

## Impact of core self-evaluations on in-role and extra-role performance: Voice and self-evaluation maintenance

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This study examines the impact of core self-evaluations (CSE) on in-role and extra-role performance (helping and authority-challenging performance) and the moderating role of distributive justice for job evaluation, focusing on CSE's essential features such as self-confidence, proactivity, and voice. To clarify specific CSE effects, we controlled current job experience and job autonomy. Survey results indicated that employees' CSE predicted supervisor ratings of their extra-role performances significantly, especially authority-challenging performance, even after controlling for current job environment factors, but not in-role performances. Further, employees' perceptions of distributive justice for job evaluation moderated the relationship between CSE and the three performance types, suggesting that individuals distinguish between external and internal self-evaluations and are motivated to improve low evaluations. Individuals with high CSE possess authority-challenging behaviors that are enhanced when they perceive imbalanced external and internal self-evaluations.

Keywords : core self-evaluations, distributive justice, in-role performance, extra-role performance, self-evaluation maintenance

The role of personality traits in predicting job performance has increased in importance in organizational research over the past decades. For example, many studies have suggested that the Big Five factor model of personality is a consistent predictor of job performance (Barrick & Mount, 1991; Hough, Eaton et al., 1990; LePine & Van Dyne, 2001). However, researchers have discovered that core self-evaluations (CSE), a newly identified personality trait, also

predict job performance (Erez & Judge, 2001; Judge, Erez, & Bono, 1998; Judge, Erez, Bono, & Thoresen, 2003). Simply speaking, CSE is a concept similar to self-confidence (Judge, Erez & Bono, 1998). Actually, CSE are an aggregate construct composed of self-esteem, generalized self-efficacy, neuroticism, and locus of control and are defined as fundamental premises that individuals hold about themselves and their functioning in the world (Judge, Erez & Bono, 1998) or as fundamental assessments that individuals form about their worth and competence (Judge, Bono, Erez, & Locke, 2005).

Several studies have also explored the relationships among CSE and job satisfaction

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(Judge & Bono, 2001; Judge, Erez, Bono & Thoresen, 2003), career success (Judge & Hurst, 2007), and lower stress levels (Kammeyer-Mueller, Judge, & Scott, 2009). A recent review (Chang, Ferris et al., 2012) also presents meta-analytic estimates of the relations of CSE with task performance, helping behavior, job satisfaction, conscientiousness, justice perceptions, and autonomy. Because of CSE's ability to predict a wide range of job phenomena, this concept has recently attracted considerable attention.

Even though the role played by CSE's prediction ability in organizations has been well investigated, CSE merit further discussions. First, the CSE literature is sufficiently mature now that researchers need to begin examining moderating/mediating effects and uncovering the reasons why CSE predicts the outcomes it does. Compared with other influential personality traits such as conscientiousness, CSE have not been sufficiently examined with reference to relationships with different performances and as moderators of job performance. In this study, we focus on the essence of CSE which is "self-confidence, proactive, and voice", and try to examine the relationship with multi-dimension of performance and moderating effects.

Second, it is important to conceptualize CSE more deeply as a personality trait. From the outset, CSE, unlike the Big Five factors, were identified because of their strong association with perceived environment such as job satisfaction (Judge, Locke, & Durham, 1997). Compared to descriptive traits, evaluative traits will have a more direct and strong relation to job satisfaction (Judge, Erez & Bono, 1998; Judge, Locke & Durham, 1997) because evaluative traits directly color perceptions and attitudes of oneself and the environment (Johnson, Rosen, & Levy, 2008). Similarly, people with high self-esteem

tend to experience higher job satisfaction because they consider themselves to be valued employees and their jobs as meaningful (Judge & Bono, 2001). Therefore, distinguishing CSE from current job environment is a fundamental issue. In this line, it might be interesting to distinguish CSE from evaluation by others and the organization in terms of the performance prediction.

The first issue is more important pragmatically, and the second issue is related to the first one. Thus, both issues bear upon the question of whether CSE predicts job performance independently from current job environment, and also interacting with evaluation by others and the organization (external self-evaluation). We assert that CSE's prediction ability should be examined in detail to demonstrate its importance in applied situations.

In this study, focusing on the CSE's essential features such as self-confidence, proactivity, and voice, we tried to examine the relationship between CSE and multi-dimension of performance after controlling for current job environment, and moderating effects of external self-evaluation. Thus, we pose the following two research questions to test and extend the analysis of CSE's prediction ability for job performance: (a) Do CSE predict extra-role performance, especially authority-challenging performance, more strongly than in-role performance? (b) Does distributive justice regarding the organizational (personnel) job evaluation moderate the relationship between core self-evaluations and job performances?

### In-role and Extra-role Performance

Existing research has largely examined the relationship between CSE and in-role performance (Erez & Judge, 2001; Joo, Jeung, & Yoon,

2010; Judge & Bono, 2001; Judge, Erez & Bono, 1998; Judge, Erez, Bono & Thoresen, 2003; Kacmar, Collins, Harris, & Judge, 2009). Since performance is a multidimensional construct (Campbell, 1999), research on personality and different types of performance should be conducted (Hurtz & Donovan, 2000; Kamdar & Van Dyne, 2007). This study considers CSE as a predictor of extra-role performance.

