Consequences of Satisfaction with Pay Systems: Two Field Studies

MARCIA P. MICELI and PAUL W. MULVEY*

Research on pay satisfaction has been criticized for inattention to determining whether its multiple dimensions have different consequences and for overreliance on cross-sectional designs. Structural equation analyses of data from two field studies showed that satisfaction with pay systems, but not pay levels, led to greater perceived organizational support, which in turn affected employer commitment and organizational citizenship. Union commitment was a positive function of pay system satisfaction and a negative function of pay level satisfaction.

EMPLOYERS AND UNIONS make substantial investments in negotiating and administering compensation systems. If compensation systems affect variables that matter to employers and unions, effective negotiation and management of compensation systems are obviously important (Heneman, 1985). Since Heneman's (1985) review, which showed that little is known about the consequences of compensation satisfaction, several studies have been published. Pay level satisfaction is

*The authors' affiliations are, respectively, The McDonough School of Business, Georgetown University, and Department of Business Management, College of Management, North Carolina State University. E-mail: micelim@gunet.georgetown.edu and paul_mulvey@ncsu.edu. An earlier version of this paper was presented at the Academy of Management Meeting in August 1998. Study 1 was supported by a grant from the Center for Labor Research while the authors were at Ohio State University. We thank the leaders and members of the unions and the organization in which the data were collected and respect their request for anonymity. The opinions expressed are ours and are not necessarily shared by any other person or organization. We thank Matthew Lane and Susan L. Josephs for their involvement in Study 1. We thank Sibson and Company, Peter LeBlanc, and Gretchen LaNier for their help in generating and collecting data used in Study 2. We appreciate the very helpful comments on earlier versions of this manuscript provided by Lynda Aiman-Smith, Steve Allen, Bob Bies, Jeff Edwards, Steve Mellor, Cathy Tinsley, and the Editor and two anonymous reviewers for *Industrial Relations*.

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positively associated with commitment to the employer (Cohen and Gattiker, 1994; Huber et al., 1992; Mathieu and Zajac, 1990; McFarlin and Sweeney, 1992), to self-reported job search and intent to leave (Miceli et al., 1991), to organizational citizenship (Lee, 1995), and to union members' propensity to ratify contracts (Martin and Berthiaume, 1995).

However, two limitations of the literature are noted. First, most studies have focused only on satisfaction with wage and salary levels, but recent research has confirmed that compensation satisfaction is multidimensional (see, for example, Judge, 1993; Judge and Welbourne, 1994). Different components of compensation satisfaction may have different consequences (Folger and Konovsky, 1989). For example, one employee may be satisfied with his or her *salary* but dissatisfied with the pay system's *operation*, while the reverse may be true for a second employee. Which employee will show commitment to the employer and which to the union?

A second limitation is that the current literature has relied almost exclusively on questionnaires administered only once, the potential shortcomings of which have been identified elsewhere (see, for example, Blau, 1994; Heneman, 1985; Huselid and Becker, 1996). For example, correlations among items may be inflated because respondents may answer questions on the same survey similarly in order to appear consistent.

We undertake three objectives in this article, which reports results from two field studies occurring in different settings. First, drawing on theories of distributive and procedural justice and on theories of social exchange, we test propositions linking pay level satisfaction and pay system satisfaction with important consequences. Second, we examine whether these sets of relationships vary. Third, we examine in Study 2 whether the Study 1 findings based on data from members of two bargaining units can be extended to a broader range of employees and pay systems. For ease in communication, we will use the term *rewards* to refer to any type of reward, including nonmonetary rewards, such as recognition or access to desired training. We will use *compensation* broadly to refer to wages, salaries, and benefits; *pay* refers only to wages and salaries.

Study 1

Hypotheses and Model

Compensation satisfaction is the amount of positive or negative affect that individuals have toward their compensation (Miceli and Lane, 1991). Individuals can be satisfied with direct compensation (e.g., their current salaries) and indirect compensation (e.g., the number and value of

benefits), which—in equity theory terms (Adams, 1965)—are *outcomes*. Satisfaction with outcomes can be distinguished from individuals' reactions to the *systems* used in creating and maintaining compensation structures. Satisfaction with pay systems and satisfaction with benefit systems are two process-oriented constructs that have received less attention than satisfaction with pay level (Miceli and Lane, 1991). However, preliminary empirical support for this 2 (pay versus benefits) × 2 (outcomes versus processes) conceptualization of compensation satisfaction has been found (Mulvey, 1991). If these distinctions are important, then consequences of each of the resulting four types of compensation satisfaction may be different. We consider here whether pay level satisfaction and pay system satisfaction have different effects; however, we do not expect these constructs to be unrelated. Prior research on other types of pay satisfaction invariably shows the components to be distinct but related (see, for example, Carraher and Buckley, 1996; Heneman and Schwab, 1985; Heneman et al., 1988; Huber et al., 1992; Judge and Welbourne, 1994; Scarpello et al., 1988).

Distributive justice theories may be useful in understanding the consequences of pay level satisfaction. There are a number of theories of distributive justice, including equity theory (Adams, 1965) and relative deprivation theory (Crosby, 1976); all of them are concerned with how people react to the actual or relative level of rewards they receive (Sweeney and McFarlin, 1993). These theories propose that people feel underrewarded, or relatively deprived, when their outcomes (e.g., pay) are too low relative to their inputs (e.g., performance) or to standards of need, desire, or past receipts (e.g., what they earned in their last job). To make this determination, employees often compare their outcomes to those of others, such as coworkers or persons like themselves in other organizations.

When employees believe that they are underrewarded, they not only evaluate the outcomes as unfair, they also react in ways intended to restore equity to the situation (Adams, 1965). They may withdraw psychologically from the situation, which may take the form of reduced affective commitment to the employer. They may reduce or withhold inputs, e.g., reduce performance, be absent, or quit. Thus, to the extent that pay level satisfaction reflects distributive justice, the higher the pay level satisfaction, the less likely the employee will be to withdraw, reduce inputs, or otherwise react negatively. However, since employees have many options for restoring equity, the relationships may not be strong.

