Success and Survival of Skill-Based Pay Plans

Jason D. Shaw, Nina Gupta, Atul Mitra and Gerald E. Ledford, Jr.

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Success and Survival of Skill-Based Pay Plans[†]

Jason D. Shaw*
Gatton College of Business and Economics, School of Management, University of Kentucky, Lexington, KY 40506-0034

Nina Gupta
Walton College of Business, Department of Management, University of Arkansas, Fayetteville, AR 72701

Atul Mitra
College of Business Administration, Department of Management, University of Northern Iowa, Cedar Falls, IA 50614

Gerald E. Ledford Jr.
Ledford Consulting Network, LLC, 2015-B Havemeyer Lane, Redondo Beach, CA 90278

Factors related to the success and survival of skill-based pay (SBP) plans are addressed in a longitudinal study of 97 facilities. Results indicate that certain design features and support variables relate to increased workforce flexibility and to SBP survival, and supervisor support also relates strongly to SBP survival. The results also show that SBP plans are more successful and sustainable in manufacturing facilities than in service facilities, and SBP survival is less likely in facilities pursuing a technical innovation strategy. Implications of the research for theory and practice regarding SBP plans, compensation systems, and human resources management innovations are addressed.

Keywords: *skill-based pay; survival; innovation; job design*

Skill-based pay (SBP) plans entail a fundamental departure from traditional job-based pay to a person-based approach that rewards employees for acquiring new skills (Gupta, Jenkins, & Curington, 1986; Jenkins, Ledford, Gupta, & Doty, 1992). Under SBP plans, employees are given a pay increase for learning and demonstrating proficiency in a new skill. The pay increase is granted regardless of whether employees actually use the skill in the course of their typical duties at the time of skill acquisi-

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**Corresponding author. Tel.: 859-257-2774; fax: 859-257-3577.*

E-mail address: jdshaw@uky.edu

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tion (Gupta & Shaw, 2001). Lawler, Mohrman, and Ledford (1998) reported that the proportion of *Fortune* 1000 companies using SBP with at least some employees rose from 40% in 1987 to 62% in 1996. Companies use SBP plans presumably to improve workforce flexibility, productivity, and similar outcomes (Murray & Gerhart, 1998). Case reports suggest that some companies do realize these benefits, but these assumptions are largely untested empirically (Lee, Law, and Bobko [1999] and Murray and Gerhart [1998] are recent exceptions, but they are conducted within limited organizational settings).

We examine SBP plans in terms of several dimensions of their success and long-term survival. Numerous authors note that success can be measured in many ways (e.g., Eaton, 1994; Kim, 1999); we take a similar multifaceted perspective. Workforce flexibility and increased productivity are considered critical outcomes of SBP plans in the practitioner (e.g., Gupta, Ledford, Jenkins, & Doty, 1992; Lawler & Ledford, 1987) and academic literatures (e.g., Gupta & Shaw, 2001; Murray & Gerhart, 1998). The literature also argues that SBP plans reduce overall compensation costs by developing lean facilities saturated with broadly skilled employees (Jenkins et al., 1992; Ledford, 1991), that is, they are cost-effective. In short, the literature suggests three dimensions of SBP success—flexibility, productivity, and cost-effectiveness. We focus on these in the article.

Another critical indicator of a successful administrative innovation is its continued use, that is, its survival (Gerhart, Trevor, & Graham, 1996). However, Kim's (1999) study of the survival of gainsharing plans is a rare example of this type of investigation; similar studies of other compensation innovations are vitally needed. Survival issues are especially germane for SBP plans for several reasons. First, unlike traditional job-based pay plans, SBP plans are almost always a strategic linchpin for the organization (Lawler & Jenkins, 1992), implying greater returns on investment and greater accountability. Second, SBP plans are usually embedded in sweeping changes that encompass sociotechnical, selection, training, performance appraisal, accounting, and other systems, as well as the facility structure. Lawler (1994) pointed out that the entire human resource management (HRM) infrastructure may need to be altered or replaced to converge with SBP. Third, SBP systems are complex and tightly coupled with HRM and other employment practices (Gupta et al. 1992). Highly integrated practices increase the costs of failure because problems can spread through the system in unanticipated ways (Perrow, 1984). In addition to the other success dimensions, then, we also focus on SBP survival.

Theory and Hypotheses

In this section, we examine four facets of SBP success: workforce productivity, workforce flexibility, cost-effectiveness, and SBP survival. We investigate three critical aspects of SBP plans on these outcome variables—design characteristics, supervisor/employee support, and facility characteristics. We also explore the mediating role that SBP productivity, flexibility, and cost-effectiveness success might play between design characteristics, supervisor/employee support, and facility characteristics on one hand and SBP survival on the other hand.

SBP Design Characteristics

Focus on skill breadth. A focus on breadth of skills means that the SBP plan rewards the acquisition of a repertoire of skills at the same lateral level in the facility (Gupta & Shaw, 2001). Focus on skill breadth should be positively related to SBP success and survival for many reasons. A breadth focus tends to increase job variety in the long run, it enhances task significance because it highlights the role of each job within the facility context, and it increases autonomy because employees know a range of different tasks (e.g., Bunning, 1989; Jenkins & Gupta, 1985; Knouse, 1995). The motivating potential

of an SBP plan with a stronger focus on skill breadth should thus be greater. Murray and Gerhart (1998) reported that, compared with a job-based system, a breadth-oriented SBP system increased productivity 58%. Thus, an emphasis on skill breadth should facilitate productivity success. A breadth focus, by definition, diversifies the skill sets of employees and should also predict flexibility success. The inherent skill diversification results in a multiskilled workforce capable of doing different jobs in the company. As a result, optimal use of human capital is promoted. Breadth plans are generally easier to create and administer, partly because support structures such as formal training and performance appraisals are often geared for breadth skills (Lawler & Ledford, 1987); most facilities have basic training programs in place for requisite technical skills. For these reasons, an emphasis on skill breadth should be positively related to cost-effectiveness.

A focus on breadth of skills should also predict plan survival. Employee acceptance of an innovation depends on many factors including simplicity and ease of use. Although SBP plans are inherently complex (Milkovich & Newman, 1999), plans that emphasize skill breadth tend to be simpler and easier to use. As noted, a wide array of observable breadth skills can be easily incorporated into the plan. These factors promote employee acceptance of the plan, which in turn should increase the probability of survival (Davis, 1989; Jenkins & Lawler, 1981). Thus,

Hypothesis 1: A focus on skill breadth is positively related to SBP success (productivity, flexibility, and cost-effectiveness) and survival probability.

