



ORIGINAL ARTICLE

# "It's [Not] All 'Bout the Money": How do Performance-based Pay and Support of Psychological Needs Variables Relate to Job Performance?

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The use of performance-based pay is increasing rapidly, but empirical evidence on how and why it relates to job performance, as well as its relative strategical importance, remains unclear. The present study examined the relative importance of performance-based pay variables and support of psychological needs variables for task and contextual performance in a sample of 582 white-collar employees in Sweden. Multiple regression results, based on survey and register data, showed that the instrumentality of the pay system related to lower levels of task and contextual performance. However, supplementary relative weight analysis (RWA) showed that, in relative terms, instrumentality of the pay system was of minor importance for performance. Performance-based pay-raise amount was positively related to contextual performance but not predictive of task performance. Procedural pay-setting justice was unrelated to both outcomes. Among the support of psychological needs variables, feedback and job autonomy had positive associations with both outcomes while social support from colleagues was not predictive of performance. Considering the explained variance (16–17%), the performance-based pay variables combined accounted for up to a third (12.6–29.2%) while support of psychological needs variables accounted for more than half of the explained variance (56.1–68.1%) in task and contextual performance. The results indicate that organizations would benefit from putting support of psychological needs to the forefront of their motivational strategies as a complement to administrating complex compensation systems.

**Keywords:** performance pay; rewards; expectancy theory; self-determination theory; performance; needs

Pay setting based on evaluations of employees' job performance is a popular reward system in many of today's organizations (Nyberg, Pieper & Trevor, 2016). Performance-based pay refers to many different forms of pay plans that are used within organizations, such as performance based pay raises on an annual basis, i.e., merit pay systems (Maaniemi, 2013), commissions, and bonus systems (Rynes, Gerhart & Parks, 2005). Organizations use performance-based pay plans as a way of enhancing employees' job performance (Fang & Gerhart, 2012). In this context, pay appraisals usually include quantity and/or quality aspects of performance at work, and reward decisions are determined based on measures of productivity (i.e., number of tasks completed) or manager evaluations of past performance (Cappelli & Conyon, 2018; DeNisi & Murphy, 2017).

Past research has found financial rewards to be associated with higher levels of job performance (Cerasoli, Nicklin & Ford, 2014; Cerasoli, Nicklin & Nassreelgrawi, 2016; Jenkins Jr. et al., 1998). However, their efficiency might be limited to tasks that are simple and boring (Bailey and Fessler, 2011), be of minor importance for performance quality (Cerasoli et al., 2014, 2016), and might decrease performance on interesting tasks (Weibel, Rost & Osterloh, 2009). Moreover, meta-analytic results indicate that if (or when) reward systems attenuate intrinsic motivation (i.e., doing things out of pure interest or joy) or psychological need satisfaction (i.e., satisfaction of higher needs that enable the quest to reach the full human potential as well as ensure happiness and prosperity) they run the risk of hampering performance quality (Cerasoli et al., 2014, 2016; Deci, Koestner & Ryan, 1999). This risk may be more likely when behaviors and rewards are salient and closely intertwined (i.e., when rewards are strictly performance-based) since such explicit links may provide reason for employees to narrow their cognitive attention towards those behaviors that can render future monetary gains rather than on quality (Cerasoli et al., 2014, 2016;

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Deci et al., 1999). These risks to performance quality are important to consider given that work is generally increasing in complexity due to increased use of technologies for simpler tasks, and in light of the fact that it is also becoming interdependent and uncertain (Carpini & Parker, 2018).

Past research has highlighted that in addition to financial rewards per se it is also important to consider the administration and implementation of performance-based pay programs in order to understand the potential implications for employee performance (Andersson-Stråberg, Sverke & Hellgren, 2007; Cappelli & Conyon, 2018; Schleicher et al., 2019). For instance, previous research has indicated that adequate and transparent procedures may increase the potential of financial rewards to drive job performance (Thibault-Landry et al., 2017).

Other research argues that there are workplace factors other than rewards and reward systems that are more important for employee performance. For instance, the self-determination theory of motivation (SDT; Deci & Ryan, 1985) argues that the support of psychological needs, for example by managers and through motivating work design, can enhance motivation and performance in organizations (Deci, Connell & Ryan, 1989; Gagné & Deci, 2005; Gagné, Senécal & Koestner, 1997).

In light of this, the overall aim of the present study was to investigate the importance of performance-based pay variables (i.e., a merit pay system) relative to support of psychological needs variables for job performance. In addition to performance-based pay raises, the present study also considered the instrumentality of the pay system and procedural pay-setting justice. Support of psychological needs was examined by considering need-specific job resources such as feedback, job autonomy and social support from colleagues. Given that relatively little attention has been devoted towards investigating how performance-based pay relates to both task and contextual performance (Cerasoli et al., 2016), both these dimensions were included as outcomes. Task performance refers to the fulfillment of work tasks that are central in the general work description whereas contextual performance – sometimes called extra-role behavior (MacKenzie, Podsakoff & Fetter, 1991) or organizational citizenship behavior (Organ & Ryan, 1995) – refers to behaviors that further contribute to the organization's goals (e.g., taking initiative, being creative and taking on extra responsibility; Campbell, 1990; Murphy, 1989).