In-role performance is a required or expected behavior and the basis of regular and ongoing job performance (Katz, 1964), extra-role performance is behavior beyond role requirements in job performance (Blader & Tyler, 2009). Van Dyne and LePine (1998) classified extra-role performance into two dimensions: helping and voice (challenging). In a recent study, Rich, Lepine, and Crawford (2010) reported a positive relationship between CSE and organizational citizenship behavior, which is similar to the concept of extra-role performance. Another study demonstrated that individuals with higher CSE choose and seek tasks that have higher complexity levels, which increase their task/work satisfaction (Srivastava, Locke, Judge, & Adams, 2010). CSE are also believed to be related to authority-challenging behavior because individuals who have confidence in their own ideas and believe that they could control the implementation of these ideas and who are not prone to worry and doubt in the face of uncertainty will probably be more successful (Judge & Kammeyer-Mueller, 2011). Therefore, we conducted the present research by comparing the three performance types: in-role, helping, and authority-challenging (e.g., Van Dyne, Kamdar, & Joireman, 2008).

Consistent with the definition, CSE are associated with self-confidence (Judge, Erez & Bono, 1998), proactive coping (Judge & Kammeyer-Mueller, 2011), self-concordant goals (Judge,

Bono, Erez & Locke, 2005), and approach motivation (Johnson, Rosen & Levy, 2008). Therefore, CSE are more likely to impact extra-role performances that are often spontaneous and volunteered, especially authority-challenging behavior. Thus, we hypothesize the following trends while comparing these two personality traits.

*Hypothesis 1.* CSE will be positively related to job performance: (a) CSE will be positively related to in-role performance, (b) CSE will be positively related to helping performance, and (c) CSE will be positively related to authority-challenging performance.

*Hypothesis 2.* CSE will be more strongly related to extra-role performance, especially authority-challenging behavior, than in-role performance.

### Control Factors: Job Experience and Job Autonomy

CSE are fundamentally related to motivation, confidence, and satisfaction. Individuals with higher CSE will be motivated and diligent at work (Judge & Kammeyer-Mueller, 2011) because individuals who have high confidence levels and who believe in their capabilities also believe in the likelihood of their success, and this belief enhances effort levels (Judge, Erez & Bono, 1998). These relationships suggest that preferable current job environment related to confidence and satisfaction might be alternate explanations of CSE in job performance prediction. To distinguish between the influence of CSE and that of current job environment, we focus on quantity and quality related to current job, which are job experience and job autonomy, as control factors.

First, we expect that job experience, a term used after individuals have commenced working at their current job, must be a control factor

relating to the impact of confidence on current job performance (Chen, Kirkman et al., 2007), given the documented impact of experience on job performance (McDaniel, Schmidt, & Hunter, 1988). In simple terms, experience obtained in a specific work environment and unit should improve an individual's skill, knowledge, and team work and enhance one's confidence in performing that job. Job experience improves both perceptions of current job environment and job performance.

Second, for a similar reason, job autonomy was also considered a control factor. Autonomy provides a source of enactive mastery experience because it gives employees an opportunity to acquire new skills and master new responsibilities (Parker, 1998). In addition, controllability of a situation influences self-efficacy; an increase in controllability raises self-efficacy (Gist & Mitchell, 1992). Several studies have revealed the positive relationship between job autonomy and self-efficacy (e.g., Axtell & Parker, 2003; Parker, 1998; Speier & Frese, 1997). Similarly, job autonomy has been identified as a determinant of personal initiative (Frese, Kring, Soose, & Zempel, 1996), authority-challenging performance (Van Dyne & LePine, 1998), improvement suggestions (Axtell, Holman et al., 2000), and proactive work behavior (Parker, Williams, & Turner, 2006). Further, Joo, Jeung & Yoon (2010) showed that the relationships between job performance and both CSE and job autonomy are mediated by intrinsic motivation. For these reasons, we chose job autonomy as a control factor.

We expected that these potential alternate predictors would weaken the relationship between CSE and job performance to some degree. However, if the relationship between CSE and job performance is sufficiently strong

and independent from job environment factors, the relationship will be minimally influenced by such predictors. Otherwise, this relationship will be non-existent. Accordingly, we establish the following hypotheses.

*Hypothesis 3.* CSE will be positively related to job experience, and job autonomy.

*Hypothesis 4.* Job experience will be positively related to job performance: (a) Job experience will be positively related to in-role performance, (b) job experience will be positively related to helping performance, and (c) job experience will be positively related to authority-challenging performance.

*Hypothesis 5.* Job autonomy will be positively related to job performance. (a) Job autonomy will be positively related to in-role performance, (b) job autonomy will be positively related to helping performance, and (c) job autonomy will be positively related to authority-challenging performance.

### Moderating Factor: Distributive Justice

Consistent with trait activation theory (Tett & Burnett, 2003), Kacmar, Collins, Harris & Judge (2009) suggested that perceived work environment moderates the relationship between self-evaluation and job performance. In line with that finding, here we focus on the Johari window (Luft, 1969) and self-evaluation maintenance (SEM) theory (Tesser & Campbell, 1982) to extend the analysis of the prediction ability of CSE using distributive justice as a moderator.