Total number of skills in plan. An important aspect of SBP design is the number of skills encompassed by the plan. More skills create internal pay ladders with more rungs, which in turn should enhance motivation, goal achievement, and higher order need fulfillment (Gupta et al., 1992). Furthermore, a higher skill acquisition and pay raise probability is likely to raise pay satisfaction (Lee et al., 1999) and facilitate changes in career direction. These characteristics of plans with more skills should result in greater productivity and flexibility and greater survival probability. On the other hand, a higher number of skills is likely to entail greater administrative costs, could burden internal training resources, and could increase base pay levels to unacceptably high levels (Murray & Gerhart, 1998). Thus, efficiency and cost-effectiveness may suffer, at least in the short run. Thus,

Hypothesis 2: The total number of skills in the SBP plan is positively related to productivity success, flexibility success, and survival probability but is negatively related to cost-effectiveness success.

Topped-out percentage. A common concern in SBP plans is that of employees "topping out," that is, having acquired all available skills and received all available pay increases (Jenkins et al., 1992). This situation is analogous to employees reaching the highest level in their pay grade within a traditional compensation structure. Ironically, when many employees are topped out, the SBP plan can be viewed as successful in many ways because it yields a highly skilled, highly paid workforce. Logically, then, as more and more employees top out, productivity and flexibility levels should increase.

On the other hand, when many employees are topped out, cost-effectiveness and the probability of survival may be reduced. For example, Eaton (1994) reported that mature employee participation programs were increasingly difficult to maintain and created additional administrative burdens. Among SBP plans, a high topped-out percentage may signal the later stages of the life cycle of the program. In such circumstances, the continued relevance of the multiple skills an employee possesses must be evaluated often, technological obsolescence of skills considered, and refresher training offered. Furthermore, the design of alternative compensation structures that enable pay raises for these highly skilled and highly valued employees becomes urgent. Most facilities have not dealt with these issues effectively (Gupta et al., 1986, 1992; Jenkins & Gupta, 1985). For these reasons and consistent with Eaton (1994), we expect a high topped-out percentage to relate negatively to cost-effectiveness.

Life cycle arguments are also relevant for survival. Gerhart et al. questioned the implicit assumption that innovations "are discontinued because objectives went unmet or unanticipated consequences . . . created unforeseen problems" (1996: 189). Instead, programs may be terminated when their desired goals are met. A high topped-out percentage in many ways signals the end of the life cycle for a successful program. As Gerhart et al. suggested, then, termination is a reflection, not of managerial error or illogical choices, but rather of decision makers "acting shrewdly rather than waiting for probably problems to emerge from employees with suddenly capped earning potential" (1996: 190). From a sociological point of view, innovations have distinct life cycles that explain their termination. Thus,

Hypothesis 3: Topped-out percentage is positively related to SBP productivity and flexibility success and negatively related to cost-effectiveness success and survival probability.

Supervisor/Employee Support

Employee involvement. SBP use is encouraged in facilities that also promote high levels of employee involvement (Gupta et al., 1992). Employee involvement in the design of an SBP plan is likely to increase ownership perceptions; an understanding of the mechanics, goals, and opportunities available in the plan; and perceptions of its fairness. Lee et al. (1999) found that employee understanding of SBP was the strongest predictor of fairness perceptions, which in turn related strongly to perceptions of the benefits of SBP. Thus, involvement in the day-to-day administration of the plan (e.g., skill acquisition decisions, performance appraisals, etc.) should promote success. Involvement enables the maximum return to be obtained from the presence of multiskilled employees (productivity and flexibility success); it can also increase suggestions for plan efficiency and mutual monitoring, enhancing cost-effectiveness. Typically, employees are also more committed and react more positively to policies and change efforts when they are given opportunities for input and provided explanations for decisions that affect them (Daly & Geyer, 1994); this fosters survival of the innovation. When SBP is used along with ongoing employee involvement, then, the probability of success and survival is higher (Lawler, Ledford, & Chang, 1993). Thus,

Hypothesis 4: The extent of employee involvement in the SBP plan is positively related to SBP success (productivity, flexibility, and cost-effectiveness) and survival probability.

Supervisor support. Proponents of SBP repeatedly urge caution in adopting these plans without strong commitment from line, middle, and top managers (Gupta et al., 1992; Lawler, 1978). By their very nature, the mechanisms and details of innovations are more nebulous than those of traditional systems. An innovation is thus unlikely to be implemented without flaws or "kinks." When true commitment and support are lacking, management can revert back to tried-and-true procedures in the face of difficulties. Such regression is particularly pernicious when pay systems are involved—pay systems are arguably one of the most critical HRM systems. Conversely, learning and problem solving are promoted through commitment to an innovation because management is more likely to stick with the innovation and work out difficulties in these circumstances. Thus,

Hypothesis 5: Supervisor support for the SBP plan is positively related to SBP success (productivity, flexibility, and cost-effectiveness) and survival probability.

Closeness of supervision. SBP is often used to create a broadly skilled workforce that understands the entire production or service system and can diagnose and solve nonroutine problems without close supervision (Lawler, 1981; Lawler, Mohrman, & Ledford, 1992). Thus, SBP changes the nature of the

psychological contract between employees and supervisors and lowers the costs associated with information asymmetries (Rousseau & Schalk, 2000). Multiskilled employees in SBP plans can generally use their talents fully without close supervision (Lawler & Ledford, 1987). The use of SBP also changes the way employees think and feel about their work (Lawler, 1994), that is, there are implicit and explicit cues that employees are trusted and qualified team members who can fulfill required duties without close supervision. Essentially, SBP plans transform explicit job-based monitoring systems to implicit person-based systems.

Close supervision is inconsistent with the philosophy and mechanics of SBP systems. When job-based monitoring systems continue to be used, employees fail to realize the benefits associated with SBP plans. Close supervision of SBP employees can lead to alienation (the implicit message being that employees cannot be trusted despite their skills). Motivation to perform or to learn additional skills can erode as a consequence. The expenses incurred in adopting and implementing SBP systems are typically offset by the reduction in agency costs associated with a *need* to supervise employees closely. SBP plans are unlikely to be cost-effective if an organization continues to incur these agency costs.

The arguments above about employee reactions and additional expenses suggest that close supervision is also likely to affect SBP longevity. The incongruence of a pay plan that emphasizes independence and trust with work design features that emphasize close supervision will in all probability create injustice perceptions among the workforce. Such perceptions are among the primary determinants of the termination of an SBP plan (Gerhart et al., 1996). Thus,

Hypothesis 6: Closeness of supervision is negatively related to SBP success (productivity, flexibility, and cost-effectiveness) and survival probability.

Facility Characteristics

Facility type. The theoretical, logical, and anecdotal background (e.g., Jenkins & Gupta, 1985) suggests that SBP success and survival are more likely in manufacturing than service facilities. The success of SBP in promoting productivity, flexibility, and cost-effectiveness largely hinges on the facility's ability to assess current employee skill and capability levels, to develop relevant skill evaluation and certification procedures, and to design and administer training programs that are linked to pay; these tasks are more easily accomplished for manufacturing jobs where the relevant skills are more concrete (e.g., machinery operators, welders, etc.) than in service and knowledge occupations (Gupta & Shaw, 2001). Furthermore, employees tend to react more positively to well-defined innovations than they do to complicated programs or programs based on more nebulous skill sets (e.g., Davis, 1989; Lee et al., 1999). Facilities typically have, or can easily design, training programs for concrete production-oriented skills. This is not always the case for knowledge-based skills. Thus, it is easier and simpler to implement SBP in manufacturing facilities, and productivity, flexibility, and cost-effectiveness should be higher in these settings.

