article has focused on responsive and purposive consequences of overpayment by investigating changes in job satisfaction as a responsive consequence and the number of days absent per year as a purposive consequence. The predictions of the self-interest model and the justice model were tested using a large-scale longitudinal dataset. With regard to job satisfaction our results show that employees who perceive themselves as equitably paid are more satisfied with their jobs than employees who are underpaid or overpaid. The findings support the justice model hypotheses that postulate (1) a positive effect of pay raises for underpaid and equitably paid employees on job satisfaction, (2) a negative effect of pay raises for overpaid employees on job satisfaction, and (3) that under- and overpaid employees are less satisfied with their job than those who are equitably paid. These findings are in line with experimental studies which indicate that overpayment leads to decreasing satisfaction (Peters et al., 2004; van den Bos et al., 1997, 1998). Recalling that individuals, to make justice judgments, compare their rewards with significant others—usually colleagues—perceived overpayment may also be interpreted as a perception of underpayment of the relevant other(s). This interpretation is in line with equity theory predicting that overpayment leads to feelings of shame or guilt. Moreover, individual overpayment may be related to

perceptions of higher expectations on personal performance and, therefore, may increase perceived pressure and stress.

With regard to absenteeism our results show that employees who evaluate themselves as being overpaid subsequently reduce their days absent. This finding is in line with the justice model predicting a purposive behavior to regain balance. The result can be interpreted as psychological "cost" of overpayment with a following compensatory mechanism. Thus, overpaid employees try to work more to "indeed" deserve their income, i.e., they undertake efforts to restore equity in the aftermath. The decrease in absenteeism can be understood as an increase of individual efforts. These efforts may similarly be attributed to the above-mentioned perception of increased peer pressure.

The results presented here are robust in three ways: First, the use of fixed-effects regressions is a rigor technique for hypothesis testing, as only changes within individuals over time are taken into account. In this way, unobserved heterogeneity due to time-invariant factors is completely excluded. Second, all regression coefficients are estimated with robust standard errors ensuring conservative significance tests, which is particularly relevant for the fixed-effects Poisson regression. Third, despite the small number of overpaid respondents and conservative standard errors significant relations between overpayment and the considered responsive and purposive consequences could still be detected.

The finding that is not in line with both theoretical approaches is that the number of days absent does not increase if employees feel underpaid. We only find differences between respondents but no differences in the fixed-effects model that solely considers changes within respondents over time. A post hoc explanation could be that underpaid employees, instead, reduce their performance or show other less obvious and controllable behaviors such as shirking or retaliation to compensate for their low wages. Another, methodological, explanation could be that there is a social desirability bias because respondents may be reluctant to confess that they had days absent without actually being ill. Besides, it is likely that we underestimated the number of persons who perceive themselves as being overpaid because a high degree of reflection is needed to answer the question as it is queried. Therefore, other researchers using the same data (only cross-sectional) apply estimation techniques for censored data (such as Tobit regressions, Schwarze, 2007). Another limitation of this study is that we cannot clearly reconstruct the causal chain between overpayment and days absent. To test this more accurately in a general longitudinal survey, so-called spell data would be needed that capture more precisely (on a monthly, weekly, or even daily basis) when the absence occurred. However, keeping these limitations in mind, the results complement on previous studies that were mainly conducted as laboratory experiments. In the future, more measurement points will be available in the SOEP which will enable researchers to estimate, e.g., dynamic panel models. Therefore, it will be possible to investigate reactions to overpayment considering the mechanisms of adaption and justification by the reinterpretation of efforts and rewards.

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Appendix

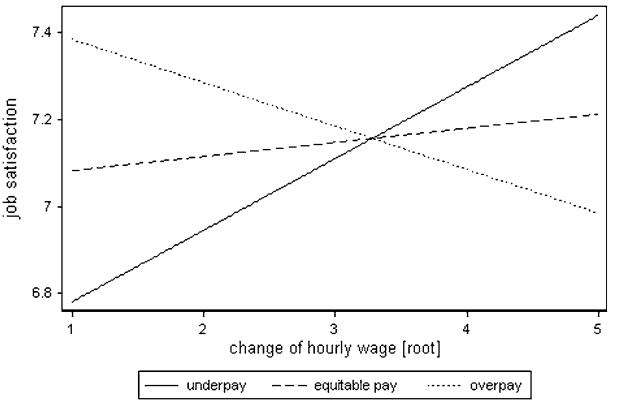

Fig. 3 Interaction effect between gross hourly wages and the evaluation of pay

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