First, according to the Johari window (Figure 1), self seen by oneself (internal self-evaluation) and self seen by others (external self-evaluations) must differ and people can recognize this difference, more or less. In this theory, self-concept was divided into 4 areas in

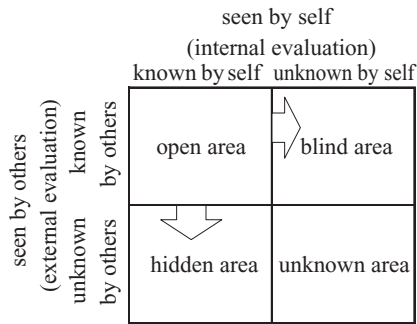


Figure 1 Johari Window Model

terms of whether one/others know or don't know. For example, the area which both one and others know called "open area". Many stress studies refer the Johari window theory and recommend to enlarge open area for a good life. If the open quadrant is relatively large, people tend to be peaceful. In contrast, if there is a big difference between these evaluations (the hidden and blind areas are relatively large), people tend to be stressful. Cognitive dissonance theory (Festinger, 1957; Festinger & Carlsmith, 1959) also supported the above idea, suggesting that people are strongly and automatically motivated to resolve the cognitive dissonance by any means.

Therefore, for instance, individuals need to improve their current situation if their positive traits are not recognized by others.

Second, SEM theory implies that employees are always emotionally motivated to maintain or enhance positive self-evaluation (Tesser & Campbell, 1982; Tesser, Pilkington, & McIntosh, 1989), and it is considered to be an instinctive motivation for most people. In the behavioral experiment, Tesser and Campbell (1982) revealed participants rated others' ability in order to heighten their own evaluation by controlling experimental conditions. So, when people try to expand the "open area", they might

be motivated not only to resolve the cognitive dissonance, but also to get more positive self-evaluation.

These two theories, taken together, suggest that individuals will attempt to achieve a better evaluation if there is a difference between their external and internal self-evaluations. Individual high in core self-evaluation, as internal self-evaluation, would be stressful and challenge to improve the situation in the case that others do not evaluate him/her highly enough. This attempt would occur regardless of whether internal self-evaluation is higher than external evaluation or vice versa. If individuals perceive that their organization values them according to their expectations, they do not make an attempt to increase their evaluation because they consider the possibility of their improvement to be low.

In this study, we regarded CSE as internal self-evaluation and distributive justice for job (personnel) evaluation as external self-evaluation. Unlike CSE, distributive justice is strongly related to perceptions of evaluation by other individuals or by the organization. Distributive justice is the perceived fairness of decision outcomes (Adams, 1965) such as job evaluation and rewards. Distributive justice refers respondents to an outcome (e.g. pay or promotions, job evaluations, etc.) and asks them about the appropriateness of the outcome, given their contributions (Colquitt, 2001). Because outcome for each employee is usually decided by the organization or others (e.g. the manager) rather than oneself, distributive justice essentially reflects the recognition about evaluations to oneself by the organization or others. When an individual's outcomes are fair, it is a signal that an individual's abilities and production are valued by the organization (Moon, Kamdar, Mayer,

& Takeuchi, 2008). As found direct relationship (Chang, Ferris et al., 2012), the concept of distributive justice is similar to that of CSE not only in this respect but also in its positive correlations to important outcomes such as job satisfaction, job performance, and helping behavior (Colquitt, Conlon et al., 2001). However, the Johari window theory suggests that the concept of distributive justice differs from that of CSE, while SEM theory suggests that distributive justice is a potential moderator in the relationship between CSE and job performance. Thus, we propose the following hypothesis.

*Hypothesis 6.* CSE will be positively related to distributive justice for job evaluation.

*Hypothesis 7.* Distributive justice moderates the relationship between CSE and job performance, and this relationship will be positive when distributive justice is low: (a) Distributive justice moderates the relationship between CSE and in-role performance, (b) distributive justice moderates the relationship between CSE and helping performance, and (c) distributive justice moderates the relationship between CSE and authority-challenging performance.

## 1 Method

### 1.1 Participants and Procedure

Data from 177 full-time employees and 22 supervisors of a trading organization in Japan were analyzed in the current study. Participants received questionnaires via e-mail and were asked to complete them at their workplace and then return them directly to the investigator via e-mail. The participants were assured of confidentiality by both the investigators and the organization's management. After eliminating questionnaires with missing data and those that could not be matched to a supervisor, the

respondent rate was 72.2%. The subordinate sample was 45.8% female, and had an average tenure of 9.99 years ( $SD = 9.14$ ). The majority of the employee participants were in non-managerial positions; few of them were in managerial positions (9.6%). Among non-managerial positions, the largest group was main career positions (40.7%), and the rest comprised various employee positions such as clerical workers (49.7%).

### 1.2 Measurements for Subordinates

Unless otherwise indicated, 5-point Likert-type scales with anchors of 1 (*disagree strongly*) to 5 (*agree strongly*) were used.

