An investigation into pay valence and performance in a pay-for-performance field setting

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An investigation into pay valence and performance in a pay-for-performance field setting

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Summary
Inconsistent findings have been reported in the few studies investigating the relationship between the perceived value of pay and incentive performance. One hundred and seventy-eight female incentive employees with a nine-week, non-judgmental performance measure responded to a developed valence of pay scale. This measure used items assessing the perceived ability of pay to address employee needs. Three factor-scales were found within these items. Support for the hypothesized positive relationship between pay valence and incentive performance was found, dependent on which of the three scales was used. These findings provide initial insight into the means by which pay, with its ability to address different needs, might provide differential employee motivation and performance levels. This study and future research issues are discussed.

Introduction
Some research investigating the effects of incentive pay systems has attributed both individual and organizational performance improvement to program implementation (e.g. Locke, Feren, McCaleb, Shaw and Denny, 1980; Viteles, 1953). Others, using case studies, have warned that individual response to an incentive system can lead to reduced or limited productivity (e.g. Taylor, 1919; Whyte, 1955). Incentive systems, it appears from these reports, can improve overall workplace performance but this outcome depends on the nature of both the incentive system and the individual employee.

Pay as motivator
Vroom (1964), building on the secondary reinforcement concepts of Hull (1952) and work by Skinner (1953) on generalized reinforcers, discussed the ability of pay, inherently without value, to achieve perceived value. Vroom reasoned that pay took on 'valence' as a function of its capacity to link individuals with personally desired outcomes. Consequently, since

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individuals have different desired outcomes from work and pay, we could expect individuals to have different levels of pay valence. If we accept Vroom's theory, incentive-pay should lead employees with higher pay valence to higher productivity while those with lower pay valence should have correspondingly lower performance.

Just as theory postulates, it seems to be 'common sense' that an individual's performance would be related to the valence attached to performance outcomes such as incentive pay. Limited research, however, has not reached a consensus on this topic (Baron and Greenberg, 1990; Campbell and Pritchard, 1976). Specifically, the question remains after almost a century of interest in pay-for-performance systems: are incentive employees who attach a higher value to pay more productive than those who attach a lower value to pay?

**Previous research**

Research on the relationship between individual performance and employee pay valence is limited and inconclusive. Schwab and Dyer (1973), using piecework production employees, reported a correlation of 0.17 between the performance and pay valence measures. Pay valence was determined by asking subjects to evaluate pairs of outcomes as to which was the most important in the ideal job. Analysis of the reported relationship, using the supplied information of a 0.17 correlation with a sample size of 124, indicates a p-value of 0.059. Therefore, the relationship is indicated though not fully supported.

Pritchard and De Leo (1973), using a 2 × 2 experimental design in a laboratory setting, examined performance as influenced by two (high and low) levels of both instrumentality and pay valence. Using this method, they found that, contrary to the hypothesis, the low pay valence setting, rather than the high valence setting, provided the highest performance.

Porter and Lawler (1968) tested the hypothesis: 'The more an individual sees his pay as a satisfier, the more effort he will put forth to perform his job effectively' (1968, p. 66). Using two merit-pay management samples, support was found for the link between pay-as-satisfier (measured with a three-item scale) and effort, but not with performance.

**The present study**

The present study sought to extend the findings of Porter and Lawler (1968) to performance, confirm the findings indicated by Schwab and Dyer (1973) and, more generally, to investigate the nature of pay valence and its relationship with job performance. In this study we used an incentive environment in which employees were not uncertain about performance levels and associated rewards (Konrad and Pfeffer, 1990). Thus, this study minimizes effects that might weaken the link between performance and incentive pay, such as the elapsed time between performance and reward or the use of a subjective measure of performance (Dachler and Mobley, 1973; Heneman, 1986).

Based on the Porter and Lawler (1968) and the Schwab and Dyer (1973) research, this study hypothesized a significant ($p < 0.05$) positive correlation between individually perceived value of pay and performance. Thus, we hypothesized that employees who place more value on pay will also have higher levels of performance in a performance-contingent pay environment.

**Methods**

**Sample**

Data were collected from both incentive and hourly production employees of a large apparel plant in the Southeastern United States. All incentive employees were female, and the plant
was not unionized. The average employee tenure at this facility was 7.9 years, with 70 per cent having tenure of three or more years. Questionnaires were collected from 178 incentive employees with complete performance data and from 265 employees who were either working hourly-rate jobs, or who had incomplete data.

