

노동정책연구
2010. 제10권 제4호 pp.125~152
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연구논문

The Determinants and Consequences of High Performance Work Systems

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This study attempts to address two ongoing theoretical and empirical questions in the strategic human resource management literature: (1) Do high performance work systems positively influence future firm performance with a control for past firm performance? - causality, in part, in the relationship between HPWS and firm performance and (2) What are the determinants of the adoption of HPWS? Investigating these two questions is critical to help better understand the theoretical and empirical linkage between HPWS and firm performance. This study contributes to the SHRM literature by providing supporting evidence that HPWS predicts future firm performance with a control for past firm performance. In addition, this study sheds lights on the fact that while multiple factors could influence the adoption of popular HPWS, organizational values on HRM are the dominating adoption factor of HPWS.

Keyword : high performance work systems, firm performance, causality, adoption factors

논문접수일: 2010년 8월 30일, 심사의뢰일: 2010년 9월 7일, 심사완료일: 2010년 10월 13일

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I. Introduction

Research in organizational science has paid significant attention to exploring how organizations can increase organizational effectiveness through managing their people (e.g., Pfeffer 1994). A stream of research, called strategic human resource management (SHRM), has addressed what types of human resource (HR) practices influence firm performance and why. Mainly building upon a resource-based view (RBV) of the firm (e.g., Barney 1991), a plethora of studies have argued that high performance work systems (HPWS) is one of the most effective HR systems for enhancing firm performance. Accumulating evidence shows that HPWS is positively associated with firm performance (e.g., Bae & Lawler 2000; Combs, Liu, Hall, & Ketchen 2006; Huselid 1995; MacDuffie 1995; Pfeffer 1994). Furthermore, recent studies have found diverse mediation mechanisms in this linkage: HPWS → reduced turnover, facilitating social exchange at the organizational level, creating valuable social climate, etc. → enhanced firm performance (e.g., Batt 2002; Collins & Smith 2006; Sun, Aryee, & Law 2007; Takeuchi, Lepak, Wang & Takeuchi 2007).

While promising results have been accumulating, increasing numbers of studies, at the same time, have called for further studies that could enrich the theoretical explanations and buttress the empirical findings of previous studies. In fact, when SHRM scholars are reminded of the papers completed more than a decade ago by Dyer and Reeves (1995) and Becker and Gerhardt (1996), they may notice that the progress of SHRM research has been less than impressive. For example, although a positive linkage between HPWS and firm performance has been reported, a few studies also observed either no relationship or a negative relationship between HPWS and firm performance (Cappelli & Neumark 2001; Godard 2001; Wright, Gardner, Moynihan, & Allen 2005). A recent study by Wright et al. (2005) observed that when they controlled for the past firm performance, most of the findings of significant

relationships between HPWS and firm performance disappeared. Furthermore, although a few excellent studies have addressed the theoretical linkage between HPWS and firm performance (e.g., Bowen & Ostroff 2004; Evans & Davis 2005), only a few studies have paid explicit attention to investigating what factors drive firms to adopt HPWS, given the strong positive impacts of HPWS on firm performance (Osterman 1994; Pil & MacDuffie 1996).

This study attempts to address two parts of those ongoing theoretical and empirical questions in the SHRM literature: (1) Do high performance work systems positively influence future firm performance with a control for past firm performance? - causality, in part, in the relationship between HPWS and firm performance and (2) What are the determinants of the adoption of HPWS? Investigating these two questions is critical in order to better understand the theoretical and empirical linkage between HPWS and firm performance. This study, first, reviews diverse theoretical and empirical work that suggests the causality between HPWS and firm performance. Second, it explores the adoption of organizational practices, and simultaneously examines diverse facilitating factors of the adoption of HPWS: past firm performance, imitation, and HRM values. Third, this paper tests its hypotheses with a sample of firms in South Korea. Since Asian financial crisis in the late of 1990s, firms in South Korea have increasingly adopted HPWS not only to increase their performance but also to gain legitimacy from internal and external stakeholders (e.g., Rowley & Bae 2004). This study contributes to the SHRM literature by providing supporting evidence that HPWS predicts future firm performance with a control for past firm performance, which partly demonstrates that HPWS causes firm performance. In addition, this study sheds lights on the fact that while multiple factors could influence the adoption of popular HPWS, organizational values on HRM are the dominating adoption factor of HPWS.

