

Human Resource Management and Organizational Performance

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The idea of a transformed or high-performance work system has attracted considerable attention in the United States as an alternative to traditional, mass-production forms of work organization. This article examines the relationships between indicators of high-performance work organizations that are available in the National Organizations Study, on one hand, and measures of organizational performance, on the other. The authors find that characteristics of high-performing work organizations tend to cluster together into a system of organizations. Moreover, the results indicate that human resource policies and practices often identified with high-performing organizations do, in fact, enhance organizational performance.

The traditional model of human resource management systems in the United States, based on bureaucratic control mechanisms and designed for mass production, has come under attack in recent years. Pressures deriving from intensified foreign competition, rapid technological change, greater needs for innovation, and workers' demands for empowered jobs have led some American organizations to search for alternatives to this traditional model. Theorists have developed the idea of a *transformed* or *high-performance* work system in the United States that represents a composite of several models which are alternatives to mass production (Appelbaum and Batt 1994; Bailey 1992; Kochan and Useem 1992; Lawler 1992; Osterman 1992).

Despite the importance and timeliness of this topic, there are few empirical studies of the effects of high-performance human resource policies and practices on organizational performance¹ that are based on representative samples of diverse work organizations. The few extant national-level surveys of the diffusion of various work reform and employee involvement practices² generally do not examine the relationship between human resource management (HRM) practices and organizational performance (see Appelbaum and Batt 1994; Bailey 1992). Some evidence for this comes from case studies and from nonrepresentative surveys (i.e., transformed organizations are more likely to respond) conducted by membership organizations, consulting firms, and other private industry sources. But both these nonrepresentative surveys and case studies vary

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in quality, leading Appelbaum and Batt (1994) to conclude that "despite the widespread interest in work reorganization, our understanding of what has taken place in American workplaces still is poor. . . . With few exceptions, careful studies . . . have not yet been undertaken" (p. 58).

The National Organizations Study (NOS) data enable us to take a look, albeit a very incomplete one, at the extent to which U.S. work organizations' human resource management practices display features of a high-performance work system (HPO). In this article, we examine the relationships between the few HPO characteristics that are available in the NOS, on one hand, and organizational performance, on the other. We first summarize a portion of the vast and growing literature on HPOs and identify some of the key HRM policies and practices that are commonly associated with this organizational form. We then discuss the measures of these HRM characteristics that are available in the NOS-GSS data set, and assess how they cluster, or produce discrete groups of organizations in the NOS. We next relate these HPO structures to measures of organization performance to test hypotheses about whether organizations that have features commonly associated with HPOs actually perform better than other organizations.

CHARACTERISTICS OF HIGH-PERFORMING ORGANIZATIONS IN THE UNITED STATES

Writers contrasting the ideal-type old and new forms of human resource management systems use different labels to capture this distinction (see Bailey 1992), including mass versus flexible production (Piore and Sabel 1984), industrial versus salaried (Osterman 1988), old competition versus new competition (Best 1990), conflict versus commitment (Walton 1985), cost reduction versus commitment maximizing (Arthur 1992), and high-performance work organization versus mass production-low wage organization (Commission on the Skills on the American Workforce 1990). These labels all point to several basic dimensions that constitute elements of a model of a high-performance work organization. These components of HPOs are summarized in Table 1.

These systems have four main components: (a) management methods (market strategy, organization structure, overall process approaches—e.g., total quality management or just-in-time manufacture); (b) work organization (design of shop floor or frontline jobs and deployment of workers, including such practices as job rotation and teamwork); (c) human resource practices (training, compensation, and strategies to induce worker effort and commitment, such as employee involvement and employment security); and (d) industrial relations (relationships between managers and workers and union-management relations).

The NOS data set was not designed explicitly to measure HPOs, and it contains better measures of some of these components than others. Fairly good measures are available for compensation and training strategies. By contrast, we

TABLE 1: Common Features of High-Performance Work Organizations

Management methods
Organization structure (<i>decentralization</i>)
Use of flexible technologies
Quality consciousness
Work organization
Teamwork
Flexible deployment of workers
Distance between managers and workers
Human resource practices
Substantial worker education and training
<i>Did organization provide any formal job training in past 2 years; Effectiveness of training</i>
<i>Firm internal labor markets</i>
Compensation strategies (gainsharing)
<i>Cash or stock bonuses for performance or merit; Profit-sharing or stock-option programs</i>
Commitment to employment security
<i>Firm internal labor markets</i>
Industrial relations
Labor-management relations

have only indirect measures of the organization’s flexibility in the deployment of workers and no measures of teams and consultative structures such as quality circles and employee-involvement programs.³

HPO CONCEPTS MEASURED IN THE NOS

In this section, we describe the primary measures of HPOs that are available in the NOS. These HPO measures are italicized in Table 1.