These arguments suggest that SBP plans should last longer in manufacturing facilities. Survival probabilities are increased in manufacturing settings for another reason as well, that is, environmental influences. Mimetic pressures result from uncertainty and force organizations to imitate the practices of other successful entities (DiMaggio & Powell, 1983). Adoption of or compliance with widely diffused "successful or best compensation practices" enhances legitimacy (Barringer & Milkovich, 1998). To the extent that SBP is entrenched in particular types of organizations or networks, then, there is likely to be greater pressure for its continued use. SBP is used most often in manufacturing settings, it is more entrenched as a "best practice" in these settings, and the pressures to continue using it should thus be stronger in manufacturing than in service and knowledge-based settings. In other words, structural and administrative advantages strengthen mimetic pressures in manufacturing settings, increasing the probability of SBP survival. Thus,

Hypothesis 7: The use of SBP in manufacturing facilities is positively related to SBP success (productivity, flexibility, and cost-effectiveness) and survival probability.

Technical innovation strategy. SBP is often used in conjunction with a variety of other innovations (Jenkins & Gupta, 1985; Lawler & Ledford, 1985). At first blush, it seems reasonable to argue that SBP success and survival probability are higher in facilities that emphasize technical (product or service) innovations. But a closer analysis indicates otherwise for at least two reasons. First, SBP necessitates the precise specification of skills and skill units. It promotes workforce flexibility, but only in the context of precisely defined skills. Such precision is much more feasible when production processes are well understood; it is also more feasible when production processes can be effectively segmented into their component elements. Productivity and flexibility gains from SBP may be wiped out if production or service-delivery technologies are constantly changing. Second, SBP requires considerable investment in the definition, training, assessment, maintenance, compensation, and so on of the skills encompassed in the system (Gupta & Shaw, 2001; Lawler & Ledford, 1985). These decisions must be revamped frequently in facilities seeking new and different types of business or those focusing on technical innovations.

Technically innovative facilities have an "aura of fluidity" (Miles & Snow, 1978: 56). The focus on development of new products and services creates administrative problems due to the need to manage contradictory information flows and constant feedback from experimental actions (Miles & Snow, 1978). The use of SBP by facilities using an innovation strategy is thus problematic. As Greve and Taylor (2000: 55) noted, innovation may "change the incumbent skills, standard practices, technology, services, and products of the firm" and cause coordination problems when changes in core technologies are required. SBP offers flexibility in the placement of employees and increased efficiency in managing a facility's core technology, but technical innovators undergo continuous change such that "the comparison of levels of efficiency over time becomes difficult and only partially meaningful" (Miles & Snow, 1978: 64). That is, a technical innovation strategy is incompatible with the dictates of SBP; a stable external and internal environment is necessary to capitalize on skill development and enhancement. Thus,

Hypothesis 8: The use of a technical innovation strategy is negatively related to SBP success (productivity, flexibility, and cost-effectiveness) and survival probability.

The Mediating Role of SBP Success

Productivity, flexibility, and cost-effectiveness and survival can all be considered aspects of overall SBP performance. It is not surprising that theory and related evidence suggest that their determinants generally overlap. Indeed, most research on HRM innovations treats success and survival as parallel performance outcomes. There is, however, limited but compelling evidence that dimensions we consider aspects of success (productivity, flexibility, cost-effectiveness) are related to survival in a causal sequence and that design and contextual factors have both direct and indirect effects on survival (e.g., Kim, 1999). That is, SBP success is an intermediate outcome, and survival is a distal but perhaps the ultimate performance outcome of SBP design and context variables.

Studies of the survival of compensation innovations are rare. In one exception, Kim (1999) found that gain-sharing program performance partially mediated the relationship between plan characteristics and context on one hand and survival on the other. Partial mediation is also evident in the results obtained in single-organization studies by Petty, Singleton, and Connell (1992) and Pritchard, Jones, Roth, Stuebing, and Ekeberg (1988). In both organizations, seemingly successful compensation programs were terminated because contextual factors ultimately affected discontinuation decisions

directly. In light of these issues, SBP design, supervisor/employee support, and facility context should have direct and indirect effects on survival. In addition, success dimensions should partially mediate the relationship between SBP design characteristics, supervisor/employee support, and facility characteristics on one hand and survival on the other. Thus,

Hypothesis 9a: Productivity gains partially mediate the relationships of SBP design characteristics, supervisor/employee support, and facility characteristics with SBP survival over time.

Hypothesis 9b: Flexibility gains partially mediate the relationships of SBP design characteristics, supervisor/employee support, and facility characteristics with SBP survival over time.

Hypothesis 9c: Gains in cost-effectiveness partially mediate the relationships of SBP design characteristics, supervisor/employee support, and facility characteristics with SBP survival over time.

Method

Sample

Data were obtained at two different time periods from facilities using SBP plans. In 1991, we identified facilities using SBP systems through our own research, through professional and consulting contacts, through a review of the literature, through secondary information, and through solicitations placed in the three consecutive newsletters of the American Compensation Association. In all, 201 facilities were identified through these procedures, of which 182 met our sampling criteria—consultants and similar others were excluded. Essentially, these 182 facilities encompassed the population of SBP facilities in existence at that time. Lengthy (28-page) questionnaires were mailed to top human resource or compensation managers of these facilities. Of these, 97 facilities from 73 companies responded (a 53% response rate), providing the first data set. These data are hereafter referred to as Time 1 data. The average age of SBP plans in the sample at Time 1 was 4.48 years. The standard deviation of the SBP age variable was 3.69 years, with a range from 1 to 20 years of age.

In 1998, a member of the research team attempted to contact the key informant in all 97 facilities responding in the original study. In cases where the focal individual no longer worked for the company or had been transferred to an unrelated assignment, we tried to identify the current highest-ranking compensation or human resource manager to complete the survey. These individuals were asked to complete a short (10- to 15-minute) telephone interview about the status of SBP in their facility. In a few cases, the contact individual indicated a preference for completing a written questionnaire. In these instances, a substantively identical written survey was sent and returned by mail or fax. Responses were received from 70 of the original 97 responding facilities, representing 72% of the original responses and 35% of the original sample. These data are hereafter referred to as Time 2 data. Of the 70 facilities included in the follow-up study, 43 (61%) still used SBP, and 27 facilities (39%) had discontinued the use of SBP. Although the survival rate of HRM innovations is unknown, the SBP survival proportions correspond well to other estimates and reports in the literature (e.g., Drago, 1988; Eaton, 1994; Kochan & Osterman, 1994). A listing of all of the measures is found in the appendix.