II. Theoretical Background and Hypotheses

To date, SHRM research has been dominated by finding the positive relationship between HR practices and firm performance. In doing so, scholars relied heavily on the resource-based view (RBV) of the firm, (e.g., Barney 1991), which argues that inimitable resources such as intangible knowledge of employees and the HR system can be sources of sustained competitive advantage; RBV has been utilized as an umbrella theory in the research on SHRM (e.g., Wright & McMahan 1992; Wright, Dunford, & Snell 2001). Particularly, RBV suggests that human capital and organizational structure can be a source of competitive advantage to the firm because they are not perfectly imitable by competitors (Barney 1991; Wernerfelt 1984).

Applying this broad logic of RBV, scholars in the field of SHRM attempted to explore this relationship from three different perspectives: universal, contingent, and configurational (e.g., Delery & Doty 1996; Delery 1998). First, the universal perspective argues that certain HR practices are ‘universally’ more effective and efficient than the others. Currently, the popular terms ‘best practices’ or ‘high performance work practices’ represent this perspective. Second, the contingency perspective emphasizes that the impact of HR practices on firm performance depends on the ‘fit’ between HR practices and the strategies or technologies in the organization because different organizational strategies require different sets of employees’ attitudes and skills (e.g., Bowen & Ostroff 2004; Delery & Doty 1996; MacDuffie 1995; Youndt, Snell, Dean, & Lepak 1996). Third, the configurational perspective focuses its analysis on ‘bundles’ of HR practices. It shifts ideas from the concept of ‘external fit’ or ‘universality’ to ‘internal fit’ among HR practices, which facilitates a ‘synergy’ effect (e.g., Ichiniowski, Shaw, Prensushi 1997; Delery & Doty 1996; MacDuffie 1995).

Despite strengths and weaknesses of each perspective, accumulating evidence

suggests that HPWS (not always labeled as such), which is composed of common practices such as incentive compensation, extensive staffing, intensive training and development, flexible job design, and employee participation, positively influences firm performance through their positive impact on employees' skills, discretionary efforts, and commitment (e.g., Huselid 1995; Delery & Doty 1996; Pfeffer 1994). A recent meta-analytic study by Combs et al. (2006) lends strong support to the theory that HPWS is positively associated with diverse firm performance measures such as productivity and profitability, using a sample of 94 studies. This positive relationship has also been found in studies conducted in South Korea (e.g., Bae & Sa 2003; Kim & Cho 2008; Kim, Lim, & Kim 2003).

Although the aforementioned theoretical and empirical work conducted both in western countries and in South Korea clearly suggests a positive relationship between HPWS and firm performance, Wright et al. (2005) argue that past research on this relationship has limitations regarding the issue of causality between HPWS and firm performance. Surveying 66 studies that found a significant positive relationship between HPWS and firm performance, they reported, first, that most past research (50 of 66 studies) used 'post-predictive' research design, which means that HPWS predicted not future performance but past firm performance. Second, they showed that other studies (5 of 66 studies) used either a contemporaneous research design (testing the effects of HPWS on concurrent firm performance) or a retrospective research design (asking research participants to assess HPWS that was utilized prior to the performance period and predicting its impact on firm performance). Lastly, they pointed out that only a few studies (7 of 66 studies) utilized a predictive research design (testing the impact of HPWS measured at one point in time on future firm performance). However, those studies did not test reverse causality, i.e. that past firm performance predicts the adoption of HPWS rather than HPWS predicting future firm performance. Thus, Wright et al. (2005) concluded that existing studies do not provide meaningful evidence that HPWS causes increased firm performance. Wright et al. (2005) observation is not different for the studies conducted in South Korea. For

example, Bae and Sa (2003) used contemporary research design. Kim and Cho (2008) and Kim et al. (2003) used a predictive research design but both studies did not control the past firm performance.

Regarding this causality issue, Wright et al. (2005) argued that controlling past firm performance is particularly important to weed out the reverse causality argument. They tested this relationship using a predictive research design controlling for past firm performance. The results of their study showed that when past firm performance was controlled for, most of the findings regarding significant relationships between HPWS and firm performance disappeared. This finding is critical given the perspective that any theories and fields of research should explain a causal relationship between independent and dependent variables. However, with the results of Wright et al. study (2005) alone, it is problematic to conclude that HPWS does not lead to increased firm performance. Rather, it is important and necessary for researchers to pay more attention to investigating causality issues in this relationship. In summary, although theories in the SHRM literature suggest a causal relationship and positive influence between HPWS and firm performance, empirical evidence is not promising and sparse at best. We recognize that establishing causality between HPWS and firm performance is a challenging task. In this paper, we take an initial step to investigate this issue considering the abovementioned suggestion made by Wright et al. (2005) and empirically test the following hypothesis:

Hypothesis 1: High performance work systems positively influence future firm performance with a control for past firm performance.

