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Individual Consequences of Monitoring Under Gainsharing: Expanding Agency Theory Predictions

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**INDIVIDUAL CONSEQUENCES OF MONITORING
UNDER GAINSHARING:
EXPANDING AGENCY THEORY PREDICTIONS**

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ABSTRACT

Agency theory suggests that gainsharing produces changes in monitoring within teams, however, the implications of monitoring on individual behavior have not yet been examined. This research expands agency theory by exploring the behavioral implications of peer monitoring under gainsharing. Performance data from both individual workers and managers show that peer monitoring has either zero or positive effects on five categories of individual behavior. However, focus group, interview, and company generated survey data indicate the existence of concealment and perhaps retaliatory behaviors in response to gainsharing.

INDIVIDUAL CONSEQUENCES OF MONITORING UNDER GAINSHARING: EXPANDING AGENCY THEORY PREDICTIONS.

Gainsharing plans, and a number of variants based on gainsharing concepts, are being implemented at an increasing rate (Iberman, 1993; Lawler & Cohen, 1992; Markham, Scott & Little, 1992). These programs, which develop group-based incentives for a plant, division, or department, are being hailed for their ability to increase productivity, reduce costs, enhance morale, improve quality, and complement new forms of organization design (Welbourne & Gomez-Mejia, 1995). Gainsharing plans were first derived to assure that a company could take advantage of the hidden knowledge of its workforce (Welbourne & Gomez-Mejia, 1988). Joseph Scanlon, viewed as the founder of gainsharing, was convinced that workers held the key to increased productivity (Graham-Moore & Ross, 1990). His early successes in using bonus plans and suggestion committees to solicit employee suggestions and enhance cooperation led to the increased interest in gainsharing programs that continues today.

Although gainsharing plans are gaining in popularity, the theoretical work associated with these plans has been fairly limited (Gerhart & Milkovich, 1993). Recently, however, Joseph Scanlon's early assumptions that gainsharing plans can tap information from the workforce have been supported by agency theory concepts demonstrating that gainsharing results in increased monitoring behaviors among work teams (Welbourne, Balkin & Gomez-Mejia, 1995). The research reported in this paper further explores agency theory implications by studying ways in which monitoring (both within and between work teams) affects individual employee performance. In addition to suggesting that levels of monitoring change under gainsharing-type incentives, agency theory also states the possibility of negative consequences on individual behavior. Therefore, this research, which is somewhat exploratory in nature, was designed to further understand the implications of monitoring on individual work-based outcomes in a gainsharing environment.

AGENCY THEORY AND MONITORING

Agency theory has been used by researchers to understand how various forms of control can be implemented to enhance firm performance. The theory deals with the general situation where agents (employees) are hired by principals (or owners) who devise a variety of methods (monitoring, incentive alignment, procedures, etc.) to control the behavior of those agents. Control is necessary to assure that agents do not pursue individual goals that might be inconsistent with the objectives of the owner. The effectiveness of these various control options has been studied primarily in the context of the CEO / owner relationship (Gomez-Mejia, 1994). However, the problems of delegation and development of mechanisms to align the interests of

agents with those of the principal have recently been extended to other jobs such as sales (Anderson & Oliver, 1987; Eisenhardt, 1985), university faculty (Gomez-Mejia & Balkin, 1992), and plant level employees (Welbourne et al., 1995).

The plant level study viewed the agency problem as one that could be applied to a situation where multiple individuals, as a whole, constituted the agent. In that study, the principal was considered to be top management at the plant, and the agents were viewed as all employees covered by a gainsharing program. The Welbourne et al. study suggested, based on the classical writings of agency theory (e.g. Alchian & Demsetz, 1972; Jensen & Meckling, 1976; Fama, 1980; Fama & Jensen, 1983), that “mutual monitoring should result when agents pursue their self interest through the accomplishment of joint tasks with other agents and are evaluated and rewarded on the basis of the outcome of those collaborative efforts” (1995: 883). Fama and Jensen (1983) state that mutual monitoring allows principals to indirectly access information not normally available to them. Monitoring is basically an information seeking activity that is enhanced when employees begin to scan a larger environment. In a gainsharing system, employees earn a bonus when the joint actions of all employees in the plant or division work together to attain the goals specified in the gainsharing plan. This interdependence, particularly at a broader level (not only within a team but also between teams), encourages information gathering from multiple sources.

Welbourne et al. (1995) investigated the degree to which monitoring behaviors were conducted within a work team in a gainsharing environment. Monitoring was defined as including both information gathering and response behaviors. By contrast, this study only deals with the information gathering component of monitoring. However, it expands the Welbourne et al. (1995) study in that it investigates monitoring within and between teams and then considers the effects of both forms of monitoring on multiple categories of individual work-related behavior. Whereas the earlier study of gainsharing and monitoring explored the antecedents of monitoring behaviors, the research described in this paper considers individual behavioral consequences of peer monitoring in a gainsharing context.