Measures—Independent Variables (Time 1)

Focus on skill breadth. This variable was assessed with the item "To what extent does your SBP system reward skill breadth (skill or knowledge about more than one step in the production or service delivery process, such as all jobs within a work team)?" The item had five response options from 1 (*not rewarded at all*) to 5 (*rewards are based solely on this*).

Total number of skills in plan. This was operationalized as the number of skill units available in the plan.

Topped-out percentage. This measure was the percentage of employees in the SBP plan who had reached the maximum possible pay rate.

Employee involvement. A five-item scale was used to assess involvement (α = .79). One item assessed the level of nonmanagement employee involvement in the development and installation of the plan. Response options ranged from 1 (*not at all involved*) to 7 (*very heavily involved*). Two items assessed the extent to which the employee himself or herself and coworkers had a say in determining if an employee has completed a skill unit successfully. Response options ranged from 1 (*no say at all*) to 7 (*makes final decision*). Two additional items assessed the amount of say the employee himself or herself and the employee's work group members had in evaluating the ongoing job performance of SBP employees. Response options ranged from 1 (*no say at all*) to 7 (*a great deal of say*). Because the response options were different, the item scores were standardized before calculating the mean value.

Supervisor support. This was a three-item measure with seven Likert-type agree/disagree response options (α = .79). The items were the following: "Our supervisors are very supportive of our SBP plan"; "Using SBP has caused many tensions among our supervisors" (reverse coded); and "Our supervisors don't like our SBP plan" (reverse coded).

Closeness of supervision. This variable was measured with a two-item scale. One item assessed the extent to which the facility is "characterized by managers monitoring employees' activities directly" with seven response options ranging from 1 (*not at all*) to 7 (*to a very great extent*). The second item ("Close supervision is common throughout this facility") had seven Likert-type agree/disagree response options. Item scores were standardized before the mean was taken (α = .72).

Facility type. This variable was coded 1 for a manufacturing facility and 0 for a service facility.

Technical innovation strategy. This variable was a three-item scale (α = .72) that assessed the extent to which the business strategy of the facility was to develop new products and/or services, to provide unique products and services, and to develop new markets. The items had seven response options from 1 (*not at all*) to 7 (*to a very great extent*).

Measures—Dependent Variables (Time 1)

Productivity success. A four-item scale was used (α = .81). Two items assessed the extent to which the SBP plan had been successful in achieving increased output per hour worked and fewer bottlenecks in production or service delivery. The item had response options from 1 (*not at all*) to 7 (*to a very great extent*). Two items assessed productivity and output per hour worked compared to non-SBP facilities similar to the focal facility. These items had response options from 1 (*ours are much worse*) to 5 (*ours are much better*). They were standardized before the mean was taken.

Flexibility success. This variable was a six-item measure about the extent to which the SBP plan had been successful in achieving greater workforce flexibility, more flexibility in job assignments, increased employee versatility, greater adaptability of employees to changing production needs, increased effectiveness of work teams, and better use of work technology (α = .92). The items had response options from 1 (*not at all*) to 7 (*to a very great extent*).

Cost-effectiveness success. A four-item scale with response options from 1 (*ours are much worse*) to 5 (*ours are much better*) was used. The items assessed unit production/service delivery costs, labor costs per unit of production or service, nonlabor costs per unit of production or service, and administrative costs compared to non-SBP facilities similar to the focal facility ($\alpha = .83$).

Measures—Dependent Variables (Time 2)

Because the telephone interview at Time 2 was short and designed to elicit a very high number of the responses from the original participants, abbreviated operationalizations of the success dimensions that were tailored to a telephone context were used. Whereas the Time 1 measures were averages of specific aspects of the conceptual variables, Time 2 measures were designed to capture the same conceptual space with a more global orientation because of space and time constraints. All success items at Time 2 had 11 (0-10) response options.

Productivity success. A two-item scale that tapped how successful the SBP plan was/is in terms of improving employee motivation and improving employee performance was used ($\alpha = .74$).

Flexibility success. A single item was used. The item assessed the extent to which the SBP plan did/does encourage the development of flexible skills.

Cost-effectiveness success. This variable was measured with two items ($\alpha = .70$). The first item concerned the extent to which the pay rates in the SBP plan creates/created problems with respect to pay costs; the second item assessed whether the SBP plan led to much lower or much higher pay rates than those in the local labor market. Because the anchors for the response options were different, these items were standardized prior to taking the mean. This measure was reverse scored such that higher values indicate greater cost-effectiveness.

Survival. A dichotomous variable assessed at Time 2 was used. Facilities with surviving SBP plans were coded 1, and those that had abandoned SBP were coded 0.

Control Variable

We controlled for facility size, operationalized as the natural log of the total number of employees in the facility at Time 1. Although the conceptual foundation for a relationship between size and SBP plan success and survival is unclear, facility size may be related to the adoption of innovations as well as performance in general and should be controlled.

Results

Response Bias Check

Characteristics of organizations that did not participate in the Time 2 data collection may be different from those that did participate. It was therefore necessary to assess the extent to which response bias may have influenced the results of this study. Of particular importance is the possibility that nonparticipating organizations discontinued their SBP plans at a greater rate than those who participated at Time 2. Although we could not address this issue directly, it was possible to compare organizations

that participated only at Time 1 ($n = 27$) with those participating longitudinally ($n = 70$) on all the independent variables included in the study. Following Shaw, Delery, Jenkins, and Gupta (1998), we ran a logistic regression analysis to test for potential differences. The dependent variable was coded 1 if the organization participated at Time 2 and 0 otherwise. The independent variables were the control and substantive variables from Time 1 described above. None of the differences were significant. Thus, although we cannot speak to the rate of discontinuation among the nonresponding organizations, no systematic differences appeared between responding and nonresponding organizations.

Analysis and Results

Descriptive statistics for, and correlations among, the variables in the study are shown in Table 1. Coefficient alpha reliability estimates are shown in the main diagonal where appropriate. Table 2 contains the results of the regression analyses. We used ordinary least squares regression when the three success dimensions (productivity, flexibility, cost-effectiveness) from Time 1 and Time 2 were the dependent variables and logistic regression when survival was the dependent variable. We report the coefficients in the full model, as well as model statistics for the full model and the step beyond the facility size control.

SBP Design Characteristics (Hypotheses 1-3)

Hypothesis 1 received some support. A greater focus on skill breadth was related to Time 1 SBP flexibility success ($\beta = .15$, $p < .10$), Time 2 flexibility success ($\beta = .47$, $p < .01$), and to survival ($b = 1.34$, $p < .05$). The Exp(b) or the odds ratio for the significant coefficients in the survival equation provides an estimate of the odds of survival for a unit change in the independent variable, holding constant all other predictors. The likelihood of survival was almost four times greater (Exp[b] = 3.92) for each unit increase in the focus-on-skill-breadth variable.