*Core self-evaluations.* We measured CSE using Judge et al.'s (2003) 12-item scale ( $\alpha = .81$ ). A sample item from this scale is "When I try, I generally succeed."

*Job experience.* To assess the quantity of experience in their current workplace, we inquired about the duration of the participants' tenure in the current work unit because the employees were assigned to different work units in the organization (Chen, Kirkman, Kanfer et al., 2007). For example, the organization comprises units such as units for IT systems, trading and business, sales, delivery, quality issues, management, and investment. Participants provided their current work unit tenure as their job experience using the following scale: 1 (*less than 1 year*), 2 (*1 to 2 years*), 3 (*2 to 3 years*), and 4 (*over 3 years*).

*Job autonomy.* We assessed job autonomy using four items from Parker, Williams & Turner (2006) scale ( $\alpha = .87$ ). The items used were selected from discussions with individuals in the organization. The items selected were concerned with the extent to which an employee was involved in the decision-making process within their

team. The items used were “I help to decide how much work I and my team will do,” “I help to allocate jobs among team members,” “I get involved in the selection of new team members,” and “I get involved in improvement teams.”

*Distributive justice.* Distributive justice for job evaluation was assessed using Colquitt, Conlon et al.’s (2001) 4-item scale ( $\alpha = 0.96$ ). The participants were asked to indicate the level of satisfaction with their job evaluation by the organization using 5-point Likert-type scales with anchors of 1 (*never*) to 5 (*often*). A sample item from this 5-point scale is “Does your job evaluation reflect what you have contributed to the organization?”

### 1.3 Measurements for Supervisors

For all measurements, 5-point Likert-type scales with anchors of 1 (*disagree strongly*) to 5 (*agree strongly*) were used.

*In-role performance.* Supervisors rated the in-role performance of their subordinates using three items from Van Dyne and LePine’s (1998) scale ( $\alpha = .89$ ). The items used were “This particular employee fulfills the responsibilities specified in his/her job description,” “This particular employee performs the tasks that are expected as part of the job,” and “This particular employee meets performance expectations.”

*Extra-role performance (helping and authority-challenging).* Supervisors rated the helping performance of their subordinates using four items from Van Dyne and LePine’s (1998) scale ( $\alpha = .90$ ). The items used were “This particular employee volunteers to do things for this work group,” “This particular employee assists others in this group with their work for the benefit of the group,” “This particular employee gets involved to benefit this work group,” and “This particular employee helps others in this group

learn about the work.” Supervisors rated the authority-challenging performance of their subordinates using three items from Van Dyne and LePine’s (1998) scale ( $\alpha = .91$ ). The items used were “This particular employee develops and makes recommendations concerning issues that affect this work group,” “This particular co-worker speaks up and encourages others in this group to get involved in issues that affect the group,” and “This particular co-worker speaks up in this group with ideas for new projects or changes in procedures.”

### 1.4 Demographic Variables

We also controlled for gender (0 = female, 1 = male) and position (two dummy variables as described below) because demographic variables could account for variance in job performance ratings (Turban & Jones, 1988). The two dummy variables represented three position categories (position 1: managerial class coded as 1, and other classes coded as 0; position 2: main career class coded as 2, and other classes coded as 0). These variables were gathered from organizational records.

### 1.5 Translation of Questionnaire Items

The questionnaire items were originally compiled in English and were then translated into Japanese independently by a bilingual professional translator and an author. A quasi-back translation process was then conducted in which the two independently translated questionnaire items were checked and compared by another professional translator. Finally, the translations were revised in discussions between the third translator and the author to ensure a high degree of similarity between the English and Japanese versions of the questionnaire items.

## 1.6 Analysis

*Confirmatory factor analysis.* Confirmatory factor analysis was conducted to assess the discriminant validity of our measurement constructs for supervisors. Our hypothesized 3-factor measurement model (in-role, helping, and authority-challenging performance) produced a fit superior to that of any alternative 2-factor model:  $\chi^2$  (32,  $N = 177$ ) = 79.50,  $p < .01$ ; root mean square error of approximation (RMSEA) = .92; goodness-of-fit index (GFI) = .92; confirmatory fit index (CFI) = 0.97; and Tucker-Lewis index (TLI) = 0.96. A series of confirmatory factor analyses for the measurement constructs for subordinates were also conducted. Since the number of items was large relative to the sample size (177), we created three composite indicators for core self-evaluations in order to improve the size to estimator ratio (e.g., Kamdar & Van Dyne, 2007; Landis, Beal & Tesluk, 2000) using the procedures described by Mathieu and Farr (1991). Our hypothesized 3-factor measurement models (CSE, job autonomy, and distributive justice) produced a fit superior to that of any alternative 2-factor model that uses the same combination of scales:  $\chi^2$  (41,  $N = 177$ ) = 81.14,  $p < .01$ ; RMSEA = .075; GFI = .93; CFI = 0.97; and TLI = 0.96. Job experience was not used for this analysis because it included only one item.