BEHAVIORAL EFFECTS OF MONITORING

Agency theory can be used to hypothesize that monitoring will increase in gainsharing environments, however, the degree to which or the way in which monitoring affects individual performance levels has not been fully specified. In fact, agency theory provides conflicting hypotheses regarding the effect of monitoring on employee behaviors. Overall, peer monitoring is cast as something that should result in positive outcomes for the organization, however, there seems to be a “black box” that assumes monitoring will lead to improved individual behaviors in

order to attain organizational outcomes. Fama and Jensen (1983) describe the advantages of monitoring in partnerships (such as exists in legal and accounting firms) where all members share the risk as well as the gains of business. By working together, often in formal teams, the flow of information is enhanced, and workers engage in peer monitoring to assure that everyone is attaining the goals of the organization. This concept has recently been applied to gainsharing. As noted by Welbourne and Gomez-Mejia,

“Gainsharing plans substitute a different (and less costly) form of control for direct supervision. It is expected that within and between teams, gainsharing plans encourage stronger levels of peer group pressure to enforce work norms consistent with the business unit goals... Rather than expending resources to create surveillance systems that attempt to track employee performance and behaviors, the firm encourages employees to monitor each other and to use this information to assure that each worker is attaining the goals of the work group” (1995: 582).

Although agency theory suggests monitoring will lead to attainment of the goals of the gainsharing program, it says nothing about *how* this happens or the way in which monitoring affects individual work behavior.

Research that applies agency theory to the study of executive compensation suggests a potential downside to monitoring. Baker, Jensen and Murphy (1988) agree that group-based incentives will result in enhanced monitoring, however, they also say that employees might prefer monitoring to “working”. This suggests that monitoring might result in employees spending their time on monitoring activities at the expense of doing their own jobs, thus peer monitoring might result in lower levels of individual performance. An additional negative outcome is that employees may become too risk averse as a result of excess monitoring arrangements (Tosi & Gomez-Mejia, 1994). The increased risk aversion is thought to lead to poor decision making, which can then negatively affect individual behavior. In addition, Abrahamson and Park (1994) conducted research that indicated executives sometimes camouflage negative information in order to protect themselves. The authors explain what they call “concealment strategy” as deliberate actions on the part of executives to keep certain information secret (Sutton & Callahan, 1987).

Reducing time in job-related behaviors, risk aversion, and concealment can be viewed as specific cases of what has been termed “the behavioral cost of monitoring” (Welbourne, 1992). This occurs when excess control and/or monitoring causes employees to conform to the expectations of others, thus potentially reducing individual performance. By conforming to goals set by others, employees might not be taking advantage of the information that they attain through information scanning and enhanced monitoring. This behavioral cost of monitoring has

been discussed in terms of excess monitoring by supervisors (Welbourne & Gomez-Mejia, 1995), but it might also be present as a result of excess or inappropriate monitoring by peers. Control in the hands of peers might result in negative as well as positive individual behavioral outcomes. As certain employees increase monitoring, others might feel compelled to spend time in that activity, thus potentially decreasing job performance. Monitoring might also result in risk aversion or concealment in response to peer pressure that is targeted at attainment of short-term bonuses. All of these examples indicate that monitoring can have a downside and result in lower levels of individual performance.

To date, this issue has not been explored in a gainsharing context, and agency theory only leads to mixed predictions. In fact, Baker et al., (1988), when discussing agency theory applied to group incentives note that “we (economists) do not understand how these effects translate into increased productivity” (606). Monitoring positively affects productivity if employee performance is improved, however, the relationship between monitoring and worker performance has not been studied, and the theory provides mixed guidance in understanding this relationship. Therefore, the nature of this study is exploratory, and the research question being asked is:

Research Question: In what direction does monitoring, both within and between teams, affect individual behavior in a gainsharing context?

In order to explore the individual behavioral consequences of monitoring, an exploratory study that includes measures of multiple components of work-based behavior was conducted. The components of individual behavior were developed through a series of interviews with managers in gainsharing plants, a review of the compensation literature, and an application of identity theory. Identity theory guided the overall conceptualization of behavior being categorized within a number of roles that individuals occupy within their organizations (Burke, 1991; Stryker & Serpe, 1982; Thoits, 1992). Earlier work on identity theory as applied to gainsharing states that:

“Group incentives vary considerably, and they can be designed to tap a variety of salient roles in the workplace. An employee has a number of roles at work; the most distant role could be considered that of an organizational member (such as being an ‘IBMer’). The ‘job holder’ role might be perceived as the most personal role... In addition to the job holder role and organizational member roles, a number of additional roles can be considered” (Welbourne & Cable, 1995: 715).

Given the exploratory nature of this research, five different work-related roles were selected for study. The roles studied were: job holder, career, entrepreneur, team member, and organizational member. Performance within each one of these roles is rewarded by some part

of the compensation program at the firms being studied, and managers at the gainsharing firms determined that these roles were important for their business units' current and future success.

The job holder role refers to the basic tasks that are included in the job description. Base pay and merit pay are primarily developed to reward job-specific skills and abilities. The career role refers to the behaviors and activities that are expected to enhance one's career. Promotion opportunities, lateral transfers, and raises associated with new jobs are available for those who take advantage of career development. The entrepreneurial role is often encouraged by gainsharing plans. In many situations, gainsharing plans include formal suggestion systems designed to encourage employees to come up with ideas for improvement and to pursue their suggestions. The team member role is encouraged by companies with gainsharing plans and other group-based incentives. It consists of helping others in a work team, doing things to promote the team's interests, and basically working toward the goals of the team. The organizational member role is comparable to citizenship behaviors in that it encompasses behaviors that are for the good of the overall company, but not necessarily required as part of the job.

By viewing performance as multidimensional and associated with the five above-mentioned work related roles, the research can address the individual behavioral effects of monitoring. According to the agency theory literature, monitoring could have a positive or a negative effect on any one of the five behaviors. Thus, the study is exploratory in nature, and the results will be used to refine agency theory predictions.