Hypothesis 2 predicted a positive relationship between total number of skills and productivity success, flexibility success, and survival and a negative relationship with cost-effectiveness. This variable was strongly related to Time 1 flexibility success ($\beta = .24$, $p < .01$) and also to survival ($b = .01$, $p < .10$). An additional skill in the program increases the odds of survival by 1% (Exp[b] = 1.01). Total skills were not related to Time 2 flexibility success or productivity or cost-effectiveness success in either time period. Thus, Hypothesis 2 is partly supported.

Hypothesis 3 concerned topped-out percentage and was not supported. Topped-out percentage was related to only one of the seven outcome variables—Time 2 flexibility success. Contrary to expectations, the relationship between topped-out percentage and flexibility success at Time 2 was negative ($\beta = -.36$, $p < .01$).

Supervisor/Employee Support (Hypotheses 4-6)

Hypothesis 4 (dealing with employee involvement) received moderate support. Employee involvement in SBP was positively related to Time 1 flexibility success ($\beta = .22$, $p < .05$), Time 2 productivity success ($\beta = .42$, $p < .01$), Time 2 flexibility success ($\beta = .24$, $p < .10$), and survival probability ($b = 1.11$, $p < .05$). A positive unit change in employee involvement was estimated to be associated with a three times greater likelihood of SBP survival (Exp[b] = 3.02).

Hypothesis 5 concerning supervisor support received some support. Supervisor support for SBP was positively associated with productivity success ($\beta = .23$, $p < .05$) and flexibility success ($\beta = .16$, $p < .05$)

Table 1
Descriptive Statistics and Correlations Among All Study Variables

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Facility size (T1)	6.23	1.47	NA														
2. Focus on skill breadth (T1)	3.90	0.68	–.32**	NA													
3. Total number of skills in plan (T1)	28.65	68.14	.31**	–.29**	NA												
4. Topped-out percentage (T1)	24.69	31.79	–.03	–.09	–.01	NA											
5. Employee involvement (T1)	0.01	0.75	–.18*	.20*	.00	–.05	(.79)										
6. Supervisor support (T1)	5.53	1.01	–.01	–.06	–.02	–.01	.05	(.79)									
7. Closeness of supervision (T1)	3.05	1.34	.22**	–.01	.07	–.01	–.40**	–.16	(.72)								
8. Facility type (T1)	0.78	0.42	–.27**	.16	–.13	.14	.03	–.11	–.08	NA							
9. Technical innovation strategy (T1)	3.94	1.51	.19*	–.08	–.06	–.20*	.02	.09	.19**	–.08	(.72)						
10. Productivity success (T1)	–0.02	0.79	–.18*	.02	–.08	.12	.22**	.23**	–.28**	.25**	.01	(.81)					
11. Flexibility success (T1)	5.22	1.24	–.22*	.18*	.11	.02	.28**	.12	–.29**	.39**	–.09	.64**	(.92)				
12. Cost-effectiveness success (T1)	3.62	0.61	–.12	.10	–.02	.17*	.16	.11	–.31**	.20*	–.07	.50**	.34**	(.83)			
13. Productivity success (T2)	5.67	1.96	–.32**	.16	–.15	–.10	.30**	.05	–.07	.28*	–.06	.13	.24*	.22*	(.74)		
14. Flexibility success (T2)	7.37	2.18	–.24*	.33**	.06	–.23*	.02	.15	.09	.08	–.11	.09	.17	–.19	.34**	NA	
15. Cost-effectiveness success (T2)	–0.03	0.85	.03	.15**	–.14	.04	.02	.06	.26*	.12	.04	–.03	.04	.77**	.46**	–.06	(.70)
16. Survival (T2)	0.61	0.49	–.23**	.33**	–.21*	–.08	.20*	–.19	–.10	.34**	–.22**	.08	.18	–.05	.65**	.16	.42**

*Note: N*s = 59-97; coefficient alpha reliabilities are reported in the main diagonal where appropriate. T1 denotes variables measured at Time 1; T2 denotes variables measured at Time 2. *Survival:* 1 = skill-based pay (SBP) survived; 0 = SBP terminated.
*$p < .05$
**$p < .01$

Table 2
OLS and Logistic Regression Results for Skill-Based Pay Success (Time 1 and Time 2) and Survival (Time 2)

	Time 1 Success Measures			Time 2 Success Measures			
	Productivity	Flexibility	Cost-Effectiveness	Productivity	Flexibility	Cost-Effectiveness	Time 2 Survival
	β	β	β	β	β	β	β
Control							
Facility size (T1)	–.06	–.05	.04	–.29*	–.16	.11	.10
SBP design characteristics							
Focus on breadth skills (T1)	–.04	.15†	.12	.01	.47**	.18	1.34*
Total number of skills in plan (T1)	–.02	.24**	.05	–.01	.11	–.11	.01†
Topped-out percentage (T1)	.07	.05	.13	.03	–.36**	.07	–.01
Supervisor/employee support							
Employee involvement (T1)	.11	.22*	.04	.42**	.24†	.17	1.11*
Supervisor support (T1)	.23*	.16*	.07	.16†	.34*	.15	–.33
Monitoring (T1)	–.17†	–.18*	–.32**	.24*	.28*	.38**	–.24
Facility characteristics							
Facility type (T1)	.25**	.40**	.14†	.30**	.25*	.06	2.34**
Technical innovation strategy (T1)	.06	–.02	.01	–.02	.05	.04	–.36*
Model statistics							
Total R^2 (χ^2)	.20**	.33**	.16*	.31**	.37**	.21	27.58**
ΔR^2 (χ^2) (beyond control)	.17**	.29**	.15*	.21*	.31**	.20	22.86**

Note: $N = 97$ for the Time 1 productivity, flexibility, and cost-effectiveness success equations; $N = 59$ for the Time 2 productivity, flexibility, and cost-effectiveness success equations; and $N = 70$ for the survival equation. Ordinary least squares regressions (OLS) used for the Time 1 and Time 2 success equations, and logistic regression used for the Time 2 survival equation. Standardized regression coefficients (β) are shown for the OLS equations. Unstandardized regression coefficients (*b*) are shown for the survival equation. Total explained variance and explained variance by the hypothesized variables are the model statistics for the success equations. Total and block-change chi-square statistics are reported for the logistic regressions when survival is the dependent variable.

†$p < .10$
*$p < .05$
**$p < .01$

at Time 1 and at Time 2 (productivity success: β = .16, $p < .10$; flexibility success: β = .34, $p < .01$). Supervisor support was not significantly related to either measure of cost-effectiveness success or to the probability of survival.

