



# High Commitment Work Systems in Chinese Organizations: A Preliminary Measure

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**ABSTRACT** The concept of a high commitment work system (HCWS) has mostly been used in the West to study the relationship between a firm's work systems and organizational performance. In this paper, we introduce a preliminary measure of HCWS in China based on the definition of Baron and Kreps (1999). In study 1, we tested the measure by surveying 442 employees in China's information technology (IT) industry. In study 2, we re-tested the same measure from the perspective of human resource (HR) executives in 126 foreign-invested companies. The analyses not only provided some evidence for the construct validity of this preliminary measure of a high commitment work system, but also produced some interesting results that can only be understood with regards to the history and institutional backgrounds of Chinese organizations.

**KEYWORDS** high commitment work system, China, scale development

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## INTRODUCTION

Research on the relationship between firms' human resource systems and organizational performance in recent years has seen some convergence on the concept of a high commitment work system – HCWS (Arthur, 1994; Baron and Kreps, 1999; Pfeffer, 1997; Walton, 1985). HCWS refers to a system of human resource management practices that aim to elicit employees' commitment to the organization (Walton, 1985). A large number of empirical studies have reported a positive relationship between HCWS and organizational performance (Appelbaum et al., 2000; Arthur, 1994; Delery and Doty, 1996; Guthrie, 2001; Huselid, 1995; Ichniowski and Shaw, 1999; MacDuffie, 1995; Youndt et al., 1996), which suggests the robustness of the effect and also explains the wide dissemination of the concept among both academics and practitioners (US Department of Labor, 1993; Watson Wyatt, 1999).

Thus far however, research on HCWS has mostly been carried out in Western organizations. To what extent the logic of high commitment can be also extended

to China, a country with a vastly different culture and institutional background (Peng et al., 2001; Tsui and Lau, 2002), is still unknown. Furthermore, despite the research attention that has been devoted to analyzing the relationship between high commitment work systems and organizational performance, few efforts have been made to validate instruments that measure high commitment work systems.

In the present study, we attempt to provide an empirical validation of a theory-based instrument of HCWS, with a particular focus on organizations in China. We begin by reviewing the HCWS construct used in the literature and describe how social exchange theory and a focus on trust provide a theoretical foundation for the construct. Subsequently, we review how HCWS has been operationalized in the literature, and suggest a measure of HCWS that is based on the practices suggested by Baron and Kreps (1999). The empirical validation of the instrument is based on two independent samples from China, which offer an opportunity to validate our measure from the perspective of both employees and employers; the latter is measured from the perspective of the firm's human resource executives. The two tests not only provide initial evidence for the validity of this preliminary measure, but also produce some interesting results that can only be understood by relating them to the histories and institutional backgrounds of Chinese organizations.

## **HIGH COMMITMENT WORK SYSTEM – CONCEPTUAL BACKGROUND**

In his seminal article, Walton (1985) distinguished between a 'control' and a 'commitment' strategy to managing a workforce. The central argument is that work practices such as profit-sharing, employment assurances and employee participation will enhance employees' level of commitment, and hence improve the performance of the organization. Since then, the positive relationship between such a work system, which is often called HCWS, and firm performance has been well documented by a stream of empirical studies. Some of the most prominent studies include Arthur's (1994) study of US steel mini-mills, Delery and Doty's (1996) study of the US banking industry, Guthrie's (2001) study of a national sample of New Zealand companies, Huselid's (1995) study of a national sample of US companies, Ichniowski and Shaw's (1999) study of Japanese and US steel production lines, and MacDuffie's (1995) study of the world's automobile assembly industry.

While the relationship between HCWS and organizational performance is well established, the mechanism behind the construct is still not clear, to the extent that some scholars even called it 'the black box' of HCWS (Guest, 1997; Ramsay et al., 2000; Wright and Gardner, 2003). The underinvestigation of this issue is partly embodied in the pluralism of terminology in the literature (Shadish et al., 2002). For example, while some authors have used HCWS to highlight the fact that the organization's work system can enhance the commitment of employees (Arthur, 1994; Baron and Kreps, 1999; Walton, 1985; Whitener, 2001), others have used

terms such as 'high involvement work system' (Guthrie, 2001; Lawler, 1986), highlighting the self-programming and self-managing nature of the workforce. Still others have used the term 'high performance work system' (Appelbaum et al., 2000; Becker and Huselid, 1998; Huselid, 1995), emphasizing the superior performance the work system can bring. While most scholars used these terms interchangeably (for instance, Baron and Kreps, 1999; Guthrie, 2001; Pfeffer, 1997), a better understanding of the mechanism behind the construct seems to be warranted.