1. Facilitating Factors of the Organizational Adoption of HPWS

A relatively small stream of research has explored what factors facilitate organizational adoption of HPWS. Scholars interested in this topic raise an interesting question: “Why don’t more organizations adopt HPWS, given its positive impact on firm performance?” Pil and MacDuffie (1996) argued that this is a “striking paradox”

under the assumption of economic rationality. Accumulating evidence in this topic shows that diverse organizational factors such as demographics, business strategies, technology, and HRM values facilitate or constrain the adoption of HPWS (Bae & Lawler 2000; Jackson & Schuler 1995; Ordiz-Fuertes & Fernandez-Sanchez 2003; Osterman 1994; Pil & MacDuffie 1996; Som 2007). In addition, institutional and political theoretical perspectives argue that the organizational adoption of HR practices is influenced by the motivation of organizations and managers seeking to gain internal and external legitimacy or by the political dynamics within organizations, rather than by economic motives to increase firm performance (e.g., Abrahamson 1996, 1997; DiMaggio & Powell 1983; Ferris & Judge 1991; Meyer & Rowan 1977). Overall, these research perspectives suggest that whereas some organizations may adopt HPWS for economic benefits, others may adopt HPWS for other purposes regardless of economic benefits. In the following sections, we explore three salient facilitating factors, among many, that may lead to the organizational adoption of HPWS and their implications on the relationship between HPWS and firm performance.

2. Imitation

New-institutional theory argues that organizations compete for political power and institutional legitimacy as well as resources. In order to gain legitimacy from internal and external stakeholders, organizations conform to institutional pressure, even when institutional practices do not contribute to organizations' performance (DiMaggio & Powell 1983; Meyer & Rowan 1977; Tolbert & Zucker 1983; Zucker 1987). DiMaggio and Powell (1983) who emphasized the importance of inter-organizational networks, argued that organizations' formal structures become similar at the organizational field level mainly through three 'isomorphic' mechanisms: coercive (regulation), normative (profession), and mimetic (uncertainty and bounded rationality). In particular, they argued that "mimetic isomorphism resulting from

standard responses to uncertainty” (p. 150) is a strong force that makes organizational practices be similar across organizations. They further claimed that imitating the structure and practices of other successful organizations is a convenient and less costly way of coping with varying uncertainties and it also helps to gain their legitimacy by delivering to internal and external stakeholders symbolic meaning that they attempts to seek for advanced administrative and technological innovations.

New-institutional theory, therefore, points out that the organizational adoption of HPWS can be facilitated by organizations’ efforts to imitate HR practices of successful firms. Building upon new-institutional theory, Sanchez, Kraus, White, and Williams (1999) point out that organizations tend to imitate HR practices of other organizations through benchmarking activities in order to “not only attain institutional legitimacy but also remain competitive” (p. 463). They reasoned that the relationship between HPWS and firm performance had been well established so that the practicing organization can be a target for benchmarking activities of other organizations, and showed that benchmarking indeed significantly influences the adoption of HPWS. Also, a few studies show that imitation through benchmarking the HR practices of successful firms is a universal phenomenon (Bamberger & Figenbaum 1996; Jackson & Schuler 1995). Ferris, Arther, Berkson, Kaplan, Harrell-Cook and Frink (1998), in their social context theory of HRM, also emphasized that, by adopting well-known HR practices (i.e. HPWS), organizations can increase their social reputation and legitimacy.

Hypothesis 2: Organizations’ imitation of HR practices of successful firms will positively influence the adoption of high performance work systems.

3. Past Firm Performance

Diverse theoretical perspectives have addressed the fact that past performance influences the organizational adoption of innovative practices or technology (e.g., Cyert & March 1963). There exists, however, a debate in terms of the direction. For

example, one perspective suggests that low performing organizations are more likely to adopt innovative practices than high performing organizations not only because a low level of performance leads organizations to seek other opportunities to enhance their performance (e.g., Cyert & March 1963), but also because high levels of performance results in organizational inertia which leads the organizations to stick with existing practices (Audia, Locke, & Smith 2000). On the contrary, the other perspective argues that organizations with slack resources accumulated by past high performance are more likely to engage in varying searching activities to find a way to enhance their competitiveness and allow them to test the advanced technology for their organizations (Cyert & March 1963).