Decentralization. This is an indicator of the degree to which employees are able to participate in making various kinds of decisions (e.g., hiring, evaluating performance, scheduling—see Marsden, Cook, and Knoke, 1994, this issue). However, these decisions constitute only a portion of those implicated in the notion of worker participation, which refers to a wide range of practices, including soliciting workers’ suggestions, forming self-managing teams with almost total control of production, and helping to make decisions at plant and company levels (Cotton et al. 1988; Lawler 1992).

Job training. Appelbaum and Batt (1994) note that the best practice firms invest heavily in training; they estimate that the amount of resources devoted to training by HPOs is at least 5% of payroll and sometimes 15% or more in self-directed team-based systems. Job training in HPOs facilitates flexible deployment of employees among job tasks; job rotation, moreover, has been used as an indicator of whether a plant is *transformed* (Osterman 1992; see also Berger et al. 1989). Our measure (TRAINING) is the manager’s evaluation of

the effectiveness the organization's employee training (0 = *no training provided*, 3 = *highly effective*).

Compensation. Many writers identify gainsharing or profit sharing as a key characteristic of HPOs. This form of compensation is used as a strategic variable to improve firm competitiveness (Shuster and Zingheim 1992), because this incentive ties the interests of workers more closely to that of the organization and thereby enhances effort and performance. (See Freund and Epstein 1984 for empirical evidence on the incidence of gainsharing plans in the United States.) Our measure (COMPENS) is a five-item index denoting whether the organization offers profit-sharing or stock-option programs and cash or stock bonuses for performance or merit, and the importance of job performance for determining the earnings of the core occupation, the GSS respondents'/spouses' occupation, and managers.

Firm internal labor markets. FILMs are closely related to several characteristics of HPOs: They provide contexts which facilitate informal exchange of skills and other types of job training and worker development; they are associated with wage schedules and differentials within the organization (see Note 7); and they are indicators of employment security enjoyed by workers who are insulated from competition with persons in the external market. Our measure (FILMs) is the standardized sum of three items: the extent to which jobs are filled from within the organization, have different levels, and allow promotion to other levels.

Table 2 presents descriptive statistics on our measures of HPO characteristics and the correlations among them.

ARE THERE DISTINCT CLUSTERS OF HPO CHARACTERISTICS?

The ideal-type contrasts noted earlier between high- and low-performing organizations suggest that these HPO characteristics should be examined simultaneously rather than marginally. Such a configurational approach is consistent with the idea of a system of work structures. Although many companies may have adopted one or another aspect of an HPO (e.g., Dulworth, Landen, and Usilaner 1990 found that 70% of 476 large companies had installed the most common form of participation—quality circles), relatively few companies have implemented work systems that require high integration with the organization's primary systems and processes (e.g., Dulworth, Landen, and Usilaner 1990 found that only 10% were high involvement, having 3+ systems, with more than 40% of workers covered by each).

Levine and Tyson (1990) (see also Levine 1990) argue for a system approach, claiming that the benefits of participation on performance are contingent on four features of a firm's human resource practices and industrial relations systems: whether the gains from improvements in productivity are shared with the workers (gainsharing); whether the workers have employment security; whether the firm has adopted measures to build group cohesiveness; and whether there

TABLE 2: Correlation Matrix for HPO Measures

	<i>FILMs</i>	<i>Training</i>	<i>Compensation</i>	<i>Decentralization</i>
FILMs	1.00	—	—	—
Training	0.479	1.00	—	—
Compensation	0.214	0.178	1.00	—
Decentralization	0.211	0.167	0.202	1.00
Mean	-0.053	1.8	1.74	3.45
<i>SD</i>	2.55	1.22	0.433	0.964
Range	-3.6-5.1	0-3	0-3	1-5