### **Performance-based pay variables**

Behaviorist theories have suggested that the connection between rewards and behaviors is strengthened by making rewards salient (tangible, visible) and close in time to the behavior (e.g., operant conditioning; Skinner, 1953). Another behaviorist assumption was about the reinforcing nature of rewards. Early stimulus–response experiments on animals identified that rewards strengthened the development of desirable behaviors (e.g., Hull, 1943; Pavlov, 1927; Skinner, 1953, 1965). Moreover, according to expectancy theory (Vroom, 1964), it is the expectation of receiving rewards that increases effort and motivation

and thereby enhances individual performance. This theory suggests that the more instrumental (i.e., salient and obvious) the connection is between performance and rewards, the larger the possibility that pay plans can drive attitudes and behaviors.

In line with expectancy theory, organizations try to ensure that financial rewards influence performance by considering two specific perspectives derived from the theory. The first of these perspectives concerns clarifying the connection between performance and rewards while the second concerns the size of financial rewards with large amounts not only being more valued but also making the reward more salient, hence increasing instrumentality perceptions (Gagné & Deci, 2005; Kuvaas et al., 2016). Thus, based on these assumptions, higher amounts of rewards should have stronger potential in driving behaviors and work effort than lower amounts (Locke et al., 1980).

It is generally believed in standard economic theory that financial rewards can increase work effort (see, e.g., Ariely et al., 2009), which is in line with expectancy theory (Vroom, 1964). However, experimental research (Gneezy & Rustichini, 2000) has found that rewards may have to be considerably large to affect the level of effort and, hence, also performance. Other research has shown that bonuses might relate more strongly to future job performance than the performance-based pay raises used in merit pay systems, possibly due to bonuses rendering higher instrumentality perceptions (Nyberg et al., 2016). Previous research has indicated that small financial rewards might increase work effort; yet, they could simultaneously lead to poorer work attitudes that are important for performance when the output (i.e., reward) does not correspond the input (i.e., effort) (Chen, 2018). However, there are also suggestions (Ariely et al., 2009) and research findings (Thibault-Landry et al., 2017) indicating that large rewards can lead to lower performance relative to smaller rewards. More specifically, early research on merit pay systems reported a negative association with contextual performance (Deckop, Mangel & Cirka, 1999) while later studies have reported positive associations (Detnakin & Rurkkhum, 2019; Gilbreath & Harris, 2002).

Despite a general belief (derived from expectancy theory) in organizations that a clear connection between behaviors and rewards in organizations can drive performance, recent meta-analytic studies (Cerasoli et al., 2014, 2016) have not been particularly supportive of this assumption. Rather, they have found that an indirect connection between behaviors and rewards (i.e., when it is not all too easy to identify the specific actions that would lead to rewards) has a greater potential to strengthen job performance relative to a direct connection (i.e., a clear and obvious connection between behaviors and pay/rewards). Although there is a debate in the existing literature concerning the effects of instrumentality (e.g., Cerasoli et al., 2014, 2016; Chen, 2018; Gneezy & Rustichini, 2000; Nyberg et al., 2016), both expectancy theory and practice expects instrumentality and rewards to generally increase performance. Based on this, we developed the following hypotheses:

Hypothesis 1: Instrumentality of the pay system is positively related to (a) task performance and (b) contextual performance.

Hypothesis 2: Performance-based pay-raise amount is positively related to (a) task performance and (b) contextual performance.

### ***Procedural pay-setting justice***

In addition to the issue of instrumentality and reward perspectives, another important aspect of performance-based pay concerns the quality of procedures that are used to determine rewards (Stråberg, 2010). It has been argued that transparent pay procedures (i.e., procedures that provide relevant information, clarify pay criteria, encourage employee participation, explain how reward decisions are made, etc.) can give rise to more positive work-related attitudes and behaviors, including job performance (Andersson-Stråberg et al., 2007; Schleicher et al., 2019; Zhang et al., 2015). It has also been suggested (e.g., Stråberg, 2010) that organizations using performance-based pay systems can benefit from grounding their pay procedures in common principles for organizational processes such as those proclaimed by Leventhal (1980). Transferred to performance-based pay systems Leventhal's principles could roughly be translated into, for instance, sticking to principles prescribed in the reward system, adhering to the criteria for pay raises, informing employees about the criteria and of any changes in the program or reward structure, providing opportunities to participate, and basing decisions about pay on morally and ethically acceptable standards (Colquitt, 2001; Stråberg, 2010). Generally, following such procedural principles in organizations can increase job performance (Colquitt et al., 2013). Previous research on pay procedures has also shown that knowledge of criteria and opportunities to participate may increase procedural justice perceptions (Andersson-Stråberg et al., 2007). Another study found that financial rewards decreased job performance when procedural justice perceptions were low while it increased performance when procedural justice perceptions were high (Sung, Choi & Kang, 2017). However, how procedural justice principles that are specifically adapted to pay setting circumstances relate to job performance is largely unknown.

