Understanding High Performance Work Systems: The Joint Contribution of Economics and Human Resource Management

John Tomer

Introduction

High performance work systems (HPWS) are organizations that utilize a fundamentally different approach to managing than the traditional hierarchical approach associated with mass production/scientific management. At the heart of this emerging approach is a radically different employer-employee relationship. Leading organizational behavior specialists believe that HPWS has the greatest potential to provide sustained competitive advantage to companies adopting it. Thus, human resource managers and scholars as well as economists ought to be very interested in it. While much has been written about HPWS in the human resource management (HRM) literature, economists' attention to it has been practically nil despite the fact that organizational economics is a significant area within economics.

The primary purpose of this paper is to improve our understanding of the superior economic performance of HPWS. The secondary purpose is to compare the respective contributions of the HRM and economics disciplines to this understanding. The HRM/organizational behavior literature contains important explanations regarding the economic performance of HPWS. In contrast, there is hardly any economic literature explicitly focused on HPWS. However, as indicated below, economic theory, particularly x-efficiency theory, can be adapted to this purpose. The explanations that make the most sense of the economic performance of HPWS are interdisciplinary ones that integrate economics with organizational behavior.

The plan of the paper is as follows. Section two describes the characteristic features of HPWS and cites evidence regarding its economic performance. Section three examines HPWS from the standpoints of mainstream organizational economics and mainstream HRM. Section four brings to bear behavioral economic and organizational behavior perspectives with respect to understanding the performance of HPWS and attempts to integrate these. In addition, this section focuses on the essential reasons for HPWS' superiority and why, despite this, HPWS' diffusion has been slow. The final section provides conclusions.

High Performance Work Systems

Characteristic Features

High Performance Work Systems, sometimes known as high involvement or high commitment organizations, are organizations that use a distinctive managerial approach that enables high performance through people. Although different HRM authors have emphasized slightly different features and management practices in describing HPWS, the essential chararacteristics are the seven key dimensions identified by Jeffrey Pfeffer in The Human Equation (1998, chapter 3). These are: (1) Employment security. (2) Selective hiring of new personnel. (3) Self-managed teams and decentralization of decision making as the basic principles of organizational design. (4) Comparatively high compensation contingent on organizational performance. (5) Extensive training. (6) Reduced status distinctions and barriers, including dress, language, office arrangements, and wage differences across levels. (7) Extensive sharing of financial and performance information throughout the organization.

The main idea of HPWS is to create an organization based on employee involvement, commitment and empowerment, not employee control. The particular set of managerial practices will vary from company to company. "The small business unit that controls its own fate and involves everyone in the business is the best image for the involvement-oriented approach" (Lawler 1992: 29). In these high involvement organizations, employees "feel responsible for and involved in its success" (ibid.,: 3); they "know more, do more, contribute more" (p. 5). They have the power, information, knowledge, and rewards to perform at the highest level (Lawler, Mohrman, and Ledford 1995). Among the successful companies making use of this approach are Norwest, Men's Wearhouse, ServiceMaster, Southwest Airlines, USAA, Procter and Gamble, Wal-Mart, and Virgin Atlantic Airways (Pfeffer 1998: 293-296).

HPWS is not the same as Total Quality Management (TQM) but these two approaches can be used along with each other.

"Although the TQM approach stresses employee involvement, the type of involvement it stresses is limited to allowing employees to make suggestions and control certain elements of the production process and the quality-control process. It does not suggest that organizations be restructured and redesigned to emphasize employees having the information, knowledge, power, rewards that will give them a business experience. Instead employees are given information, knowledge, and power to improve certain elements of the organization's work processes." (Lawler 1992: 326)

HPWS organizations use an approach that is fundamentally different from the traditional hierarchical or bureaucratic approach, otherwise known as the control-oriented approach (Lawler 1992: 25).

"The fundamental difference between the control-oriented approach and the involvement-oriented approach concerns how work is organized and managed at the lowest level in an organization. Companies using the control-oriented approach assume that work should be simplified, standardized, and specialized and that supervision and pay incentives should be used to motivate individuals to perform their tasks well. In

essence, the thinking and controlling part of work is separated from the doing of the work." (ibid.: 28).