NOTE: All correlations significant at the .0001 level.

are guaranteed individual rights for the employees. Similarly, Bailey (1992) argues that:

Participation requires complete commitment or it will not work. Thus techniques that measure marginal responses to marginal stimuli (such as typical regression), are not appropriate. . . . There are a small number of discrete models rather than a multiplicity or perhaps a continuum. . . . The organizational transformation approach implies a research strategy based on the characterization of the nature of the organization. Information on whether firms use a particular technique is not adequate. (pp. 27-8)

Bailey (1992) and Appelbaum and Batt (1994) summarize the small number of studies that have sought both to (a) classify groups of organizations using clustering techniques and/or indexes of transformed human resource policies and (b) examine whether adopting a cluster of organizational changes makes a difference. Studies emphasizing the interactions and complementarities among various human resource practices are relatively scarce, however. Their paucity reflects in part the difficulties in gathering extensive organizational-level data on performance as well as human resource and industrial relations practices. So far, this has only been possible with a few data sets (e.g., Arthur 1992; Cutcher-Gershenfeld 1991).

Figure 1 presents the results of our configurational analysis of the four main HPO characteristics described in Table 2.⁴ Applying clustering methods to these four characteristics⁵ revealed three major clusters. Cluster 2 represents the organizations in the NOS that most closely correspond to the model of high-performing organizations; these establishments score highest on all four characteristics (FILMs, training, benefits, decentralization). Organizations in Cluster 3 also have high scores on training, but have lower scores on the other three dimensions. Cluster 1 organizations have the lowest scores on FILMs and training, but slightly higher scores than Cluster 3 organizations on benefits and decentralization.

CORRELATES OF HPOs

Table 3 shows how the characteristics of HPOs (individually and in terms of the clusters identified in Figure 1) are associated with central aspects of organ-

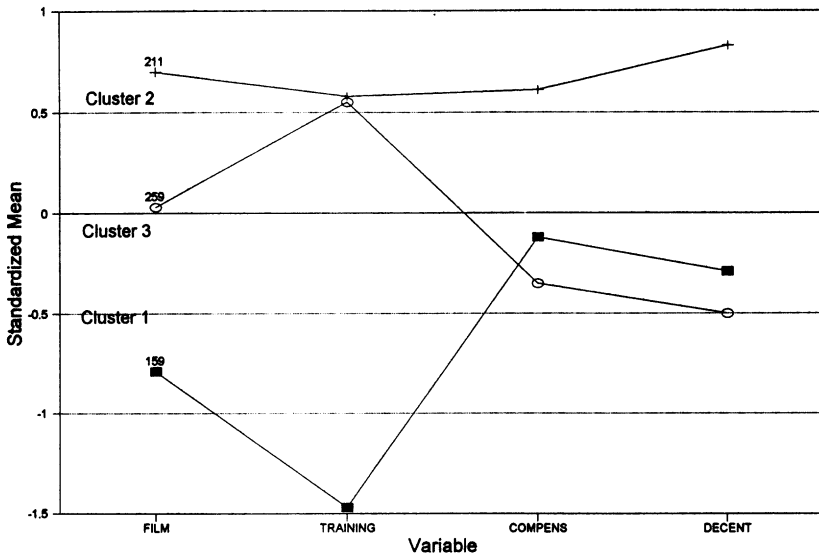


Figure 1: Cluster Profile of FILMs, Training, Compensation, and Decentralization

izational differentiation identified in the NOS, for example, size (number of employees in the establishment, and whether the establishment is an independent company or part of a larger firm); industry (manufacturing or service industry, based on the census classification); union pressure (see Marsden, Cook, and Knoke, 1994, this issue); and organization type (whether the organization is profit seeking, a government agency, a nonprofit public or a nonprofit private organization).

Compared to other NOS organizations, HPOs (Cluster 2) are larger and more likely to be in manufacturing industries (see also Lawler, Ledford, and Mohrman 1989). The relationship between union pressure and HPOs is more complex: Unionization is positively associated with FILMs and training and negatively correlated with gainsharing and performance-linked rewards. These results for unions are similar to Eaton and Voos's (1992) findings; using the GAO data, they found that nonunion firms were more likely to use profit sharing, but unionized firms made relatively greater use of reforms that directly influence the nature and organization of the work.

