The Relationships among Commitment-based HR Systems, Psychological Contracts, and Role Behaviors: An Empirical Study of Knowledge Workers in Taiwan’s High-Tech Firms

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Abstract

This paper presents a study linking knowledge workers’ perceptions of a commitment-based human resource (HR) system to their role behaviors by adopting psychological contracts as a linking mechanism. The hypotheses are tested by matching and analyzing data collected from knowledge workers in Taiwan’s high-tech firms. The results indicated that knowledge workers’ perceptions of a commitment-based HR system improve their in-role and extra-role behaviors via shaping their relational psychological contracts. In addition, our study also demonstrated that knowledge worker perceptions of a commitment-based HR system were negatively associated with their transactional psychological contracts. These findings have implications for research on human resource management and psychological contracts as well as for managers seeking to enhance or maintain a firm’s competitive advantages.

Keywords: Commitment-based HR System, psychological contract, role behavior, knowledge worker

1. Introduction

Knowledge workers, such as R&D professionals and engineers, are those employees who develop and use knowledge in their workplace (Drucker, 1999). Since knowledge workers have valuable and unique skills and knowledge, they are treated as the core component of a firm’s competitive advantages. For this reason, in Lepak and Snell’s (1999; 2002) HR architecture, they theoretically and empirically suggested that organizations would adopt commitment-based human resource (HR) configurations to manage their knowledge workers in order to elicit a wide range of role behaviors that are beneficial to the goals of the firm.

Research conducted at the organizational level has theoretically or empirically suggested that commitment-based HR systems increase firm effectiveness (e.g. Arthur, 1994; Huselid, 1995; Wood and de Menezes, 1998); HR systems enhance firm effectiveness through the effect they have on employees (Ostroff and Bowen, 2000). In order to probe the black box of this documented relationship, researchers have started to examine the influences of HR systems on employee attitudes and performance. For example, the research conducted by Sun et al., (2007) and Takeuchi et al., (2007) discussed the relationships among HR practices and individual as well as organizational performance from the macro perspective. Undoubtedly, their findings do provide further information in the field, but with relatively weak and uncertain implications for researchers and HR professionals due to the assumption of macro HR research: invariability in HR practices across employees within organizations.

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Accordingly, Wright and Boswell (2002) also suggested that it would better serve macro HR research to focus on specific types of employees.

Additionally, individuals have their own cognitive schemas in processing information (Wright and Haggerty, 2005). This may not only cause different perceptions of HR systems between the employer and their employees (Gerhart et al., 2000; Whitener, 2001; Wright et al., 2001) but also lead to a weak or non-significant relationship between the employer’s self-reported HR system and employee’s attitudes or performance. For example, Edgar and Geare (2005) reported that the relationships between HR practice and employees’ work-related attitudes were statistically significant by adopting employees’ perspective to measure the strength of HR practice; contrarily, they were not significant when using employer self-reports. That is, based on the distal framework proposed by Sun et al. (2007) or Takeuchi et al. (2007), constructing a framework by using employee perspectives may provide a more proximal relationship between HR system and employee’s performance.

The goal of the present study is to construct a relatively explicit, stable and more proximal relationship between commitment-base HR systems and employees’ performance, such as role behaviors, by focusing on knowledge workers and adopting their perspective. Since role behaviors are influenced by psychological contracts (Robinson and Rousseau, 1994; Rousseau, 1989; Turnley et al., 2003), which are understood through employee perceptions shaped by HR systems (Rousseau and Greller, 1994), they are best viewed as the linking mechanism between HR systems and role behaviors (Wright and Boswell, 2002). In other words, they are suitable for adopting psychological contracts as our framework for discussing the relationships between commitment-based HR systems and knowledge workers’ role behaviors.

Subsequently, we first introduce the definition and types of psychological contracts, and then discuss the relationships between knowledge workers’ psychological contracts and their perceptions of commitment-based HR systems and role behaviors, respectively. Finally, we treat the psychological contract as a linking mechanism to construct the relationships between knowledge workers’ perceptions of commitment-based HR systems and their role behaviors.