Workers at the lowest levels, especially those employed in the context of mass production/scientific management, are agents, unthinking agents, of owner/manager principals. Involvement-oriented organizations, on the other hand,

"should be structured so that individuals at the lowest level in the organization not only perform work but also are responsible for improving work methods and procedures, solving problems on the job, and coordinating their work with that of others. Employees also can and should be expected to operate without a controlling supervisor." (Lawler 1992: 30)

In HPWS, workers are to a large degree self-controlled and self-managed (p. 28). With the help of leaders who develop a clear vision, mission, and goals, HPWS workers are expected to respond in nonprogrammed ways to changing circumstances. HPWS is participative management to the nth degree. Workers in HPWS have shed the mentality of agents; they have become owners in their outlook.

Performance Superiority

There are many empirical studies that have investigated whether firms utilizing particular HPWS managerial practices achieve a higher level of performance than traditionally managed firms. However, comparatively few studies have focused on a group of HPWS practices and have examined in a rigorous fashion the extent to which these are associated with higher operating and financial performance. It is beyond the scope of this paper to provide a complete, careful review of these studies. Nevertheless, it is important to summarize some of their important results and to indicate whether they support the hypothesis of HPWS performance superiority.

First, consider the studies reviewed by Pfeffer (1998, chapter 2), the most important of which is by Mark Huselid. Using survey data from 968 firms in many industries, Huselid (1995) has found evidence consistent with the hypothesis that companies' use of systems of high performance work practices 1) diminishes their employee turnover and 2) increases their productivity (sales per employee) and corporate financial performance (stock market value to book value). He concludes that

> "The magnitude of the returns for investment in High Performance Work Practices is substantial. A one standard deviation increase in such practices is associated with a ... 7.05 percent decrease in turnover and, on a per employee basis, $27,044 more in sales and $18,641 and $3,814 more in market value and profits, respectively." (ibid: 667)

Several single industry studies reviewed by Pfeffer (1998) are noteworthy. First, studies of the auto industry by researchers at M.I.T. have compared auto plants with lean or flexible production methods to those with traditional mass production methods (Pfeffer: 38-41). They found that flexible production methods that emphasize the use of teams and employee involvement are associated with higher quality and productivity than mass production. Second, a major study of the steel industry rated the human resource policies of companies on a scale of one to four, one being progressive and four being the traditional Tayloristic approach (ibid: 44-46). This study found that firms with more progressive management systemoperated their lines a significantly higher proportion of the time and had significantly lower costs. Third, a study of fifteen semiconductor fabrication plans used an index of participation with four elements: power, information, knowledge, and reward (ibid: 51-53). The researchers found a clear linear relationship between this participation index and three performance indicators, defect density, line yield and cycle time. Finally, a study of the oil refining industry found that a multi-

skilled, trained, and committed workforce pays off in reduced maintenance expense and higher refinery utilization (ibid: 53-54).

John Paul MacDuffie (1995) studied the relationship between "bundles" of interrelated and internally consistent human resource practices (not individual practices) and productivity and quality in 62 auto assembly plants throughout the world using questionnaires and site visits. Some plants used HR bundles associated with mass production involving a narrow division of labor and low commitment policies. Other plants used HR bundles associated with flexible productions systems involving a multiskilling orientation (greater use of teams, suggestions, job rotation, and workers performing quality tasks) and high commitment policies. Some plants were in-between. MacDuffie (MacDuffie 1995: 217-218) found strong, statistically significant evidence supporting the hypothesis that innovative bundles of HR practices are positively related to both productivity and quality.

The conclusions of Ichniowski, Shaw and Prennushi (1997) for steel production lines are similar. They studied 36 homogeneous steel finishing lines owned by 17 companies to determine whether clusters of complementary HRM practices are related to productivity. They identified four systems of HRM practices: 1) System 4 is the traditional system with no innovative practices; 2) System 3 is System 4 with the addition of worker involvement in teams and enhanced labor-management communication practices; 3) System 2 adds extensive skill training and high worker involvement in teams; and 4) System 1 incorporates innovative practices in all HRM policy areas (Ichniowski, Shaw and Prennushi 1997: 296-298). Productivity was measured by the

percentage of uptime (time not involving delays). The evidence from their careful regression analyses, which controls for all relevant differences in the production lines, indicates that systems of innovative HRM practices have a statistically significant large and positive association with workers' productivity, while changes in individual HRM practices have little or no effect (ibid: 311).