RESEARCH METHOD

Two companies that implemented gainsharing programs participated in this study. The first served as a pilot study, while the second functioned as follow-up research. The first site is a unionized manufacturing plant that had gainsharing in effect for approximately one year. The second site involved one company that had also implemented gainsharing approximately one year prior to the time when data were collected. This second site included incentive and control groups. This gainsharing plan at the second company is different from the program implemented in the pilot study in that employees were asked to give up part of their base pay (between 1% and 5%) to participate in the gainsharing plan.

Both sites had relatively low payout histories. The second site had higher overall payouts, but some of the money was used to cover the costs incurred by placing part of base pay at risk, therefore, the net payout condition was fairly low. Neither of the plans had formal suggestion systems. The gainsharing formulas were based on traditional gainsharing

components (sales value of production and expenses), and they also included components for safety, quality, and/or customer service.

Site 1: Sample characteristics and data collection

This plant is part of a large, established Fortune 500 firm. The entire corporation, including this plant, had been experiencing downsizing as a result of increased global competition for their product. The plant studied was at 50% capacity when the gainsharing plan was implemented. The plant employs about 1,000 employees, and it is a 24-hour operation.

A stratified, random sample was selected, and surveys were distributed in individual meetings with small groups of employees. A total of 90 employees participated in the study. In addition, the company provided demographic information (age, salary, job title, tenure) from the personnel files on all employees who participated in the project. The union worked with me to obtain cooperation from employees, however, the union executive board did not support the use of manager ratings of performance. Therefore, in this sample only self report measures of performance were obtained. The average age at the plant was 47 years. There were more men than women, as evidenced by the mean on the sex variable (.16 with male coded as 0 and female coded as 1).

Site 2: Sample characteristics and data collection

Two different sites from within a large, established organization were included in this study. The two sites do comparable work, however, one had a gainsharing plan and one did not. The jobs are primarily in sales, marketing, and creative, artistic-type work. A total of 108 employees participated in the study; 60 were in the control group, and 48 were in the gainsharing group. The average person in this organization was 36 years old, with a higher probability of being female than male and a monthly salary of approximately \$4,066. Surveys were distributed to employees in meetings conducted by the human resource management representative. Employees then mailed the surveys directly to me at the University. The response rate for the control group was 77%, and the response rate for the incentive group was 68%.

Independent Variables

Two measures of monitoring were used. The first, mutual monitoring within work teams, was based on earlier research (Welbourne, et al., 1995). A total of five items were included, and the alpha coefficient for this scale was .73 at site 1 and .74 at site 2. The monitoring between group items were written to parallel those in the within team scale. A total of four items were utilized, and the alpha coefficient for site 1 was .87, while the coefficient for the second site was .77. The following items were used: (1) If we can help out another work group, people in

my work group will do it, (2) People in my work group think it's important to spend time understanding what other work groups do, (3) Everyone in my work group takes time to work with people from other groups, and (4) Sharing information between groups is an important part of our work. The response format was a 1 to 5 Likert-type scale with 1 = Strongly disagree and 5 = Strongly agree.

Dependent Variables

As mentioned earlier, the dependent variables were designed based on three sources: compensation research, interviews with managers at gainsharing plants, and identity theory concepts. Because this research was exploratory, I wanted to define multiple behavioral outcomes. With the assistance of a number of managers, we determined that work behaviors could be categorized within five work-related roles (job holder, career, entrepreneur, team member, and organization member). Those roles are consistent with the types of pay and rewards programs that most companies, and in particular those participating in the study, utilize.

Four items for each of the work roles were utilized in the pilot study. The response format was a 5-point Likert-type scale, with 1 = Needs much improvement, 2 = Needs some improvement, 3 = Satisfactory, 4 = Good, and 5 = Excellent. It was important to keep the overall scale as short as possible and easy to complete in order to guarantee cooperation from the managers. I was able to collect a small number of managerial ratings of performance for the pilot study, however, the data were only available for non-union employees, making the data inappropriate for this particular analysis. However, it was used for refinement of the survey for site 2. The second study utilized both manager evaluations of employee performance and self ratings of performance. Data on the five factors of performance have been collected in additional firms (non-gainsharing sites), and the overall factor structure and resulting reliabilities are stable at each company and related to other measures of performance (Welbourne, Johnson & Erez, 1995). The factor analysis at site 1 indicated a five factor solution as appropriate (see Table 1). Only three items loaded in an unpredictable manner (items #12, 16, and 20), and the reliability analysis indicated that the items could be used in the intended grouping.