*Data analysis.* We analyzed the data obtained with the multileveled analysis (Raudenbush & Bryk, 2002), even though we mostly focus on individual level variables. Because individuals are clustered each within working units and the three types of performance used for our dependent variables were evaluated by the unit leader of each working unit, the ratings for employees were relative evaluation within each work unit, and the relationship between dependent and independent variables were weakened by taking

together the absolute values across the units. Actually, it is well known that performance rating criteria are different among supervisors (Rotundo & Sackett, 2002), and there were 22 work units, and the average number of unit members except the supervisor was 8.05 ( $SD = 3.61$ ) in this survey. To examine of the level of non-independence in the data, we calculated intraclass correlations (ICCI) for the outcome variables applied to unit members. ICCI values were 21% for job experience, 12% for job autonomy, 3% for core self-evaluations, 5% for distributive justice, 24% for in-role performance, 31% for helping performance, and 23% for authority-challenging performance. This meant that there was sufficient between-unit variance in most variables (Raudenbush & Bryk, 2002). To clarify the essential relationship between dependent and independent variables at the individual level, all variables obtained from the measurements for supervisors and for subordinates were centered within each unit for multilevel analysis (e.g., Chen et al., 2007; Raudenbush & Bryk, 2002).

In addition, we conducted backward elimination regression analyses to screen for independent variables that were related to dependent variables. This process was necessary because there were several possible predictors for the sample size. The criterion for elimination was set at  $p = .10$ . To facilitated comparability and clarify the essential relationship between dependent and independent variables, all variables obtained from the measurements for supervisors and subordinates were standardized within each unit (e.g., Chen, Bliese, & Mathieu, 2005; Chen, Kirkman et al., 2007). This process controlled for differences among performance rating standards across the supervisors (work units). Thus, the regression results were obtained by analyzing inner-unit deviations of the measures. The



interactions between core self-evaluations and distributive justice were entered using the procedures recommended by Aiken and West (1991).

In the plotted figure (Figure 2) of interaction between core self-evaluation and distributive justice, we transformed standardized performance ratings (dependent variables) into the deviation value ( $M = 3.0$ ,  $SD = 1.0$ ) to understand these figures easily.

## 2 Results

Table 1 displays the means, standard deviations, ICCs, and intercorrelations among the study variables. Table 2 summarizes the results of multilevel analysis. Our models produce significantly better fit compared with null model (In-role performance:  $\Delta\chi^2(9) = 46.76$ ,  $p < .01$ ; helping performance:  $\Delta\chi^2(9) = 55.69$ ,  $p < .01$ ; authority-challenging performance:  $\Delta\chi^2(9) = 44.97$ ,  $p < .01$ ). Table 3 summarizes the results of backward elimination regression analyses.

Hypothesis 1 was supported. CSE were semi-significantly and positively related to in-role per-

formance (Hypothesis 1a:  $B = .19$ ,  $p = .084$ ) and significantly and positively related extra-role performance for both helping performance (Hypothesis 1b:  $B = .30$ ,  $p < .01$ ) and authority-challenging performance (Hypothesis 1c:  $B = .40$ ,  $p < .001$ ) in result of multilevel analysis.

Hypothesis 2 was also supported. The positive relationships between extra-role performance and CSE were significant in the backward elimination regression analyses results (helping performance:  $\beta = .22$ ,  $p < .01$ ; authority-challenging performance:  $\beta = .26$ ,  $p < .001$ ), but not in-role performance. In addition, only authority-challenging performance was significantly related to CSE in correlation analysis ( $r = .16$ ,  $p < .05$ ).

Hypothesis 3 was partially supported. CSE were significantly and positively related to job autonomy ( $r = .19$ ,  $p < .05$ ; job). However, inconsistent with our expectation, job experience was not related to CSE ( $r = -.04$ ,  $p > .05$ ).

Hypothesis 4 was supported by the positive relationship between job experience and in-role performance (Hypothesis 4a:  $B = .14$ ,  $p < .01$ ),

Table 1 Means, Standard Deviation, Intra-Class Correlations (ICCs) and Intercorrelations among Study Variables<sup>a</sup>

Variable	Mean	s.d.	ICC1	ICC2	1	2	3	4	5	6	7	8	9
1. Gender <sup>b</sup>	0.54	0.50			—								
2. Position 1 <sup>c</sup>	0.10	0.30			.26 **	—							
3. Position 2 <sup>c</sup>	0.41	0.49			.55 **	-.27 **	—						
4. Job experience	3.71	0.49	.21	.68	-.09	.03	-.18 *	—					
5. Job autonomy	3.37	0.69	.12	.52	.16 *	.15 *	.14	.19 *	—				
6. Core self-evaluations	2.59	1.19	.03	.34	.29 **	.03	.34 **	-.04	.19 *	—			
7. Distributive justice	2.72	1.03	.05	.28	-.02	-.04	.13	-.01	.35 **	.31 **	—		
8. In-role performance	4.06	0.78	.24	.72	-.16 *	-.08	-.09	.13	.25 **	.08	.13	—	
9. Helping performance	3.81	0.80	.31	.78	-.10	.00	-.06	.10	.33 **	.13	.15 *	.73 **	—
10. Authority-challenging performance	3.36	0.81	.23	.70	-.02	-.03	-.01	.20 **	.24 **	.16 *	.01	.68 **	.75 **

<sup>a</sup> $N = 177$ . Correlation coefficients are at the individual level.