2. Theoretical background and hypotheses

2.1 Psychological contract

Initially, a psychological contract was defined as an implicit, unwritten agreement between parties to respect each other’s norms (Argyris, 1960), and was mainly used as a framework that referred to the implicitness of the exchange relationship between employee and employer (Millward and Brewerton, 1999). It had not acquired construct status or taken conceptual and empirical turns until the seminal work of Rousseau in the 1990s. According to Rousseau (1989; 1995), a psychological contract is an individual’s belief in the terms and conditions of a reciprocal exchange agreement between employees and employers. Furthermore, psychological contracts include different kinds of mental models or schemas which employees hold concerning reciprocal obligations in the workplace (Rousseau, 1989).

In accordance with Macneil’s (1985) typology of promissory contracts, Rousseau (1990) also categorized psychological contracts into two types: transactional and relational. Based on Rousseau and Parks’ (1993) framework, transactional and relational psychological contracts can be described by five characteristics of the contractual continuum. The first characteristic is *focus*, which refers to the elements and terms of a psychological contract. The second characteristic is *time frame*, which refers to the perceived duration of the employment relationship (MacNeil, 1985; Rousseau and Parks, 1993). Thirdly, *stability* refers to evolvement of employee psychological contracts (Sels et al., 2004). The fourth characteristic, *scope*, is the extent to which the boundary between an employee’s employment relationship
and other aspects of his/her life is perceived as permeable, and the final characteristic, *tangibility*, is the degree to which the employee perceives the terms of the contract as being explicitly specified to third parties (Parks et al., 1998; Rousseau and Parks, 1993).

According to Rousseau and Parks’ (1993) framework, employees with a transactional psychological contract will focus on the economic terms of their close-ended exchange relationships with the firm. Since economic terms are observable, the terms of their contracts are tangible to third parties. In addition, the boundary between the employment relationships and other aspects of their lives is seen as impermeable and, consequently, employees with a transactional psychological contract will perceive that their psychological contracts are immutable or static.

In contrast, employees with a relational psychological contract will focus on economic and socio-emotional terms of their open-ended exchange relationships with their firms. Since socio-emotional terms are unambiguously defined and subjectively understood (Rousseau, 1990), the terms of their contracts are intangible to third parties. Additionally, employees with a relational psychological contract will perceive that their work lives and responsibilities cross over to their personal lives and, thus, believe that their psychological contracts are malleable or dynamic (Parks et al., 1998; Rousseau, 1990).

In summation, transactional psychological contracts refer to short-term exchanges of specific benefits and contributions that are highly monetary or economic in focus, and relational psychological contracts refer to long-term arrangements without specific performance-reward contingencies. Even though they are anchored at the opposite ends of this contractual continuum, arrangements in employment can probably be either of them or a hybrid form (Rousseau, 2000). For this reason, transactional and relational psychological contracts are both considered as constituting the foundation of conceptual and empirical development.

2.2 Commitment-based HR systems and psychological contracts

Psychological contracts are formed when employees believe that a promise of future returns has been made by the organization, whereby an obligation has been created in an exchange relationship (Flood et al., 2001). The exchange model in the exchange relationship proposed by Barnard (2002) and later revised by March and Simon (1958) posited that individuals exchange their contributions for certain inducements that the firm provides. Forms of inducements can include: wages, fringe benefits, the nature or status of the job, and working conditions, which are all included in HR systems. Consequently, specific HR systems may have a major impact in shaping employee expectations in relation to the psychological contract (Grant, 1999).

Commitment-based HR systems have broadly defined jobs, more extensive and general skill training, and higher and more extensive salaries and benefits (Arthur, 1994). When knowledge workers hold these perceptions, they will believe that the firm is committed to offering stable wages and long-term employment as well as supporting the well-being and interests of their employees and their families. These beliefs will shape knowledge workers’ cognitions over the long term, and are primarily based upon mutual trust and loyalty in their reciprocal exchange agreements with the organization, thereby also leading to higher level relational psychological contracts (Rousseau, 2000). Thus, we hypothesize that knowledge workers’ perceptions of commitment-based HR systems positively influence their relational psychological contracts.

**H1:** Knowledge workers’ perceptions of commitment-based HR systems will be positively associated with their relational psychological contracts.

In contrast, when knowledge workers perceive a lower degree of available benefits from a commitment-based HR system, such as: narrowly defined jobs, limited training efforts, and
relatively limited and lower benefits and wages, they will believe that the firm has committed to offer them only little, or no, opportunity for training or career development. These beliefs will also shape knowledge workers’ cognitions in the short-term with the focus primarily on the economic aspects of their reciprocal exchange agreements with the firm, thus affecting transactional psychological contracts (Rousseau, 2000). For this reason, we hypothesize that knowledge workers’ perceptions of commitment-based HR systems have a negative influence on their transactional psychological contracts.