MEASURING ORGANIZATIONAL PERFORMANCE

To test hypotheses regarding HPOs, we also need measures of an organization's performance. The performance measures used by researchers often do not represent the variety of goals and functions that organizations pursue.

TABLE 3: Correlates of HPO Measures and Clusters

	<i>FILMs</i>	<i>Training</i>	<i>Compensation</i>	<i>Decentralization</i>	<i>Cluster 1^a</i>	<i>Cluster 2^a</i>	<i>Cluster 3^a</i>
Size (logged)	.614***	.469***	.138***	.423***	2.76	5.55	4.41
Independent company	-.436***	-.320***	-.089*	.264***	72.3%	38.4%	28.2%
Union pressure	.295***	.244***	.159***	.015	1.11	1.42	1.55
Manufacturing (census)	.164***	.062	.092*	.254***	10.1%	29.3%	11.2%
Service (census)	-.109**	-.030	-.009	-.079*	71.7%	61.1%	70.3%
Profit	-.254***	-.231***	.172***	.109**	84.9%	66.3%	50.1%
Nonprofit public	.134***	.091*	-.239***	-.121***	5.7%	9.9%	22.8%
Nonprofit private	.051	.077*	.089*	.146***	4.4%	12.3%	6.2%
Government	.180***	.172***	-.063	-.142***	5.0%	11.4%	20.85%
Product	.114**	.066	.053	.197***	6.9%	24.64%	10.8%
Service	-.125**	-.014	-.090*	-.206***	80.5%	64.5%	82.6%
Both product and service	.046	-.058	.068	.063	13.2%	10.9%	6.6%

a. Cell entries are percentage of the cluster with the attribute for all dummy variables, means for all others.
*Statistically significant at the .05 level, **statistically significant at the .01 level, ***statistically significant at the .001 level.

Appelbaum and Batt (1994), after reviewing studies of HPOs, conclude with the hope that

future research will provide an independent comparison of the performance of transformed and untransformed plants on a consistent set of outcome measures. More importantly, the outcome measures used to evaluate the success of work systems must be expanded to include the impact of all stakeholders—including shareholders, suppliers, customers, unions, managers, and front-line employees. (p. 145)

The NOS contains measures of the plant manager's subjective assessment of the organization's performance—relative to other, comparable organizations—on a wide range of dimensions. We adopted this *subjective benchmarking* approach to measuring performance because we wanted comparative indicators that were applicable to all organizations, from manufacturing plants to schools. Our measures are thus implicitly industry normed, because the manager presumably chose other organizations in the same line of activity to which to compare his/her organization's performance.

Our performance indicators are based on responses to the question:

How would you compare [your organization's] performance over the past three years to that of other organizations that do the same kind of work? (Much better, somewhat better, about the same, worse). What about . . .

1. quality of new products, services, or programs (V289),
2. development of new products, services, or programs (V290),
3. ability to attract essential employees (V291),
4. ability to retain essential employees (V292),
5. satisfaction of customers or clients (V293),
6. relations between management and other employees (V294),
7. relations among employees in general (V295),
8. marketing (V296),
9. growth in sales (V297),
10. profitability (V298),
11. market share (V299)?

Figure 2 presents descriptive information on the distribution of responses to each of these performance variables (the horizontal axis indicates the response category, ranging from 1 = *worse* to 4 = *much better*).

These distributions indicate that a majority of plant managers in the United States feel that their organizations perform better on the various dimensions than those to which they compared themselves. Responses to these performance questions reflect both actual performance and aspiration levels; it is performance relative to aspiration that defines the organization's perceptions of success and failure because organizations set goals/aspiration levels and compare their actual performance to their goals. This interpretation is consistent with Kalleberg and Marsden's (1994) argument regarding individuals' assessments of their performance: Organizations, like individuals, are likely to have a target level of performance (aspiration level) to which they compare their actual performance. Do