The resource-based view has been widely referred to as providing an explanation for a causal interpretation of a positive relationship between work systems and organizational performance (e.g., Becker and Huselid, 1998; Huselid, 1995). According to the most prevalent version of the resource-based view, firms can establish a sustained competitive advantage by implementing a value creating strategy which is rare, imperfectly imitable, non-substitutable and therefore not successfully carried out by any current or potential competitors (cf., Barney, 1991). A socially complex, contextually idiosyncratic and partly causally ambiguous phenomenon such as a firm's human resource system may indeed be a source of sustainable competitive advantage (Barney and Wright, 1998; Wright et al., 2001). However, the resource-based view offers few guidelines for the kind of work practices that would theoretically and empirically constitute the high commitment work system.

An alternative explanation to the positive relationship between work systems and organizational performance is the social exchange theory (Blau, 1964). The gist of the theory is that, compared with economic exchanges, which are based purely on self-interest, many human interactions are social exchanges. In social exchanges, the norm of reciprocity will create obligations for people to return the positive, beneficial behaviours of others (Gouldner, 1960). In organizational research, one stream of research has shown that employees' commitment to the organization derives from their perception of the employers' support for or investment in them (Eisenberger et al., 1990; Tsui et al., 1997; Wayne et al., 1997). The organization's work practices are interpreted by the employees as indicative of the personified organization's commitment to them; they will, according to the logic of social exchanges, reciprocate by becoming more committed to the organization. The employees' high commitment is, in turn, expected to lead to a higher performance level for the organization (Iverson and Buttigieg, 1999). In the terms of Appelbaum and her colleagues (2000), it is through the effective elicitation of *discretionary efforts* (efforts above and beyond what is called for in the job description) that work systems will positively influence firm performance.

In the same vein, Baron and Kreps (1999) succinctly define high commitment human resources management as 'an ensemble of HR practices that aims at getting more from workers by giving more to them' (p. 189). According to them, the core of a system of high commitment work practices is the demonstration of an employer's trust in the employees. Here trust is defined as 'a psychological state comprising

the intention to accept vulnerability based upon positive expectations of the intentions or behaviors of another' (Rousseau et al., 1998, p. 395). For instance, participation and organizing work in teams are typical ways through which the employer trusts that the employees will exert discretion for the organization's benefits. Control and surveillance measures can be relinquished for more freedom for employees to manage themselves. Career security and feedback for developmental purposes (rather than for evaluation purpose) imparts the expectation that employees will develop a long-term perspective and internalize the organization's welfare. Extensive training for employees and enlarged jobs indicate how the employer trusts the employee to use his/her skills to accomplish the organization's objectives. By implementing these work practices, the employer sends a consistent expectation that the employees are trusted to reciprocate by their 'consummate efforts' for the best interests of the organization; that is, the employer trusts the employees will honour rather than abuse the trust. Trust means both employer and employees are better off (win-win) and gives rise to a more efficient employment relationship, which is tantamount to an informal and self-reinforcing contract between employer and employees.<sup>[1]</sup> In comparison, 'low commitment' organizations are based on formal contracts between the employer and the employees, not unlike the usual formal contracts found in spot markets where the role of trust between the two parties is minimal. The 'trust view' is corroborated by a stream of empirical research on the relationship between employees' commitment to the organization and employee's trust in management (Kim and Mauborgne, 1993; Pearce, 1993; Whitener, 2001).

### **Measuring High Commitment Work Systems**

An appropriate scale of the HCWS construct should contain items on the set of different work practices that, based on theoretical reasoning, can be expected to elicit employees' commitment to the organization. While it is widely accepted that rather than individual work practices, it is the overall system of work practices that may contribute to the creation of some form of competitive advantage (Arthur, 1994; Becker and Huselid, 1998; MacDuffie, 1995; Youndt et al., 1996), a review of the literature shows that there are considerable differences in how HCWS has been measured (Becker and Gerhart, 1996).

Some scholars have conceived and measured work systems using a one-dimensional index on which firms score high or low in terms of HCWS; hence, no factor analysis is reported in these cases (e.g., Arthur, 1994; Dutta et al., 2005; Guthrie, 2001; Youndt et al., 1996). When the outcomes of factor analyses have been reported in previous empirical studies, two or more factors have been arrived at, sometimes leading to results that have been difficult to interpret (Becker and Huselid, 1998; Guest et al., 2004). For instance, MacDuffie (1995) used factor analysis for his work practices items and found that there were significant overlaps

along the three theoretical dimensions: skills, motivations and integration. Another example is Ramsay et al.'s (2000) study of HCWS, using UK data, where they had limited success in identifying meaningful factors in their analysis of the 24 high-commitment work practices. Huselid (1995) tried to give sensible labels to the two factors he derived from the 13 items of work practices: employee skills/organizational structures (nine items, accounting for 16.3% of the variance) and employee motivation (four items, accounting for 13.6% of the variance). In another study, Bosalie et al. (2003), after deleting some non-meaningful items, reported a two-factor structure, which they called commitment (12 items, accounting for 23% of the variance) and control HR system (5 items, accounting for 17% of the variance) respectively.