H2: Knowledge workers’ perceptions of commitment-based HR systems will be negatively associated with their transactional psychological contracts.

2.3 Psychological contract and role behavior

Role behavior refers to the recurring actions of an individual appropriately correlated with the repetitive activities of others, to yield a predictable outcome (Katz and Kahn, 1978). There are two types of role behavior. Behaviors that are required or expected as part of performing the duties and responsibilities of an assigned work role are defined as in-role behavior, whereas behaviors that benefit the firm and that go beyond existing role expectations are defined as extra-role behaviors (Van Dyne et al., 1995). Organizations rely on both, in order to maintain effective management.

According to Rousseau and Parks’ (1993) framework, both relational and transactional psychological contracts include economic terms in the exchanges that occur between knowledge workers and firms (Rousseau, 1990). These economic terms emphasize the financial and other tangible inducements of the exchange (Shore et al., 2001). Because in-role behaviors are recognized by the firm’s formal reward system which provides financial and other non-financial but tangible inducements (Katz and Kahn, 1978), employees will contribute to the firm through their in-role behaviors in exchange for these inducements. In other words, both the relational and transactional psychological contracts have positive influences on their in-role behaviors. Accordingly, we propose the following hypothesis:

H3: Knowledge workers’ relational and transactional psychological contracts will both be positively associated with their in-role behaviors.

The main difference between these two types of psychological contract is that a relational psychological contract focuses not only on economic but also on the socio-emotional aspects of the exchange (Rousseau, 1990). Since social exchanges feature a broader array of resources, including love or care, support, status, and social standing, employees with a relational psychological contract are also cognizant of their obligations to support the firm and manifest loyalty and commitment to the firm’s needs and interests (Rousseau, 2000). Consequently, employees tend to reciprocate with extra-role behaviors that signal their support or respect for their firms (Organ, 1990; Rousseau, 1995). However, in contrast to relational psychological contracts, transactional psychological contracts do not focus on social exchanges. In other words, employees with a transactional psychological contract will perceive their obligation as doing only what they are paid to do (Rousseau, 2000), and will not tend to reciprocate with extra-role behaviors. Thus, we predict that only relational psychological contracts have positive influences on knowledge workers’ extra-role behaviors.

H4: Only knowledge workers’ relational psychological contracts will be positively associated with their extra-role behaviors.

2.4 Commitment-based HR system, psychological contract, and role behavior

HR systems increase a firm’s performance by enhancing employee behaviors that contribute to the goals of the firm, i.e. by improving their role behaviors. Role behavior is
affected by employee psychological contracts (Robinson and Rousseau, 1994; Rousseau, 1989) which are understood by means of employee perceptions resulting from HR systems (Rousseau and Greller, 1994). Accordingly, psychological contracts could be viewed as the linking mechanism between HR systems and employee role behaviors (Wright and Boswell, 2002).

In-role behaviors are recognized by the organization's formal reward systems (Katz and Kahn, 1978), and employees will contribute to the firm through their in-role behaviors in exchange for financial and other non-financial, but tangible, inducements offered by the organization. According to Blau (1964), this is a kind of economic exchange. Since transactional and relational psychological contracts both include economic aspects in employment arrangements (Rousseau, 1990, 1995), commitment-based HR systems could enhance knowledge workers’ in-role behaviors by simultaneously shaping their transactional and relational psychological contracts. Accordingly, we propose the following hypothesis:

\[ H_5: \text{Knowledge workers’ transactional and relational psychological contracts will both mediate the relationships between their perceptions of commitment-based HR systems and in-role behaviors.} \]

Extra-role behaviors are not required for work roles, and employees will only adopt them in reciprocation when they have positive experiences with the firm (Organ, 1990; Robinson and Morrison, 1995). These positive experiences include respect, commitment and support, which are all involved in social exchanges (Cropanzano and Mitchell, 2005). Since only relational psychological contracts focus both on the economic terms and socio-emotional aspects in employment arrangements, commitment-based HR systems could only improve employees’ extra-role behaviors through the fostering of their relational psychological contracts. Accordingly, we propose the following hypothesis:

\[ H_6: \text{Only knowledge workers’ relational psychological contracts will mediate the relationships between their perceptions of commitment-based HR systems and extra-role behaviors.} \]

3. Method

3.1 Sample and procedure

The solid strength of Taiwan’s high-tech industries is a critical factor in the global economy (Einhorn, 2005). Knowledge workers, such as R&D professionals and engineers, have been viewed as the core human resource for high-tech firms. Since discussions on how to shape their role behaviors are therefore of critical importance, we drew the sample from the population of the R&D professionals and engineers in Taiwan’s high-tech firms.