<sup>b</sup>Gender: 0 = female, 1 = male

<sup>c</sup>Three position categories are represented by two dummy variables (position 1: managerial class coded as 1, and other classes coded as 0; position 2: main career class coded as 2, and other classes coded as 0).

\*  $p < .05$ .

\*\*  $p < .01$ .

Table 2 Summary of Multilevel Analysis for In-role, Helping, and Authority-challenging Performance<sup>a</sup>

Variable	In-role Performance		Helping Performance		Authority-challenging Performance	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
<i>Individual level</i>						
Gender <sup>b</sup>	-.15	.15	-.11	.15	-.07	.15
Position 1 <sup>c</sup>	-.49 *	.20	-.41 *	.20	-.46 *	.21
Position 2 <sup>c</sup>	-.17	.15	-.19	.15	-.11	.15
Job experience	.14 **	.05	.12 *	.05	.14 **	.05
Job autonomy	.23 ***	.06	.24 ***	.06	.23 ***	.06
Core self-evaluatoins	.19	.11	.30 **	.11	.40 ***	.12
Distributive justice	.07	.07	.01	.07	-.09	.07
CSE × DJ	-.37 *	.15	-.31 *	.15	-.34 *	.16
<i>Unit level</i>						
Units	.14 *	.06	.20 **	.07	.14 *	.06
$\Delta\chi^2$ ( <i>dfs</i> = 9)	46.76 ***		55.69 ***		44.97 ***	

<sup>a</sup>*N* = 177. All variables obtained from the measurements for supervisors and for subordinates were centered within each unit.

<sup>b</sup>Gender: 0 = female, 1 = male

<sup>c</sup>Three position categories are represented by two dummy variables (position 1: managerial class coded as 1, and other classes coded as 0; position 2: main career class coded as 2, and other classes coded as 0).

\* *p* < .05.

\*\* *p* < .01.

\*\*\* *p* < .001.

Table 3 Backward Elimination Regression Results for In-role, Helping, and Authority-challenging Performance<sup>a</sup>

	In-role	Helping	Authority-challenging
	$\beta$	$\beta$	$\beta$
Gender <sup>b</sup>			
Position 1 <sup>c</sup>	-.95 ***	-.89 ***	-.67 **
Position 2 <sup>c</sup>	-.29	-.42 **	
Job experience term	.21 **	.20 **	.22 **
Job autonomy	.23 **	.26 ***	.20 **
Core self-evaluatoins (CSE)		.22 **	.26 ***
Distributive justice (DJ)			
CSE × DJ	-.17 *	-.15 *	-.18 *

<sup>a</sup>Data are standardized regression weights. Conduct backward elimination regression after all variables were standardized within each unit except gender and position 1, 2.

<sup>b</sup>Gender: 0 = female, 1 = male

<sup>c</sup>Three position categories are represented by two dummy variables (position 1: managerial class coded as 1, and other classes coded as 0; position 2: main career class coded as 2, and other classes coded as 0).

\* *p* < .05.

\*\* *p* < .01.

\*\*\* *p* < .001.

helping performance (Hypothesis 4b:  $B = .12$ ,  $p < .05$ ) and authority-challenging performance (Hypothesis 4c:  $B = .14$ ,  $p < .01$ ).

Hypothesis 5 was also supported by the positive relationship between job autonomy and in-role performance (Hypothesis 5a:  $B = .23$ ,  $p < .001$ ), helping performance (Hypothesis 5b:  $B = .24$ ,  $p < .001$ ) and authority-challenging performance (Hypothesis 5c:  $B = .23$ ,  $p < .001$ ).

Hypothesis 6 was supported. CSE were significantly and positively related to distributive justice ( $r = .31$ ,  $p < .01$ ) as expected.

Hypothesis 7 was also supported. The multilevel analysis in Table 2 and the backward regression in Table 3 shows that the interactions were significant in in-role performance (Hypothesis 7a:  $B = .14$ ,  $p < .05$ , and  $\beta = -.17$ ,  $p < .05$ ), in helping performance (Hypothesis 7b:  $B = .20$ ,  $p < .01$ , and  $\beta = -.15$ ,  $p < .05$ ), and in authority-challenging performance (Hypothesis 7c:  $B = .14$ ,  $p < .05$ , and  $\beta = -.18$ ,  $p < .05$ ).

The explanation of performance scores was plotted at high and low levels (0.25 and  $-0.25$  standard deviations from the mean) of CSE (Figure 1). Same as backward regression analysis, the variables (performance ratings, core self-evaluations and distributive justice) were standardized unit by unit. Further, we transformed standardized performance ratings (dependent variables) into the deviation value ( $M = 3.0$ ,  $SD = 1.0$ ) to understand these figures easily.