One possible reason for the different outcomes in such factor analyses has been the different ways in which 'practice' has been measured. For example, while some scholars have used objective measures of work practices (such as the percentage of employees receiving a certain kind of training, or the average number of days of training per employee per year), others have used purely perceptual measures (such as the degree to which employees are offered opportunities for further development of specific skills). Whereas the objective measures tend to be more detailed and focus on actual practices, and are therefore contextually sensitive, perceptual measures of the 'guiding principles' of work in the focal organization are likely to have a more generalizable effect on organizational performance (Becker and Huselid, 1998), as well as be more relevant across industries and countries where detailed practices are likely to differ. Therefore, in this research we focus on perceptual measures of HCWS.

Another probable reason for the different factor analysis results in the literature is that scholars have differed on whether certain work practices should be considered as indicating high or low commitment. In this regard, the social exchange/trust view provides a theoretical perspective to clarify some unsolved debates on high commitment work practices. For instance, Delery and Doty (1996) considered tightly defined jobs as a part of HCWS (what they called 'internal employment system'). The social exchange/trust view suggests the contrary: there is clearly more trust involved in a flexible job system than in a rigid job system. Indeed, this feature is seen in the measure of HCWS used by most other researchers: flexible job description (Wood, 1996), flexible job assignment (Ichniowski and Shaw, 1999), and job enrichment and job re-design (Lawler et al., 1992). In the same vein, results-oriented performance appraisal may appear to demonstrate high commitment if compared with process-based appraisal, as suggested by agency theory (Eisenhardt, 1989). However, the same work practice can be seen to demonstrate low commitment if we compare it with attitude or behaviour-oriented performance appraisal (Delery and Doty, 1996; Youndt et al., 1996).

Consistent with the theoretical core of the social exchange/trust view discussed above, our measure of HCWS is largely based on Baron and Kreps' (1999) 12

high-commitment work practices. These items encompassed the various important functions of human resource management (HRM): recruitment, compensation, performance management, training and socialization. We benchmarked the list with those of other widely referred to studies. In recognizing the importance of performance appraisal (e.g., Delery and Doty, 1996; Youndt et al., 1996), we added two more work practices on performance appraisal. Similarly, we included one item on employee participation due to the acknowledged importance of various participative practices like a suggestion system, grievance system and morale survey in the literature (Arthur, 1994; Pfeffer, 1994). Adding these items assures that we have properly sampled the domain of observables of the high-commitment construct (Nunnally and Bernstein, 1994). The 15 items are in the appendix.

Table 1 presents a comparison of our measure of HCWS with those of some representative studies. The common work practices across these studies include: effort in selecting employees, extensive training and socialization, internal job market, job security, behaviour- and development-oriented appraisal, participation and wide informational sharing, emphasizing teamwork by organizing work in teams, etc. Following previous research (Arthur, 1994; MacDuffie, 1995; Youndt et al., 1996), we consider a high commitment work system as one that scores high on all these practices.

Two other issues are the appropriate level of analysis and, related to this, the question of who constitutes appropriate respondents. The HCWS literature usually surveys firms, inviting the responses of HR executives as representatives of the firm or the employers. However, since the employees are the objects of the work practices and are thus in the best position to give their perceptions of a set of work practices as a sign of trust or commitment from the employer, it is also important to survey the extent to which employees differ in how they perceive the organization's work practice (Van der Berg et al., 1999). Hence, in this research we conducted two separate studies: study 1 builds on data provided by a large sample of individuals from four companies, while study 2 relies on a sizeable number of HR executives' responses concerning the work practices in their own organizations. In this way, our approach taps into two different perspectives within organizations: that of the employees and of the employers, the latter as represented by the HR executives.

## METHOD

### Study 1

Our first study was on China's IT industry, which is one of the backbones of the country's economy. It was the third largest in the world, after the USA and Japan, and was still growing at an annual rate of 20–30%. It was also one of the largest

Table 1. Work practices included in some representative studies

	<i>Items in the current study</i>	<i>Baron and Kreps, 1999<sup>a</sup></i>	<i>Pfeffer, 1994<sup>a</sup></i>	<i>Deery and Doby, 1996</i>	<i>Youndt et al., 1996</i>	<i>Walton, 1985<sup>a</sup></i>	<i>Huselid, 1995</i>	<i>MacDuffie, 1995</i>	<i>Arthur, 1994</i>	<i>Guthrie, 2001</i>
1	Promotion from within	Yes	Yes	Yes			Yes			Yes
2	Careful selection	Yes	Yes		Yes		Yes			
3	Extensive training	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
4	Job security	Yes		Yes		Yes	Yes	Yes		
5	Enlarged jobs	Yes	Yes	Yes <sup>b</sup>		Yes				Yes
6	Appraisal-team	Yes			Yes	Yes				
7	Appraisal-behaviour			Yes	Yes					
8	Appraisal-development			Yes	Yes					
9	High remuneration	Yes	Yes		Yes				Yes	Yes
10	Ownership	Yes	Yes			Yes			Yes	Yes
11	Egalitarianism	Yes	Yes			Yes		Yes	Yes	Yes
12	Participation		Yes			Yes			Yes	Yes
13	Information sharing	Yes	Yes	Yes		Yes				Yes
14	Overarching goals	Yes				Yes				Yes
15	Teamwork	Yes	Yes			Yes		Yes		Yes

Notes:

<sup>a</sup> Not an empirical study.