Theories that are critical towards the use of performance-based pay systems, such as the SDT (see, e.g., Ryan & Deci, 2017), have emphasized that when organizations adhere to procedural justice principles, this may increase the chances of getting something good out of the pay system (Gagné & Forest, 2008). In line with this perspective, previous research has shown that rewards perceived as being fairly distributed may even contribute to the satisfaction of psychological needs (Thibault-Landry et al., 2017). In addition, it has been argued that when psychological needs are protected, or even reinforced, by fair procedures, the risk that financial rewards become controlling for how employees should behave is reduced – and hence that employees' levels of autonomous motivation (i.e., doing things out of meaning and/or

because it has personal value) can be maintained (Gagné & Deci, 2005; Gagné & Forest, 2008). Thus, although pay procedures are an established part of "how to do" performance-based pay, SDT has also suggested that fair procedures could improve the quality of reward systems. Thus, the following hypothesis was formed:

Hypothesis 3: Procedural pay-setting justice is positively related to (a) task performance and (b) contextual performance.

### **Support of psychological needs**

Early humanistic psychology theories (e.g., Maslow's [1943] hierarchy of needs theory) argued that the fulfillment of physiological needs (e.g., food, shelter, money), safety and health needs, personal needs (e.g., belongingness and self-esteem) and higher developmental needs (i.e., self-actualization; see Rogers, 1961) determine human motivation, well-being, and achievement (Ryan & Deci, 2017). More recent theories, such as the SDT (Deci & Ryan, 1985), have focused primarily on three psychological needs, which, when fully satisfied, are assumed to lead to optimal functioning, defined as 'manifestation of intra- and interpersonal growth and development in terms of employee well-being (e.g., positive emotions and vitality), attitudes (e.g., positive attitudes toward others and the organization), and behavior (e.g., performance, proactivity, and collaborative behaviors)' (Van den Broeck, Carpinin & Diefendorff, 2019: 519).

The first of these needs concerns competence, which refers to mastering one's environment as well as to thriving of one's abilities (Ryan & Deci, 2017; Van den Broeck et al., 2010). The second concerns autonomy, which refers to the human desire to be in charge of one's own destiny and have freedom of choice (Ryan & Deci, 2017; Van den Broeck et al., 2010). The last of these needs concerns relatedness, which refers to social acceptance and inclusion with relevant others as well as to the quality of personal relationships, including such aspects as being loved, cared for, understood, and supported (Ryan & Deci, 2017; Van den Broeck et al., 2010). Meta-analytic findings have indicated that all three needs are related to higher job performance (Cerasoli et al., 2016; Van den Broeck et al., 2016). More specifically, competence was the strongest correlate of performance quantity and quality (Cerasoli et al., 2016) and task performance, while all three needs were similarly related to creativity and proactive performance (Van den Broeck et al., 2016).

SDT suggests that a range of job resources can support psychological need satisfaction (Deci & Ryan, 2000; Van den Broeck et al., 2016). According to SDT, these job resources should provide positive stimulation and, in order to function optimally, consist of a mix of resources that are specifically supportive of the individual needs for competence, autonomy, and relatedness (Cerasoli et al., 2016). Although such job resources may overlap with those suggested in other established theories (e.g., the Job Demands–Resources [JD–R] model; Demerouti et al., 2001), the theoretical approaches differs, especially in that SDT argues that the core focus should be on positive

job resources to support psychological needs. In terms of need-specific job resources (i.e., support of psychological needs variables), organizations can help satisfy the need for competence. This could be done in various ways, for example by opportunities for learning and development, but one way is by providing feedback on performance.

Feedback can provide employees' with relevant information on how well they are doing their job as well as clarify how they can further develop their skills (Cerasoli et al., 2016). According to SDT, feedback that strengthens confidence in one's abilities can positively affect competence perceptions (Deci & Ryan, 2000). Organizations can support the need for autonomy by maximizing employees' opportunities to make the most of the choices regarding how they should execute their work and, when possible, avoid interfering too much (Deci & Ryan, 2000). This could be done, for example, by giving employees control over certain aspects of their work (e.g., scheduling, prioritizing, methods; Humphrey, Nahrgang & Morgeson, 2007) and by allowing employees to participate in decision-making (Deci & Ryan, 2000; Gagné et al., 1997). The need for relatedness can be supported by fostering a work climate that is supportive and provides room for collegial collaboration (Deci & Ryan, 2000; Jungert et al., 2013; Moreau & Mageau, 2012).

SDT also argues that performance-based pay systems can affect need satisfaction. On the one hand, they can change people's focus from doing the work for meaningful reasons (e.g., helping a client) to doing it for the reward, thereby hampering the need for autonomy (Deci et al., 1999; Gagné & Deci, 2005). On the other hand, reward decisions can constitute information on how well one is performing, thereby positively affecting the need for competence (Deci et al., 1999). SDT also suggests that autonomous motivation is more strongly related to work effort and performance than controlled motivation (i.e., doing things to gain rewards or avoid criticism; Gagné et al., 2015), thus partly contradicting assumptions made in expectancy theory (Vroom, 1964). While autonomous motivation has been reliably shown to be influenced by need satisfaction (Van den Broeck et al., 2016), some research has shown that performance-based rewards might relate negatively to autonomous motivation and thus could hamper job performance (Kuvaas et al., 2016)