In a similar study, Ichniowski and Shaw (1999) examined evidence on the performance difference between Japanese and US steel manufacturing companies. The Japanese companies utilized HRM systems featuring problem-solving teams, employment security, flexible job assignments, training, careful employee selection, and high levels of labor-management communication. The US companies, as above, had four levels of HRM systems, from traditional to innovative. The regression analyses indicated that the Japanese steel companies performed better in both productivity and product quality than the US companies. However, the US companies that utilized innovative HRM systems equaled the productivity and came close to the quality performance of the Japanese companies (ibid: 713-717).

Other studies and reviews of studies have come to the same general conclusion as the ones cited above. For example, Kling's review article concludes that

"Taken together, the studies reviewed show that specific practices such as training, alternative pay systems, and employee involvement often are correlated with higher productivity. These and other practices are associated with even greater productivity improvements when implemented together in systems" (Kling 1995: 32).

Based on survey data obtained from firms listed among the 1000 largest service and industrial companies, Lawler, Mohrman and Ledford found that

"Companies that use employee involvement practices overwhelmingly believe that they receive significant benefits from them. The use of a wide variety of specific power-

sharing, reward, information-sharing, and training practices is linked to specific positive impacts." (Lawler, Mohrman and Ledford 1995: 74).

It is on the basis of these types of findings that Pfeffer (1998: 32) concludes that "substantial gains, on the order of 40 percent or so in most of the studies reviewed, can be obtained by implementing high performance management practices."

Mainstream Economics and Human Resource Management

Mainstream Organizational Economics

Does mainstream organizational economics help us understand the superiority of HPWS? The answer is basically no. This is because the analyses of mainstream organizational economics are designed to explain behavior in control-oriented organizations where there is a clear principal-agent relationship (see, for example, Milgrom and Roberts 1992, chapters 7 and 12). The basic problem addressed in organizational economics' theory of incentives is "to induce the agent to provide 'effort' of various sorts" (Milgrom and Roberts 1992: 39). Thus, much of the relevant organizational economics, or personnel economics, involves how to devise incentives to get the employee/agent to exert a particular type and amount of effort that the employee experiences as onerous or at least does not want to exert. Because the employer/principal wants this effort exerted, or at least wants its fruits, the employer must give rewards (usually pecuniary) to the employees in order to direct their efforts away from what they naturally would do. Personnel economics provides a comprehensive analysis of the advantages and disadvantages of different methods of compensation including both individual and group incentives (see Lazear 1995). An important aspect of personnel

economics is developing an understanding of the effect on employee behavior of the entire structure of economic incentives. Mainstream organizational economics largely ignores the social and psychological, not to mention the spiritual, aspects of organization. It should be noted that mainstream organizational economics may be useful for understanding organizations that are hybrids in the sense of combining control-oriented organization with involvement-oriented organization.

Mainstream Human Resource Management

Traditional human resource management, sometimes known as personnel management, is concerned with a variety of personnel related duties in control-oriented organizations. For example, it is concerned with employee recruitment, selection, training, development, performance appraisal, compensation, and labor relations (see, for example, Bateman and Snell 1996, chapter 12). Traditional HR managers have been especially concerned with getting the right person for the job, a person with appropriate training, experience, motivation, and attitude/orientation. These traditional tasks take for granted the basic employer-employee relationship, the principal-agent relationship. Thus, mainstream HRM has not been concerned with transforming the approach to management (as is the case with HPWS) in order to gain competitive advantage. Concern with the latter is only recently becoming an important issue for HR managers.

Beyond the Mainstream: Developing an Understanding of HPWS

Behavioral Economics

To add to our understanding of the superiority of HPWS, it is important to start with x-efficiency theory, an important branch of behavioral economics. Some of the

perspectives of x-efficiency theory (see, for example, Leibenstein 1976) are very useful even though this theory is not explicitly oriented to understanding HPWS. One such perspective is that employees have discretion with respect to their efforts and employees typically exert significantly less effort than they could. Morris Altman in Human Agency and Material Welfare (1997) uses x-efficiency theory in a way that is suggestive of and anticipates important HPWS insights. For example, Altman recognizes that investment of time and energy is required to develop a more cooperative system of labor relations that elicits higher worker effort, and thus, higher x-efficiency (internal efficiency). Altman, however, does not spell out the nature of such cooperative systems nor why, except for his reference to cooperation and trust, we would expect high x-efficiency from them.