As shown in Figure 1, employees with high CSE and low perceptions of distributive justice received the highest supervisor ratings for the three performance types. The moderating effect of distributive justice on the relationship between CSE and job performance was strongest in in-role performance. In contrast, the effect of CSE on authority-challenging performance among employees with low perceptions

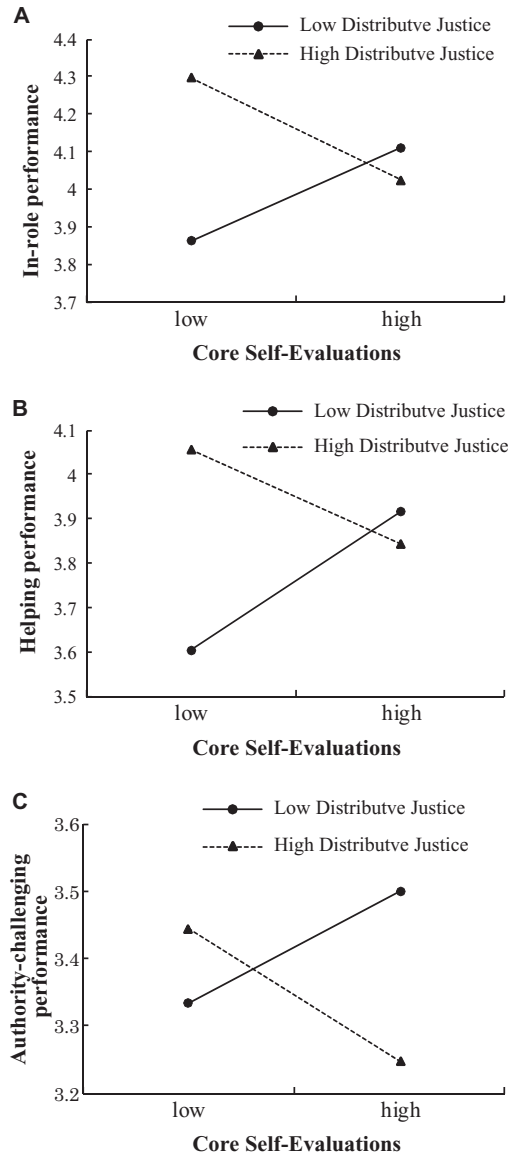


Figure 2 Interactions between core self-evaluations and distributive justice predicting the three types of performance. All variables were standardized within each unit except gender and positions. The standardized performance ratings (dependent variables) were transformed into the deviation value ( $M = 3.0$ ,  $SD = 1.0$ ) to understand these figures easily. A: interactions for in-role performance. B: interactions for helping performance. C: interactions for authority-challenging performance. Low score = 0.25 SD below the mean; high score = 0.25 SD above the mean. The score was calculated after the standardizing process.

of distributive justice was larger than that for the other performance types.

### 3 Discussion

This field study had two research questions and two conclusions: CSE is a strong predictor of extra-role performance, especially authority-challenging performance, and distributive justice for job evaluation is an interesting moderator of CSE effects on job performance.

First, the prediction ability of CSE was tested with differences in performance types and control by alternate explanation factors. The results show that CSE could not sufficiently predict in-role performance when controlled by factors of current job environment, job experience and job autonomy, in this study. However, CSE predicted extra-role performance much better compared to in-role performance even after controlling for current job environment. Thus, the results show that CSE are a strong predictor of extra-role performance, especially authority-challenging performance, rather than of in-role performance. Among the study variables, job autonomy was potentially the best alternate explanation factor for CSE effects on in-role performance.

Second, we extended the analysis of the prediction ability of CSE to include distributive justice as a moderator. As expected from the Johari window theory, with respect to self-evaluation, CSE have essentially different meanings from those of distributive justice, which deals with perceived evaluations by others or by organizations. As expected from SEM theory, distributive justice for job evaluation moderates the effect of CSE on job performance. Participants seem to be motivated not only to resolve cognitive dissonance, but also to get better self-evaluation. Individuals with high self-evaluation tend to

make efforts when they are not sufficiently valued in the current situation and this trend was stronger in authority-challenging performance. This is consistent with the idea that stress factors are positively related to innovative behavior (e.g., Bunce & West, 1994; Janssen, 2000, 2004; West, 1989) in certain conditions. So, individuals with high CSE might be easy to feel stress when evaluated not enough than those with low CSE. The results also suggest that individuals with low self-evaluation make efforts, especially in in-role performance, when they are valued better than their expectation. In this case, they might experience positive pressure and will be motivated to do their duty and live up to expectations.

CSE are primarily a personality trait that is positively related to performance, especially extra-role performance. However, this study demonstrates that the effect of CSE is complex. Perceived evaluations of the current situation such as perceived distributive justice also play an important role in CSE's effect on job performance.

#### 3.1 Theoretical Implications

The results of this study have implications for the definition of CSE. Here the distinction between CSE and perceptions of self-function in the current environment are discussed.

This study suggests that it may be useful to consider distinction between external and internal self-evaluation regarding the performance prediction of the core self-evaluations. These two self-evaluations were interacting to predict the in-role and extra-role performance. Our self-evaluation must be influenced by both external and internal self-evaluation and each influence would not be simple. Interestingly, the difference between these two self-evaluations had impact on the job performance in our study.