In terms of the job resources that are suggested to be supportive of psychological needs, previous meta-analytic research has shown that feedback (directed towards supporting the need for competence) (Kluger & DeNisi, 1996) as well as autonomous work design and managerial support for autonomy (directed towards supporting the need for autonomy) are positively related to employee performance (Humphrey et al., 2007; Slemp et al., 2018). Previous research has also indicated positive associations of social support from colleagues (directed towards supporting the need for relatedness) with higher in-role performance and psychological thriving (Chiaburu & Harrison, 2008). In addition, meta-analytic results have linked a broad conception of social support (comprising support from various sources at work) with increases in overall job performance, including aspects of both task and contextual performance (van der Laken et al.,

2019). Thus, the following hypotheses about support of psychological needs were formed:

Hypothesis 4: Feedback is positively related to (a) task performance and (b) contextual performance.

Hypothesis 5: Job autonomy is positively related to (a) task performance and (b) contextual performance.

Hypothesis 6: Social support from colleagues is positively related to (a) task performance and (b) contextual performance.

## Method

### Setting

The organization was a corporate global company within the energy/environment sector with large departments situated in Sweden, where the investigation was undertaken. The organization based performance-based pay-raise decisions on managers' evaluations of performance using the same criteria to assess all employees' performance. The managers conducted the performance assessments and had a pay conversation with each subordinate (in accordance with the definitions of merit pay; Maaniemi, 2013). All white-collar employees, who were the targets of the investigation, had been rewarded individually based on how they had performed. There was no upper or lower limit in terms of percentage increases but, in line with Swedish labor legislation, pay decreases were not allowed. The collective agreement between the employer organization and trade unions did not stipulate any minimum pay raise or provide any predetermined average proportion of pay raises. The average percentage of performance-based pay raises that the employees of the organization received in 2016 was approximately in line with average pay raises in the Swedish labor market for that year (Swedish National Mediation Office, 2017).

### Sample and procedure

The data collection began shortly after the company had finished the determination of performance-based pay raises for 2016. The data collection obtained for this study was part of a larger data collection within the project 'Legitimacy in pay-setting – psychological perspectives on individualized pay'. The organization posted information regarding the research project on the local intranet one week prior to the start of the data collection, clarifying that the organization had decided to participate in the project and that participation in the study was voluntary. An individual email invitation was then sent out to all of the organization's white-collar employees in Sweden (N = 1,738) who did not hold a management position. The email presented the background and aim of the research project, assured that responses would be confidential and protected by the research group, and clarified that taking part in the study was voluntary (including the possibility to opt out from the survey at any time). The email also contained a personalized link to an online survey in QUALTRICS (Qualtrics, Provo, Ut). Employees who had not finished the survey were reminded at four occasions

via e-mail (one, two, three, and four weeks after the start of the data collection), and these reminders included the same information as the invitation email. The survey was open for a total of six weeks. The Regional Ethical review board in Stockholm approved of all parts of the data collection (registration number: 2015/1733-31/5).

A total of 756 out of the 1,738 employees included in the sample returned their questionnaires, for a response rate of 43.5 percent. Of these, 68 participants were excluded from the analysis because the company records missed data on pay level and pay raises, and an additional 106 were excluded because of extensive missing data in the variables included in the present study. A total of 582 participants were included in the analyses. The mean age was 46 years ( $SD = 10$ ), the employment tenure in the company was 8 years ( $SD = 6$ ), 40 percent were women, and 66 percent had a university degree. The average pay level was 459,862 Swedish kronor (SEK)/year ( $SD = 114,617$ ; range: 256,800–852,000 SEK) and the mean of the (annual) amount of performance-based pay raise received was 9,649 SEK/year ( $SD = 4438$ ; range: 2,500–54,000 SEK/year).

Given the relatively low response rate, information from the organization was used to compare the study participants with all other employees in the organization. The study participants were slightly older ( $M = 46$  years) compared to the employees that were not included in the study ( $M = 44$  years). However, there were no significant differences between the groups as concerns gender, average pay level, or the proportion of pay raise.

### Measures

Unless stated otherwise, all questionnaire items were rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). **Table 1** presents descriptive statistics (means and standard deviations) and reliability estimates (Cronbach's alpha) along with correlations among the study variables. All multi-item variables had alpha values over 0.70 (see **Table 1**).

#### Job performance

Two scales developed by Koopmans et al. (2014) were used to measure job performance. Five items measured task performance and eight items measured contextual performance. An example item of task performance was 'In the past three months I have been focused on the results that were to be achieved in my work' and contextual performance included items such as 'In the past three months I have taken on extra responsibility'.