**Measures**

**Pay valence**

We planned to measure pay valence by using a multiple-item scale, thereby increasing the potential for scale reliability and, correspondingly, construct validity (Cook and Campbell, 1979; Nunnally, 1978). A multiple-item scale reported as an average of the items should, also, have a continuous response distribution with increased response variability.

These requirements were found in a scale discussed by Lawler (1971). Lawler proposed a pay valence scale as the summary measure of the individual’s perception that pay can personally address the five needs proposed by Maslow (1954): physiological, security, social, esteem and self-actualization needs. The scale is based on the belief that pay is a generalized secondary reinforcer of task behaviour because of its capacity to address these needs. Further, the scale activates the notion that pay will be valent for the individual to the degree that these needs exist within that individual and to the degree that pay is perceived to be instrumental in reducing those needs (Campbell, Dunnette, Lawler and Weick, 1970; Lawler, 1973).

We created three 6-point Likert scaled items addressing the perceived capacity of pay to address each ‘Maslowian’ need (Table 1). Using a similar manufacturing facility, these items were pilot tested for ‘readability’ and internal consistency. The 15-item measure had a coefficient alpha of 0.82, with an average inter-item correlation of 0.226.

<table>
<thead>
<tr>
<th>Items included in the three factors comprising valence of pay</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Items included in the ‘pay/self-concept’ factor (coeff. alpha = 0.75)</strong></td>
</tr>
<tr>
<td>The more money I earn the better I feel about myself.</td>
</tr>
<tr>
<td>How I feel about myself is greatly influenced by how much I earned in the week.</td>
</tr>
<tr>
<td>When my earnings are low for the week I feel disappointed in myself.</td>
</tr>
<tr>
<td>I would be much more worried about the future if I wasn’t earning money now.</td>
</tr>
<tr>
<td>The pay I earn makes me feel more secure about things.</td>
</tr>
<tr>
<td>I worry less about life when I am earning money.</td>
</tr>
<tr>
<td><strong>Items included in the ‘pay/social’ factor (coeff. alpha = 0.71)</strong></td>
</tr>
<tr>
<td>I think people respect me more if I earn more than most other people.</td>
</tr>
<tr>
<td>I like earning more money because it helps gain some respect from others.</td>
</tr>
<tr>
<td>When I earn more my supervisor respects me more.</td>
</tr>
<tr>
<td>For some reason I seem to get along better with friends when I have earned more that week.</td>
</tr>
<tr>
<td>The more I earn the more fun I can have with my friends after work.</td>
</tr>
<tr>
<td><strong>Items included in the ‘pay/necessities’ factor (coeff. alpha = 0.69)</strong></td>
</tr>
<tr>
<td>Most of the money that I earn is spent on bills and necessities before I get it.</td>
</tr>
<tr>
<td>The pay I earn is absolutely essential for my household.</td>
</tr>
<tr>
<td>I could save most of my paycheck if I felt like it (Reverse scored)</td>
</tr>
<tr>
<td>Much of what I earn is spent on activities with friends.</td>
</tr>
</tbody>
</table>

After collecting the survey data in the fifth week of the nine week research timeframe, and keeping in mind Maslow’s *a priori* needs, we then performed a factor analysis of these 15 items using principal component analysis with varimax rotation. The initial analysis used
responses from those employees working nonincentive jobs and those with missing production information \((n = 265)\). The resulting factors were found to be stable when compared with those factors obtained using the hypothesis test employee sample \((n = 178)\).

Using either of these employee samples, factor analysis distinguished three, not five, underlying factors. Factor 1, termed 'pay instrumentality for self-concept' ('pay/self-concept'; alpha = 0.75), includes those items addressing pay's perceived instrumentality for security and self-actualization needs. This factor seems to represent the individual's feeling of pay providing overall 'well-being' for both the present and the future. Factor 2, termed 'pay instrumentality for social needs' ('pay/social'; alpha = 0.71), includes those items addressing pay's perceived instrumentality for esteem from others and social needs. Factor 2, termed 'pay instrumentality for necessities' ('pay/necessities'; alpha = 0.69), includes those items which focus on pay's instrumentality for spending needs (see Table 1).

After performing the factor analysis on the 15 questionnaire items, the three pay valence factors were used to form three variables from unit-weighted averages of their respective items. These three variables were then: (1) examined independently as correlated with performance and (2) included as independent variables in a multiple regression model of performance.

**Performance**

Employee performance data were taken from weekly production records with performance recorded as a percentage of standard. Thus, data showing an employee produced 2000 garments on a 1800-standard job would yield a performance score of 111 per cent of standard. For this study we used those employees who had complete performance data for the entire nine-week collection period. The coefficient alpha for the performance measure over these nine weeks was 0.99 and the average production for the sample of 178 was 1222.2 per cent of standard. Both survey data and interviews demonstrated that rate restriction (Whyte, 1955) was not a problem for our sample.