<sup>b</sup> Not in the same direction, as discussed in the text.

export industries, commanding 28% of total exports (Ministry of Information Industry (MII), 2003).

We approached 16 companies that had been nominated by industry experts. After much negotiation, we gained access to four companies. Two Chinese companies were from the booming private sector: one was a leading Chinese software producer (hereafter referred to as SOFTWARE); the other was a leading Chinese hardware producer (hereafter referred to as HARDWARE). Two foreign companies were both from the USA: a telecommunications equipment producer (hereafter referred to as TELECOM); and a wireless and mobile equipment producer (hereafter referred to as MOBILE). All companies were based in Beijing, a major IT centre in China.

We collected data from these companies from October 2002 to March 2003. We asked each company to randomly sample 200–300 salaried employees, and we invited these employees to participate in our survey. The response ratio for SOFTWARE was 44%; for HARDWARE, 39%; for TELECOM, 34%; and for MOBILE, 33%. All the respondents were ethnic Chinese. Of the 442 respondents, 26% were managers with responsibility for people or projects. The rest were individual contributors. Seventy-four percent had engineering jobs, 12% had sales, marketing, and public relation jobs; 8% had administrative jobs; and 6% had other jobs. Sixty-three percent were male and 37% were female. Ninety-two percent of the respondents had a bachelor's degree or higher. Their average age was 29 years and their average tenure was 1.8 years.

We used Likert scales (1–7) to ask the respondent 'to what extent the following item best describes the HR practices in their company (1 for not at all, 7 for entirely)'. The aim was to obtain respondents' perceptions on the existence of the listed work practices in their organizations. We used the back translation technique to design the Chinese version of the questionnaire. The social desirability problem (Arnold and Feldman, 1981) was alleviated in the following ways: (i) the researchers distributed the questionnaires to all respondents and clarified that the research was for academic purposes only; (ii) all completed questionnaires were mailed back directly to the researchers by respondents instead of being routed through the companies; and (iii) we promised that all responses would be completely confidential and that our analysis would be only at the aggregate level. We asked the company to send two rounds of email reminders to the employees, approximately two and four weeks after the first invitation. If the questionnaire had missing data points, we emailed, called or met with the respondents to fill in the missing data. The response rates in the four companies ranged from 33% to 44%, typical for respondents for this kind of survey.<sup>[2]</sup> We collected the basic demographic information of all the employees invited (the full sample) from the HR department for a response bias analysis. The results showed that an employee's probability of response was not related to gender, age, education, experience, seniority or organizational rank.



Table 2. Study 1: Results of exploratory factor analysis of HCWS items<sup>a</sup> – employee perspective

No.	Items	Factor 1	Factor 2	Factor 3	Factor 4
1	Promotion from within	0.41	-0.15	0.23	<b>0.56</b>
2	Careful selection	<b>0.66</b>	-0.03	0.07	0.31
3	Extensive training	<b>0.62</b>	-0.20	0.02	-0.06
4	Job security	-0.05	<b>0.77</b>	-0.02	-0.02
5	Enlarged jobs	<b>0.57</b>	-0.03	-0.26	0.29
6	Appraisal-team	<b>0.49</b>	0.27	-0.26	0.29
7	Appraisal-behaviour	0.07	<b>0.77</b>	0.33	0.06
8	Appraisal-development	<b>0.55</b>	0.23	0.24	-0.11
9	High remuneration	0.47	0.24	0.10	<b>-0.50</b>
10	Ownership	<b>0.49</b>	-0.41	0.30	0.04
11	Egalitarianism	<b>0.58</b>	0.18	0.19	-0.07
12	Participation	<b>0.72</b>	-0.16	0.06	-0.28
13	Information sharing	<b>0.71</b>	-0.07	-0.07	-0.34
14	Overarching goals	0.40	0.03	<b>-0.67</b>	-0.16
15	Teamwork	<b>0.55</b>	0.16	-0.52	0.31
	<i>Eigenvalue</i>	4.15	1.70	1.17	1.13
	<i>Percentage of variance explained</i>	0.28	0.11	0.08	0.08
	<i>Alpha coefficient</i>	0.81			

Note: <sup>a</sup> Figures in bold indicate primary factor loading.