Previous research has shown that distributive justice affects pay level satisfaction (Sweeney and McFarlin, 1993), but *procedural* justice also can be reflected in pay level satisfaction (Miceli et al., 1991). Theories of procedural justice (see, for example, Leventhal et al., 1980; Thibaut and Walker, 1975) suggest that the method and manner by which rewards are allocated are important (Sweeney and McFarlin, 1993). For example, employees may be more satisfied when pay systems use consistent procedures for evaluating performance or communicate decisions clearly. The emphasis on method and manner suggests, however, that procedural justice may be more strongly related to satisfaction with the pay system than to pay level satisfaction. Thus we would expect that the consequences of procedural justice would be more strongly related to pay system satisfaction than to pay level satisfaction, whereas the reverse would be true for distributive justice.

Four theories of the consequences of distributive justice and procedural justice have been proposed; empirical support was strongest for a two-factor theory (Sweeney and McFarlin, 1993). The two-factor theory (Folger and Konovsky, 1989) proposes that distributive justice is more strongly related to personal-level evaluations, such as satisfaction with trial verdicts, and procedural justice is more strongly related to global evaluations of institutions, such as the judicial system (Lind and Tyler, 1988). This suggests that pay system satisfaction will be more strongly related to global evaluations of the institution than will pay level satisfaction.

A third stream of theoretical development—on social exchange—provides more support for this reasoning. *Social exchange* refers to "voluntary actions of individuals that are motivated by the returns they are expected to bring and typically do in fact bring from others" (Blau, 1964:91). These returns occur because "an individual who supplies rewarding services to another obligates him. To discharge this obligation, the second must furnish benefits to the first in turn" (Blau, 1964:89). Social exchanges occur in employment relationships, even though economic exchange, which does not produce the same obligations, is also present.

Social exchange theory suggests that people react more favorably when the value of the outcomes that they receive is relatively positive (Brockner and Wisenfeld, 1996). Further, it suggests that the receipt of rewards increases the extent to which workers believe the organization is committed to them, values their contribution, and cares about their well-being, i.e., perceived organizational support (Eisenberger et al., 1986). This reasoning suggests that more pay alone may increase perceived organizational support. However, there is little research on the antecedents of perceived organizational support; a recent review did not describe any studies linking pay

or any type of pay satisfaction to it (Eisenberger et al., 1997). Thus it is not known whether pay levels alone, rather than employees' evaluation of them, would produce greater perceived organizational support.

Since pay would not encompass employee perceptions or evaluations of the exchange relationship, social comparisons, or the method and manner of operation—but pay satisfaction would (Miceli and Lane, 1991)—only pay satisfaction would likely be related to perceived organizational support. Consistent with this, one study (Shore and Tetrick, 1991) found a positive relationship between pay satisfaction and perceived organizational support. However, separate measures of pay level and pay system satisfaction were not included. Because perceived organizational support is a global evaluation of the organization, the justice literature suggests that the relationship would be more pronounced for pay system satisfaction.

> *Hypothesis 1:* Pay system satisfaction—to a greater extent than pay or pay level satisfaction—will be positively related to later perceived organizational support.

Since perceived organizational support suggests a commitment to the employee, social exchange theory suggests a reciprocal commitment to the employer; research shows that perceived organizational support strengthens affective commitment to the organization (Eisenberger et al., 1986, 1997; Shore and Shore, 1995; Shore and Wayne, 1993). If employers satisfy workers' needs, through compensation or other means, workers reciprocate with commitment to the organization (Mowday et al., 1982). Thus pay satisfaction may influence organization members' felt obligation to reciprocate, probably through its influence on perceived organizational support.

Two meta-analyses (Cohen and Gattiker, 1994; Mathieu and Zajac, 1990) have shown that pay satisfaction is related to organizational commitment. Cohen and Gattiker (1994) found that organizational commitment's relationship with pay satisfaction was stronger than its relationship with income. The studies on which these meta-analyses were based, however, generally did not separate pay system satisfaction effects. In one study (Huber et al., 1992), commitment was related to pay level satisfaction and satisfaction with raises but not to satisfaction with structure and administration. However, all measures were taken at the same time, and it is not clear to what extent common method variance could have accounted for the results for pay level satisfaction. Further, it is not clear to what extent the measure of satisfaction with either structure and administration or with raises captures our concept of pay system

satisfaction. Given justice literature findings regarding global evaluations of institutions, we expect that individuals who believe that the pay system operates well will feel that the employer is supportive of them, and they will in turn feel more committed to the employer. Therefore:

> *Hypothesis 2:* Pay system satisfaction—to a greater extent than pay or pay level satisfaction—will be positively related to later commitment to the employer through its effects on perceived organizational support.

Affective commitment to the employer has been shown to predict organizational citizenship behavior (see, for example, Eisenberger et al., 1997; Shore and Wayne, 1993). Organizational citizenship is helpful behavior that is not formally acknowledged by the reward system (Smith et al., 1983), such as training other workers or offering suggestions to improve efficiency. Organizational citizenship is an overt behavior that could repay felt obligations (Shore and Wayne, 1993). Thus pay satisfaction ultimately could influence organizational citizenship. Similarly, distributive justice theory suggests that pay dissatisfaction can depress organizational citizenship because individuals who feel underrewarded can restore equity by lowering inputs. Since reducing citizenship may not also reduce formal outcomes (by definition, citizenship is not formally rewarded in the organization's pay system), this may be a preferred option to restore equity.

Cross-sectional studies have shown that citizenship is related to pay satisfaction (see, for example, Lee, 1995; Scholl et al., 1987) and pay inequity (Aquino, 1995), but again, it is not clear whether common method variance could account for these findings. Further, because employees have many options for restoring equity, or because they may believe that supervisors (and pay) are informally influenced by their citizenship, this relationship may not be strong. The relationship of citizenship to pay system satisfaction is unexplored. Based on earlier reasoning and demonstrated empirical linkages among the consequence variables, we predict that individuals who are satisfied with pay system operation will feel more supported, leading to higher commitment and reciprocation through better citizenship.

> *Hypothesis 3:* Pay system satisfaction—to a greater extent than pay or pay level satisfaction—will be positively related to later organizational citizenship behavior through its effects on perceived organizational support and commitment to the employer.