#### Performance-based pay variables

Response options for the scales measuring performance-based pay characteristics (instrumentality of the pay system and procedural pay-setting justice) ranged from 1 (to a very small extent) to 5 (to a very large extent). The instrumentality of the pay system was measured using a 3-item scale. These three items were (1) 'To what extent do you think that your pay is based on your work performance?' (developed for the purpose of the present study), (2) 'To what extent do your pay and the work you actually do relate to each other?' (based on

Colquitt, 2001, and adapted to the context of pay) and (3) 'My supervisor explains what has to be done in order to receive rewards such as a pay increase or promotion' (1 strongly disagree – 5 strongly agree) (Yukl, 1999). The size of performance-based pay raise was measured using data from the company's register and was transformed using natural logarithm. This was done because economic theories suggest that the relative difference between sums is marginally decreasing in relation to outcomes (Sieweke, Köllner & Stüß, 2017). Moreover, kurtosis was quite high, which gave further reason to use the natural logarithmic function (Kuvaas et al., 2016). Procedural pay-setting justice was measured with a 7-item scale, which was based on a measure of procedural justice developed by Colquitt (2001) and adjusted to reflect the context of pay. An example item was 'To what extent has the pay-setting process been applied in a consistent manner?'

#### Support of psychological needs

Four items measured feedback. This scale was based on two items retrieved from Hackman and Oldham (1975) and two items developed for the purposes of the present study. An example item was: 'Performance feedback from my supervisor is usually received in direct connection with carrying out the work'. Job autonomy was measured with a three-item scale (Sverke & Sjöberg, 1994; Hackman & Oldham, 1975; Walsh, Taber & Beehr, 1980). An example item was 'I have a sufficient degree of influence regarding my work'. A 3-item scale measured social support from colleagues (based on Näswall et al., 2006). An example item was 'There is always a coworker to turn to when I encounter problems at work'.

#### Control variables

Three factors that can influence performance were controlled for, namely, pay-level, age, and gender. Pay-level was included to provide a better understanding of the relationship between performance-based pay raises and task and contextual performance. This was done because (a) the amount of performance-based pay raise partly depends on an employee's pay-level and (b) a pay raise of e.g., 12,000 SEK/year may have a relatively larger impact for someone earning e.g., 250,000 SEK than for someone earning e.g., 500,000 SEK per year (because of decreasing marginal utility of money; Sieweke et al., 2017). Age was controlled for because measures of performance might be favoring young individuals and this may not mirror reality particularly well (Ng & Feldman, 2008) and gender because large discrepancies in what men and women receive still occur, favoring men despite performance appraisals having been shown to be relatively unbiased in terms of gender (Joshi, Son & Roh, 2015). All control variables were obtained from the organization's records. Gender was dummy coded (0 = man, 1 = woman), and age was measured in years. The amount of pay level was transformed using natural logarithm.

#### Analytic strategy

Hypotheses 1–6 were tested using the statistical program IBM SPSS version 26, with hierarchical multiple regression analyses, in which the predictor variables were entered in

**Table 1:** Means, standard deviations, Cronbach's alpha (in parentheses in the diagonal), and bivariate correlation for all variables included in the study.

	1	2	3	4	5	6	7	8	9	10	11
<b>Control variables</b>											
1. Age (years)	–										
2. Gender (woman %)	-0.11**	–									
3. Pay-level (log)	0.34**	-0.24**	–								
<b>Performance based pay variables</b>											
4. Instrumentality of the pay system	0.07	0.03	0.11**	(0.79)							
5. Performance-based pay raise (log)	-0.02	-0.11**	0.59**	0.15**	(0.87)						
6. Procedural pay-setting justice	0.01	0.07**	0.06	0.73**	0.22**	–					
<b>Support of psychological needs variables</b>											
7. Feedback	0.00	0.07*	-0.05	0.54**	0.13**	0.50**	(0.92)				
8. Job autonomy	0.09*	-0.10*	0.32**	0.33**	0.34**	0.34**	0.27**	(0.71)			
9. Social support from colleagues	-0.06	0.04	-0.21**	0.19**	-0.10*	0.15**	0.24**	0.17**	(0.84)		
<b>DV: Performance outcomes</b>											
10. Task performance	0.10*	0.11**	0.10*	0.07	0.16**	0.10*	0.18**	0.34**	0.12**	(0.80)	
11. Contextual performance	-0.04	0.03	0.19**	0.03	0.29**	0.10*	0.14**	0.35**	0.08*	0.65**	(0.84)
Mean	46.10	0.40	13	2.78	9.10	3.03	3.78	2.94	3.84	3.76	3.90
Standard deviation	10.42	–	0.25	0.98	0.38	0.89	0.82	1.03	0.87	0.66	0.66

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .  $N = 582$ . – Not applicable.

three predetermined steps. Step 1 included the control variables. Performance-based pay variables were added in step 2 and support of psychological needs variables in step 3. Separate regression analyses were used for task performance and contextual performance.

A supplementary multiple relative weight analysis (RWA) was thereafter conducted to estimate the unique contribution (importance) of each individual predictor in relation to the outcomes (task and contextual performance) and because the correlations between the predictor variables were relatively strong. RWA is a way to decrease the risk of overestimation of the variables with the strongest relationships between independent and dependent variables and underestimation of the weakest. This is done by transforming the set of independent variables into their maximally related orthogonal counterparts (Johnson, 2000). This procedure creates a new set of uncorrelated variables. After that, the original predictors are entered to the new set of uncorrelated predictors. The relative weights are then calculated using an index of the new and original set of predictors (see, e.g., Lundby & Johnson, 2006; Johnson, 2000; Tonidandel & LeBreton, 2011). The relative weights were calculated using the RWA free WEB (Tonidandel & LeBreton, 2011). The RWA results are presented as rescaled raw relative weights ( $R^2$ ) and as percentages of  $R^2$ .