Organizational Behavior

Among the important insights developed by organizational behavior specialists is that

> "Innovative human resource practices are likely to contribute to improved economic performance only when three conditions are met: when employees possess knowledge and skills that managers lack; when employees are motivated to apply this skill and knowledge through discretionary effort; and when the firm's business or production strategy can only be achieved when employees contribute such discretionary effort." (MacDuffie 1995, p. 199)

With regard to HPWS, many organizational experts have found that employees do in fact work harder, smarter, more creatively, and more cooperatively than employees in traditional organizations. Why is this so? The most important reasons are as follows. Because of these workers' higher involvement and commitment and their greater control over and say in their work, they work harder (Pfeffer 1998: 33). They also work harder because of contingent compensation that rewards these efforts and because of "peer

pressure activated in self-managing teams" (ibid: 60). Because of HPWS' emphasis on developing workers' skills and competence, these workers' efforts are also better directed, i.e., smarter. They also work smarter "because of the training and job rotation practices that enhance the opportunity to learn" (op cit). Because of HPWS' emphasis on teamwork, trusting relationships, and innovation, workers' efforts are more cooperative and creative. Because HPWS place greater responsibility on workers at the operational level, it "saves on administrative overhead [layers of management are eliminated] as well as other costs associated with having an alienated work force in an adversarial relationship with management" (Pfeffer 1988: 33). In particular, HPWS reduces employment disputes, and thus, saves on the direct and indirect costs of employment litigation. According to Huselid (Huselid 1995: 638), because of HPWS organizational structures such as cross-functional teams, job rotation, and quality circles, workers' cooperative efforts are increased. For these and other reasons, HPWS workers' efforts are expected to be higher and more effective than for those working in a control-oriented organization. It should also be noted that, according to Lawler (Lawler 1992: 41), there is likely to be less labor turnover in HPWS simply because of the attractiveness of this type of work environment.

Integrating Organizational Behavior with Behavioral Economics

That HPWS workers exert higher effort than those in control-oriented organizations is consistent with a body of theory that explains the relationship between worker participation and worker effort (Tomer 1987). This theory draws upon fundamental organizational behavior insights and integrates these with x-efficiency theory. The most

important psychological insight comes from Chris Argyris (1960) who explained why the demands of hierarchical organization on healthy, mature individuals cause low motivation. According to Argyris, workers in traditional control-oriented organizations will experience frustration, psychological failure, short time perspective, internal conflict, an orientation to a part of the organization rather than to the whole, and counterproductive informal activities because they have little opportunity to be in control of work situations and to exercise their abilities (Argyris 1960: 14-17). Conversely, it is only when an organization enables a member to satisfy one's higher needs, notably the need for self-actualization, that an individual will get beyond the above difficulties and will have available high psychological energy for organizational purposes.

The basic model of worker motivation (Tomer 1987, chapter 5) builds upon Leibenstein's effort determination model in which workers choose the level of effort that maximizes their utility. This model adds a number of important factors missing from Leibenstein's, factors suggested by Argyris' psychological insight. In particular, it adds four dimensions of the individual's work environment: 1) the match between an individual and the characteristics of both the job and the organization, 2) the existing structure and supervision of the job, 3) the existence of clear, meaningful goals for jobs and the organization, and 4) the nature and enforcement of the implicit contract between employer and employee. The essence of the model is that when the work environment enables workers to have considerable control over how work is done, to acquire valued skills, and generally to experience significant "ownership" of the workplace, workers will

be able to satisfy their higher needs, and because of their high motivation, will choose high effort. This is clearly the case with HPWS.