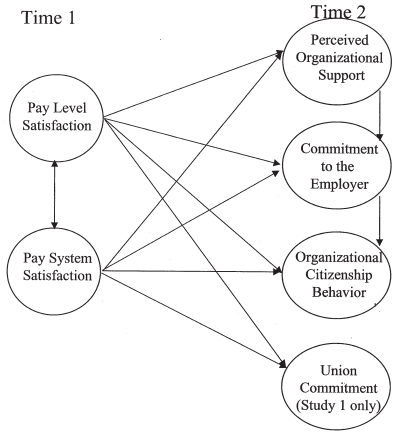
Collectively bargained pay systems may influence members' evaluation of the union as well as the employer because the union bears partial responsibility for pay rates and how the system is operated. However, predicting whether satisfaction with pay levels or systems will increase commitment to the union is not straightforward. From a distributive justice perspective, a positive relationship could be predicted, because bargaining unit members may withdraw psychologically from the union when pay level satisfaction is low. Similarly, from a social exchange perspective, members may feel less committed to the union when they perceive that the union has done little for them. This reasoning, which parallels that regarding feelings toward the employer, would suggest that dual commitment—strong relationships between levels of commitment to both the employer and the union—would be universal. However, in some recent studies on dual commitment, commitment to the employer and commitment to the union were independent (see, for example, Deery et al., 1994; McElroy et al., 1997). Instead, it may be that because pay ultimately comes from the employer, as bargaining unit members become *less* satisfied with their pay, they may become *more* committed to the union. The union may be perceived as a means to remedy the dissatisfying situation, or dissatisfied union members may develop more commitment to the union as they grow more alienated from the company. Thus it is more likely that the relationship between pay level satisfaction and union commitment would be negative. Unfortunately, only one known study (Barling et al., 1990) has examined the relationship between pay satisfaction and union commitment; none was found.

In the case of pay system satisfaction, the union also plays a role in determining the operation and processes of the pay system, for example, through the initial design and through representing members with grievances. This suggests that the greater the satisfaction with the pay system, the greater is the satisfaction with the union. However, for the same reasons as with pay level satisfaction, a negative relationship may be more likely. Dissatisfaction with the pay system may drive bargaining unit members toward the union. For the purpose of investigation, we predict that

> *Hypothesis 4:* Pay level satisfaction and pay system satisfaction will be negatively associated with commitment to the union.

Our model, which we tested using structural equation modeling, is summarized in Figure 1. Beginning with the proposed consequences variables, which are measured at time 2, we propose paths consistent with

FIGURE 1



Hypothesized model of the consequences of pay system and pay level satisfaction, excluding control variables.

research cited previously showing that perceived organizational support will affect commitment to the employer, which will in turn affect organizational citizenship behavior. We do not have reason to propose that commitment to the union will be related to any of these variables in the present setting.

Turning to the proposed predictors, which are measured at time 1, we noted earlier that studies consistently show pay satisfaction dimensions to be interrelated but distinct. Therefore, we allow in our model that our construct of pay system satisfaction, not measured in prior studies, will be related to pay level satisfaction. Since we measured the predictors (pay level satisfaction and pay system satisfaction) at time 2 also, we also can measure the extent to which their time 2 measures are related to the time 2 measures for the consequences variables. Given the aforementioned criticism of prior cross-sectional studies, we expect that the concomitant relationships (correlation of time 2 predictors, time 2 consequences) will be somewhat higher than those in the time 1, time 2 analyses. To avoid complicating the model, we do not include these relationships in the model but report them separately.

To test the hypotheses, we draw paths from each pay satisfaction predictor, measured at time 1, to perceived organizational support and to commitment to the union. However, we also draw paths for relationships between each of the pay satisfaction variables and commitment to the employer and citizenship variables to examine any direct effects. For simplicity of presentation, control variables are not shown in Figure 1, but the paths included in the models are described later.

Measures and Methods

Design and sample. Employees of a midwestern U.S. component of a large organization in the communications industry were asked to participate. They were members of two bargaining units represented by two locals of a large international union in an agency shop arrangement; one represented primarily manufacturing workers, and the other represented primarily clerical and technical office workers. The compensation systems of the two bargaining units were similar in that (1) both had a small number of pay tiers or classes, (2) increases within a tier or class were based on seniority, (3) movement between tiers or classes was based on multiple factors, including merit, training, and seniority, and (4) they proscribed the systematic measurement of performance, and thus no performance measures were available. Two important differences were that each system had a different number of pay tiers or classes, and rates of pay obviously differed, since the jobs differed. No transfer across local unions was permitted.

Two surveys were developed, following an extensive literature review, meetings with leaders of the unions and the company, pilot testing, revision, and final survey approval by union and management officials (details are available from the authors). The unions sent the first survey to the homes of 3734 members of the bargaining units, with a cover letter—on the researchers' university stationery—requesting that workers complete the surveys and sign their names. Workers were promised confidentiality but not anonymity; the multiple-source data collection required our linking surveys together at the individual level, which required that participants identify themselves. More than 95 percent of the 506 returned surveys were signed, indicating permission to collect additional data. The local unions did not track how many surveys were undeliverable; thus the response rate of 13.6 percent probably was underestimated. However, response rates in this range are not unusual in unionized settings (Barber, 1998; Shore et al., 1994); for example, one study reported a 17 percent response rate (Fullager, 1986). Requiring participants to identify themselves and to fill out a second questionnaire almost certainly depressed the rate substantially, but it was impossible to avoid this if longitudinal data were to be collected.

The company was experiencing some difficult environmental changes at the time of the study. Financial conditions were causing the company to close down some plants in other states, and employees were concerned about competition from low-paid foreign workers. In the pilot sessions, senior employees in some cases expressed concern over the perceived

decline in how well the company and union took care of workers, financially and otherwise. Such conditions may have affected participation rates and may have influenced findings to some extent, as noted later, for example, in that longer tenure, which is usually associated with better feelings toward the company, had a negative effect here.