In order to control common method variance (Campbell and Fiske, 1959) that would arise from measuring a single source, we measured psychological contracts and role behaviors from different sources. Since supervisory ratings remain the most popular form of performance measurement, we asked knowledge workers’ immediate managers to complete their role behavior assessments. Thus, we designed two questionnaires in this study: one for respondents (R&D professionals and engineers) and the other for their immediate managers. The respondents’ questionnaire contained the psychological contract scale, questions on the commitment-based HR system and demographic information. The immediate manager questionnaire contained questions regarding R&D professionals and engineers’ role behaviors as well as demographic information.

Since personal contacts significantly facilitate company access in Chinese society (Easterby-Smith and Malina, 1999), we accessed the participating high-tech firms through personal contacts and a snowballing technique. We mailed survey packages to each
participating high-tech firm. Each survey package contained a questionnaire administered to immediate managers and 5 questionnaires administered to R&D professionals or engineers. Of the 60 survey packages distributed, we received returned questionnaires from 32 immediate managers and 146 knowledge workers from 25 high-tech firms, representing response rates of 53.333 and 48.667 percent, respectively. After eliminating uncompleted questionnaires and records with unmatched manager-employee dyads, we had data from 28 immediate managers and 127 knowledge workers, representing effective response rates of 46.667 and 42.333 percent, respectively.

On average, immediate managers were 40 years old and had 133 months of high-tech work experience. Eighty-three percent of the immediate managers in the final sample were male, 26% had a PhD, 52% a master’s, 9% a bachelor’s, and 13% a vocational school degree. In comparison to the immediate managers, on average the knowledge workers were 33 years old and had 80 months of work experience. Sixty-seven percent of them were male, 63% percent were engineers, and 27% were R&D professionals. Twelve percent had a PhD degree, 40% a master’s, 37% a bachelor’s and 11% a vocational school degree.

3.2 Measurement

Commitment-based HR System: Lepak and Snell’s (2002) twenty-item scale was adopted to measure the extent to which an organization’s HR system nurtured employee involvement and maximized the organization’s return on its HR investment. Following the procedures used by MacDuffie (1995) and Youndt et al. (1996), Lepak and Snell also operationalized this scale as an additive index of HR practices. Five HR practices: job design, recruitment and selection, training and development, performance appraisal, and compensation, are used in this scale, and the commitment-based HR index is calculated by taking the mean value of the items.

The scale ranged from 1 to 5 (1 = strongly disagree, 5 = strongly agree). A sample item for this scale is: “These employees perform jobs that empower them to make decisions.” The confirmatory factor analysis (CFA) had a model Chi-square of 220.308 ($df = 160, p < 0.01; CFI = 0.964, NNFI = 0.957; RMSEA = 0.052, SRMR = 0.073), and the coefficient alpha was 0.886.

Psychological contract: The psychological contract inventory (PCI) was originally developed by Rousseau (2000) to measure employees’ beliefs regarding the terms and conditions of the exchange agreement between themselves and their organizations. Hui et al. (2004) translated PCI into Chinese and suggested that PCI is generalizable to China. Since Taiwan shares an identical culture and spoken language with China, we adopted PCI as translated by Hui et al., to measure psychological contracts.

Each relational and transactional psychological contract scale has 10 items. A sample item for the relational psychological contract is: “Stable benefits to employees’ families”, and for transactional psychological contract it is: “Short-term employment”. The subordinates were asked to rate their psychological contracts on a 6-point Likert type scale with scale anchors ranging from 1: “not at all”, to 6: “to a great extent”. The results of CFA indicated that this two-factor model ($\chi^2 = 271.305, df = 160, p < 0.01; CFI = 0.929, NNFI = 0.916; RMSEA = 0.082, SRMR = 0.089) fit the data, which the coefficient alpha of the relational psychological contract scale was 0.894 and that of the transactional psychological contract scale was 0.722.