A slightly more complex version of the above model (Tomer 1987, chapter 7) utilizes an implicit psychological contract spectrum with several important dimensions. For example, at the left end along one dimension, the employee is an agent of the firm's principals; on the opposite end, the employee has become a part of the work community, shares its goals, and participates in its decision making. At the left end of another dimension, the employee is controlled explicitly through a written contract and directive supervision, and on the right end, experiences implicit control through the internalization of goals and values. Another dimension is employee tenure from short-term (left) to lifetime employment (right). These moves from left to right on the spectrum are, according to this theory, associated with improvements in internal efficiency. Because HPWS is located on the far right of these several dimensions of the implicit psychological contract spectrum, it would be expected to have high internal efficiency stemming from high employee motivation and effort.

Two Kinds of Motivation

The essential reason for the superiority of HPWS over control-oriented organization involves the distinction between two types of motivation, agent motivation and deep ownership motivation. These in turn involve a distinction between two types of employer-employee relationships. As explained below, understanding agent motivation is not a problem for economists but understanding deep ownership motivation is a major challenge for economists.

Agent motivation is what moves the employee as agent to do what the employer as principal wants. It involves the use of rewards and penalties, or external control, by the principal. Because of the prospect of the reward, generally involving the satisfaction of lower human needs away from work, the employee is willing to do other than what he really wants to do. This kind of motivation is very familiar to economists.

Deep owner motivation is the motivation experienced by employees who are not an agent of anybody and who are "owners" of the organization in much more than the financial/legal sense. Employees motivated in this way experience high psychological energy when their organizations provide them with the opportunity for self-actualization (recall Argyris). Deep owner motivation arises when the employee is connected with or bonded with the organization in a deep and meaningful way, sharing a common destiny, mission, core values, and spirit. Such employees are highly involved and committed to the organization; they experience genuine enthusiasm, empowerment, and inspiration. Organization members are not simply making a calculative commitment; they are making an affective commitment charged with emotion (Ashforth and Humphrey 1995: 110). This motivation is not external but it is not entirely internal; it is a product of the relationship of the member to the organization, a relationship which is entirely different from the principal-agent relationship. This kind of motivation is difficult for economists to understand 1) because it does not involve external control, simple responsiveness to standard rewards and penalties, and 2) because it involves a conception of higher human need, a humanistic psychology, that does not fit well with the rudimentary psychology that economics incorporates.

Organizational Relationships as Capital

Deep ownership motivation, strictly speaking, is not something that is in an individual, and it is not something that is external to the individual like a structure of incentives. Deep ownership motivation derives from a particular type of employer-employee relationship that has been developed in the organization. Because of this relationship, the organization has a performance capability that is greater than it would be without it. Because of this relationship, the organization has a productive capacity greater than what could be attributed to the sum of all the other assets/resources utilized by the enterprise. This capacity or capability clearly has an asset-like or capital-like quality which has been recognized by a number of organizational behavior and economics writers.

My previous writings have developed the concept of organizational capital (see Tomer 1987, 1999). Organizational capital is a kind of human capital in which the productive capacity is not simply embodied in individuals but is embodied in the organizational relationships that have been developed in the organization. Because it is embodied in social relationships, organizational capital may also be considered a kind of social capital. When a business transforms its organization by installing the managerial practices and organizational features known as HPWS, it is making a very significant investment in organizational capital. Presumably a good part of the payoff to that investment is the improved performance deriving from the enhanced deep owner motivation.

Note that Ichniowski and Shaw (2003) refer to the "connective capital" of the workers, presumably a kind of organizational capital. They "define connective capital as a worker's access to the knowledge and skills of co-workers and model it as a key ingredient in effective problem solving" (Ichniowski and Shaw 2003: 167). Generally, substantial investment in connective capital is indicated where HRM systems are innovative and workers interact with many others in problem solving.

Brian Becker and his coauthors (Becker and Gerhart 1997: 39) have recognized explicitly the usefulness of the organizational capital concept in connection with the organizational capabilities associated with HPWS. Becker et al argue that implementing HPWS raises employee motivation, improves employee skills, and improves job design and work structures (ibid: 40). These, in turn, lead to improved operating performance which generates higher profits and growth, ultimately raising the market value of the firm (a sequence supported by the empirical studies cited earlier). In other words, investment in this kind of organizational capital functions very much like any other important capital asset. And according to a number of studies, intangible assets such as organizational capital account for up to 85 percent of a corporation's value (Becker, Huselid, and Ulrich 2001: ix). Unfortunately, organizational capital and other types of intangible capital are the assets that are "least understood, least prone to measurement and, hence, least susceptible to management" (ibid: ix).