The conflicting perspectives in the relationship between past performance and the adoption of HPWS can be seen in the literature on the adoption of HPWS. Some scholars argue that because implementing HPWS requires organizations to invest a significant amount of financial resources in the changeover (Cappelli & Neumark 2001), organizations with high performance are more likely to adopt HPWS than organizations with low performance (e.g., Youndt et al. 1996). On the contrary, others argued that poorly performing organizations are more likely to adopt HPWS than highly performing organizations (Ordiz-Fuertes & Fernandez-Sanchez 2003; Pil & MacDuffie 1996). For example, Pil and MacDuffie (1996) hypothesized the latter perspective, arguing that poorly performing organizations tend to view existing practices as “suboptimal” and the relative organizational costs to change the existing practices to HPWS are lower for organizations with poor performance. Although the arguments of both perspectives are persuasive, the empirical findings are ambiguous. Whereas Wright and his colleagues (1999) indicated a negative relationship between past firm performance and the adoption of HPWS, Wright et al. (2005) showed a positive relationship between those two variables. Also, other studies that predicted a negative impact of past firm performance on the adoption of HPWS did not find statistically significant results. Therefore, we hypothesize a significant relationship between past firm performance and the adoption of HPWS but leave the direction of

this relationship open.

Hypothesis 3: Past firm performance will influence the organizational adoption of high performance work practices.

4. Organizational Values on HRM

Organizations tend to evolve by adapting to diverse internal and external environments. Through their adaptation processes, organizations form their routine and core values, which guide future organizational decisions such as adopting innovative technologies or practices (e.g., Nelson & Winder 1982; Selznick 1957). Organizational values on HRM can facilitate or constrain the adoption of HPWS. During the organizational evolution processes, some organizations form values that respect employees and view their people as source of competitive advantage. For organizations that place relatively high value on HRM, top management may be more favorable to adopting HPWS because HPWS could help not only increase organizational effectiveness but also further cultivate organizational values on HRM. In addition, those organizations will face relatively low level of resistance to adopting HPWS from diverse organizational stakeholders such as employees and unions.

A few empirical studies address the positive impact of organizational values on HRM on the adoption of HPWS. Bae and Lawler (2000) argued that “High-involvement HRM strategy starts with management philosophies and core values that emphasize the significance of employee as a source of competitive advantage” (p. 504), and reported the significant positive relationship between organizational values on HRM and the adoption of high-involvement HR practices with a sample of firms operating in South Korea. Osterman (1994) also found that among several diverse factors, organizational values on HRM are the strongest predictor for the adoption of innovative work practices with a sample of 694 American establishments.

Hypothesis 4: Organizational values on HRM will positively influence the adoption

of high performance work practices. In other words, an organization which places high value on HRM is more likely to adopt high performance work systems than an organization which places low value on HRM.

III. Methods

1. Sample and Procedures

The data for this study were collected in South Korea between July and August in 2006. Since the Asian financial crisis, firms operating in South Korea have increasingly adopted high performance/commitment human resource practices (e.g., Bae & Lawler 2000). The survey was distributed to a senior human resource manager of 994 firms, who was affiliated with the prestigious research institute's network of firms that shares diverse information regarding HR practices, via e-mail in July 2006. Each organization's response to the survey was guaranteed to be treated as confidential and used only for research purposes. A pilot study was conducted for nine organizations in order to ensure the clarity of the survey questionnaire. A total of 190 organizations - 90 firms from the manufacturing industry and 100 firms from the non-manufacturing industry - participated in the survey, which resulted in a 19.1% of response rate. Their mean employment size was 2,646.6: 31 to less than 100 employees (6.5%), 100 to less than 500 employees (34%), 501 to less than 1,000 employees (19.6%), more than 1,000 employees (39.9%). However, the total sample size included in our study was reduced to 168 organizations due to missing responses. Organizational characteristics (mean and standard deviation) of participating firms are shown in <Table 1>.

Response bias was checked with a logit model (Batt 2002; Delery & Doty 1996). Following the method of Delery and Doty (1996), we checked response bias by using

a logistic regression. A dependent variable, a dummy variable, was coded 1 if a firm participated in the survey and 0 if it did not. The independent variables included organization size, organization age, capital intensity, industry, total assets, and net profits. None of these variables were significant, indicating that response bias was not a significant problem.