Role behavior: In-role behavior was measured with Williams and Anderson’s (1991) scale, and extra-role behavior was measured with Farh et al.’s (1997) Chinese organizational citizenship behavior (OCB) scale. Following a reliability examination, there were 5 items left in the in-role behavior scale and 6 items in the OCB scale. Sample items for our scale are: “Performs tasks that are expected of him/her” (in-role behavior) and “Willing to help colleagues solve work-related problems” (OCB). Both scales ranged from 1 to 5 (1 = strongly
disagree, 5 = strongly agree). The coefficient alpha was 0.839 for in-role behavior and 0.834 for OCB; the CFA also yielded acceptable fit indices for this three-factor role behavior contract model ($\chi^2 = 75.415, df = 42, p < 0.01; \text{CFI} = 0.989, \text{NNFI} = 0.985; \text{RMSEA} = 0.088, \text{SRMR} = 0.013$).

4. Results

Since we had employee responses to all of the items of commitment-based HR systems and psychological contracts, we applied Harman’s single-factor test (Podsakoff et al., 2003) to detect potential effects of common method variance caused by a single source prior to the testing the hypotheses. The unrotated factor structure revealed distinct factors that paralleled the variables in the study, each with eigenvalues greater than one, collectively accounting for 69.531 percent of the variance. The first factor had an eigenvalue of 10.641 and accounted for 26.601 percent of the variance, while the other factors accounted for an additional 42.930 percent, each with eigenvalues between 3.744 and 1.164. Because separate factors were identified, and the first factor did not account for the majority of the variance, there was no general factor, thus reducing the potential concern over common method variance in the study (Podsakoff and Organ, 1986).

Table 1 presents the descriptive statistics and correlations among variables in the study. The correlations among commitment-based HR systems, psychological contracts, and role behaviors allow for the preliminary assessment of our hypotheses. For example, only the correlation between relational psychological contracts and extra-role behaviors is significantly positive and this provides the initial evidence for supporting $H4$.

Table 1. Descriptive statistics and correlation.

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<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<tbody>
<tr>
<td>1. Gender</td>
<td>0.670</td>
<td>0.473</td>
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<tr>
<td>2. Age</td>
<td>33.109</td>
<td>8.315</td>
<td>-0.171</td>
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<td>3. Education</td>
<td>2.475</td>
<td>0.861</td>
<td>-0.096</td>
<td>0.356*</td>
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<tr>
<td>4. Commitment-based HR system</td>
<td>3.336</td>
<td>0.490</td>
<td>-0.127</td>
<td>-0.119</td>
<td>-0.223*</td>
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<tr>
<td>5. Relational psychological contract</td>
<td>3.283</td>
<td>0.558</td>
<td>-0.213*</td>
<td>0.221+</td>
<td>0.052</td>
<td>0.552**</td>
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<tr>
<td>6. Transactional psychological contract</td>
<td>2.817</td>
<td>0.494</td>
<td>0.318**</td>
<td>-0.274**</td>
<td>-0.015</td>
<td>-0.277**</td>
<td>-0.546**</td>
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<td>7. In-role behavior</td>
<td>3.725</td>
<td>0.417</td>
<td>-0.162</td>
<td>0.164</td>
<td>-0.065</td>
<td>0.443**</td>
<td>0.435**</td>
<td>-0.207*</td>
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<td>8. Extra-role behavior</td>
<td>3.657</td>
<td>0.442</td>
<td>-0.189</td>
<td>-0.030</td>
<td>-0.066</td>
<td>0.490**</td>
<td>0.362**</td>
<td>-0.160</td>
<td>0.502**</td>
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</table>

Notes: * years, + p < .05, ** p < .01.
Table 2. Results of hierarchical regressing.