TABLE 1: FACTOR ANALYSIS - SITE 1, SELF RATINGS OF PERFORMANCE

ITEMS	FACTOR LOADINGS				
	1	2	3	4	5
Entrepreneur: Alpha coefficient = .90					
1. Coming up with new ideas.	.88	-.06	.18	.15	.08
2. Finding improved ways to do things.	.82	.09	.25	.04	.13
3. Working to implement new ideas.	.78	.04	.39	.18	.05
4. Creating better processes and routines.	.77	-.12	.06	.34	.18
Career: Alpha coefficient = .88					
5. Seeking out career opportunities.	.05	.90	.14	-.11	-.10
6. Obtaining personal career goals.	-.13	.87	.16	.20	-.02
7. Developing skills needed for my future career.	.10	.83	.04	.08	.14
8. Making progress in my career.	.17	.78	.16	.28	-.06
Team: Alpha coefficient = .87					
9. Responding to the needs of others in my work group.	.20	.14	.80	.17	.36
10. Seeking information from others in my work group.	.28	.27	.76	.13	.12
11. Making sure my work group succeeds.	.12	.25	.70	.41	.14
12. Working as part of a team or work group.	.39	.27	.41	.15	.36
Organization: Alpha coefficient = .87					
13. Doing things to promote the company.	.17	.27	.15	.87	.16
14. Working for the overall good of the company.	.22	.22	.31	.80	.15
15. Helping out so that the company is a good place to be.	.24	-.02	.25	.78	.28
16. Doing things that help others when it's not part of my job.	.28	.01	.80	.19	.23
Job: Alpha coefficient = .76					
17. Quantity of work output.	.07	.07	.04	.32	.80
18. Quality of work output.	.13	-.04	.34	.09	.85
19. Accuracy of work.	.20	-.09	.29	.11	.83
20. Customer service provided (internal and external customers).	.57	-.13	.06	.33	.18
EIGENVALUES: Factor 1 = 8.05					
Factor 2 = 2.99					
Factor 3 = 1.94					
Factor 4 = 1.38					
Factor 5 = 1.08					

A factor analysis was also run with the data from site 2. The factor analysis was conducted separately for the manager reports of performance and the self reports of performance. The results from the manager reports indicate a four factor solution, where both team and organization member roles loaded on the same factor (See table 2). However, the reliability coefficients for the five-factor solution were all acceptable. The self ratings of

performance resulted in a five factor solution consistent with that found in the pilot study (See table 3). The reliability coefficients for all five factors were also acceptable.

TABLE 2: FACTOR ANALYSIS - SITE 2, MANAGER EVALUATIONS OF PERFORMANCE

ITEMS	FACTOR LOADINGS			
	1	2	3	4
Entrepreneur: Alpha coefficient = .88				
1. Coming up with new ideas.	.12	.33	.79	.12
2. Finding improved ways to do things.	.40	.29	.68	.24
3. Working to implement new ideas.	.32	.33	.70	.20
4. Creating better processes and routines.	.42	.25	.49	.33
Career: Alpha coefficient = .89				
5. Seeking out career opportunities.	.04	.84	.21	.02
6. Obtaining personal career goals.	.30	.84	.07	-.01
7. Developing skills needed for his/her future career.	.25	.70	.32	.14
8. Making progress in his/her career.	.13	.86	.17	.20
Team: Alpha coefficient = .91				
9. Responding to the needs of others in my work group.	.84	.13	.10	.09
10. Seeking information from others in my work group.	.81	.22	.06	.13
11. Making sure my work group succeeds.	.80	.18	.29	.29
12. Working as part of a team or work group.	.78	.28	.08	.23
Organization: Alpha coefficient = .86				
13. Doing things to promote the company.	.71	-.01	.32	.04
14. Working for the overall good of the company.	.67	.01	.55	.02
15. Helping out so that the company is a good place to be.	.70	.112	.41	-.04
16. Doing things that help others when it's not part of his/her job.	.66	.08	.34	.22
Job: Alpha coefficient = .75				
17. Quantity of work output.	.31	.04	.44	.63
18. Quality of work output.	.12	.47	.28	.63
19. Accuracy of work.	.15	.04	.04	.91
20. Customer service provided (internal and external customers).	.71	.25	.08	.24
EIGENVALUES: Factor 1 = 9.46				
Factor 2 = 2.37				
Factor 3 = 1.47				
Factor 4 = 1.13				

TABLE 3: FACTOR ANALYSIS - SITE 2, SELF EVALUATIONS OF PERFORMANCE

ITEMS	FACTOR LOADINGS				
	1	2	3	4	5
Entrepreneur: Alpha coefficient = .90					
1. Coming up with new ideas.	.00	.84	.07	.01	.06
2. Finding improved ways to do things.	.18	.87	.12	.11	.13
3. Working to implement new ideas.	.32	.70	.33	.08	.09
4. Creating better processes and routines.	.20	.82	.08	.04	.07
Career: Alpha coefficient = .88					
5. Seeking out career opportunities.	.03	.06	.85	.09	.09
6. Obtaining personal career goals.	.11	.14	.83	-.11	.15
7. Developing skills needed for my future career.	-.09	.15	.65	.03	.21
8. Making progress in my career.	.06	.10	.81	.18	-.03
Team: Alpha coefficient = .87					
9. Responding to the needs of others in my work group.	.66	.07	-.08	.44	.03
10. Seeking information from others in my work group.	.82	.25	.02	.19	-.02
11. Making sure my work group succeeds.	.79	.28	.09	.24	.09
12. Working as part of a team or work group.	.76	.18	.16	.00	-.09
Organization: Alpha coefficient = .87					
13. Doing things to promote the company.	.18	.13	.12	.85	.06
14. Working for the overall good of the company.	.34	-.04	.09	.71	.11
15. Helping out so that the company is a good place to be.	.16	.07	.05	.88	.07
16. Doing things that help others when it's not part of my job.	.56	.02	-.20	.37	.10
Job: Alpha coefficient = .76					
17. Quantity of work output.	.19	.24	.02	-.05	.68
18. Quality of work output.	.10	.01	.29	.06	.79
19. Accuracy of work.	.15	.07	.09	.23	.69
20. Customer service provided (internal and external customers).	.53	-.04	.07	.08	.37
EIGENVALUES: Factor 1 = 5.76					
Factor 2 = 2.95					
Factor 3 = 2.07					
Factor 4 = 1.45					
Factor 5 = 1.29					

Control Variables

Several control variables, which have been linked to performance in prior compensation and gainsharing studies, were included in the analysis (Hatcher, Ross & Collins, 1989; Miceli & Lane, 1991). These are: age, gender, education, and salary.