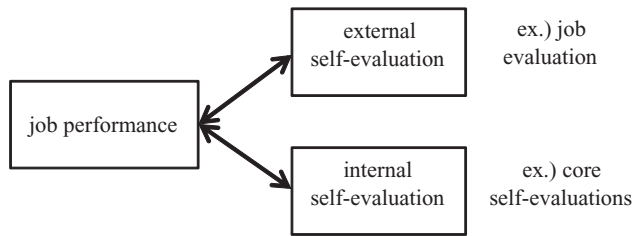


Figure 3 External and internal self-evaluation

### 3.2 Practical Implications

The findings of this study have two primary practical implications. First, the interaction between CSE and distributive justice on job performance provides strong evidence that would be useful for effective coaching and training. Supervisors and leaders need to motivate their subordinates and improve their subordinates' performance by coaching and training. The results suggest that supervisors need to praise their subordinates' contributions or potential ability if they do not possess high self-confidence. However, supervisors also need to provide a trial or a high target for subordinates with high self-confidence. Thus, supervisors need to understand their subordinates' self-evaluation mechanism in order to select the appropriate motivational method, recognition or pressure, to improve their subordinates' low productivity. We also need to consider that CSE are relatively stable, but somewhat changeable (Judge & Kammermeyer-Mueller, 2011). These concepts can also be applied to the training of new employees.

Second, the results also suggest that CSE can be taken into account in recruitment and placement decisions. Specifically, an individual with high CSE is likely to work well in authority-challenging jobs such as business development, remediation projects, taking charge of new customers or new areas; however, such individuals are not motivated by routine work.

### 3.3 Limitations and Strengths

This study has several potential limitations. First, this study used a cross-sectional design and collected data at one point in time. Therefore, sufficient evidence about causal relationships cannot be provided. Although the results of CSE effects on job performance and the interactions between CSE and distributive justice were grounded in existing theory and evidence, there is a possibility that an alternate interpretation exists, such as recognition by supervisors improves the subordinates' CSE or individuals with high CSE tend to be less satisfied with their job evaluation compared to individuals with low CSE. However, the study observes that CSE are a relatively stable individual difference characteristic and that CSE are different from perceptions of evaluation by others. Thus, the above alternate interpretations are not likely to be the main causal direction of relationships. Second, the measurements of performance were used only for research purposes. This may have limited the validity of ratings by decreasing the supervisor's motivation. Finally, this study measured only two factors of current job environment factors as control factors, and factors such as job involvement, or team empowerment were not used for analyses.

Despite these limitations, this study also has its strengths. First, this study expanded the validity of CSE in both theoretical and practical aspects by using social psychological theories (Johari

window and SEM theory) to explain the interaction effect of CSE with distributive justice. Second, this study tested CSE's prediction ability through multiple dimensions of performance and control by alternate predictors. Third, common method variance was minimized by using multiple sources of data: employee ratings, supervisor ratings, and organizational records. Finally, we conducted two different methods to control between level (unit level) influences and reverified same conclusions.

### 3.4 Future Directions

First, this study found different CSE effects among the three kinds of performance. Therefore, it is worthwhile to investigate the relationship between CSE and other dimensions of performance, such as adaptive performance and creative performance, as recommended by other researchers (Judge & Kammeyer-Mueller, 2011; Kacmar, Collins, Harris & Judge, 2009). Second, this study was unable to compare or test as mediators for other established predictors of performance, such as proactive trait. Specifically, proactive trait was reported as a predictor of proactive work behavior (Parker, Williams & Turner, 2006), a concept that is similar to the authority-challenging performance of this study. Third, it would be interesting to investigate other moderators of the relationship between CSE and performance, such as perception of recognition by coworkers. Perceived unofficial evaluation by coworkers would be important for and in line with this study. Finally, it is important to investigate psychological mechanisms that mediate the relationships among CSE, distributive justice, and job performance. As explained by Kacmar, Collins, Harris & Judge (2009), the compensatory model aligns with behavioral plasticity theory (Brockner, 1988) and suggests

that individuals with low CSE would react more strongly to an unfavorable work environment than those with high CSE. Although this study's results were consistent with Kacmar, Collins, Harris & Judge (2009) results, they were not consistent with the compensatory model. To consider the logic behind the results of this study, our findings offer new key factors: stress due to the gap between external and internal self-evaluations and the drive to maintain one's self-evaluation. Several studies have revealed a relationship between stress and innovative performance (e.g., Bunce & West, 1994; Janssen, 2004). Judge and Kammeyer-Mueller (2011) also showed that CSE are associated with problem-solving coping. Thus, further research should examine the relationships among CSE, motivation to maintain one's self-evaluation, stress factors, and authority-challenging or innovative performance as stress reactions.

## 4 Conclusion

In conclusion, this research tested and extended the analysis of CSE's prediction ability, demonstrating the importance of distinguishing types of job performance—in-role, helping, and authority-challenging performance—and the importance of distinguishing between external and internal self-evaluations. The results suggest that employees' CSE are strongly associated with their authority-challenging behavior, which can be enhanced in a state of imbalanced self-value by oneself and by others, as Tesser and Campbell (1982) state, "people are motivated to maintain positive self-evaluation." The findings of this study offer relevant theoretical and practical implications by revealing the essence of CSE and by applying Johari window and SEM theory to industrial workers. These results would provide support to supervisors and personnel

management officers in locating, motivating, coaching, and training employees of various organizations by understanding the employees' self-evaluation mechanism.

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