<table>
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<tr>
<th>Variables entered</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
<th>Model 7</th>
<th>Model 8</th>
<th>Model 9</th>
<th>Model 10</th>
<th>Model 11</th>
<th>Model 12</th>
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<tbody>
<tr>
<td>Constant</td>
<td>3.861**</td>
<td>1.974**</td>
<td>2.566**</td>
<td>1.920**</td>
<td>3.834**</td>
<td>2.029**</td>
<td>2.750**</td>
<td>2.099</td>
<td>2.837**</td>
<td>0.181</td>
<td>2.966**</td>
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<td>Gendera</td>
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<td>-0.089</td>
<td>-0.081</td>
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<td>-0.108</td>
<td>-0.099</td>
<td>-0.243*</td>
<td>-0.132</td>
<td>0.242*</td>
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<td>0.004</td>
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<td>0.021†</td>
<td>0.024**</td>
<td>-0.020*</td>
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<td>HR system</td>
<td>0.488**</td>
<td>0.308**</td>
<td>0.467**</td>
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<td>Psychological</td>
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<tr>
<td>Relational</td>
<td>0.403**</td>
<td>0.204*</td>
<td>0.359**</td>
<td>0.151†</td>
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<td>Transactional</td>
<td>0.038</td>
<td>-0.022</td>
<td>0.010</td>
<td>-0.010</td>
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<tr>
<td>Δ R-square</td>
<td>0.261</td>
<td>0.190</td>
<td>0.281</td>
<td>0.287</td>
<td>0.164</td>
<td>0.258</td>
<td>0.345</td>
<td>0.345</td>
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<td>Δ F</td>
<td>29.017**</td>
<td>9.477**</td>
<td>10.469**</td>
<td>25.927**</td>
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<td>55.013**</td>
<td>5.282†</td>
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<td>R-square</td>
<td>0.057</td>
<td>0.317</td>
<td>0.246</td>
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<td>0.044</td>
<td>0.287</td>
<td>0.208</td>
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<td>0.134</td>
<td>0.479</td>
<td>0.130</td>
<td>0.182</td>
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Notes: *Female = 0, †p < .10, *p < .05, **p < .01.
As shown in Table 2, we investigated the hypotheses using multiple regression analysis. Before testing $H1$ and $H2$, we examined the variance inflation factors (VIFs) associated with each regression coefficient between 1 and 1.852; no serious problems with multicollinearity were indicated. According to the regression coefficients in Model 10, commitment-based HR systems have a significantly positive influence on relational psychological contracts. Thus, $H1$ is supported. Secondly, we tested $H2$ to see whether employees’ perceptions of commitment-based HR systems are negatively associated with their transactional psychological contracts. According to our regression analysis in Model 12, commitment-based HR systems have a significant and negative influence on transactional psychological contracts. Thus, $H2$ is also supported.

Next, $H3$ and $H4$ were tested. We first tested $H3$ to see whether both relational and transactional psychological contracts are positively associated with in-role behaviors. According to the regression coefficients in Model 3, only relational psychological contracts have a significantly positive influence on in-role behaviors. Thus, $H3$ is partially supported. In addition, according to the regression coefficients in Model 7, only relational psychological contracts have a significant and positive influence on extra-role behaviors. For this reason, $H4$ is fully supported.

Following Baron and Kenny’s (1986) procedures, two preconditions had to be met before we started to test $H5$ and $H6$ to see whether psychological contracts mediate the relationships between commitment-based HR systems and role behaviors. First, commitment-based HR systems must also be significantly related to in-role ($b = 0.488, p < 0.01$) and extra-role ($b = 0.467, p < 0.01$) behaviors. Secondly, commitment-based HR systems must also be significantly related to relational ($H1$) and transactional ($H2$) psychological contracts. Since both of these preconditions were supported, we could start to examine $H5$ and $H6$.

Comparing Models 2 and 4, we found that the effect of a commitment-based HR system on in-role behavior dropped from 0.488 ($p < 0.01$) to 0.308 ($p < 0.01$), indicating that a psychological contract partially mediates the relationship between a commitment-based HR system and in-role behavior. Since transactional psychological contract is not significant in Model 4, the effect of commitment-based HR system on knowledge workers’ in-role behaviors only results from their relational psychological contracts. In addition, Sobel test (1982) also revealed that the indirect effect of relational psychological contracts is significant ($t = 3.337, p < 0.01$). Accordingly, the mediation effect of relational psychological contact is proved and $H5$ was partially supported.

Similarly, comparing Models 6 and 8, we found that the effect of a commitment-based HR system on extra-role behavior dropped from 0.467 ($p < 0.01$) to 0.334 ($p < 0.01$). Furthermore, we also found that only the relational psychological contract is significant in Model 8 and the Sobel test ($t = 3.032, p < 0.01$). Consequently, only relational psychological contracts mediate the relationship between a commitment-based HR system and extra-role behavior, so $H6$ is supported.