RESULTS

The results will be presented for site 1 and then for site 2. The results of the survey at site one were communicated to employees, management, and union representatives in focus groups, and the results from those meetings will also be discussed to expand upon the consequences of peer monitoring, in particular, on safety at the plant. Results for the second site will include separate analyses with the manager ratings of performance and the individual ratings of performance as dependent variables.

Site 1 Results

Table 4 presents the means, standard deviations, and correlation matrix for all variables. It is interesting to note that there was variance in the self report measures of performance. Overall, employees rated their performance within the career role as lower than their performance in the other roles. The highest rating went to their performance in the job. The results also indicate that both monitoring variables (within and between groups) are related to many of the performance dimensions, and they are all in a positive direction.

TABLE 4: MEANS, STANDARD DEVIATIONS, AND CORRELATIONS FOR SITE 1, N=90

CORRELATIONS

	Mean	Standard Deviation	Age	Education	Gender	Salary	Monitor WT	Monitor BT	Self Career	Self Entrepreneur	Self Job	Self Organization	Self Team
Age	47.00	7.80	1.00	-.37***	.00	-.10	.13	.09	.09	-.01	-.14	.07	.09
Education	3.44	1.70	-.37***	1.00	.28**	.45***	-.01	.16	-.11	.25**	.25**	.20*	.20*
Gender	0.16	0.37	.00	.27**	1.00	.22*	.02	.11	-.03	.13	.04	.15	.14
Salary (per month)	2990.00	1106.00	-.01	.45***	.22*	1.00	-.02	.21*	.00	.30**	.37***	.54***	.34***
Monitor Within Teams (WT) ¹	4.04	0.70	.13	-.01	.02	-.02	1.00	.24*	.12	.18*	.30**	.22**	.33**
Monitor Between Teams (BT) ¹	3.01	0.97	.09	-.16	.11	.21	.24*	1.00	.27**	.41***	.15	.50***	.44***
Self Career	2.83	0.81	.09	-.11	-.03	.00	.12	.27**	1.00	.20	.01	.31**	.40***
Self Entrepreneur	3.46	0.79	-.01	.24**	.13	.30**	.18*	.41***	.20*	1.00	.35***	.51***	.56***
Self Job	4.08	0.50	-.14	.25**	.04	.37***	.30**	.15	.01	.35***	1.00	.53***	.51***
Self Organization	3.47	0.83	.07	.20*	.15	.54***	.22*	.50***	.31**	.51***	.53***	1.00	.69***
Self Team	3.60	0.68	.09	.20*	.14	.34***	.33**	.44***	.40***	.56***	.51***	.69***	1.00

* = P ≤ .05
 ** = P ≤ .01
 *** = P ≤ .001

¹ = WT=Within Teams; BT=Between Teams

Table 5 presents the results of a regression analysis that includes the control variables and the two monitoring variables. The overall regression equation is significant for four of the five categories of performance (all but the career dimension). Monitoring within teams is significant in predicting job and team member performance. Monitoring between teams is significant in predicting career, entrepreneurial, organizational member, and team member performance. All beta coefficients are in a positive direction, suggesting that monitoring is positively, rather than negatively, related to behavior. The only significant control variable is salary, and it is significant in predicting job, organizational member, and team member performance.

TABLE 5: REGRESSION ANALYSES - SITE 1

Self Ratings of Performance					
	Career	Entrepreneur	Job	Organization	Team
Age	-.01	.01	-.12	.04	.07
Education	-.16	.11	.08	-.07	.05
Gender	-.02	.02	-.07	.01	.03
Salary	.02	.17	.34**	.50***	.26*
Monitor (WT)¹	.05	.10	.32**	.14	.25*
Monitor (BT)¹	.29*	.33**	.00	.37***	.30**
R²	.10	.24	.26	.48	.32
F	1.29	3.62**	3.99***	10.69***	5.34***

Standardized betas reported.

* $p \leq .05$ ¹=WT=Within Teams; BT=Between Teams.
 ** $p \leq .01$
 *** $p \leq .001$

The results of the study were presented to employees, managers, and union representatives in small focus groups. All groups indicated that higher levels of monitoring were occurring in the plant. However, when I asked about the results of that enhanced monitoring, their responses were mixed. One goal of the gainsharing plan is to increase safety, and data from the company clearly show that reported accidents have decreased dramatically. However, employees indicated that *reported* accidents have decreased, not necessarily total number of accidents. There were multiple comments (from management, union representatives, and employees) that minor, and even some serious, accidents were not being reported due to peer pressure. At the same time, however, employees said that peer pressure was causing them to

work in a safer manner. Workers encourage each other to wear hard hats, take precautions, and use safety procedures; this, I was told, did not happen prior to the gainsharing plan.