The company provided demographic data for all bargaining unit employees. One-sample *t* tests and chi-square analyses revealed that differences existed between the characteristics of the sample for survey 1. Compared with the population, survey 1 participants were somewhat more likely to be male (61.6 versus 48.2 percent, $\chi^2 = 35.6$, $p < 0.001$), white (92.6 versus 81.0 percent, $\chi^2 = 45.7$, $p < 0.001$), more experienced (mean = 23.3 years with the company, S.D. = 8.35, versus 18.7 years, no S.D. reported, $t = 12.3$, $p < 0.001$), and older (mean = 48.0 years of age, S.D. = 6.42, versus 45.6 years, no S.D. reported, $t = 8.27$, $p < 0.001$). They were less likely to be a member of the unit represented by the manufacturing plant local (78.3 versus 82.4 percent, $\chi^2 = 5.92$, $p < 0.02$). Thus we included controls for all these variables, as described later. However, these variables were weakly related to the hypothesized variables.

Approximately 4 months later (this interval accommodated the preference of the company and union leaders), copies of the second survey were mailed to the respondents of the first survey. More than half of them completed survey 2 (277 of 506, for a 54.7 percent response rate). We compared responses to items appearing on survey 1 for the group completing both surveys with those for the group completing only the first survey; significant differences existed for only 4 of the 23 variables in the analyses (details available from the authors), suggesting that the second group was representative.

Measures. All measures are self-reported; to avoid repetition, we omit the term *perceived* where it might otherwise be appropriate. As recommended (Medsker et al., 1994), we used the two-step process (Anderson and Gerbing, 1988) of evaluating the measurement model prior to evaluation of the structural portion of the model. Measures of the pay satisfaction variables and consequences variables were multi-item scales that could be so evaluated; the control measures were single items. To test hypotheses, as recommended (Gavin and Williams, 1994), we did not use each scale item as a separate indicator of an unobserved latent variable but instead entered the scale and its reliability data. Using this approach, the hypothesized model with 21 path estimates was tested with a sample that ranged from 250 to 499. This resulted in a sample-size-to-parameter ratio of 11.9 and is larger than the minimum recommended ratio of 5

(Bentler, 1985). This recommended minimum ratio would not have been met using the multiple-indicator approach.

Pay satisfaction measures were taken at time 1 (i.e., survey 1). Pay level satisfaction was the four-item measure taken from the Pay Satisfaction Questionnaire (PSQ) (Heneman and Schwab, 1985) ($\alpha = 0.96$) that asks respondents to indicate on a five-point Likert-type scale (1 = very dissatisfied to 5 = very satisfied) how satisfied they are with various pay features. We knew of no existing measure of pay system satisfaction; the PSQ includes structure/administration and raise items, but the conceptualization differs from ours in some ways (Mulvey, 1991). Therefore, we wrote five items specifically to measure pay system satisfaction ($\alpha = 0.83$). These items were derived from our literature review and inputs from focus groups and representatives from the unions and management, and we used the same response format as in the PSQ. They were "the way people move up in the level or tier system," "how jobs are assigned to tiers or levels," "how I can increase my pay by changing jobs," "the way promotions are decided," and "the number of pay levels or tiers." We then performed a series of confirmatory factor analyses using LISREL 8.14 (Jöreskog and Sorbom, 1993) (details are available from the authors). Items used in these two subscales were entered into a four-factor solution, along with items used to measure benefit level satisfaction and benefit system satisfaction, which were not included in the hypotheses tested but were part of the 2×2 conceptualization of compensation satisfaction (Mulvey, 1991). Results showed that the model fit the data well [$\chi^2 = 402.85$, goodness of fit index = 0.91, root mean square residual (Jöreskog and Sorbom, 1984) = 0.049, adjusted goodness of fit index = 0.89, parsimony goodness of fit index = 0.69]. The items loaded on the proposed factors and the factors were related but empirically distinct. The four-factor solution was superior to a one-factor solution, a two-factor solution (pay satisfaction versus benefit satisfaction), and two three-factor solutions (pay level satisfaction, pay system satisfaction, and benefit satisfaction and pay satisfaction, benefit level satisfaction, and benefit system satisfaction).

We used the following measures of the potential consequences of pay satisfaction. Unless otherwise indicated, all consequences measures were comprised of items with Likert-type response scales, ranging from 1 = strongly disagree to 5 = strongly agree. Perceived organizational support ($\alpha = 0.93$) was a 16-item measure developed previously (Eisenberger et al., 1986, 1990) and including items such as "the organization really cares about my well-being" and "help is available from the organization when I have a problem." Commitment to the employer ($\alpha = 0.92$) was the 9-item

version of the Organizational Commitment Questionnaire (Mowday et al., 1982) using the original 7-point (1 = strongly disagree to 7 = strongly agree) response format; this scale included items such as "for me this is the best of all possible organizations for which to work" and "I find that my values and this organization's values are very similar." For organizational citizenship behavior ($\alpha = 0.78$), respondents completed the 16-item measure developed previously (Smith et al., 1983) and including such items as "I help others who have been absent" and "I volunteer for things that are not required." Commitment to the union ($\alpha = 0.95$) was the mean score on a 28-item measure (Tetrick et al., 1989) including "my loyalty is to my work, not to the union" (reverse scored) and "the union's problems are my problems."

We reduced threats to internal validity by controlling for the effects of variables shown in previous research to be related to attitudes toward pay level (see, for example, Heneman, 1985; Heneman et al., 1988; Lee and Martin, 1996). Hourly pay was measured as respondents' current hourly wages or monthly salaries converted to hourly wages. Minority was coded 1 = majority (non-Hispanic white) or 2 = minority (African American, Hispanic, or any other race or ethnic group). Female was coded 1 = male or 2 = female. Tenure was measured as the number of years with the organization since the date of hire. Age was indicated in years. Education was an interval number ranging from (1 = less than high school diploma to 7 = graduate or professional degree). Manufacturing indicated which local represented the respondent, which pay system was involved, and the location and general nature of the jobs [1 = office (clerical and technical) and 2 = manufacturing plant].

Results and Discussion

Means, standard deviations, and zero-order Pearson correlations are reported in Table 1. The correlation between commitment to the employer and commitment to the union was not significant. This finding suggested that dual commitment was not in evidence here; these two forms of commitment were independent in this setting as in some others (see, for example, Deery et al., 1994; McElroy et al., 1997).