**Results**

**Table 2** presents the results of the hierarchical multiple regression analyses predicting task and contextual

performance using control variables, performance-based pay variables and support of psychological needs variables, supplemented with the results of the RWA analyses.

The control variables (step 1) explained 3% of the variance in task performance and 5% in contextual performance. The beta weights derived from the last step showed that age had a positive relationship with task performance but was unrelated to contextual performance. Women reported higher levels of task and contextual performance than did men, while pay level was unrelated to both types of performance.

When performance-based pay variables were entered in step 2, the proportion of explained variance increased by 2 percentage units (task performance) and 3 units (contextual performance). In contrast to hypothesis 1a and 1b, instrumentality of the pay system was negatively related to task and contextual performance. However, these results should be interpreted with caution, as the bivariate correlations were non-significant. Performance-based pay-raise amount was unrelated to task performance, rejecting hypothesis 2a. In line with hypothesis 2b, however, performance-based pay-raise amount had a positive relationship with contextual performance. Procedural pay-setting justice was unrelated to task and contextual performance, rejecting hypotheses 3a and 3b.

Adding support of psychological needs variables (step 3), the proportion of explained variance increased by another 11 percentage units (task performance) and 9 units (contextual performance). In line with

**Table 2:** Hierarchical multiple regression analysis predicting task and contextual performance (standardized regression weights from the last step) and relative weight analysis testing the relative importance of predictors.

	Task performance			Contextual performance		
	$\beta$	Raw relative weights	Relative weights as % av $R^2$	$\beta$	Raw relative weights	Relative weights as % av $R^2$
<b>Control variables</b>						
1. Age (years)	0.11*	0.01	5.4	-0.07	0.00	2.3
2. Gender (woman)	0.16***	0.02	10.7	0.08*	0.00	1.9
3. Pay-level (log)	-0.02	0.01	3.2	0.08	.02	10.5
$\Delta R^2$ (adj.)	0.03		19.3	0.05		14.7
<b>Performance-based pay variables</b>						
4. Instrumentality of the pay system	-0.12*	0.00	2.2	-0.18**	0.01	3.7
5. Performance-based pay raise (log)	0.10	0.01	8.4	0.16**	0.04	23.1
6. Procedural pay-setting justice	-0.03	0.00	2.0	0.01	0.00	2.4
$\Delta R^2$ (adj.)	0.02		12.6	0.03		29.2
<b>Support of psychological needs variables</b>						
7. Feedback	0.13***	0.02	10.7	0.12*	0.01	7.1
8. Job autonomy	0.32***	0.09	52.5	0.29***	0.08	45.8
9. Social support from colleagues	0.06	0.01	4.90	0.06	0.01	3.2
$\Delta R^2$ (adj.)/%	0.11		68.1	0.09		56.1
Total $R^2$ (adj)	0.16		100	0.17		100

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .  $N = 582$ .

predictions, both feedback (hypotheses 4a and 4b) and job autonomy (hypotheses 5a and 5b) evidenced positive associations with both task and contextual performance. However, social support from colleagues was unrelated to performance outcomes, rejecting hypotheses 6a and 6b. In total, the model explained 16% of the variance in task performance and 17% in contextual performance.

The supplementary RWA (see **Table 2**) showed that, among the control variables, gender was the relatively most important predictor of task performance while pay-level was the relatively most important predictor of contextual performance. When it comes to performance-based pay variables, the RWA indicated that performance-based pay raise was the relatively most important predictor of task and contextual performance. The analysis also showed that the negative beta weights of instrumentality of the pay system accounted for 2.2% (task performance) and 3.7% (contextual performance) of the explained variance, while procedural pay-setting justice accounted for 2.0% (task performance) and 2.4% (contextual performance). Concerning support of psychological needs variables, the RWA indicated, in line with the beta weights, that job autonomy was the relatively most important predictor of all predictors in the model, accounting for 52.5% (task performance) and 45.8% (contextual performance) of the explained variance. The relative importance of feedback and social support from colleagues was similar to what the beta weights had indicated.

## Discussion

Drawing mainly on the theoretical underpinnings of expectancy theory (Vroom, 1964), SDT (Deci & Ryan, 1985), and how performance-based pay works in practice (see e.g., Cappelli & Conyon, 2018; DeNisi & Murphy, 2017; Schleicher et al., 2019), the present study aimed at investigating the importance of performance-based pay variables relative to support of psychological needs variables for task and contextual performance. We investigated this in a sample of white-collar employees in a large industrial enterprise in Sweden.

### *The relative importance of performance-based pay*

The result that instrumentality of the pay system was found to relate to lower levels of task and contextual performance was contrary to predictions made in expectancy theory (Vroom, 1964). However, the RWA indicated (in line with the bivariate correlations) that the level of instrumentality was in relative terms of minor importance for performance. This may not be all too unexpected considering that past research indicates that the role of instrumentality for performance is quite complex. For example, meta-analytic research has indicated that salient (i.e., direct) instrumentality in pay systems can be related to lower levels of performance (Cerasoli et al., 2014, 2016) relative to when instrumentality is less salient (i.e. indirect).