The safety committee conducted a survey of employees approximately two months prior to the focus groups, and the results of its survey are consistent with employee comments. A total of 86% of respondents said they agreed with the following statement: "I believe that recognizing employees for positive safety performance promotes increased awareness, watching out for yourself and others, and following the "brother's keeper" philosophy." At the same time, 68% said that the policy was causing employees to leave accidents unreported. A total of 87% said first-aid accidents were not being reported, while 10% thought that serious accidents were not reported, and 3% thought disabling accidents were not reported. During the focus groups, I heard comments that employees who were hurt on the job avoided going to the company medical officer by waiting to see a physician in town. In addition, many employees who did see the medical officers for treatment claimed that the injury occurred at home.

Site 2 Results

Means and standard deviations for the overall sample, the control group, and the incentive group are included in Table 6. The same pattern that existed at site 1 is found at site 2 in terms of performance rankings. Both employees and managers rated their performance in the job role highest, while they rated their performance within the career role as lowest. Correlations for the entire sample are listed in Table 7. It is interesting to note the correlations between manager and self ratings of performance. The only significant correlation (.25) is for the entrepreneurial role.

TABLE 6: MEANS AND STANDARD DEVIATIONS, SITE 2, N=108

	Overall Sample		Control		Incentives	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Age	36	8.17	35.97	8.67	35.96	7.67
Education	6.82	2	6.93	1.87	6.67	2.17
Incentive Condition (0=control, 1=incentive)	.46	.52	-	-	-	-
Gender (0=male, 1= female)	.64	.48	.61	.49	.67	.47
Salary (monthly)	4066	3214	4382	4003	3706	1900
Monitor (WT) ¹	3.68	.59	3.85	.54	3.47	.6
Monitor (BT) ¹	3.5	.71	3.29	.74	3.75	.58
Manager ² Career	3.4	.7	3.33	.61	3.42	.82
Manager Entrepreneur	3.51	.76	3.75	.51	3.21	.89
Manager Job	4.02	.64	4.1	.53	3.93	.87
Manager Organization	3.88	.68	4.06	.59	3.69	.72
Manager Team	3.9	.78	4.12	.63	3.86	.88
Self ³ Career	2.93	.77	2.94	.77	2.9	.77
Self Entrepreneur	3.76	.73	3.75	.76	3.76	.71
Self Job	4.28	.48	4.26	.53	4.29	.4
Self Organization	3.85	.69	3.89	.73	3.78	.62
Self Team	4.04	.65	3.93	.68	4.17	.57

p ≤ .05

p ≤ .01

p ≤ .001

¹=WT=Within Teams; BT=Between Teams

²=Manager ratings of performance. ³=Self ratings of performance.

TABLE 7: CORRELATIONS FOR SITE 2, N=108

	Age	Educ	Incent (0/1)	Gender	Salary	Monitor	Monitor or Group	Manager Career	Manager Entrep	Manager Job	Manager Org	Manager Team	Self Career	Self Entrep	Self Job	Self Org	Self Team
Age	1.00	-.26**	.01	-.01	.01	-.14	-.07	-.28*	-.22*	-.11	-.03	-.08	-.17*	-.14	-.04	.05	-.08
Education	-.26**	1.00	-.06	-.35***	.28**	.11	.13	.11	.15	-.12	-.07	-.00	.18*	.10	-.12	-.26**	-.05
Incentive (0/1)	.01	-.06	1.00	.08	-.11	-.29***	.34***	.08	-.30*	-.07	-.20*	-.13	.01	.02	.06	-.03	.22**
Gender	-.01	-.35***	.08	1.00	-.17*	.11	.11	.18	-.05	.08	.04	.04	-.04	.07	.06	.36***	.37***
Salary	.01	.28**	-.11	-.17*	1.00	.09	-.04	.11	.11	.12	.05	.03	.19*	-.02	-.12	-.13	-.04
Monitor Within Teams	-.14	.11	-.30***	.10	.09	1.00	.11	.15	.22*	.16	.19*	.17	.08	.12	.17*	.25**	.13
Monitor Between Teams	-.07	.13	.34***	.11	-.04	.11	1.00	.14	.15	.19*	.28**	.25*	.07	.21*	.18*	.15	.47***
Manager Career	-.28**	.11	.08	.18	.11	.15	.14	1.00	.58***	.49***	.37**	.44***	-.02	.12	-.01	.06	.22*
Manager Entrepreneur	-.22*	.15	-.30***	-.05	.11	.22*	.15	.58***	1.00	.65***	.64***	.60***	-.18	.25*	-.08	-.17	.10
Manager Job	-.11	-.12	-.07	.08	.12	.16	.19	.49***	.65***	1.00	.62*	.62***	-.15	.11	.02	-.01	.14
Manager Organization	-.03	-.07	-.20*	.04	.05	.19*	.28**	.37***	.64***	.62***	1.00	.77***	-.17	-.04	-.14	-.02	.06
Manager Team	-.08	-.00	-.13	.04	.03	.17	.25**	.44***	.60***	.62***	.77***	1.00	-.24*	.15	-.21*	.09	.18
Self Career	-.17*	.18*	.01	-.04	.19*	.08	.07	-.02	-.18	-.15	-.17	-.24	1.00	.29***	.31***	.11	.14
Self Entrepreneur	-.14	.10	.02	.07	-.02	.12	.21*	.12	.25*	.11	-.04	.15	.29***	1.00	.28**	.20*	.40***
Self Job	-.04	-.12	.06	.06	-.12	.17*	.18*	-.01	-.08	.02	-.14	-.21*	.31***	.28**	1.00	.31***	.27***
Self Organization	.05	-.26**	-.03	.36***	-.13	.25**	.15	.06	-.17	-.01	-.01	.09	.11	.20*	.31***	1.00	.56***
Self Team	-.08	-.05	.22*	.37***	-.04	.13	.47***	.22*	.10	.14	.06	.18	.14	.40***	.27**	.56***	1.00