2. Measures

High performance work practices were measured by adapting existing established scales from previous studies (e.g., Bae & Lawler 2000; Delery & Doty 1996; Snell & Dean 1992). All survey questions were constructed with a 5-point Likert-scale, where 1 meant “strongly disagree” and 5 meant “strongly agree”, and a senior HR manager of each participating organization evaluated each item and a reference point in assessing the items was at the time of response to the items. Seven HR practices were measured with multiple items (except for high level of pay). In order to measure organization-wide usage of each HR practice, a senior HR manager of each participating organization was asked to evaluate the degree to which each practice was used for managerial and non-managerial workers separately. Then, we averaged the scores of each practice for managerial and non-managerial workers and used the averaged scores to test item reliability.

Seven organizational practices, at first, were assessed in order to measure HPWS. Extensive selection was measured with three items ($\alpha=0.82$). An exemplary item was “This organization selects people according to highly refined selection criteria and procedures.” Intensive training and development was measured with three items ($\alpha=0.93$). An exemplary item was “This organization spends a lot of money on employee training and development.” Incentive compensation was assessed with four items ($\alpha=0.80$) where an exemplary item was “This organization bases pay raise decisions on employee performance”. Rigorous performance appraisal was measured with four items ($\alpha=0.89$). An exemplary item was “This organization has an effective

formal performance appraisal system to evaluate employees' performance and competencies." Flexible job design was measured with three items ($\alpha=0.73$). An exemplary item was "This organization gives employees a lot of job discretion." Employee participation in diverse organizational activities was measured with two items ($\alpha=0.73$). An exemplary item was "This organization utilizes formal practices so that employees can participate in organizational activities (suggestion system, work-council, quality-circle, etc)." Open communication was measured with two items ($\alpha=0.76$). An exemplary item was "This organization shares various information with employees (ex. business strategy and financial status)." All the items to measure HPWS are shown in Appendix 1. Then, following methods by previous studies (e.g., Bae & Lawler 2000; Sun et al. 2007; Takeuchi et al. 2007), we adopted an additive approach in measuring HPWS by aggregating the scores of each HR practice to form a HPWS index ($\alpha=0.88$). The HPWS index in this study indicates the extent to which organizations used HPWS. We interpreted this index in a way that the higher the aggregated scores of HPWS in organizations, the more the organizations used HPWS.

Imitation was measured by a five-item scale, which was developed for this study based on the existing literature. All five items were constructed with a 5-point Likert-scale, where 1 meant "strongly disagree" and 5 meant "strongly agree." The five items included one global item regarding the reason that they adopted current HR practices, "This organization adopted current HR practices because successful firms utilize these practices." The other four items measured the reason for the adoption of each of the four specific HR practices related to recruiting and staffing, compensation, training and development, and performance appraisal. An exemplary item was "This organization adopted a current compensation practice because successful firms utilize this compensation practice". The inter-item reliability (α) was 0.90.

Organizational values on HRM were measured by a two-item scale with a 5-point Likert-scale response format, which was adapted by Bae and Lawler (2000) and Osterman (1994). The two items measured were "For a long time, this organization

(top management) has viewed employees as source of competitive advantage” and “For a long time, this organization has put much value in employees’ growth and well-being”. The inter-item reliability (α) was 0.84.

Firm performance was measured by a firm’s return on asset (ROA). The ROA data was taken from a database built by the Korea Information Service (KIS) which collaborates with Moody’s to provide information on organizations operating in South Korea for an international audience (Chang 2003).

3. Control Variables

Variables used in the models as controls were organization age, organization size, union presence, capital intensity of each organization, and industry. *Organization age*, which was measured as the number of years in operation, was included in order to control for any advantages related to length of business operation (e.g., Huselid 1995). *Firm size*, which was measured as the logarithm of the number of employees, was controlled because larger organizations may have advantage such as economy of scale relative to small organizations (e.g., Pfeffer & Salancik 1978). *Union presence* was controlled because it may influence firm performance (e.g., Freeman & Medoff 1984). *Capital intensity*, which is measured as the logarithm of fixed assets / the number of employees, was controlled because a recent study shows that this may influence firm performance (Datta, Guthrie, & Wright 2005). Industry - manufacturing and non-manufacturing - was controlled in the regression models because firm performance may be influenced by the industry effect (e.g., Datta et al. 2005).