We used the exploratory factor analysis (EFA) programme provided by SAS 9.1. Table 2 shows the results of this factor analysis. The factor loading pattern showed that ten items had a primary loading on the first factor, which accounts for 28% of the total variance. We interpreted it as representing these employees' conceptualization of HCWS. The cut-off point of the factor loading is 0.50. We included appraisal-team (item six) and ownership (item ten) because these two items are important components of our theoretical core of HCWS and the loading of these two items was 0.49, very close to 0.50. Hence, five items are excluded from this measure: promotion from within (item one); job security (item four); appraisal-behaviour (item seven); high remuneration (item nine); and overarching goals (item 14). The remaining ten items were thus used to constitute the HCWS measure. The Cronbach alpha reliability coefficient of this measure is 0.81, an acceptable value.

The mean scores of the HCWS measure for the four companies are 4.55 (HARDWARE), 3.65 (SOFTWARE), 3.95 (MOBILE) and 4.20 (TELECOM). To check the inter-rater reliability, we estimated the within-group inter-rater agreement index among respondents in each company by *rwg* (James et al., 1983) and found the measure to be 0.85 for SOFTWARE, 0.83 for HARDWARE, 0.83 for MOBILE and 0.83 for TELECOM. Meanwhile, ICC(1) (James, 1982) and ICC(2) (Klein and Kozlowski, 2000) were at 0.14 and 0.95 respectively, both indicating a good within group (within company) inter-rater reliability.

We obtained further evidence on inter-rater agreement. When we asked the industry experts to nominate companies to study, we also asked them to categorize these companies as high- versus low-commitment organizations according to our criteria. They classified HARDWARE and MOBILE as high-commitment organizations and SOFTWARE and TELECOM as low-commitment organizations. Then, inter-rater agreement was obtained for HARDWARE and SOFTWARE with the former having the highest commitment score as rated by the employees and the latter having the lowest. However, the level of commitment at TELECOM was actually higher than that at MOBILE ( $F = 5.33$ ,  $p < 0.05$ ). This may be because the TELECOM respondents were all from the R&D function of the company, where typically more high-commitment work practices are applied.

Further, our measure of HCWS does not correlate with demographic variables of the respondents (age and gender), human capital variables (education, major in college and years of work experience), or social capital variables (size and density of the career network of the respondent), providing some evidence of discriminant validity. However, it is also important to juxtapose HCWS with other related constructs, which leads us to the following discussion of nomological validity.

A nomological network is the key to examining construct validity (Kerlinger, 1986; Nunnally, 1967; Schwab, 1980). We treat job level and functions as antecedents of HCWS; job satisfaction, affective commitment and intention to stay are treated as consequences of HCWS. The relationship between job level and HCWS is hypothesized as positive since high-level jobs are typically associated with autonomy, participation and decision-making power (Lawler, 1992; Salancik, 1977), key features of HCWS. We also hypothesized a positive relationship between technological employees and HCWS because technological know-how is an important strategic asset for IT companies; these companies are more likely to adopt a commitment-based HR system to manage such employees (Lepak and Snell, 1999). As to the consequences of HCWS, we expected a positive relationship between HCWS and job satisfaction, affective commitment and intention to stay in the organization (Baron and Kreps, 1999; Blau, 1964; Gouldner, 1960). These positive relationships also indicate a criterion-related validity of the HCWS construct.

Job level was measured on a 5-point scale, with 5 being the highest level. A dummy code of 1 was used to indicate employees in technological jobs. Job satisfaction was measured by asking the respondent, 'To what extent are you satisfied with this job?', and the answers are evaluated on a 7-point Likert scale, responses ranging from 1 to 7. Affective commitment is a five-item scale we adapted from Tsui et al. (1997).<sup>[3]</sup> Intention to stay, our measure of continuance commitment (Allen and Meyer, 1990), was measured by asking the respondent, 'How long do you plan to continue to work in this company?' (in years). This item was adjusted, through subtraction, by the intention to remain in the current position, measured by the question, 'How long do you plan to continue to work in this position?' (in years). We made this correction because, in the IT industry,

employees' intention to stay in their current jobs tends to capture their need to master the technical expertise of the job, not their commitment to the organization. By excluding the influence of the conditions specific to the current job, this measure captured the employee's true commitment to the organization, not the instrumental purpose of staying to learn the skills of the job.

We calculated the zero-order correlation between the above variables to show the relationships between these constructs in the nomological network. We presented these statistics as part of the construct validation of the measure rather than as evidence of a substantive relationship. Except for the technological job dummy variable ( $r = -0.03$ ), which is not significant, all other correlations were consistent with our expectations of their relationships ( $r = 0.10$  for job level;  $r = 0.43$  for job satisfaction;  $r = 0.50$  for affective commitment;  $r = 0.19$  for intention to stay), which provided important support for the construct validity of this measure.

## Study 2

In study 1, we surveyed the employees' perceptions in four organizations. To further test the validity of the HCWS scale, we also needed to collect data from a larger sample of Chinese firms. Chinese companies vary greatly in human resources management practices, especially when classified by ownership – state-owned, privately owned and foreign-invested companies. Foreign-invested companies, which include wholly owned companies and joint ventures, account for roughly one-third of the economy and half of exports (State Statistics Bureau (SSB), 2003) – thus constituting an extremely important part of the Chinese economy. We decided, therefore, to study a sample of foreign-invested companies in China.