p ≤ .05 p ≤ .01 p ≤ .001

An ANOVA was run to determine if the levels of monitoring differed between the control and incentive groups. The results are significant for both monitoring variables. The mean for the monitoring within teams variable is 3.85 for the control group and 3.47 for the incentive group, with an F of 6.46, which is significant at the .01 level. The mean for the monitoring between teams variable for the control group is 3.29, and the mean for the incentive group is 3.75. The F was 7.31, which is significant at the .001 level. It is interesting to note that monitoring within teams is higher in the control group, but monitoring between teams is higher in the incentive group.

The regression analysis for self ratings of performance is included in Table 8. The analysis for manager ratings of performance is included in Table 9. Being in the incentive condition did not predict any individual behaviors for the self ratings, but it did have a significant and negative effect on the manager ratings of performance. These results indicate that being in the control condition (coded as 0) resulted in higher levels of performance in the entrepreneurial and organization member dimensions of performance. Monitoring within teams is positively related to organizational member behaviors and only in the self report analysis. Monitoring between groups is related to self ratings of team member performance, while it is related to managerial ratings of entrepreneurial, job, organization member, and team member performance.

TABLE 8: REGRESSION ANALYSES - SITE 2

Self Ratings of Performance

	Career	Entrepreneur	Job	Organization	Team
Age	-.14	-.09	-.05	.05	-.04
Education	.09	.06	-.17	-.18	-.01
Incentive (0/1)	.03	-.03	.04	-.05	.08
Gender	.01	.06	-.05	.25**	.32***
Salary	.16	-.02	-.09	-.06	.04
Monitor (WT)¹	.03	.06	.19	.22*	.07
Monitor (BT)¹	.04	.19	.16	.14	.39***
R²	.08	.07	.09	.23	.33
F	1.22	1.09	1.48	4.27***	7.08***

* p ≤ .05

** p ≤ .01

*** p ≤ .001

¹WT=Within Teams; BT=Between Teams

TABLE 9: REGRESSION ANALYSES - SITE 2**Manager Ratings of Performance**

	Career	Entrepreneur	Job	Organization	Team
Age	-.25*	-.19	-.15	-.04	-.08
Education	.07	.01	-.26*	-.19	-.10
Incentive (0/1)	.09	-.35**	-.12	-.33*	-.23
Gender	.19	-.04	-.01	-.04	-.02
Salary	.13	.07	.19	.07	.04
Monitor (WT)¹	.09	.06	.08	.07	.06
Monitor (BT)¹	.06	.25*	.25*	.41**	.33*
R²	.15	.21	.14	.21	.13
F	1.66	2.38*	1.48	2.33*	1.39

* p ≤ .05

** p ≤ .01

*** p ≤ .001

¹WT=Within Teams; BT=Between Teams.

The incentive condition itself seems to be having a negative impact on certain aspects of performance at this site (at least from the manager's perspective). However, monitoring behaviors, when significant, have only a positive impact on performance. Therefore, even though there might be something about the gainsharing plan that decreases performance within the incentive condition, the enhanced levels of monitoring might be compensating for that decreased performance.

DISCUSSION

The results from site 2 are rather perplexing because the incentive condition itself seems to be negatively related to performance. Two explanations are possible. The first is related to the fact that employees placed part of their base pay at risk. This site is a financially healthy company, and conversations with management indicate that employees might not have responded well to the gainsharing plan because they did not understand the necessity of placing part of base pay at risk. The overall negative attitude toward the gainsharing plan might have resulted in some retaliatory behaviors that are evidenced as lower performance. A second explanation is based on agency theory. The negative impact on entrepreneurial and organizational facets of performance might reflect the fact that employees in the incentive

condition became more risk averse in response to either peer monitoring or simply because part of their base pay was placed at risk.

In order to test this risk aversion hypothesis, two analyses were run. First, an ANOVA run at site 2 comparing risk aversion¹ in the incentive and control conditions found that the mean for the control group was 2.51, while the mean for the incentive group was 2.21 (significant at the .05 level, $F=3.29$). This seems to cast doubt on the risk taking explanation because the incentive group is more risk taking than the control group. In order to further test the notion that monitoring can lead to risk averse behaviors (which was specifically mentioned by researchers using agency theory), I examined the effect of monitoring (both within and between teams) on suggestion making behaviors at both sites. Two scales were developed, one which is defined as suggestion making when high risks are present, and a second that reflected suggestion making under low risk conditions (both were self report items, See Table 10). A regression analysis was run to determine if monitoring or the gainsharing condition affected either form of suggestion making activity and in what direction they might predict. The regression equations, tested at both companies, showed that monitoring had either an insignificant or positive effect on suggestion making activities, and the gainsharing condition had no effect for both the high and low risk suggestion making conditions.

¹ Risk aversion was measured with three items (1) I am not willing to take risks when choosing a job or company to work for. (2) I am a cautious person who generally avoids risk. (3) I always play it safe, even if it means occasionally losing out on a good opportunity. The alpha coefficient at site 1 was .79, and at site 2 it was .64. These items were adapted from a risk aversion scale used by Cable and Judge, 1994.

