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A FIELD STUDY EXAMINATION OF BUDGETARY PARTICIPATION
AND LOCUS OF CONTROL

by

Peter Brownell

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(Revised, February 1982)

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ABSTRACT

The results of this field study are generally consistent with those from a previous laboratory experiment which showed that the relationship between budgetary participation and performance is moderated by the personality variable internal-external locus of control. Internals (individuals who feel that they are in control of their own destinies) appear more job satisfied and perform better under conditions of high participation. By contrast, externals (individuals who attribute the results of their actions to chance, luck, or fate) are more job satisfied and perform better under conditions of low participation. The complimentary findings of the two studies are considered and the implications of the results in the areas of personnel management and control system design are discussed.

A Field Study Examination of Budgetary Participation
and Locus of Control

The question of the conditions under which budgetary participation will lead to desirable organizational outcomes is a matter of concern to researchers in managerial accounting for two reasons: (1) participation is widely believed to provide a managerial approach to improving performance of organizational personnel and (2) the evidence which exists in the literature is in considerable conflict. This question provided the motivation for a laboratory study reported elsewhere [Brownell, 1981] of the role of internal-external locus of control, a personality variable, as a moderator of the relationship between budgetary participation and performance. The purpose of the present study is to validate the results of the laboratory experiment using a field-study approach. The results of the previous study will also be extended by considering the effects of participation and locus of control on job satisfaction, as well as on performance.

The hypothesized moderating effects of locus of control are based on the notion of congruence between an individual's personality and the characteristics of a task situation in which the individual is placed. Several studies in the psychology literature indicate that "internals" (individuals who generally feel they are in personal control of their own destiny) prefer, and perform better in, task situations characterized by "self-control", while "externals" (individuals who attribute the outcome of their actions to chance, fate, or luck) prefer, and perform better, when control is in the hands of others [Cromwell et al., 1961; Rotter and Mulry,

1965; Watson and Baumal, 1967; Houston, 1972]. The parallelism between "source of control in a particular situation" and budgetary participation derives from the view that under conditions of high budgetary participation, an individual has substantial control over the budget, which often forms the basis for performance evaluation, while low budgetary participation denies the individual such control.

The results of a laboratory experiment [Brownell, 1981], designed to test this question, provided strong confirmation of the predicted interactive effects of participation and locus of control for independent samples of subjects drawn from two quite different populations -- accounting students, and middle-level managers in manufacturing organizations. The highest performing internals were those in a high participation condition, while the highest performing externals were from the experimental group experiencing a low participation treatment. It was further noted in Brownell [1981, ftn. 11] that subjects from both samples who were assigned to their congruent participation condition indicated "more enjoyment" of the experimental task employed in that study. This finding suggests that job satisfaction may also be affected by the interaction between participation and locus of control. Because of this, and because job satisfaction has often been examined as the criterion variable in previous studies of participative budgeting (e.g., see Hofstede [1967], and Cherrington and Cherrington [1973]), this variable was included in the present study.

The major strength of experimental designs, such as that employed by Brownell [1981], is in their ability to generate valid causal inferences. However, their most typical weakness involves a lack of generalizability or external validity. In other words, while an experimenter may be confident

that the effects of differential experimental treatments have been causally linked to some dependent variable, there cannot be absolute assurance that this treatment is a faithful replica of the real world process it is intended to represent. In the present context, we cannot be absolutely certain that the operational definition of participation used in Brownell [1981, p. 849] effectively embraces its real world counterpart. By contrast, a field setting, while far weaker in terms of its ability to generate causal statements, can effectively address the generalizability issue. Together, experimental and field approaches are mutually reinforcing.

HYPOTHESES

The hypothesis tested in my previous experimental study was that budgetary participation would interact with locus of control in affecting performance. This hypothesis also is tested in this study. In addition, further evidence will be sought concerning the role of this interaction in its effects on job satisfaction, a dependent variable suggested by the results discussed above. In their null forms, the two hypotheses of the present study can be stated as follows:

- H₁ There will be no significant interaction between participation and locus of control affecting performance.
- H₂ There will be no significant interaction between participation and locus of control affecting job satisfaction.

METHOD¹

The method used in this study was a survey questionnaire administered to 48 middle level cost-center managers employed by a large San Francisco

Bay Area manufacturing company. This sample of managers was the same group which formed the second experimental sample in my previous study. The managers were drawn from eight separate functional divisions of the organization, each of which was involved in one phase of the production or distribution activities of the business. Preliminary meetings with plant management indicated that technological and environmental characteristics, while not critical in themselves, varied somewhat across the divisions, resulting in the use of a variety of managerial approaches. It was felt that this characteristic of the sample would ensure a wide range of responses on the participation measures.