Neither was performance-based pay-raise amount related to increases in task performance (where higher amounts were expected to signal stronger instrumentality). There could be at least two, somewhat contradictory, explanations concerning why rewards were not predictive

of task performance. First, it cannot be ruled out that, in line with expectancy theory, performance-based pay raises yielded too low instrumentality perceptions to provide reason for employees to change the core of their behaviors (i.e., task performance), possibly because performance-based pay raises were too small to affect behavior (Chen, 2018; Gneezy & Rustichini, 2000). Second, in line with SDT, it could also be that changing the core of work behaviors, as reflected by task performance, demands support of psychological needs to change for the better (Van den Broeck et al., 2016). This last explanation could be particularly likely because the combined effects of support of psychological needs variables explained considerably more of the variance in task performance than performance-based pay variables.

However, in line with expectancy theory, performance-based pay-raise amount was related to increases in contextual performance. This is in line with past research indicating that merit pay systems may be positively related to contextual performance (Detnakin & Rurkkhum, 2019; Gilbreath & Harris, 2002). A possible explanation could be that receiving financial rewards is a form of positive appreciation from the organization and if employees feel more valued after receiving a reward this may encourage them to take initiatives as well as increase their willingness to take on extra responsibility (Detnakin & Rurkkhum, 2019). However, it is not clear from the results in the present study that this would be a consequence of basing the rewards on performance, particularly considering that instrumentality of the pay system related to lower levels of contextual performance, leaving some doubt about whether it was the fact that pay raises were performance-based that drove this effect.

The fact that performance-based pay raises predicted contextual performance but not task performance might depend on several things. Possibly, contextual performance is something employees may have a bit more discretion on compared to task performance that may also be used more through performance metrics to make pay-raise decisions. This would mean that the performance measures that are more likely to be used to make pay-related decisions should, according to expectancy theory, increase both expectancy and instrumentality and therefore increase performance, but such performance measures are less powerful than less easily measurable performance components (i.e., contextual). This interpretation of the results are in line with the arguments of Cerasoli et al. (2014, 2016) that incentives indirectly tied to performance metrics had stronger effects on performance. However, it could also be that pay raises were more saliently intertwined with contextual than core behaviors, and therefore were only related to contextual performance.

The result that procedural pay-setting justice did not predict task and contextual performance was partly in contrast to past research linking procedural justice in organizations to performance (Colquitt et al., 2013), and procedural justice to improvements of the overall efficiency of reward systems (Sung et al., 2017; Zhang et al., 2015), and fair distributions as a buffer against any downsides that incentives might have on performance

(Thibault-Landry et al., 2017). A possible explanation could be that while procedural justice in organizations can result in increased performance (Colquitt et al., 2013) this might not necessarily mean that justice perceptions pertaining to pay procedures do. However, it could also be that fair procedures rather buffer against downsides (e.g., the risk of increasing employees' levels of controlled motivation) than directly increase the upsides (e.g., improved performance) that are associated with performance-based pay systems. Possibly, the quality of the manager–employee interaction, rather than how pay procedures are structured (to assure fairness), could be more important for job performance (Greenberg, 1993). However, according to meta-analytic results (Colquitt et al., 2013), procedural justice correlated more strongly with task performance than justice perceptions that has to do with communication and inter-personal relationships did. Future research will need to investigate the role of different fairness perspectives concerning the administration and implementation of performance-based pay systems more thoroughly.

#### ***The relative importance of support of psychological needs variables***

Relative to performance-based pay variables, the variables reflecting support of psychological needs accounted for more variance in performance. In line with meta-analytic findings, feedback and job autonomy (Humphrey et al., 2007; Kluger & DeNisi, 1996) were positively related to task and contextual performance. However, social support from colleagues did not predict task or contextual performance despite previous research linking support from colleagues (Chiaburu & Harrison, 2008) and various sources of social support (van der Laken et al., 2019) to increases in performance. However, there are indications in past research that support from colleagues may not increase individual performance directly but rather through its positive effect on well-being (Chiaburu & Harrison, 2008). Social support from colleagues would perhaps also be more strongly related to team and organizational level work performance. In addition, the present study has not provided any empirical evidence that the job resources, that were arguably directed towards supporting needs for competence (with feedback), autonomy (with job autonomy), and relatedness (with social support from colleagues), would indeed increase need satisfaction. This could also be said about the argument that the job resources would support specific needs rather than just any need or need satisfaction more broadly. Past research has shown that job resources may be more closely associated with individual needs depending on their character, but in many cases, job resources are also related to the satisfaction of all three needs (Van den Broeck et al., 2016). However, the need for competence is typically operationalized using items capturing employees' experience of being competent (e.g., Van den Broeck et al., 2010) while the feedback measure used in the present study rather focuses on the feedback employees receive on how well they make use of their competence. According to SDT, feedback should

stay positive and be effect-focused to support the need for competence (Ryan & Deci, 2000).