Figure 2 presents the unstandardized structural estimates of the hypothesized model. Because more complex models that include weakly related variables are difficult to analyze using structural equation modeling (Bentler and Chou, 1987), we did not include all the control variables for which we had data in the structural model. Instead, we drew an initial path only where the zero-order relationship between a control variable and a

TABLE 1

MEANS, STANDARD DEVIATIONS, CORRELATIONS[a]—STUDY 1

	Mean/ Percent[b]	SD[b]	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Hourly pay	12.98	2.77													
2 Minority	7.4%		–0.09												
3 Female	38.4%		–0.34***	0.14**											
4 Tenure	23.34	8.35	0.58***	–0.02	–0.25***										
5 Age	47.98	6.42	0.32***	0.02	0.00	0.43***									
6 Education	1.38	0.49	–0.16**	0.12**	–0.11*	–0.09*	–0.10*								
7 Manufacturing	78.3%		0.12*	0.02	–0.17***	0.12**	0.19***	–0.15**							
8 Pay level satisfaction	2.42	1.01	0.34***	–0.05	0.12**	0.02	0.04	0.06	–0.22***	(0.96)					
9 Pay system satisfaction	2.32	0.73	0.09*	–0.06	–0.03	–0.04	0.02	–0.08	0.08	0.49***	(0.83)				
10 Perceived organizational support	3.30	1.18	–0.11	0.07	0.09	–0.12	0.01	–0.14*	–0.10	0.27***	0.37***	(0.92)			
11 Commitment to the employer	4.96	1.28	–0.16*	0.08	0.16**	–0.25***	–0.05	–0.15*	–0.07	0.19**	0.31***	0.65***	(0.92)		
12 Organizational citizenship behavior	3.74	0.53	–0.13*	0.00	0.20**	–0.13*	–0.01	0.00	–0.25***	–0.02	–0.10	0.25***	0.37***	(0.77)	
13 Union commitment	3.21	0.71	–0.07	–0.01	–0.14*	0.09	0.03	0.01	0.16**	–0.27***	0.03	–.13*	–0.10	–0.12	(0.94)

[a]Reliability estimates are in parentheses. Pairwise *ns* range from 442 to 499 for the time 1 variables (1–4); from 250 to 273 for the time 2 variables (5–8).

[b]Means and standard deviations are reported in the case of interval data; percentages are reported for dichotomous variables. Minority (1 = majority—non-Hispanic white; 2 = minority—nonwhite or Hispanic); female (1 = male; 2 = female); manufacturing (1 = office—clerical and technical; 2 = manufacturing plant).

*$p < 0.05$.

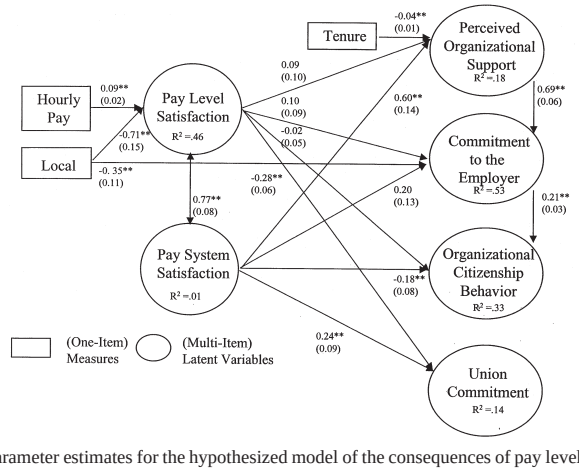
**$p < 0.01$.

***$p < 0.001$.

only where the zero-order relationship between a control variable and a pay satisfaction or consequences variable was significant. For ease of presentation, the following paths were included in the model, but they do not appear in Figure 2 because the LISREL coefficients were not significant at $p < 0.05$. They were: hourly pay to pay system satisfaction, commitment to the employer, and organizational citizenship behavior; manufacturing to pay system satisfaction and union commitment; education to perceived organizational support and commitment to the employer; and female to commitment to the employer, organizational citizenship behavior, and union commitment.

Fit statistics revealed that the fit was reasonably good. The chi-square was 55.71 (d.f. = 20, $p < 0.001$); however, we do not rely on the chi-square statistic because many researchers have criticized it as inadequate for assessing fit, leading to the development of other goodness of fit measures (Mulaik et al., 1989). The goodness of fit index (Jöreskog and Sorbom, 1993) was 0.96, the adjusted goodness of fit index was 0.87, the normed fit index (Bentler and Bonett, 1980) was 0.91, the comparative fit index was 0.94, and the relative fit index was 0.75. Ideally, the indices should approach unity (Mulaik et al., 1989); most of the fit indices were above 0.90, suggesting that the data fit the proposed model very well (Medsker et al., 1994). The standardized root mean square residual was 0.058, slightly above the desired level of 0.05 or below (Medsker et al., 1994). Modification indices did not suggest that further refinement would improve fit.

FIGURE 2



Maximum-likelihood parameter estimates for the hypothesized model of the consequences of pay level and pay system satisfaction for Study 1. Statistics are unstandardized path coefficients with standard errors in parentheses. Nonsignificant paths involving control variables are omitted.

*$p < 0.05$, one-tailed. **$p < 0.01$, one-tailed. R^2 = coefficient of determination for each endogenous link.

Hypothesis 1 predicted that pay system satisfaction, to a greater extent than pay or pay level satisfaction, would be positively related to later perceived organizational support. As shown in Figure 2, this hypothesis was supported. Hourly pay was unrelated to perceived organizational support. The path from pay system satisfaction to perceived organizational support was significant, but the path from pay level satisfaction was not. Unfortunately, we know of no test for significant differences between path coefficients in LISREL, analogous to the test for regression *betas* (Cohen and Cohen, 1983); therefore, we can merely describe their relative magnitude; the system relationship was substantially greater than the level relationship. Also, workers with longer tenure reported less perceived organizational support in this organization, which was consistent with some comments made in the pilot sessions.