The sample of responding managers was chosen by plant management, since involvement in the project required a one-half day leave from the company to take part in the experimental study and to complete the questionnaire. The questionnaire was administered to the 48 managers at the conclusion of the laboratory sessions. This procedure eliminated non-response (together with the biases usually associated with it) and assured that all questionnaires were completed by the individuals in the sample, rather than by staff assistants, for example. However, one potential disadvantage of this approach concerns the possibility that the experimental treatments in the laboratory sessions sensitized respondents to the purpose of the questionnaire. The results of some tests for this possibility are reported later. A further potential problem concerns the possibility of fatigue resulting from the somewhat lengthy process of completing both the experimental session and the questionnaire in one sitting.

Three variables were measured by questionnaire: performance, job satisfaction, and budgetary participation. Locus of control was measured

at the beginning of the experimental sessions. For details, see Brownell [1981, p. 848].

Performance

In the selection of a performance measure, two issues required consideration: the source of the performance ratings, and the dimensionality of the rating measure. On the first issue, it was felt that self-ratings would be preferable to superiors' ratings because of evidence in the literature which suggests that the latter are subject to "halo" error² when used in conjunction with multi-dimensional taxonomies [Lawler, 1967; Miner, 1968; Thornton, 1968; Nealey and Owen, 1970]. With respect to the second issue, the need exists to recognize the multi-dimensional nature of performance, but taxonomies involving an excessive number of dimensions should also be avoided.³

On the basis of these considerations, a self-rating version of the Mahoney, Jerdee and Carroll [1963; 1965] taxonomy, using eight performance dimensions together with a global rating, was chosen for the present study. Independent assessments of the Mahoney measure, by Heneman [1974] and Penfield [1974], support its reliability and validity. The measure calls for a rating from 1 (low performance) to 9 (high performance) on each dimension, as well as for the global, or overall, rating. The eight sub-dimensions of performance are planning, investigating, coordinating, evaluating, supervising, staffing, negotiating, and representing.

Job Satisfaction

The Minnesota Satisfaction Questionnaire (MSQ) [Weiss et al., 1967] was chosen to measure job satisfaction. The MSQ is a 100-item Likert-type questionnaire which calls for a response on a five-point, fully anchored

scale (the polar descriptors of which are "very dissatisfied" and "very satisfied") to a set of job attributes. The measure provides satisfaction scores on each of 20 sub-scales, five items addressing each sub-scale. The measure also provides for an overall rating of job satisfaction which is derived as follows. For each of the 20 sub-scales, the one "most representative" item among the five for each sub-scale is chosen. The scores on these 20 "most representative" items are then summed giving the overall rating.

Independent assessment of the validity of the MSQ is due to Dunham, Smith and Blackburn [1977] who reported that the MSQ outperformed two other satisfaction measures in terms of both convergent validity (the ability of different questionnaire items to measure the same construct) and discriminant validity (the ability of different questionnaire items to measure different constructs).

Participation

Several direct (as opposed to factor-analytic) attempts at measurement of budgetary participation are found in the literature. Examples include those of Vroom [1960], Likert [1961], Hofstede [1967], Heller [1971], Vroom and Yetton [1973] and Milani [1975]. Of these, the Hofstede and Milani measures were selected for the present study. Only these two measures were developed for use in a context identical to the present context, and the use of either one would permit an integration of the results of the present study into the most relevant body of previous literature. For purposes of cross-validation, both measures were employed in this study, although the Milani measure, a seven-point Likert-type scale, will be used in hypothesis testing because, unlike the Hofstede measure, it is a multi-item measure permitting a reliability assessment.

RELIABILITY AND VALIDITY CHECKS

Performance

A statistical check was conducted to assess the extent to which variations in the global rating from the Mahoney instrument could be explained by ratings on the eight separate dimensions. To conduct this check, the global ratings were regressed on the ratings on the eight separate dimensions in a single multiple regression. The eight separate dimensions explained 60.8 percent of the variance in the global ratings. This result is consistent with Mahoney, Jerdee and Carroll's [1963] developmental work where it was found that approximately 55 percent of the functions critical to effective managerial performance were common to the 452 managerial assignments in 13 different companies studied, while approximately 45 percent were job specific [pp. 106-107]. The results are also consistent with Heneman's [1974] use of the Mahoney measure. Table 1 presents simple correlations between the global performance ratings and each of the eight separate dimensions for both the present sample and Heneman's study.