The results for Hypothesis 6—closeness of supervision—were inconsistent. This hypothesis received strong support for Time 1 success, that is, closer supervision was negatively related to Time 1 productivity success (β = –.17, $p < .10$), Time 1 flexibility success (β = –.18, $p < .05$), and strongly related to Time 1 cost-effectiveness success (β = –.32, $p < .01$). At Time 2, however, the direction of the relationship between closeness of supervision and success was positive. Closer supervision was positively related to Time 2 productivity success (β = .24, $p < .05$), Time 2 flexibility success (β = .28, $p < .05$), and to Time 2 cost-effectiveness success (β = .38, $p < .01$). Closeness of supervision was unrelated to survival.

Facility Characteristics (Hypotheses 7-8)

Hypothesis 7 predicted that manufacturing facilities would experience greater success and have higher SBP survival probabilities. This hypothesis was strongly supported. Facility type (manufacturing facility scored higher) was positively related to each Time 1 success measure (productivity: β = .25, $p < .01$; flexibility: β = .40, $p < .01$; cost-effectiveness: β = .14, $p < .10$). Facility type was also related to Time 2 productivity success (β = .30, $p < .01$) and flexibility success (β = .25, $p < .05$), but not to Time 2 cost-effectiveness success (β = .06, n.s.). Facility type was strongly related to the probability of survival ($b = 2.34$, $p < .01$), such that the probability of survival of SBP was 10 times greater in manufacturing facilities (Exp[b] = 10.11).

Hypothesis 8 concerned technical innovation strategy. It was supported only for SBP survival, that is, the use of technical innovation strategy was not significantly related to any of the success dimensions. There was a significant negative relationship, however, between technical innovation strategy and survival ($b = –.36$, $p < .05$), such that the odds of survival were estimated to decrease by 30% (Exp[b] = .70) for every unit increase in the strategy variable.

Summary

Table 3 summarizes the predicted main effect relationships and the results across both sets of independent variables and the seven outcome variables.

Mediation Results (Hypotheses 9a-9c)

We followed the recommendations of Baron and Kenny (1986) for examining the mediating role of SBP success (productivity, flexibility, and cost-effectiveness) in the relationship of predictors and survival. For mediation to be established, (a) the success mediators and survival must be related, (b) the independent variables (SBP design characteristics, supervisor/employee support variables, and facility characteristics) must be related to the mediating variables (productivity success, flexibility success, and cost-effectiveness success), (c) the independent variables must be related to survival, and (d) the effect of the independent variables on survival must fall to nonsignificance (full mediation) or be reduced (partial mediation) when the success variables are entered.

As shown in Table 1, Time 1 flexibility success was marginally related to survival ($r = .18$, $p < .10$), but productivity and cost-effectiveness success were not related to survival. Therefore, Hypotheses 9a and 9c are not supported. Only flexibility success is a potential Time 1 mediator of the relationship between the three sets of independent variables and survival. Four of the independent variables (focus

Table 3
Summary of Predicted Relationships and Results

	Productivity Success			Flexibility Success			Cost-Effectiveness Success			Survival	
	Prediction	Time 1 Support	Time 2 Support	Prediction	Time 1 Support	Time 2 Support	Prediction	Time 1 Support	Time 2 Support	Prediction	Time 2 Support
Skill-based pay design characteristics											
Hypothesis 1: focus on breadth skills	+	No	No	+	Yes	Yes	+	No	No	+	Yes
Hypothesis 2: total number of skills in plan	+	No	No	+	Yes	Yes	–	No	No	+	Yes
Hypothesis 3: topped-out percentage	+	No	No	+	No	No	–	No	No	–	No
Supervisor/employee support											
Hypothesis 4: employee involvement	+	No	Yes	+	Yes	Yes	+	No	No	+	Yes
Hypothesis 5: supervisor support	+	Yes	Yes	+	Yes	Yes	+	No	No	+	No
Hypothesis 6: closeness of supervision	–	Yes	No	–	Yes	No	–	Yes	No	–	No
Facility characteristics											
Hypothesis 7: facility type	+	Yes	Yes	+	Yes	Yes	+	Yes	No	+	Yes
Hypothesis 8: technical innovation strategy	–	No	No	–	No	No	–	No	No	–	Yes

on skill breadth, total number of skills in plan, employee involvement, and facility type) are common correlates of flexibility success and survival. To examine whether Time 1 flexibility success mediated the relationship, we conducted an additional logistic regression analysis with survival as the dependent variable and the set of four independent variables (and a facility size control) as predictors in Step 1 and flexibility success in Step 2. In this analysis, the strengths of the relationships between these four predictors and survival were not attenuated by the addition of flexibility success on the final step. Thus, there was no evidence that Time 1 success measures mediated the relationship between the predictors and survival. Hypothesis 9b is not supported.

We also examined whether the Time 2 success measures provided any evidence of mediation between the predictors and survival. Table 1 shows that productivity success ($r = .69$, $p < .01$) and cost-effectiveness success ($r = .42$, $p < .01$) measured at Time 2 were related to survival, although cost-effectiveness success and survival share no common predictors. Two predictors, employee involvement and facility type, were related to Time 2 productivity success and survival. In a logistic regression with survival as the dependent variable, the relationship between employee involvement and survival was not significant when Time 2 productivity success was entered into the equation. In general, there was virtually no support for Hypotheses 9a-9c, that is, mediation of the success variables, across the Time 1 and Time 2 measurements of these variables.

Discussion

The popularity of SBP plans continues to mushroom, but the body of research evidence regarding its effectiveness across contexts lags far behind its use in practice. This study adds to the nascent body of knowledge by providing insights into the success and survival of SBP plans. Our theoretical framework and empirical test, taken together, show that (a) contextual variables (supervisor/employee support and facility characteristics) are fairly consistent predictors of SBP success and survival; (b) SBP design characteristics are strong predictors of flexibility success and survival, but not of productivity success and cost-effectiveness success; and (c) SBP success does not seem to mediate the relationship of design and contextual factors to survival over time. The implications of these findings are addressed below.

Contextual Effects—Facility Characteristics and Supervisor/Employee Support

SBP scholars argue that specific design features (e.g., number of skill units) are less important for effectiveness than are the contextual factors within which an SBP plan is embedded (Gupta & Shaw, 2001; Jenkins et al., 1992). Our results are not definitive, but they do show that facility characteristics and supervisor/employee support variables are consistently related to success outcomes, especially to productivity success and cost-effectiveness success. The most consistent predictor of SBP success was facility type. Manufacturing settings simplify design and implementation issues, and thus, SBP use in service settings may need to be undertaken with even greater care and support than the use of SBP in manufacturing settings.

Our predictions regarding technical innovation strategy were supported only for survival. These results are interesting given the propensity of innovative organizations to adopt SBP plans (Jenkins & Gupta, 1985). SBP plans may be successful in some ways in both technically innovative and noninnovative organizations in the short term. Over time, however, ambiguities inherent in SBP systems can exacerbate the ambiguities inherent in technical innovations, necessitating that either the technical or the HRM innovation be terminated.