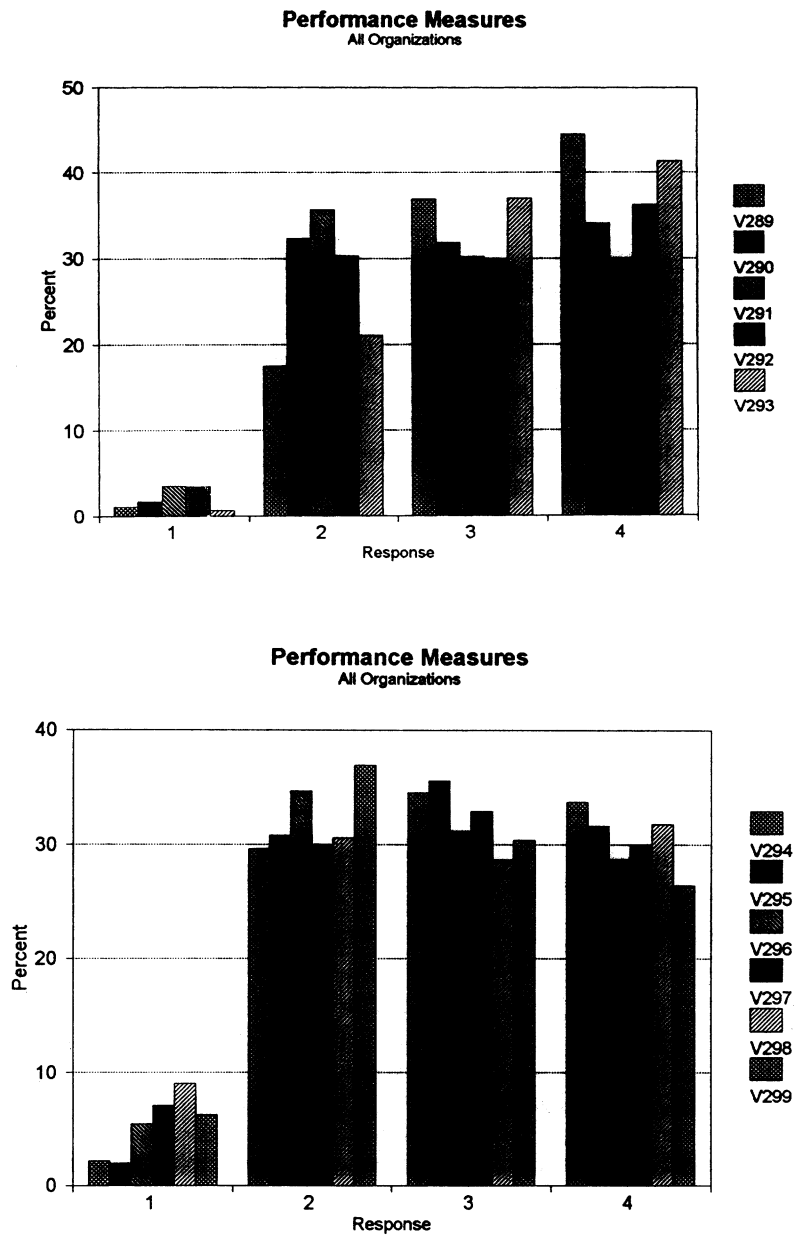


Figure 2: Performance Distributions

organizations that perform well on one dimension also perform better than average on others? Table 4 presents correlations among the performance meas-

TABLE 4: Correlations of Performance Variables

	V289	V290	V291	V292	V293	V294	V295	V296	V297	V298	V299
Product	1.00	—	—	—	—	—	—	—	—	—	—
Quality of products and services	.538	1.00	—	—	—	—	—	—	—	—	—
Development of new products and services											
Employees	.422	.453	1.00	—	—	—	—	—	—	—	—
Ability to attract essential employees	.471	.375	.691	1.00	—	—	—	—	—	—	—
Ability to retain essential employees											
Customer satisfaction	.553	.423	.454	.516	1.00	—	—	—	—	—	—
Customer satisfaction											
Relations	.434	.352	.431	.499	.535	1.00	—	—	—	—	—
Relations: Management and employees	.438	.362	.426	.490	.535	.823	1.00	—	—	—	—
Relations: Employees in general											
Market ^a	.349	.434	.322	.250	.331	.296	.338	1.00	—	—	—
Marketing	.427	.474	.397	.339	.356	.320	.327	.534	1.00	—	—
Growth in sales	.355	.433	.369	.325	.317	.302	.363	.477	.722	1.00	—
Profitability	.338	.392	.417	.345	.340	.331	.395	.498	.668	.679	1.00
Market share											
Mean	3.25	2.983	2.873	2.990	3.191	2.998	2.969	2.830	2.859	2.833	2.769
Standard deviation	.777	.857	.885	.898	.784	.849	.839	.909	.930	.978	.913

a. Asked of for-profit organizations only.