IV. Results

Table 1 shows means, standard deviations, and variable inter-correlations. It shows that HPWS is significantly correlated with imitation ($r=0.31$, $p<0.01$), values on HRM

〈Table 1〉 Correlations and Descriptive Statistics

	Mean	SD	1	2	3	4	5	6	7	8	9
1. Organization Size ¹⁾	6.68	1.42									
2. Organization Age	25.30	17.40	0.37**								
3. Union Presence ²⁾	0.42	0.49	0.34**	0.28**							
4. Capital Intensity	12.11	1.25	0.38	0.30**	0.27**						
5. Industry ³⁾	0.43	0.50	-0.06	0.08	0.10	0.01					
6. Imitation	3.23	0.75	0.20**	0.04	-0.02	0.10	-0.02				
7. Values on HRM	3.64	0.77	0.12	-0.06	-0.24**	-0.01	-0.17**	0.25**			
8. Return on Asset (2005)	7.86	11.46	-0.09	-0.18**	-0.03	-0.08	-0.07	0.01	0.12		
9. Return on Asset (2006)	6.30	8.23	0.00	-0.18**	0.01	-0.16**	-0.07	0.07	0.21**	0.54**	
10. HPWS	24.23	4.28	0.19**	-0.06	-0.28**	0.02	-0.16*	0.31**	0.71**	0.11	0.26**

Notes : 1) Logarithm of numbers of employees.

2) Union presence=1, No union=0.

3) Manufacturing=1, Non=manufacturing=0.

* $p < 0.05$, two-tailed test, ** $p < 0.01$, two-tailed test

($r = -0.711$), $p < 0.01$), and post firm performance ($r = 0.26$, $p < 0.01$). However, it indicates that HPWS has no significant correlation with past firm performance ($r = 0.11$, n.s.). Table 2 and Table 3 present the results of a series of multivariate hierarchical linear regression analyses.

We tested hypotheses, using a hierarchical regression method (Cohen & Cohen 1983) that was designed to assess whether a single variable or sets of variables explain additional variances explained by a set of control variables. Hypotheses 1 was assessed with two separate regressions shown in Table 2. Models 1 and 2 indicate that with controlling for past firm performance, ROA in 2005, HPWS has a significant impact on post firm performance, ROA in 2006, ($\Delta R^2 = 0.042$; F for $\Delta R^2 = 10.390$, $p < 0.01$). These results supported Hypothesis 1. Hypothesis 2 predicted that imitation of HR practices of successful firms will positively influence the adoption

1) The magnitude of this correlation seems very high. However, it is lower than that ($r = 0.73$, $p < 0.01$) observed by Bae and Lawler (2000).

〈Table 2〉 Results of OLS Regression for the Relationships between HPWS and Firm Performance

Variables	ROA (2006)	
	Model 1	Model 2
Organization size	0.12	0.05
Organization age	-0.10	-0.09
Union Presence	0.04	0.12
Capital intensity	-0.14 [†]	-0.15*
Manufacturing	-0.02	0.00
Past Firm Performance (ROA, 2005)	0.52**	0.49**
HPWS		0.23**
R ²	0.318	0.360
ΔR ²		0.042
F for ΔR ²		10.390**
Overall F	12.508**	12.830**
N	168	168

Note : Standardized regression coefficients are shown. The omitted industry variable is non-manufacturing.

[†] $p < 0.10$, two-tailed test, * $p < 0.05$, two-tailed test, ** $p < 0.01$, two-tailed test

〈Table 3〉 Results of OLS Regression for the Facilitating Factors of HPWS

Variables	HPWS				
	Model 3	Model 4	Model 5	Model 6	Model 7
Organization size	0.32**	0.27**	0.33**	0.18**	0.16**
Organization age	-0.07	-0.06	-0.05	-0.04	-0.03
Union Presence	-0.37**	-0.34**	-0.37**	-0.18**	-0.18**
Capital intensity	0.02	0.01	0.03	0.02	0.01
Manufacturing	-0.10	-0.10	-0.09	-0.02	-0.02
Imitation		0.25**			0.13**
Past Firm Performance (ROA, 2005)			0.11		0.04
Organizational Values on HRM				0.64**	0.61**
ΔR ²	0.183	0.243	0.195	0.540	0.556
ΔR ²		0.059	0.012	0.357	0.372
F for ΔR ²		12.620**	2.381	124.868**	44.441**
Overall F	7.276**	8.602**	6.512**	24.871**	24.871**
N	168	168	168	168	168

Note : Standardized regression coefficients are shown. The omitted industry variable is non-manufacturing.