Our predictions regarding supervisor support were verified empirically for two outcomes—productivity and flexibility success—at both time periods, but not for cost-effectiveness success or survival. Supervisory support has been emphasized repeatedly in the SBP literature (Gupta et al., 1986, 1992; Jenkins & Gupta, 1985); its relationship to productivity and flexibility validates this emphasis. Surprisingly, supervisory support is unrelated to cost-effectiveness or survival. Perhaps the costs of achieving supervisor support are high. Indeed, for supervisors to function effectively in SBP settings often necessitates training in human relations, interpersonal, and similar skills. These costs could counterbalance SBP benefits. Likewise, survival is likely determined by many factors, to which supervisory support may contribute only marginally.

The predictions regarding closeness of supervision were supported for all three Time 1 outcomes; however, contrary to expectation, closeness of supervision was *positively* related to success measures at Time 2. The inconsistency between synchronous and longitudinal effects is puzzling. The synchronous results, which conform to prediction, are easily explicable in terms of consistency between HRM systems and work design (Shaw, Gupta, & Delery, 2001). The contradictory findings might be traced to the different operationalizations of our cost-effectiveness measures at Time 1 and Time 2. It is also possible that changes in the SBP plans between our measurements were not captured effectively. We hope that researchers will examine these issues more thoroughly in the future.

SBP Design Characteristics

The SBP design characteristics results are mixed. The pattern in Table 3 highlights two major issues—(a) design characteristics tended to relate to flexibility success and survival, but not to productivity and cost-effectiveness success, and (b) focus on skill breadth and the total number of skills in the plan were much more consistent predictors than topped-out percentage.

That productivity and cost-effectiveness success are less consistently related to SBP design characteristics than flexibility success is noteworthy. Obviously, companies design HRM systems that are intended to promote productivity and profit. They incorporate different kinds of design elements under different conditions to meet these goals. The same design element may thus be effective in some settings but not in others. This is consistent with the argument that a "cookie-cutter" approach to SBP design is fruitless—SBP plans must be specifically tailored to meet specific organizational dictates and constraints (Gupta & Shaw, 2001). Despite this, a plan incorporating breadth skills is likely to engender a multiskilled workforce. These arguments encourage careful consideration of the outcomes sought by a given innovation (e.g., flexibility) as opposed to outcomes almost universally sought by innovations in general (e.g., productivity).

Our hypotheses regarding focus on skill breadth and total skills were supported for flexibility success and survival, but topped-out percentage was not significantly related. That topped-out percentage was unrelated to outcome measures is interesting, but an examination of Table 1 offers a clue. On average, only about one quarter of the employees were topped out. Topped-out percentage is likely to become problematic, not when only some employees are topped out, but when *many* employees are topped out. Our measure may suffer from range restriction in that many SBP plans were still relatively young (about 4 years old on average) at the Time 1 data collection point (when predictor measures were obtained). Topped-out percentage may be of concern only at higher levels of topping out. This issue merits further investigation as SBP plans mature.

Mediating Role of SBP Success

We predicted that the relationship of SBP design and context to survival would be partially mediated by the success dimensions. This hypothesis was not supported. Survival did bear strong zero-

order correlations with both productivity success and cost-effectiveness success (but not flexibility success) at Time 2, confirming intuitive assumptions. Still, logically, one would expect that, at least to some extent, SBP design and context would lead to success outcomes, which in turn would promote retention of SBP. This was not the case in the empirical analysis, although, in open-ended responses, some facilities did report this chain. So why were the results not supportive?

Two relatively straightforward explanations come to mind immediately. One, of course, is that the mediation effect may be theoretically appealing but does not occur in actuality. The second is that our small sample did not possess the statistical power to demonstrate complex effects. Furthermore, there are many reasons why facilities could discontinue SBP use. In some open-ended responses at Time 2, a few respondents elaborated on reasons for termination—that the plan was too complex, that there were technological changes, that the plan was not cost-effective, and so on. Reasons for termination were given by only a few respondents, and thus we were unable to analyze these statistically. But facilities that terminate SBP due to a merger are likely to display different dynamics than those that terminate SBP due to excessive complexity, for example. It may also be, however, that our theoretical perspective was limited. There is likely to be a complex network of dynamics between specific success outcomes and survival. For instance, employees could be quite productive and flexible, but external factors such as a merger or changes in management necessitate SBP termination. To understand this complex interplay, it is necessary to develop a more comprehensive theoretical framework.

Implications

This study has broader implications for compensation and HRM systems in general. First, it reinforces the idea that detailed specifics of an innovation in isolation are not the sole predictors of success and survival; rather, the care with which these details are designed, the commitment with which they are implemented, and the extent of their fit with the organizational context relate to the success of such innovations. This issue is highlighted elsewhere (Gupta et al., 1992; Jenkins et al., 1992).

Beyond this, the study also highlights the nuanced nature of compensation system effects. Practitioner-oriented publications, for example, often debate the merits of merit pay or the importance (or lack thereof) of financial incentives (Gupta & Shaw, 1998; Kohn, 1998). What our study underscores, however, is that within-organization variations in compensation approaches are also critical. It is not simply whether a particular compensation system (in our case SBP) is used. Rather, it is the specific characteristics within that broad compensation approach that predict effectiveness. The use of SBP was a constant in our sample, yet there were many variations in SBP dynamics. It would be misleading for us to argue, with no qualifications, that SBP is effective (although many facilities reported success). It is the particular way that the system is operationalized and implemented and the particular fit of the plan within the organizational context that are critical. We hope that this study leads us toward the adoption of more nuanced approaches to compensation and HRM dynamics.

Second, our results are also illustrative of the broader-ranging phenomena of administrative innovations and organizational change. Worthy of note here is the validation of the counterintuitive hypothesis that SBP plans are less likely to survive in organizations following a technically innovative strategy. This result is particularly interesting in light of the discussion in the literature about the propensity of innovative plants to adopt SBP plans (e.g., Jenkins & Gupta, 1985). However, a careful examination of this literature reveals that when innovative organizations are discussed in the management literature, the focus is often on other *administrative* innovations—employee empowerment, survey feedback, job enrichment, self-managed teams, and so on. Rarely do these innovations address technological issues. It is hardly surprising, then, that when the entire organizational technology demands flexibility, SBP with its precisely defined skills, skill blocks, progressions, and so forth, would be problematic. Some administrative innovations (such as SBP) mandate stability in the techni-

cal core, but other administrative innovations could indeed support the demands of technical innovations.

Limitations and Conclusions

The limitations of this study should be addressed in future research. The data were obtained through key informant reports, and the reliability and accuracy of these reports are a subject of considerable debate in the management literature (e.g., Wright, Gardner, Moynihan, Park, Gerhart, & Delery, 2001). Common method variance and consistency effects could have biased our results, especially in the cross-sectional analyses. Our sample size was quite small, and some of the hypothesized relationships failed to reach significance perhaps due to low statistical power. In addition, although data obtained at two time periods were a strength of the study, the length of time between these data collection efforts, our dichotomous definition of survival, and the possibility that the SBP plan underwent significant changes in the interim may limit the detection of complex effects.