5. Discussion and conclusions

By focusing on knowledge workers and adopting their perspective, our study provides a more stable and proximal relationship between commitment-based HR systems and employees’ performance. Research results indicate that knowledge workers’ perceptions of commitment-based HR systems improve their in-role and extra-role behaviors via the shaping of their relational psychological contracts. In other words, when knowledge workers perceive that their employers have adopted commitment-based HR systems that concern them, they believe that they have open-ended employment arrangements based upon mutual trust, and are thereby willing to perform higher level in-role and extra-role behaviors. These findings not
only add to our understanding of the relationship between commitment-based HR systems and employee role behaviors but also empirically explain how a commitment-based HR system influences employee role behaviors.

Additionally, our results also indicate that knowledge workers’ perceptions of commitment-based HR systems could positively influence their relational psychological contracts and, in contrast, negatively influence their transactional psychological contracts. This finding contributes to our understanding of the influences of commitment-based HR systems on employee views concerning their own employment. Finally, we found that only relational psychological contracts were positively associated with in-role and extra-role behaviors. This finding not only contributes to our understanding of the impact of these contract forms on organizationally relevant outcomes, but is also beneficial for developing a deeper theoretical understanding of the nature of the psychological contract (Hui et al., 2004).

However, the results did not support our proposition that transactional psychological contracts mediate the relationship between commitment-based HR system and in-role behavior. This is probably due to the absence of the significantly positive relationship between transactional psychological contracts and in-role behaviors; furthermore, different data sources of knowledge workers’ psychological contracts and their role behaviors, are likely the main reasons for this absence. In our research design, we adopted immediate managers as an additional source for controlling common method variance. Nevertheless, immediate managers are more likely to define a broader job scope than would employees (Lam et al., 1999). That is, employees’ concepts of what constitutes higher degrees of in-role behaviors are probably not on a par with those of their immediate managers. For this reason, when we adopted immediate managers as the data source of role behaviors, their particular concepts of in-role behavior were probably not significantly associated with employees’ transactional psychological contracts.

If we infer that the immediate manager’s rating is the major reason for the lack of a significant relationship between transactional psychological contracts and in-role behaviors, the question arises: Why is there a significantly positive relationship between relational psychological contracts and in-role behaviors? We believe this is probably because of the different focus of relational and transactional psychological contracts. Specifically, employees with a relational psychological contract would simultaneously focus on economic and socio-emotional terms in their employment (Rousseau, 1990; Rousseau and McLean Parks, 1993) after which they become more willing to simultaneously perform in-role and extra-role behaviors. In other words, a positive relationship remains between the employees’ ratings of their relational psychological contract and immediate managers’ ratings of employee’s in-role behaviors, with the stipulation: as long as they have similar concepts of role scope.

Since we inferred that the ill-defined boundary between the two types of role behaviors led to the lack of a positive relationship between transactional contracts and in-role behaviors, one possible way to solve this problem is to collect data from supervisor evaluations of employee role behaviors during two (or more) time periods. The change in supervisor evaluations over different time periods can solve the problem relating to the supervisors’ and employees’ differing concepts of employee role behaviors. For this reason, a longitudinal research design is needed in discussing the relationship between psychological contracts and role behaviors.

Despite its contributions, our study also has an important limitation. According to Lepak and Snell’s (1999) HR architecture, different HR system types should be used for employees in four different employment modes: knowledge-based employment, job-based employment, contract work, and alliance/partnership. Even though this study contributes to our understanding of the relationships between HR systems and employee behaviors by linking knowledge workers’ perceptions of commitment-based HR systems to their role behaviors,
the results are limited to inference concerning the relationships between HR systems and employee behaviors in the other three types of employment. For this reason, we suggest that future research on the relationship between HR systems and employee behaviors try to adopt employees in other types of employment modes as the target sample.

Finally, the results of this study have some important practical implications. They suggest that commitment-based HR systems do elicit a wide range of knowledge workers’ behaviors that are beneficial to the goals of the firms. Since knowledge workers are treated as a core component of a firm’s competitive advantages, firms can enhance competitive advantages by adopting a commitment-based HR system for their knowledge workers. This paper provides a preliminary study on the relationships between HR systems and employee behaviors. Additional research will help to further elucidate this relationship.

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Reference