#### ***Limitations and future directions***

The present study has some limitations, which should be taken into consideration when interpreting the results. Most importantly, we cannot claim that relationships follow causal directions, because the present study lacked basic requirements to make such inferences concerning particularly isolation and time (cf. Bollen, 1989). However, a cross-sectional design was suitable to answer the questions put forward in the present study, especially considering the fact that the predictors and outcomes were measured close in time to when the company had finished its performance-based pay procedure in 2016. There is uncertainty in the present state of research concerning the time aspect between rewards and behaviors in organizations (Kuvaas et al., 2016). Thus, it would be difficult to interpret longitudinal effects (Spector, 2019) surrounding workplace reward systems.

An obvious fact is that variables obtained using self-reported measures might increase the risk for common method bias, particularly when both predictor(s) and outcome(s) are self-reported (Campbell & Fiske, 1959). However, both the control variables and performance-based pay-raise amount were obtained from another type of data source (i.e., register data). However, while measuring performance outcomes with self-reports can have larger disadvantages than other phenomena due to social desirability, there are also advantages of using self-reported measures of performance. For example, self-reported measures are 'global', meaning that they are intended to capture a picture of different performance dimensions, which many researchers agree on.

Moreover, there is a risk concerning traditional regression models of getting over- and underestimated predictors. However, these risks are considerably lower when regression models are supplemented with RWA (i.e., the percent of explained variance from the RWA should not suffer as much from over- and underestimation) (see e.g., Johnson, 2000). Moreover, highly correlated predictors is another problem with self-reported measures (i.e. multicollinearity) (Cohen et al., 2013). However, preliminary analyses undertaken before the final analysis presented in this paper did not indicate any troubling levels of multicollinearity between any of the variables and RWA is particularly suitable when predictors are highly correlated.

Another limitation concerns the operationalization of support of psychological needs and, more specifically, the measure of social support from colleagues. This operationalization may have left central aspects of supporting the need for relatedness out, such as to receive care, love and friendship, and could perhaps also have been too heavily focused on the aspect of providing support to others in relation to tasks.

A large proportion of the variance in the performance outcomes could not be explained by the predictors used in this study (the explained variance was 16–17%). However, the goal of the present study was not to

understand everything that could explain performance, but rather the specific contribution of performance-based pay variables relative to support of psychological needs variables. Even though performance-based pay variables and support for psychological needs variables had a relatively low explanatory value for the performance outcomes, the variables included in this study are clear examples of active strategies that organizations can use to increase performance. In this sense, they are not directly comparable to more stable individual factors that can explain performance differences between individuals, such as general mental ability (Schmidt, Oh & Shaffer, 2016).

In terms of generalizability, a limitation in the present study could be that employees' prerequisites in this organization differ somewhat from those of employees in other organizations and in other national contexts. Such differences can, for example, concern dependency of financial rewards (i.e., how much the coping with daily expenses depends on financial rewards). Another difference concerns performance criteria, with some organizations stipulating very clear guidelines for how employees can gain rewards whereas other do not. The present study also needs replication in organizations applying other types of merit-pay increases, in contexts characterized by other industrial relations climates, and among blue-collar workers.

A final limitation concerns the fact that the present study did not investigate how different subgroups within the organization (e.g., those who received large, average or small pay raises) differ in task and contextual performance. SDT researchers have suggested that downsides with financial rewards become stronger for 'losers' than for 'winners' and stronger effects on 'losers' might create a net loss concerning productivity (Ryan & Deci, 2017; Vansteenkiste & Deci, 2003). This reasoning is in line with assumptions made in behavioral economics, which has suggested that losses carry more (about double) weight than gains at, least in terms of happiness (i.e., loss aversion) (Kahneman, Knetsch & Thaler, 1991; Kahneman & Tversky, 1979). Moreover, while there is much previous research on how financial rewards and reward systems relate to employee performance, much fewer studies have concentrated on the long-term consequences of building up pay differences between colleagues with similar work roles (i.e., pay dispersion). Thus far, the scarce research indicates that pay dispersion is associated with decreases in performance (e.g., Bloom, 1999; Shaw, Gupta & Delery, 2002), which is somewhat contrary to research on the amount of rewards that generally reports positive associations at least in terms of performance quantity (Cerasoli et al., 2014, 2016).

#### **Concluding remarks**

The present study demonstrates that supporting psychological needs may have stronger relations to task and contextual performance than perceptions of performance-based pay systems. Job autonomy emerged as the strongest predictor explaining more than half of the explained variance in task performance and slightly less than half in contextual performance. Moreover, only job autonomy and feedback were predictive of both task

and contextual performance. Yet, although unrelated to task performance, performance-based pay-raise amount had stronger relative importance as a predictor of contextual performance than feedback and social support from colleagues, which indicates that financial rewards per se and support of psychological needs jointly predict contextual performance. However, considering that the instrumentality of the pay system related to lower performance and that procedural pay-setting justice were of minor importance for performance, administering complex compensation systems (Pfeffer, 1998) could be less advantageous for organizations than to invest in work design and workplace support. This runs counter to other claims that '[m]oney is the crucial incentive [and] no other incentive or motivational technique comes even close to money with respect to its instrumental value' (Locke et al., 1980: 379). We conclude that it takes more than reward systems to foster job performance and make the claim that enhancing job performance is not 'all 'Bout the Money' (Carr & Meja, 1998).

#### **Competing Interests**

The authors have no competing interests to declare.

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