Our inclusion of SBP design variables was necessarily limited. Of particular concern here is that SBP plans have many features and can be described on many other dimensions than the three design characteristics included in this study. Although we found strong support for the manufacturing versus service facility predictions, our dichotomous categorization was coarse. Measuring the difficulty in defining skills and developing certification systems for them, rather than assuming that these differences covary perfectly with facility type, would be a substantial step forward. Because of space and time constraints, we used different operationalizations of the Time 2 success constructs and had several single-item measures in our study. The ability to assess reliability for all measures and consistency of measurement across time periods are issues that should be addressed in future research.

In sum, this study represents one of the first comprehensive examinations of SBP systems. It validates some commonly held beliefs about SBP—that design and context affect success and sustainability. It also offers some new insights, for example, with respect to success and survival dynamics. Thus, this study is a beginning that, we hope, leads to more comprehensive innovation research in the future.

APPENDIX
Variable List and Time Period Collected

Independent Variables (Time 1)

Focus on breadth skills (Hypothesis 1)

To what extent does your skill-based pay (SBP) system reward skill breadth (skill or knowledge about more than one step in the production or service delivery process, such as all jobs within a work team)? (1 = *not rewarded at all*, 5 = *rewards based solely on this*)

Total number of skills in plan (Hypothesis 2)

How many skill units does your SBP plan include?

Topped-out percentage (Hypothesis 3)

Approximately what percentage of employees on the SBP plan has reached the maximum possible pay rate?

Employee involvement (Hypothesis 4)

How involved were employees in the development and installation of your SBP plan? (1 = *not at all involved*, 7 = *very heavily involved*)

How much say do the following people have in determining if an employee has completed a skill unit successfully? (1 = *no say at all*, 7 = *makes final decision*)
The employee
Coworkers
How much say do the following have in evaluating the ongoing job performance of SBP employees? (1 = *no say at all*, 7 = *a great deal of say*)
Employee himself or herself
Employee's work group members

Supervisor support (Hypothesis 5)
Our supervisors are very supportive of our SBP plan. (1 = *strongly disagree*, 7 = *strongly agree*)
Using SBP has caused many tensions among our supervisors. (1 = *strongly disagree*, 7 = *strongly agree*; reverse coded)
Our supervisors don't like our SBP plan. (1 = *strongly disagree*, 7 = *strongly agree*; reverse coded)

Closeness of supervision (Hypothesis 6)
To what extent is your facility characterized by managers monitoring employees' activities directly? (1 = *not at all*, 7 = *to a very great extent*)
Close supervision is common throughout this facility. (1 = *strongly disagree*, 7 = *strongly agree*)

Facility type (Hypothesis 7)
1 = manufacturing facility, 0 = service facility

Technical innovation strategy (Hypothesis 8)
To what extent is the business strategy of your facility to develop new products and/or services? (1 = *not at all*, 7 = *to a very great extent*)
To what extent is the business strategy of your facility to provide unique products and services? (1 = *not at all*, 7 = *to a very great extent*)
To what extent is your facility currently characterized by the development of new markets? (1 = *not at all*, 7 = *to a very great extent*)

Dependent Variables (Time 1 and Time 2)

Productivity success (Time 1)
To what extent has your SBP plan been successful in achieving increased output per hour worked? (1 = *not at all*, 7 = *to a very great extent*)
To what extent has your SBP plan been successful in achieving fewer bottlenecks in production of service delivery? (1 = *not at all*, 7 = *to a very great extent*)
Compared to non-SBP facilities similar to yours, have your facility's experiences in the following areas been better, worse, or about the same? (1 = *ours are much worse*, 5 = *ours are much better*)
Productivity
Output per hour worked

Flexibility success (Time 1)
To what extent has your SBP plan been successful in achieving greater workforce flexibility? (1 = *not at all*, 7 = *to a very great extent*)
To what extent has your SBP plan been successful in achieving more flexibility in job assignments? (1 = *not at all*, 7 = *to a very great extent*)
To what extent has your SBP plan been successful in achieving increased employee versatility? (1 = *not at all*, 7 = *to a very great extent*)
To what extent has your SBP plan been successful in achieving greater adaptability of employees to changing production needs? (1 = *not at all*, 7 = *to a very great extent*)

To what extent has your SBP plan been successful in achieving increased effectiveness of work teams? (1 = *not at all*, 7 = *to a very great extent*)
To what extent has your SBP plan been successful in achieving better use of technology? (1 = *not at all*, 7 = *to a very great extent*)

Cost-effectiveness success (Time 1)

Compared to non-SBP facilities similar to yours, have your facility's experiences in the following areas been better, worse, or about the same? (1 = *ours are much worse*, 5 = *ours are much better*)
Unit production/service delivery costs
Labor costs per unit of production or service
Nonlabor costs per unit of production or service
Administrative costs

Productivity success (Time 2)

How successful was/is your SBP plan in improving employee motivation? (0 = *very unsuccessful*, 10 = very successful)
How successful was/is your SBP plan in improving employee performance? (0 = *very unsuccessful*, 10 = very successful)

Flexibility success (Time 2)

To what extent did/does the SBP plan encourage the development of flexible skills? (0 = *not at all*, 10 = *to a very great extent*)

Cost-effectiveness success (Time 2)

To what extent did/do the wage rates in your SBP plan create problems with respect to your payroll costs? (0 = *not at all*; 10 = *to a very great extent*; reverse coded)
Overall, did/does the SBP plan lead to much lower or much higher wage rates than those in your local labor market? (0 = much lower; 10 = *much higher*; reverse coded)

Survival

1 = SBP survived, 0 = SBP abandoned

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Biographical Notes

Jason D. Shaw is an associate professor and the Clark Material Handling Company Professor of Management at the University of Kentucky. He received his Ph.D. in management from the University of Arkansas. His research interests include individual and

organizational consequences of compensation decisions, voluntary turnover and performance, and person-environment congruence issues.

Nina Gupta is a professor and the Raymond F. Orr Chair in Management at the University of Arkansas. She received her Ph.D. in organizational psychology from the University of Michigan. Her current research interests include the behavioral and organizational consequences of reward systems, political aspects of human resource management, and the dynamics of absenteeism and turnover.

Atul Mitra is an associate professor at the University of Northern Iowa. He received his Ph.D. in management from the University of Arkansas. His current research interests include skill-based pay, psychophysical analysis of pay issues, and global compensation strategies.

Gerald E. Ledford Jr. researches and consults on strategic human capital issues, especially employee compensation. He is president of the Ledford Consulting Network, LLC. He received his Ph.D. and M.A. in psychology from the University of Michigan. He is the author of 75 articles and of 10 books and monographs, including *The Rewards of Work: The Employment Deal in a Changing Economy* (2003).