Collecting data at company level in China is very difficult and the response ratio for conventional mailed surveys can be very low, largely due to the lack of academic traditions. We carefully mitigated this problem by taking various measures. First, to obtain the most accurate contact information of foreign-invested companies in China, we used a handbook published biannually by the Commercial Intelligence Service, a division of Business Monitor International, called *Foreign Companies in China (2002–2003)*. The handbook provided contact details, names of key personnel, and other basic information (including nationality, year established, estimated number of employees and a brief description of their activities) for 4208 foreign-invested companies. Secondly, we hired a research assistant who was educated in Europe and who spoke fluent English, Dutch and German. This was a very pragmatic move since respondents in China were usually more cooperative with foreigners, especially over the phone. Third, we carefully streamlined the survey processes. We took a random sample of 650 companies that were listed in the handbook and were able to establish contacts with 477 of them (73%). We retained 400 companies (62%) that have an HR function in the company and asked whether they would like to support the study. Positive answers came from

Table 3. Study 2: Results of exploratory factor analysis of high commitment items<sup>a</sup> – human resources executive perspective

No.	Items	Factor 1	Factor 2	Factor 3
1	Promotion from within	<b>0.56</b>	-0.49	-0.04
2	Careful selection	<b>0.73</b>	-0.38	0.17
3	Extensive training	<b>0.77</b>	0.00	0.07
4	Job security	0.19	<b>-0.53</b>	0.50
5	Enlarged jobs	<b>0.58</b>	-0.18	-0.16
6	Appraisal-team	<b>0.52</b>	0.41	0.50
7	Appraisal-behaviour	0.23	0.47	<b>0.52</b>
8	Appraisal-development	<b>0.77</b>	0.15	-0.06
9	High remuneration	<b>0.75</b>	0.19	-0.17
10	Ownership	0.42	<b>0.53</b>	-0.18
11	Egalitarianism	<b>0.55</b>	0.13	-0.31
12	Participation	<b>0.76</b>	-0.02	-0.27
13	Information sharing	<b>0.86</b>	-0.04	-0.13
14	Overarching goals	<b>0.72</b>	-0.06	-0.05
15	Teamwork	<b>0.78</b>	-0.04	0.30
	<i>Eigenvalue</i>	6.21	1.45	1.17
	<i>Percentage of variance explained</i>	0.41	0.10	0.08
	<i>Alpha coefficient</i>	0.89		

Note: <sup>a</sup> Figures in bold indicate primary factor loading.

316 companies (49%). We faxed/mailed the survey to the person responsible for HR in the company, and asked the person to fill in the survey and fax/email it back at their earliest convenience. We then reminded the participating companies twice; the first time was one week later by email/fax and the second time was two weeks later with a phone call. We obtained a total of 126 returned questionnaires. The survey was administered in July–August 2004.

The average age of these 126 companies is 12.7 years (SD = 6.8) and the average number of employees is 677 (SD = 1206); on average, these companies have 7.5 HR professionals (SD = 10.8). We compared the distribution of the 126 companies by industry and nationality with those of the full sample. Their patterns were very similar except that Asian companies (Japanese, South Korean and overseas Chinese companies) were less likely to respond to the survey.

We used the same Likert scales (1–7) as in study 1 to ask the respondent ‘to what extent the following item best describes the HR practices in your company’. The aim was to get respondents’ perception on the existence of the listed work practices in their organizations. We used the EFA programme provided by SAS 9.1. Table 3 shows the results of factor analysis. There are three items whose primary loading was not on the first factor, job security (item 4), appraisal-behaviour (item 7), and ownership (item 10). The other 12 items’ primary loadings are on the first factor, which accounts for 41% of the total variance. Hence, these 12 items are used to

form a scale that measures HCWS. The cut-off point for the factor loading is 0.50. The Cronbach alpha reliability coefficient is 0.89. We analyzed the relationship between this measure and the age, size, industry or nationality of the parent company, and did not find any significant relationships.

In addition to the EFA, we could also consider the current study as independent data to cross-validate the results of study 1. Thus, we conducted a confirmatory factor analysis (CFA) on the 10-item measure we derived from study 1.<sup>[4]</sup> We used LISREL 8.53 to perform this analysis. The  $\chi^2$  is 81.07 and the degree of freedom is 35. Goodness-of-fit indices also show good psychometric properties with a CFI of 0.96, an NFI of 0.92 and an RMSR of 0.06. The CFA result provided further evidence of the construct validity of the HCWS measure.