To understand better the nature of the intangible investment involved in changing an HRM system, Gant et al (Gant, Ichniowski, and Shaw 2002: 290) ask us to consider the difference in performance in two otherwise comparable establishments which differ in

their HRM systems. The performance difference, they explain, came about due to the investment in social capital that produced differences in the "structure of interactions and information transfer" making the innovative HRM system more productive than the traditional system.

Despite the evidence on the performance superiority of HPWS, it would, be a mistake to think that HPWS can be installed easily by simply imitating the best practices at other companies. Making successful organizational investments in HPWS creates intangible, unique, firm-specific organizational capabilities that are not easily replicated (Becker, Huselid, and Ulrich 1997: 41; Collis and Montgomery 1995: 120). Investment in HPWS can produce a sustainable source of competitive advantage, according to leading HRM professionals, when the different managerial practices are combined into an internally coherent system involving alignment with existing organizational features (internal fit) and alignment with operating and strategic objectives (external fit) (Becker and Gerhart 1996: 781; Becker, Huselid, and Ulrich 1997: 41). Moreover, based on their review of many studies Becker and Gerhart (Becker and Gerhart 1996: 784) conclude that these different component practices are complementary resources that do not produce superior performance in isolation; they only do so in combination. Thus, it is only when firms go beyond adopting best practices imitatively and create a well-integrated system that they can achieve a lasting competitive advantage and realize superior returns on their investment in organizational capital (ibid: 788).

Slow Diffusion

In spite of the prospects for high economic returns, diffusion of HPWS has neither been quick nor extensive in the U.S. and the United Kingdom (Pfeffer 1998: 61-62; see also Appelbaum and Batt 1993: 41-55).

"In fact, some firms are moving away from the use of high commitment management--changes in practice are too often short-lived. Even when implemented, changes in management approach are often introduced in a truncated and partial manner." (Pfeffer 1998: 32)

The most important reason for this is that installing HPWS is not a simple matter of acquiring and plugging in a best practice technology or method. Not only is there difficulty involved but opting for HPWS commits an organization to a profound change, one that involves a transformation of the relationship between employer and employee.

"Each of these changes [in managerial practices] challenges existing ways of doing things--particularly if the existing way emphasizes a Tayloristic, control-oriented approach. It is almost impossible to successfully implement high performance or high commitment work practices in the absence of mutual trust and respect. But trust is missing in many employment relationships ...." (Pfeffer 1998: 62)

Other barriers to the spread of HPWS include 1) high initial training costs, 2) the difficulties involved in satisfying short-term oriented investors, 3) managerial inertia and resistance due to their conservative instincts and values and due to their uncertainty about what is required, 4) the existing relationship and contracts with labor unions, and 5) other institutional barriers such as U.S. labor law (Appelbaum and Batt 1993: 48-59). According to Appelbaum and Batt (ibid: 42), the institutional framework of the U.S. is geared to outmoded managerial approaches associated with mass production and does not provide adequate support for the emergence of HPWS. Moreover, many U.S. firms are adapting to competitive pressures by attempting to make minor alterations in mass production so it is more flexible but consistent with the use of low skill, low wage

workers (ibid: 45). The existence of and temptation of this low wage path is another obstacle to the diffusion of HPWS.

Conclusions

High performance work systems are a form of organization in which workers are not agents of principals, are not controlled by structures of incentives, but have become owners or principals in their outlook. Workers in this type of organizational relationship may be able to satisfy their need for self-actualization and experience deep owner motivation. Because these workers are identified with, committed to, and fully participating in the organization, their efforts are expected to be much higher and more effective than those of workers in control-oriented organizations who experience agent motivation. To understand the productivity of HPWS, and organizational excellence generally, economists need to go beyond the familiar agent motivation and incorporate into their theoretical frameworks the conception of deep ownership motivation. Also, note that to realize the full potential of HPWS requires going beyond imitation of other companies' best managerial practices; it requires installation of an internally coherent system. The payoffs to such an investment in organizational capital can be great but because it often involves such a profound change from past practice many managers are understandably reluctant to make more than hesitant steps toward it.

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