Hypothesis 2 predicted that pay system satisfaction—to a greater extent than pay or pay level satisfaction—would be positively related to later commitment to the employer through its effects on perceived organizational support. This hypothesis was supported. Path coefficients involving hourly pay were not significant. Neither the direct nor indirect effects of pay level satisfaction were significant. The path coefficient from perceived organizational support and commitment to the employer was significant. The linkage between pay system satisfaction and commitment to the employer was indirect, through the significant relationship between pay system satisfaction and perceived organizational support; the direct effect was not significant. Also, workers represented by the manufacturing local were less committed to the employer.

Hypothesis 3 predicted that pay system satisfaction—to a greater extent than pay or pay level satisfaction—would be positively related to later organizational citizenship behavior through its effects on perceived organizational support and commitment to the employer. The hypothesis was largely supported, with one unexpected finding. As predicted, hourly pay and pay level satisfaction were unrelated to organizational citizenship, directly or indirectly, while the indirect effect for pay system satisfaction continued—the path coefficient from commitment to the employer to organizational citizenship behavior was significant, though this indirect effect was not strong. However, a significant direct negative path also was observed. Aside from pay system satisfaction's positive influence through perceived organizational support, there was a significant direct negative influence on organizational citizenship behavior. Thus workers highly satisfied with the pay system are likely to feel more supported, leading to some tendency to repay the employer

with greater commitment and citizenship, but to the extent that they do not feel more support, they may engage in less citizenship.

Taken together, these results for the first three hypotheses suggest that employers interested in commitment and citizenship should not ignore the multidimensional nature of pay satisfaction. In particular, after the effects of other variables were taken into account, pay system satisfaction contributed strongly to relationships with the employer, and pay level satisfaction—and pay—contributed little. Because of the design of the study, these findings cannot be attributed to same-source bias. Thus employers wishing to engender feelings of support, to encourage commitment, and to stimulate citizenship behavior should attend to systems' operation and workers' perceptions of them. Since providing generous pay is obviously costly, future research could explore whether it is more cost-effective to devote resources to improving systems and perceptions of them. These findings also suggest that operations of pay systems may be viewed more as a social (noneconomic) exchange than is the distribution of pay itself. Future research could identify theoretical linkages to other pay satisfaction consequences and test them, preferably with measures that are independent of the worker.

In Hypothesis 4, we proposed that pay level satisfaction and pay system satisfaction would be negatively associated with commitment to the union. As shown in Figure 1, this hypothesis was supported for pay level satisfaction, which was significantly and negatively related to commitment to the union. However, the relationship between pay system satisfaction and commitment to the union was significant and *positive*. Our findings suggest that unions may gain commitment by making pay systems work appropriately, but they may lose commitment as satisfaction with pay level increases. Union leaders should be particularly interested in this finding because union commitment has been shown to be an antecedent of actual union participation (Kelloway and Barling, 1993) and membership decline (Mellor, 1990). Bargaining unit members may perceive that the union has greater ability to influence the day-to-day operations of the contract, for example, through the grievance procedure, but that pay levels ultimately depended on the financial ability of the company in this particular setting. Or members may see less of a need for a union as pay levels increase. A third possibility is that as members are promoted and their pay levels and pay level satisfaction rise, they may attribute their good fortune to their own effort and performance rather than to the union's success. This may be a fair evaluation, or it may reflect bias to some extent. The findings, taken together with those for commitment to the employer, also suggest that as pay system satisfaction

increases, dual commitment also will increase. More research is needed to explore these propositions.

From a methodologic perspective, these findings are particularly meaningful because they are not subject to the cross-sectional problems plaguing most other studies of pay satisfaction. Respondents could not distort their pay satisfaction responses based on the consequence items, since the consequence measures were taken several months later. However, we cannot rule out the possibility that some unobserved heterogeneity (e.g., exogenous pro-union sentiments or desire to appear pro-company) may account for the effects. Future research could examine this possibility. Further, autocorrelated errors may occur. For example, there is evidence that some affective variables, such as job satisfaction, are at least partly dispositional or genetically determined (Arvey et al., 1989). In other words, one employee may have a response set that may predispose him or her to be very satisfied and committed, whereas another in the same situation will be very dissatisfied and uncommitted. Such effects should not be attributed to pay system influences. Of course, if this effect were powerful, both pay level satisfaction and pay system satisfaction would have had similarly strong relationships with other affective variables, and they did not in the present study.

To test whether the concomitant relationships were stronger than those in the longitudinal analyses, we used the test suggested by Steiger (1980). Specifically, we tested whether the hypothesized relationships between the two pay satisfaction variables measured at time 2 and the four consequences variables measured at time 2 (e.g., pay level satisfaction and perceived organizational support) were significantly stronger than the relationships between the two pay satisfaction variables measured at time 1 and the same consequences variables (i.e., as measured at time 2). Only in one of the eight cases were the concomitant relationships significantly greater at $p \geq 0.05$ than the longitudinal relationships. That relationship was between pay level satisfaction and organizational commitment. This suggests to us that one type of common method variance was not likely to be a major problem; i.e., the relationship between measures taken at the same time probably were not inflated.

However, one potential limitation of Study 1 was the low response rate. A second limitation was the limited variability across the two pay systems. Some findings may not have reflected effects of varying pay system features but primarily personal differences in how individuals perceive pay systems. Further, generalizability can be determined only through additional empirical testing. Therefore, we sought and found another research site.

Study 2

The purposes of Study 2 were to replicate the results of Study 1 in a sample in which a higher response rate was possible and to explore the generalizability of the results beyond the setting in Study 1 in a more diverse sample drawn from a more diverse population. We obtained an agreement with a national market research firm and Sibson and Company, a management consulting firm, to add some of the items used in Study 1 to the marketing research firm's panel survey. We tested the same hypotheses as in Study 1, except that Hypothesis 4—concerning union commitment—was not tested in Study 2, since few panel members were union members.

Measures and Methods

Design and sample. Full-time employees who were members of a national market research firm's panel were asked to participate. The panel consisted of 500,000 U.S. citizens who agreed to participate in marketing research surveys. The marketing research firm developed the first survey, which collected demographic and other information about the respondents. The second survey, which was sent several months later to the same respondents, contained the pay satisfaction and consequences measures, along with additional items of interest to both the marketing research and management consulting firms.