**Results**

Both the pay/self-concept \((r = 0.31, p < 0.0001)\) and the pay/social \((r = 0.22, p = 0.004)\) variables are significantly correlated with performance at the 0.05 level (see Table 2). However, the pay/necessities measure is not \((r = 0.05, p = 0.48)\).

<table>
<thead>
<tr>
<th>Pay/necessities</th>
<th>Pay/self-concept</th>
<th>Pay/social</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.091*</td>
<td>0.474</td>
<td>0.091*</td>
</tr>
<tr>
<td>0.226</td>
<td>0.0001</td>
<td>0.268</td>
</tr>
<tr>
<td>178</td>
<td>178</td>
<td>178</td>
</tr>
</tbody>
</table>

* All data are reported in the form:
  Pearson product moment correlation;
  p-value for zero correlation;
  sample size.

Using the three pay valence factors in a simultaneous multiple regression model of performance...
yields additional information. The pay/self-concept variable is significantly related to performance \( (F = 11.8, p = 0.0007) \), but both the pay/necessities variable \( (F = 0.51, p = 0.47) \) and the pay/social variable \( (F = 0.03, p = 0.87) \) are nonsignificant.

These findings signal the possibility of interactive effects between the pay/self-concept variable and the pay/social variable. Using hierarchical regression methodology described by Evans (1991), we find this interaction effect is not significant \( (F = 0.22, p = 0.64) \). Interestingly, we also find nonsignificant interactions when employee demographics such as age, education and background are entered into the regression. Tenure does have an interactive effect with the pay/self-concept variable, but we determined this interaction does not mask any of the main effects.

**Discussion**

This study finds support for both the assumption that individuals value pay differentially and the investigated hypothesis that those who attach a greater perceived value to pay are those who perform at higher levels in an incentive environment. More specifically, incentive performance was moderately correlated with a valence of pay scale which measured an individual's perceptions of how pay was instrumental to their self-concept and well being.

The study also finds that if pay valence is measured by the immediate need for money (the 'pay/necessities' variable) the correlation with performance is not significant. Those who believe that employees will be driven to higher levels of performance due to financial desperation appear to be incorrect, at least for this sample. Rather, this research leads us to believe that immediate financial need may bring employees to work, but this need does not define high versus low producers.

The determined three-factor structure accounts for 52 per cent of the total variance of the 15 items. The factors are seen to be stable between the two employee samples investigated, and there are no apparent indications of nonrandom measurement error (Carmines and Zeller, 1979). Thus, it seems, some initial support is indicated for the construct validity of the three factors, though more research would be necessary to establish convergence among several measures of this pay valence construct. The biggest concern with the measures surrounds the self-actualization items which are, perhaps, somewhat self-esteem oriented. Some rewording of these items is being carried out for future use of the scale.

Given the concurrent design of this study, one must consider the possibility that a respondent's level of performance might be determining the associated level of pay valence. What little empirical evidence exists on this topic does not support that proposition. Using an experimental setting and using predictive methodology, Jorgenson, Dunnette and Pritchard (1973) collected a single cumulative valence measure of 13 task outcomes, including pay, two days prior to collecting the new-task performance data. Using this predictive methodology, they found the valence and performance measures significantly correlated \( (r = 0.34, p < 0.05, n = 187) \). From the Jorgenson et al. findings, therefore, it seems likely that pay, as a generalized secondary reinforcer, serves to differentially address needs across employees, resulting in different levels of performance.

It is interesting that our factor analysis found three need factors similar to those proposed by Alderfer (1969) rather than the five proposed by Maslow. Alderfer's ERG theory, with needs of existence, relatedness, and growth, corresponds to this current study's necessities, social, and self-concept factors, respectively. Therefore, Alderfer's theory seems to be supported by our factor analysis rather than the theory proposed by Maslow.
Findings from this study offer encouragement for future research of a predictive design into the nature of pay valence. Using concurrent methodology, with its limitations, we have found support for the hypothesized relationship, and we have highlighted a motivational concern surrounding incentive pay systems. Additionally, the findings of Porter and Lawler (1968) were augmented to include performance in a production environment, while the Schwab and Dyer (1973) findings were strengthened. Current research and practitioner interest demonstrates continued concern for the development of efficient incentive systems. Consequently, understanding, and making use of, fundamental differences in employee response to incentive systems appears merited.

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References