Note: All correlations are significant at the .0001 level.

Ns range from 578-604 for V289-V295, 401-412 for V296-V299.

TABLE 5: Correlations of HPO Measures With Performance Scales

	<i>Product</i>	<i>Relations</i>	<i>Employees</i>	<i>Market</i>	<i>Customer Satisfaction</i>
FILMs	.106**	-.053	.083*	.208***	-.064
Training	.181***	.097**	.149***	.221***	-.007
Compensation	.135***	.133**	.145***	.230***	.103**
Decentralization	.076	-.015	.088*	.011	.024

* $p < .05$; ** $p < .01$; *** $p < .001$.

ures. The performance indicators are positively correlated, although some are more strongly related than others.⁶

HPO AND ORGANIZATIONAL PERFORMANCE: RESULTS

Do HPO organizations actually perform better than other NOS organizations? An initial answer to this question is provided in Table 5, which presents correlations between our four HPO variables on one hand, and the performance measures on the other. Table 5 indicates that HRM practices and policies associated with HPOs are associated with better performance on some, but not all dimensions.

Organizations with FILMs perform better with regard to product development and innovation, attracting and retaining employees, and (for profit-seeking organizations) financial performance. On the other hand, FILMs appear to be unrelated to customer satisfaction and employee relations. The former results suggest the importance of FILMs for skill development and incentives. The result for employee relations may reflect in part the tendency of FILMs to create competition among employees who seek career advancement within the organization (Edwards 1979).

Training appears to enhance all dimensions of performance except customer satisfaction, whereas benefits (gainsharing, profit sharing, and having compensation tied to performance) are positively related to all types of performance. By contrast, decentralization is weakly related to performance; it is significantly (and positively) related only to employee relations.⁷

Figure 3 shows the means of the various types of performance for each of the three clusters of organizations. These results provide additional support for the hypothesis that HPO organizations perform better than others: Organizations in Cluster 2 (the HPO cluster) score highest on all dimensions of performance except customer satisfaction. Cluster 1 organizations score lowest on four dimensions, although they score highest on customer satisfaction. Recall that Cluster 1 organizations were relatively small establishments (see Table 3) providing little training and few FILMs, but having relatively high benefits and decentralization (see Figure 1). One might hypothesize that Cluster 1 organizations are composed of professionals (such as law firms) that require relatively

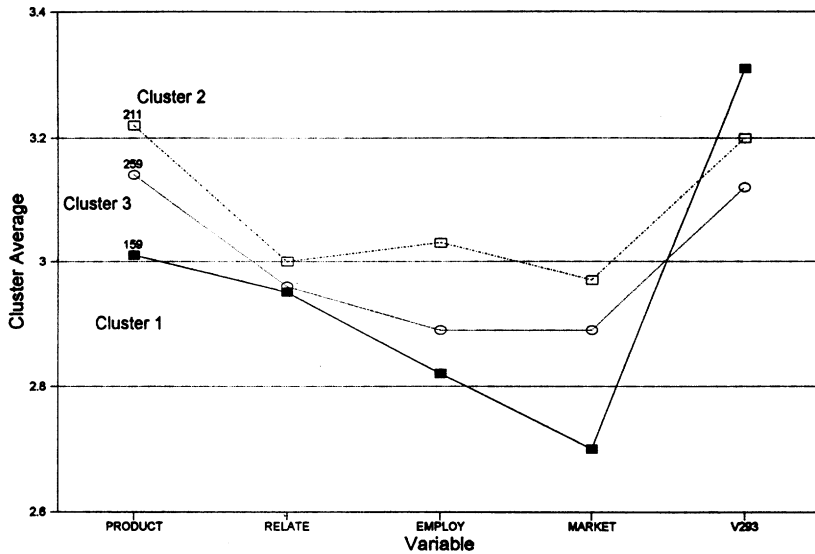


Figure 3: Performance Profile of Clusters Based on F, T, C, D

little within-organization training and have limited opportunities for advancement, yet are rewarded based on performance and are able to participate extensively in decision making.