Both surveys were mailed to the homes of 2250 members of the panel, with a cover letter requesting that recipients complete the surveys. These panel members were full-time employees and were randomly selected, stratified by three broad job classification categories that included leaders, knowledge workers, and core workers. Leaders included any employee with supervisory responsibilities. Knowledge workers included any employee with a technical, administrative, or professional specialty. Core workers included employees that are either skilled or entry level such as a laborer, machine operator, or driver but who did not hold supervisory positions. The marketing research firm staff telephoned potential respondents to notify them that they would receive printed surveys within the next few days and to ask them to complete and return the surveys.

Survey 1 was completed prior to our involvement, and we were unable to determine the response rate for that survey; the following information pertains to survey 2. Surveys were returned to the marketing research firm over a 1-month period. No additional surveys that were returned after this 1-month period were included in the sample. The marketing research firm

indicated that 10 surveys were undeliverable. There were 1497 respondents, for a response rate of 66.8 percent. Of these, 111 surveys were unusable; 30 were returned blank, and 81 were partially completed.

The marketing research firm keyed and "cleaned" the data and then provided a copy of the database to the researchers. Males comprised 46.8 percent of the respondents; 94.3 percent were white. Respondents had a mean age of 42.9 years, ranging from 20 to 96 years. The highest education levels of the respondents were attended grade school (0.3 percent), attended high school (1.8 percent), high school graduate (17.5 percent), attended college (25.9 percent), associate degree (10.5 percent), college graduate (26.8 percent), postgraduate degree (16.5 percent), and no answer (0.6 percent). Unfortunately, the population data were organized by household, which we could not use to compare with these individual data.

Measures. All measures are self-reported; to avoid repetition, we omit the term *perceived* where it might otherwise be appropriate. The following measures were exactly the same as in Study 1, and the reliability coefficients were very similar: pay level satisfaction ($\alpha = 0.96$), perceived organizational support ($\alpha = 0.93$), commitment to the employer ($\alpha = 0.92$), and organizational citizenship behavior ($\alpha = 0.85$). Other measures differed slightly to accommodate respondents' diversity (e.g., many were not union members, and they were covered by many different pay systems). The measure of pay system satisfaction was adapted slightly from that in Study 1 (e.g., the words *pay grade* were substituted for *pay tiers*) ($\alpha = 0.85$). Because the first survey had already been administered by the market research firm, the control measures were not always the same as in Study 1. Minority, female, and age were exactly the same. Education was an interval number ranging from 1 = attended grade school to 7 = postgraduate degree. Other control measures were included on the survey we devised, but response choices had to conform to the closed-ended format and be appropriately worded to apply to any respondent. These included yearly pay, tenure, and union member. Yearly pay was a substitute for hourly pay, since all respondents were not necessarily paid by the hour or month; it was an interval number ranging from 1 = less than $7500 to 24 = more than $175,000. Tenure was an interval number ranging from 1 = 0 to 2 years to 7 = 13 or more years. Union member was coded 1 = no ($n = 1188$), 2 = don't know ($n = 3$), or 3 = yes ($n = 182$).

Results and Discussion

Means, standard deviations, and zero-order Pearson correlations are reported in Table 2. Unlike Study 1, the sample was large enough to permit a random split into two subsamples, to enable cross validation, as recommended (Cohen and Cohen, 1983). Figures 3 and 4 present the structural estimates of the hypothesized model for each subsample. As in Study 1, we included control variables in the structural analysis only if the zero-order relationship with at least one pay satisfaction or consequence variable was significant. These were (in both subsamples) yearly pay to pay level satisfaction and pay system satisfaction, education to pay system satisfaction, union member to perceived organizational support, female to commitment to the employer and organizational citizenship behavior, and age to organizational citizenship behavior.

The fit indices were above 0.90, suggesting that the data fit the proposed model extremely well (Medsker et al., 1994). Respectively, the goodness of fit indices were 0.98 for both subsamples, the adjusted goodness of fit indices were 0.96 and 0.95, and the normed fit indices (Bentler and Bonett, 1980) were 0.96 and 0.97. The comparative fit indices were 0.98 and the relative fit indices were 0.93 for both samples. The standardized root mean square residuals were 0.03 for both subsamples, below the desired level of 0.05 or below (Medsker et al., 1994). Modification indices did not suggest that further refinement would improve fit.

The results of the LISREL analyses for the two split half samples were nearly identical. All the paths with significant coefficients for the first subsample (see Figure 3) also were significant for the second (see Figure 4), and the magnitudes were very similar. A few control variables played minor roles in both subsamples. Union members felt less perceived support from their employers, a finding that may be of interest to both unions and employers. However, we cannot say whether perceived organizational support lowers union membership or the reverse because we do not have time 1 measures for perceived organizational support. Women were more likely to say they engaged in citizenship behavior; this did not occur in Study 1, so the findings may be artifactual. Older workers reported more citizenship, but the shared variance was minuscule.

The findings regarding the hypotheses for both subsamples were quite similar to those in Study 1, suggesting more support for the hypothesized model in Figure 1. Pay level satisfaction was influenced by yearly pay, consistent with prior research, and pay system satisfaction, but it was unrelated to any "institutional" reactions to the employer. Pay system satisfaction at time 1 was highly related to perceived organizational support at time 2, which in turn influenced time 2 commitment to the employer