* $p < 0.05$, two-tailed test, ** $p < 0.01$, two-tailed test

of HPWS. The results of the three regressions, Models 3, 4, and 7 in Table 3, show that imitation explains significant amount of additional variance of ($\Delta R^2=0.059$; F for ΔR^2 , $p<0.01$) and its coefficient is significant for HPWS ($p<0.01$) in both Models 4 and 7. Therefore, Hypothesis 2 was supported. Hypothesis 3 predicted a significant impact of past firm performance on the adoption of HPWS. The regression results of Models 5 and 7 did not support this hypothesis ($\Delta R^2=0.012$; F for ΔR^2 , n.s.). Hypothesis 4 predicted the positive impact of organizational values on HRM. The results of the series of regressions, Models 3, 6, and 7 in Table 3, show that this variable explains a significant proportion of additional variance of ($\Delta R^2=0.357$, F for ΔR^2 , $p<0.01$) and its coefficient is significant for HPWS ($p<0.01$) in both Models 6 and 7. Therefore, those results supported Hypothesis 4.

V. Discussion and Conclusions

Organizational activities such as the adoption of HPWS are influenced by a variety of intermingled economic and sociological factors. As a result, a better understanding of organizational phenomena is more likely to be achieved by taking into account diverse perspectives rather than by focusing on exclusively a certain perspective (e.g., Jackson & Schuler 1995; Sherer & Leblebici 2001; Wright & Boswell 2002). In addition, it is critical for the SHRM scholars to explain a causal relationship between HPWS and firm performance in order to gain legitimacy in this field of study. Although it is difficult to establish causality between HPWS and firm performance, this study provided preliminary support that HPWS positively predicts future firm performance with control for past firm performance, which suggests a causal mechanism from HPWS to firm performance. Also, this study found that while both organizational values on HRM and an organization's imitation of HR practices of successful firms facilitate the adoption of HPWS, past firm performance was not a determinant of the organizational adoption of HPWS.

This study implies that, unlike the findings of Wright et al. (2005), HPWS *influences* firm performance rather than is *associated* with firm performance. We controlled for past firm performance in predicting the impact of HPWS on post firm performance. We found that the HPWS explained a significant amount of additional variance and the coefficient of HPWS is significant, and that past firm performance did not influence the organizational adoption of HPWS. The different finding of this study from Wright et al. (2005) could result from differences related to the measures of HPWS and firm performance, the level of analysis (plant vs firms), and the length of time lag. Also, it could be due to different national culture. However, at least this result suggests that HPWS causes firm performance rather than firm performance leading firms to adopt HPWS. We call for further research to investigate this issue.

This study has implications for future studies. Organizations may adopt a form of HPWS by the process of mimetic isomorphism, but the adoption of HPWS, per se, may not lead to higher firm performance because, as SHRM literature suggests, HPWS can not be perfectly imitated due to its nature of social complexity and path-dependence (e.g., Becker & Gerhart 1996). However, this study did not explore the complex mechanism regarding how the different adoption factors of HPWS could result in firm performance. It is plausible that different mechanisms may be involved in the organizational phenomena in the HPWS and firm performance relationship for the organizations that adopt HPWS guided by high values on HRM versus an imitation purpose. Research suggests that high firm performance due to the adoption or inter-organizational transfer of strategic organizational practices is achieved when they are well implemented in the organizational social structure (e.g., Kostova 1999). For example, Selznick (1957), a half century ago, recognized the importance of implementation of organizations practices. He viewed an organization as an entity composed of diverse informal structures that arise from individuals who pursue their own interests and needs. He argued that because this informal structure tends to cause conflicts among organizations' members, it is not sufficient to interpret organizations' activities by considering only formal structures or practices. He emphasized that

formal practices should be institutionalized in order to work properly and the formal practices then lead to individual members collectively to perceiving their meaning in a similar way. That is, the implementation of HPWS is one of key factors in order for HPWS to create organizational value effectively. We call for studies to investigate how different adoption factors of HPWS could influence firm performance.