## DISCUSSION

The results of the factor analyses conducted on the two independent samples indicated the existence of core items with which to measure the HCWS construct in China. Nine items are present in both the employees' and the human resource executives' perspectives of the scale of HCWS: careful selection (item 2); extensive training (item 3); enlarged jobs (item 5); appraisal-team (item 6); appraisal-development (item 8); egalitarianism (item 11); participation (item 12); information sharing (item 13); and teamwork (item 15). While validation of a measure is a continuous process (Hinkin, 1998), these nine items provide a preliminary measure to facilitate future research on HCWS in China.

We also interpret these results as providing initial support for the unidimensionality of the HCWS construct; that is, as the social exchange/trust view suggests, these work practices indeed have a theoretical core, which is to send a consistent message of trust from employer to employees. Although the concept of HCWS originated in the West, our results suggested, to the extent that people in other cultures also view the employment relationship as a social exchange, that the theoretical core of the HCWS may not be context-bounded (Tsui, 2004).

Of course, this does not mean that the items we use to measure HCWS are not contextually bound. Our analyses revealed two work practices that stood out as being unrelated to others from both the employees' and the human resource executives' perspectives: job security and appraisal behaviour. These two items exhibited very low loading on the principal factor in both samples. Thus, it appears that in the Chinese context, employment security and behaviour-oriented appraisal are not seen as signs of an employer's commitment to its employees. We posit that this interesting result speaks to the history and institutional environment of Chinese companies. In the central planning era, state-owned enterprises offered the Iron Rice Bowl (employment security) to all employees. It was technically almost impossible for management to fire any employee from the enterprise. Consequently, the appraisal process in these enterprises typically put more empha-

sis on personal virtues than on real job performance. The ranking order guiding most personnel departments' appraisal process was: virtue (*dé*), ability (*neng*), diligence (*qing*) and performance (*ji*) (Central Committee of Communist Party of China, 1995). Performance, or results on the job, the most objective one of the four, was only the last item in this ranking order. Virtues, especially political virtues, as demonstrated by the person in his/her daily work and subjectively judged by superiors, became the major basis for rewards and punishments.

These two elements, employment security and behaviour-based appraisal, formed two of the important building blocks of the organized dependence system that Walder (1986) succinctly described in his seminal work on pre-reform industry organizations in China: 'the extent to which, and ways in which, workers are dependent economically on their enterprises, politically on the party and management, and personally on [their] supervisor' (p. 13). Central in this system was the role of *biaoxian*, 'a subjective quality of the employees evaluated continuously by leaders and linked to their treatment within the enterprises' (p. 132), which left great room for manipulation by management (cadres). As a result, the system quickly evolved into an intricate personal network of client-patronage relationships (*guanxi*) within the organization.

China's social transformation has, however, changed this landscape. Since the reform and opening up of the economy, booming foreign and private sectors have emerged outside the old system, and even state-owned enterprises have strived to relinquish their old mode of operation and to establish a 'modern enterprise system' (Central Committee of Communist Party of China, 1993). Guthrie (1999, 1998), for instance, reported the decline of the significance of *guanxi* in China: Chinese executives disapproved of *guanxi* practices as an inefficient, 'deviant' and 'crooked' way to get things done, and instead espoused open competition based on the emerging legal-rational frameworks at the level of the organization and the society. Chen et al. (2004) reported a negative relationship between *guanxi* practices in human resources management and employees' trust in management. The bad memory of those old days, therefore, gives these two work practices a very different connotation from that perceived by Western employees. While employment security and behaviour-oriented appraisal represent an employer's goodwill, commitment and trust to the employees in a Western context, the same characteristics in China may convey a fading fashion of the central-planning era which is at odds with the spirit of HCWS. This explains the negligible loading of items four and seven on the principal component in both samples. These results hence indicate the indigeneness of this measure: its meaning is embedded in the local culture and history rather than simply imposed from Western literature.

Social scientists have long been debating on etic versus emic approaches in social science research (Pike, 1967). The etic approach puts the emphasis on discovering generic theoretical frameworks that can be generalized across cultural boundaries, the emic approach argues that the nature of things is essentially emic; thus each

culture should be viewed in its own terms and with respect to its context. Those who hold less radical views espouse different ways to integrate the two approaches. For instance, in the context of promoting Chinese management research, Whetten (2002) called for context-sensitive research, which includes context-specific as well as context-embedded research. Trying to develop an HCWS scale for China, this study aims to contribute to the understanding of both the notion of high commitment (the etic approach) and of the Chinese context (the emic approach). While the logic of high commitment is probably no different in China, work practices that are perceived to be a signal of trust and can be used to elicit commitment are, however, affected by the history and institutional environment of Chinese organizations.

There is another important difference in the analysis between employees' and HR executives' perspectives. First of all, the loading on the HCWS factor is much higher in the case of HR executives than in the case of employees (41% vs. 29%). HR executives have usually played an important role in developing the firm's work system and they are also likely to have an implicit or explicit 'theory' of how the work practices complement each other. Therefore, factor analyses of their responses can be expected to show a comparatively high level of co-variance across different practices, leading to higher loadings on one factor.