TABLE 10: REGRESSION ANALYSIS WITH SUGGESTION ACTIVITY

	Suggestion Activity High Risk		Suggestion Activity Low Risk	
	Site 1	Site 2	Site 1	Site 2
Gender	.06	-.02	-.02	.09
Incentive condition (0=control; 1=gainsharing)	.08		.10	
Salary	.01	.08	.01	.12
Age	-.02	.09	-.01	.04
Education	.22	.24*	.18	.05
Monitoring within teams	.22*	.01	.21*	.08
Monitoring between teams	.37***	.10	.45***	.32**
R ²	.31	.10	.35	.42
F	5.22***	1.54	6.30***	3.06**

(Standardized beta coefficients are reported.)

Suggestion activity - high risk (1 to 5 scale, agree/disagree format)

1. I am willing to pursue a new idea even if it's unpopular.
2. I will pursue new ideas even if it makes me look silly to others.
3. I am someone who will go out on a limb to pursue a new idea.

Coefficient alpha at site 1 = .89; alpha at site 2 = .60

Suggestion activity - low risk

1. I think of new ideas and implement them on the job.
2. If I see something that needs to be changed, I let the right people know.
3. I often come up with new ways to do my job.
4. When I think of new ways to do my job, I tell my supervisor about them.

Coefficient alpha at site 1 = .79; alpha at site 2 = .77

An alternative explanation for the site 2 gainsharing effect is that employees determined entrepreneurial and organizational behaviors were things that the company “wanted” but that the employees did not think were “necessary” to obtain the bonus. Although data to support this explanation were not available, management at the firm seems to think that this interpretation is an accurate depiction. Employees are doing what they must do, but no more. Of course, this finding only occurs when the managerial ratings of performance are used in the analysis. The incentive condition did not affect self report measures of performance, so the negative behavioral results in the incentive condition might also be related to management issues

(experience, management - employee relations, quality of performance ratings, communication, etc.) rather than the gainsharing plan.

The overall results show that monitoring has either zero or positive impact on the five categories of individual employee behavior. All of the quantitative data suggest that when monitoring affects individual performance, it does so in a positive direction. It is also interesting to note that monitoring between teams has a greater impact on individual performance than does monitoring within teams. This seems consistent with agency theory concepts in that monitoring between groups increases the amount of information any individual or work team has, thus potentially increasing performance.

Although monitoring leads to positive behavioral outcomes, the data from both sites suggest that caution must be taken in the design of gainsharing-type incentives. Peers seem to be well equipped to monitor each other in order to obtain the goals of the gainsharing plan, and it is important that management understands the implications of the goals that they set in their bonus plans. Site 1 found that peers were monitoring each other to reduce reported accidents, but they were doing so in ways that the company did not condone. They were not reporting accidents that did occur. The results at site 2 showed that employees were working toward the goals important for the bonus, but they might also be minimizing or even reducing efforts in other areas that are perceived as not directly affecting the gainsharing bonus. This study provides additional support for the creative genius of employees working under incentive programs. In the days of piece rate systems, we learned that employees could alter their work habits when the timekeeper arrived. The same phenomenon seems to exist when gainsharing plans are used. This does not imply that these programs are leading to lower performance; in fact, this study found that monitoring is associated with higher individual levels of performance. However, the results do indicate that it is critical for managers to understand the ways in which employees are translating the goals of the gainsharing plan into behaviors.

The findings of this study also have implications for the use of team-based incentives, which are increasingly becoming popular. If team-based incentives (rather than gainsharing-type programs) are used, employees might not benefit from the between team information scanning activity (monitoring) that occurs when gainsharing programs are implemented. Given the complexity in developing objective measures of team performance and the potential for competition between teams, the results of this research suggest that plant, division, or business unit incentive schemes might be more appropriate for maximizing individual worker performance.

Overall, the results of this study imply that monitoring activities, under gainsharing, produce positive results on individual behavior. Given the fact that the gainsharing plan at site 2 resulted in some negative behavioral consequences, it is encouraging to see that, despite those problems, monitoring seemed to have positive effects on the individual behaviors studied. This research expands agency theory by finding that monitoring has either zero or positive effects on individual work-related behaviors. However, it also confirms that the process by which that performance is achieved needs further elaboration.

Monitoring seems to result in positive individual behaviors in the short run, and thereby enhance performance, but the process by which that performance is achieved may have serious implications for the long-run performance of the firm. For example, if minor accidents continue to go unreported at site 1, and if as a result, workers are not receiving medical treatment at an early stage, minor incidents might transform into major problems. This not only jeopardizes the individual, but it also threatens the safety of others in the plant. This study indicates that the process, not only the outcomes, of gainsharing needs to be fully understood. It also has implications for training and development activities in a gainsharing environment; workers need to be educated about not only the goals of the gainsharing plan but the means by which those goals should be attained. In addition, management should fully understand the effects of peer monitoring on the process by which employees obtain their personal and division-level objectives.

Of course, this study is limited because all of the data were collected at one point in time, thus reverse causality cannot be ruled out. Future research should be designed to study the effect of monitoring on individual behaviors with longitudinal data. In addition, a combination of qualitative and quantitative data, such as that used in this research, should continue to be collected. This will help elaborate upon the process issues, which are more complex, and perhaps as or more important than the short-term outcomes. Additional measures of performance (other than self and manager report) to substantiate the findings for each of the behavioral categories would also be useful to expand the results of this study.

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