Although this paper contributes to enriching theoretical perspectives with promising results in HRM and firm performance literature, its audience should interpret the findings of this paper cautiously due to the limitations involved in this study. First, this study measured HPWS as reported by one senior HR manager, which may be susceptible to measurement errors. Second, the results of this study may contain a common-method variance problem because one senior HR manager measured all of the three variables: imitation, organizational values on HRM, and HPWS. Third, this study used a sample collected across industries but we did not fully control all the heterogeneity of each industry that may influence this relationship. Fourth, we addressed the causality issue considering the suggestion of Wright et al. (2005). However, in this study, the time lag (approximately six months) to test the impact of HPWS on firm performance may not be sufficiently long. In addition, in order to better test causality in this relationship, it is necessary to use more sophisticated statistical methods (e.g. instrumentation) with, ideally, a longitudinal, panel data. We call for future research that utilizes such techniques and data in investigating this critical issue.

Despite a few limitations, this paper addresses the fundamental issue of causality in the SHRM literature in part, provides preliminary evidence that HPWS causes higher firm performance, and explores multiple factors that guide organizations to adopt HPWS. We hope that this study sparks theoretical inquiries to integrate the organizational adoption factors of HPWS and their implications on firm performance.

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Appendix A: Items Measuring High Performance Work Systems

1. Extensive Selection ($\alpha=0.82$)

- 1) This organization selects people according to highly refined selection criteria and procedures.
- 2) This organization hires people by utilizing different kinds of selection tools (ex. interviews, aptitude test, written exam, etc.).
- 3) This organization spends much money in order to select right people.

2. Intensive Training and Development ($\alpha=0.92$)

- 1) This organization provides employees with a variety of training and development opportunities.
- 2) This organization spends a lot of money on employee training and development.
- 3) This organization provides employee with structured formal training and development programs.

3. Rigorous Performance Appraisal ($\alpha=0.89$)

- 1) This organization has an effective formal performance appraisal system to evaluate employees' performance and competencies.
- 2) This organization appraises employees' performance with objective and quantitative criteria (ex. MBO, BSC, KPI, etc.).
- 3) This organization utilizes the results of performance appraisal in deciding pay

raises or promotions of the employees.

- 4) This organization appraises employees' performance based on their objective achievement.

4. Pay for Performance Compensation ($\alpha=0.80$)

- 1) This organization bases pay raise decisions on employee performance.
- 2) This organization has wide range in pay within a same job grade.
- 3) This organization extensively utilizes a company-wide profit-sharing and/or a gain-sharing program.
- 4) This organization utilizes seniority-based rewards practices [®].

5. Flexible Job Design ($\alpha=0.73$)

- 1) This organization gives employee a lot of job discretion.
- 2) This organization provides employees with opportunities to work flexibly (ex. flexible work schedule).
- 3) This organization flexibly assigns the scope and responsibilities of jobs, based on employees' skills and needs.

6. Employee Participation ($\alpha=0.73$)

- 1) This organization utilizes formal programs through which employees can participate in organizational activities (ex. work-council, employee suggestion, quality-circle, etc.)
- 2) This organization provides employees with opportunities to participate in decision-making and problem-solving related to job and work environment.

7. Open Communication ($\alpha=0.75$)

- 1) This organization shares various information with employees (ex. business strategy and financial status).
- 2) This organization listens to employees' opinions through different kinds of formal or informal programs (ex. attitude survey, grievance system)

고성과 작업시스템의 도입 요인들과 기업성과

권기욱 · 정대용 · 배종석

이 연구는 전략적 인사관리에 관한 연구에서 지속적으로 제기되고 있는 두가지의 이론적/실증적인 질문들(고성과 작업시스템이 과거성과를 통제 한 후 미래의 기업성과에 영향을 미치는가? - 인과관계에 관한 토론의 일부, 어떤 요소들이 고성과 작업시스템의 도입에 영향을 미치는가?)을 설명하고자 한다. 이 두가지의 질문들을 탐구하는 것은 고성과 작업시스템과 기업성과의 관계를 이론적/실증적으로 보다 잘 이해하기 위해서 아주 중요하다. 이 연구는 전략적 인사관리를 연구하는 학자들에게 고성과 작업시스템이 기업성과를 향상시킨다는 것을 보여준다. 또한 다양한 요소들이 기업의 고성과 작업시스템의 도입에 영향을 미치지만, 기업의 HRM에 대한 가치가 고성과 작업시스템의 도입에 결정적인 역할을 한다는 것을 보여준다.

핵심용어: 고성과 작업시스템, 기업성과, 인과관계, 도입요소들