CONCLUSIONS AND IMPLICATIONS

Our results are generally consistent with the view that some human resource policies and practices often identified with high-performance organizations do in fact enhance organizational performance. Moreover, there is a tendency for some of these characteristics of HPOs to occur together in organizations; these NOS organizations may be said to constitute a high-performing organization *system*. The NOS data permit us to examine the relationships between these human resource management policies and organizational performance for a nationally representative sample of U.S. work organizations, not just a particular sector such as manufacturing or services.

Our analysis of the relationship between human resource management and organizational performance was limited in several ways. It would have been good to have had objective measures of performance, for example. However, it is not clear whether it is possible to develop objective measures of performance for such a diverse sample of organizations. This suggests the need to study the determinants of performance within particular industry sectors where objective and precise measures of performance could be developed.

A more severe limitation of our analysis was the lack of information in the NOS on relevant aspects of HPOs, such as teams and other structures that promote employee involvement and empowerment. Further tests of the idea of high-performing work organizations await more detailed measures of the extent and type of teams (e.g., whether they are self-directed or autonomous), quality consciousness, cross-training, flexibility in the deployment of workers, and other concepts described in Table 1.

Our efforts in this article thus represent a tentative assessment of high-performing work organizations in the United States. At the same time, our results suggest the use of collecting richer information on the organization of human resource management and its relationship to the performance of work systems.

NOTES

1. Organizational performance is not the only objective of participation and work reform; these practices have had a strong normative and ideological content for many decades now (e.g., Bailey 1992). Gandz (1990) points out that employee involvement was practiced from humanitarian perspectives in the 1950s and 1960s. In the 1990s, it is driven primarily by business imperatives.

2. The most widely cited studies are a 1982 survey of members of the New York Stock Exchange that had more than 100 employees (Freund and Epstein 1984); a 1987 survey by the General Accounting Office of Fortune 1,000 companies (Dulworth, Landen, and Usilaner 1990; Eaton and Voos 1992; Lawler, Ledford, and Mohrman 1989); and a 1990 follow-up to that survey (Lawler, Mohrman, and Ledford 1992).

3. We do not have measures that would enable us to replicate Osterman's (1992) definition of HPOs. He classifies plants as *transformed* based on four characteristics (two indicators of teams, as well as job rotation and the presence of a total quality management program). We do, however, have information on some of the HR practices that Osterman identifies as supporting the adoption of workplace transformation, such as gainsharing and extensive training.

4. These four HPO measures form a single factor: a confirmatory factor analysis of these four variables indicated that a one-factor solution has a goodness-of-fit (GFI) statistic of .99 and an adjusted GFI of .94.

5. We first standardized the HPO variables to a mean of zero and a standard deviation of 1. We then used the Ward's minimum variance clustering algorithm in the SAS 6.08 statistical package. The clustering process produced a cluster tree with three distinct branches.

6. We performed a confirmatory factor analysis on the performance items. We tested two models because a subset of the performance questions was asked only of for-profit organizations: a five-factor model for profit-only organizations (see Table 4), and a four-factor model for all organizations (i.e., with the Market factor removed). The profit model had a GFI statistic of .96, with an adjusted GFI of .93. The four-factor model had a GFI of .99 with an adjusted GFI of .97. We also tested both models with an incremental fit statistic (Bollen 1989). We compared these factor structures to a one-factor model (incremental GFI = .878 for profits, .949 for all organizations) and a two-factor model (with V289, V290, and V293 loading on one factor; V291, V292, V294, and V295 on the second factor). The incremental GFI for profits against the two-factor model was .703, the incremental GFI for all organizations was .933.

7. Another aspect of compensation that is often linked to HPOs is the extent of *wage dispersion*. A great deal of wage dispersion is thought to foster competition, whereas narrow dispersion should favor cooperation and build group cohesiveness (Appelbaum and Batt 1994). To examine whether within-organization earnings inequality affects performance, we computed a measure of dispersion: the difference between the average earnings of managers and the average earnings of GSS and core

occupations. We found that greater wage dispersion was negatively and significantly related to two dimensions of performance: employee relations and customer satisfaction.

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