### Limitations

The specific nature of our samples raised the issue of generalizability. Study 2 sampled the foreign-invested companies and two of the four companies in study 1 are also foreign-invested companies. To what extent were the results due to the fact that these companies are under the influence of the foreign parent companies? To investigate this issue, we performed an EFA with only the two Chinese companies in study 1. The loading pattern was in line with what we have found above: job security and appraisal-behaviour had a negative loading on the principal factor ( $-0.39$  and  $-0.25$ , respectively) and the loading of overarching goals and high remuneration are also very low ( $0.27$  and  $0.31$ , respectively). While this result assured us that our results were unlikely to be caused by foreign influence, we acknowledge that generalizability is a limitation of our study. For future studies to examine the HCWS construct in China context, more focus on local Chinese companies is warranted.

A related limitation is in fact that the initial pool of items for the scale was largely based on the concept of high commitment developed by Baron and Kreps (1999), two Western scholars whose focus was presumably the Western context. While our results indicate that the central logic of high commitment is probably not very different in China, future research should validate the content of the construct through the use of inductive methods like that of Farh et al. (1997), which provide a good example of how to balance the etic and the emic aspect of the construct. The current measure should thus be viewed as a preliminary scale for Chinese management research.

There are also some methodological concerns. The results of the nomological validity could be due to common method variance. Therefore, further validation studies using a design without common method variance would be desirable to strengthen the nomological validity of this preliminary measure. In addition, this study did not investigate the effects of the HCWS on employee productivity or firm performance. Even though evidence from firms in the Western context is quite convincing on the validity of this measure in predicting employee commitment, productivity and firm performance, there is still a need to perform such validation in the Chinese context.

## CONCLUSION

The objective of this study was to propose a preliminary measure of HCWS to facilitate Chinese management research. The instrument we used to measure HCWS was built on the items suggested by Baron and Kreps (1999) and was tested using two independent samples, one with employee responses, and another with HR executives as respondents. By recognizing the molding effect of the context, the study enriches our knowledge of HCWS not only for China but also for other contexts. We encourage scholars to further test this preliminary HCWS scale with data from different populations to improve its validity and to contribute to future studies of the role of high commitment work systems for organizational and employee outcomes in the Chinese context.

## NOTES

- [1] See Baron and Kreps (1999) for a more elaborate discussion on the importance of trust in achieving efficient employment relations, Chapters 4 and 9. They also used the trust game to illustrate the win-win outcome of the high commitment work system, which is the trust-honour-trust outcome of this one-sided repeated prisoner's dilemma game (also in Kreps, 1990). This same idea is the foundation of the relational contract approach in economics (e.g., Baker et al., 2001; Klein, 1996).
- [2] The survey is part of a large social network survey, which typically needed 45–60 minutes for the respondents to complete. The response rates of these kinds of surveys tend to be low. For instance, the response rate of Siebert et al. (2001) was 28%, Podolny and Baron (1997) 36%, and Burt (1992) 52%.
- [3] We adapted this affective commitment scale by selecting five items (that are more applicable to Chinese respondents) from the original nine items: 'I really care about the fate of this organization'; 'I am proud to tell others that I am part of this organization'; 'I am willing to put in effort beyond the norm for the success of this organization'; 'This organization inspires me to do the very best in the way of job performance'; 'I find that my values and this organization's value are similar.' Alpha coefficient of the scale is 0.89.
- [4] Since HCWS is a new measure, EFA is the proper tool to explore its factor structure and to conduct initial item reduction. We also used CFA for exploratory purposes by considering items with low loadings one at a time, based on the modification index and comparing model fit based on  $\chi^2$ -differences. The results are largely the same as for the EFA results and are hence not included in the paper.



## APPENDIX I

**The 15 Items of the High Commitment Work System Measure**

1. Promotion from within rather than from outside (promotion from within).
2. Careful selection procedures in recruiting (careful selection).
3. Extensive training and socialization (extensive training).
4. Trying not to fire employees (job security).
5. Enlarged jobs and job rotation (enlarged jobs).
6. Appraisal of team performance rather than individual performance (appraisal team).
7. Attitude and behaviour-oriented appraisal rather than result-oriented appraisal (appraisal behaviour).
8. Feedback for development purposes rather than for evaluation purposes (appraisal development).
9. High remuneration, including compensation and fringe benefits (high remuneration).
10. Extensive ownership of shares, options or profit-sharing (ownership).
11. Trying to promote egalitarianism in income, status and culture (egalitarianism).
12. Participation in the forms of suggestion, grievance systems and morale survey (participation).
13. Open communication and wide information sharing (information sharing).
14. Emphasizing strong overarching goals (overarching goals).
15. Work in teams; successes of teams rather than individual are hailed (teamwork).

The Chinese version of the scales is available on the *MOR* website: [www.iacmr.org](http://www.iacmr.org) and also from the first author of this article.

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