TABLE 2

MEANS, STANDARD DEVIATIONS, CORRELATIONS[a]—STUDY 2

	Mean[b]	SD[b]	1	2	3	4	5	6	7	8	9	10	11	12
1 Yearly pay	11.59	5.35												
2 Minority	6.3%		–0.06*											
3 Female	46.9%		–0.29***	0.05										
4 Tenure	4.12	2.36	0.29***	–0.05	–0.05									
5 Age	42.92	10.73	0.09***	–0.07*	–0.03	0.34***								
6 Education	4.92	1.45	0.44***	–0.01	–0.09***	0.01	0.00							
7 Union member	1.27	0.68	0.12***	0.00	–0.06*	0.27***	0.08**	0.10***						
8 Pay level satisfaction	3.21	1.13	0.28***	–0.05	–0.04	0.02	0.00	0.08**	–0.01	(0.96)				
9 Pay system satisfaction	3.00	0.77	0.13***	–0.05	–0.04	–0.07	–0.06*	0.08**	0.00	0.64***	(0.85)			
10 Perceived organizational support	3.51	0.90	–0.11***	0.07*	0.04	–0.05	0.00	0.01	–0.11***	0.47***	0.58***	(0.93)		
11 Commitment to the employer	3.80	0.84	0.08**	0.07*	–0.07**	0.00	0.06*	0.02	–0.05	0.43***	0.54***	0.81***	(0.92)	
12 Organizational citizenship behavior	4.28	0.50	–0.01	–0.00	0.12***	0.05	0.13***	–0.01	0.03	0.08***	0.12***	0.23***	0.27***	(0.85)

[a]Reliability estimates are in parentheses. Pairwise *ns* range from 1160 to 1386.

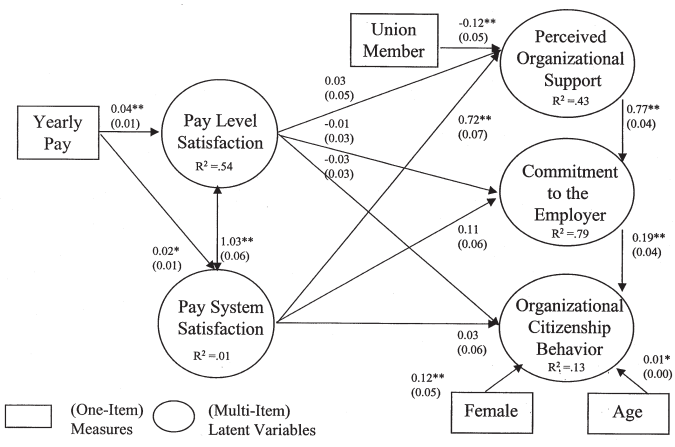
[b]Means and standard deviations are reported in the case of interval data; percentages are reported for dichotomous variables. Minority (1 = majority—non-Hispanic white; 2 = minority—nonwhite or Hispanic); female (1 = male; 2 = female).

*$p < 0.05$.

**$p < 0.01$.

***$p < 0.001$.

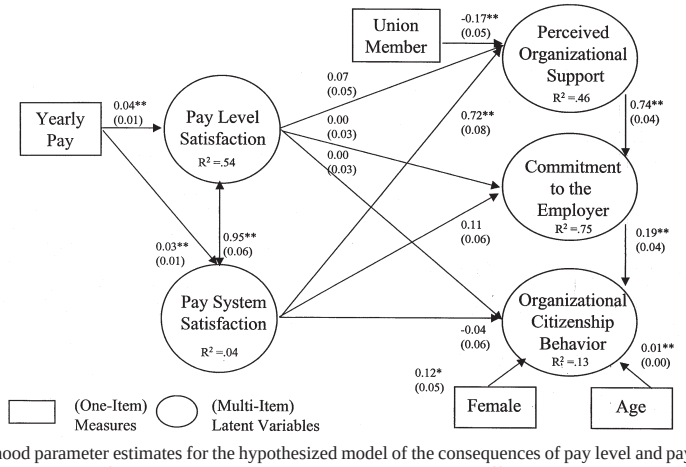
FIGURE 3



Maximum-likelihood parameter estimates for the hypothesized model of the consequences of pay level and pay system satisfaction for Study 2, split-half sample 1. Statistics are understandardized path coefficients with standard errors in parentheses. Nonsignificant paths invovling control variables are omitted. *$p < 0.05$, one-tailed. **$p < 0.01$, one-tailed. R^2 = coefficient of determination for each endogenous link.

and organizational citizenship behavior. The only difference was that in Study 2 the coefficient of the direct path from pay system satisfaction to organizational citizenship behavior was not negative and significant. This suggests that the unexpected direct negative relationship in Study 1 may have been artifactual, but more research is needed to clarify this.

FIGURE 4



Maximum-likelihood parameter estimates for the hypothesized model of the consequences of pay level and pay system satisfaction for Study 2, split-half sample 2. Statistics are understandardized path coefficients with standard errors in parentheses. Nonsignificant paths involving control variables are omitted. *$p < 0.05$, one-tailed. **$p < 0.01$, one-tailed. R^2 = coefficient of determination for each endogenous link.

As noted earlier, several previous studies have found linkages between pay level satisfaction and two of the consequences variables examined here; in both Study 1 and Study 2, similar zero-order relationships were observed. However, the structural equation analyses suggest that its shared variance with pay system satisfaction (unmeasured in prior studies) may have accounted for those previous findings, perhaps along with some common-method bias. To confirm this possibility, researchers should include system variables and wherever possible use longitudinal designs in future studies. If confirmed, these findings would suggest that relatively more emphasis should be placed on pay system operation.

The results of Study 2 provide reassurance that the methodologic limitations of Study 1 were not fatal. Specifically, they suggest that the low response rate of Study 1 did not substantially alter findings. There is evidence of generalizability to populations outside bargaining units and in a broad variety of occupations and evidence that the findings reflect reactions to varying pay features (in many different systems) rather than idiosyncratic personal evaluations of a restricted range of features. Further extension, particularly to other consequences variables, would be useful. And now that there is some evidence that pay system satisfaction matters, employers and unions may want to investigate what can be done to enhance it.

Conclusion

The results of these two studies advance the literature in three ways. First, they show that the pattern of the relationships between pay satisfaction components and consequences differs by component. Pay level satisfaction lowered union commitment, but pay system satisfaction enhanced it. Satisfaction with the pay system was strongly related to perceived organizational support, which—as in prior research—influenced commitment to the employer. Second, the studies provided evidence that these effects could not be accounted for by percept-percept biases and that some findings can be generalized beyond union settings. Thus these studies improve on a shortcoming of the current body of literature—a nearly exclusive reliance on "one shot" questionnaires. Finally, the findings provided evidence that both justice theory and social exchange theory are important in understanding reactions to pay levels and systems. It is hoped that this research will stimulate greater interest in pay system operation.

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