INSERT TABLE 1 HERE

The results of this comparison reveal that, with the possible exception of dimensions 2 (investigating) and 4 (evaluation), the set of dimensions are similarly important in explaining overall performance in both Heneman's sample and the present sample. This similarity of results provides some evidence that no difficulties were encountered in the use of the Mahoney measure in this study.

Also provided in Table 1 is a matrix of the intercorrelations among the eight sub-dimensions of performance. It is noted that several of these coefficients are sufficiently large to warrant some caution in interpreting the results of hypothesis tests based on any particular sub-dimension. Descriptive statistics for the Mahoney measure responses are presented in Table 2.⁵

INSERT TABLE 2 HERE

Job Satisfaction

A reliability assessment of the MSQ was made by a comparison of the reliability coefficients computed for each of the 20 sub-scales, plus the single overall rating, with the coefficients for 27 norm groups reported by Weiss et al. [1967] and also with the coefficients for a sample of 135 managers, also reported by Weiss et al. [1967]. The Hoyt analysis of variance technique, used by Weiss et al., was used to derive the coefficients from the present administration. The reliability coefficient for overall satisfaction was 0.72, which, while satisfactory per se, is lower than the coefficients reported by Weiss et al. for the 27 norm groups (0.88) and for the group of managers (0.85). The average coefficient across the 20 sub-scales in the present administration was 0.71 (in the range of 0.50 to 0.81), compared with 0.86 (0.67 to 0.95) and 0.84 (0.78 to 0.93), respectively, for the two comparison groups reported by Weiss et al. Inter-item correlations among the 20 sub-scales averaged +0.38 and ranged from +0.01 to +0.85. Given that this average correlation of +0.38 is sufficiently large to reject a null hypothesis of no relationship at the five percent level of confidence, it will be necessary to exercise caution

in interpreting the results of hypotheses involving any of these sub-scales, due to the lack of independence among the sub-scales. Aside from this last concern, the results of this testing can be considered satisfactory, particularly the sub-scale reliabilities, which, while generally lower than those reported by Weiss et al. [1967], are quite adequate to support the conclusion that the MSQ administration was successful. Descriptive statistics for the job satisfaction responses are presented in Table 2.⁶

Participation

The responses to the Milani and Hofstede participation measures were correlated at +0.74 ($p < 0.01$). Although this result implies that the two measures share only approximately 55 percent common variance, it does provide a reasonably satisfactory test of convergent validity.

An additional statistical test was conducted on the Milani measure. To treat the measure as a summated rating-scale (as Milani did) implies that each of the six items in the measure should tap one single dimension or factor. To examine this issue, the Milani responses were factor-analyzed. In factor-analytical terms, one would hope to discover that all six items load on a single factor. The analysis led to the emergence of two eigenvalues greater than unity, two factors therefore being extracted. Five of the six items in the measure loaded on a single factor, which explained 61 percent of the combined variance across the measure. In fact, the second factor barely qualified for consideration with an eigenvalue of 1.037 and an additional explanatory power of only 17 percent.⁷

These results can be viewed as fairly satisfactory evidence of the additivity assumption implicit in Milani's measure. On the basis of these results, it was decided to construct participation scores additively, the

approach used by Milani. The alternative approach of constructing factor scores was decided against in order to ensure comparability of the results of this study with those of Milani. The Hofstede measure was not used further in the study. Table 2 also presents descriptive statistics for the Milani measure.

RESULTS

Questionnaires were collected from all 48 managers. Two sets of responses were omitted due to improper completion of both the Mahoney measure and the MSQ, while an additional six sets of responses were omitted due to evidence of response set bias in completion of the MSQ only. The final sample size for hypothesis testing was reduced to N=40 as a result of these procedures.

Performance: H₁

The performance hypothesis was tested, using a multiple regression approach fitting the model presented in Equation (1).

$$Y = \beta_1 + \beta_2 X + \beta_3 Z + \beta_4 |(X - Z)| \tag{1}$$

where Y is performance, as measured by the global rating on the Mahoney measure

X is standardized locus of control score $([X_1 - \bar{X}]/\sigma_x)$

Z is standardized budgetary participation $([Z_1 - \bar{Z}]/\sigma_z)$

$|X - Z|$ is the interaction between locus of control and participation, absolute value of difference between X and Z.

The rationale for the interaction terms is as follows: high scores on locus of control (external), combined with low scores on participation (low participation), will produce large absolute difference terms, as will low locus of control scores (internals) combined with high participation scores (high participation). These two combinations are expected, as per H₁, to

be associated with high performance scores. The other two combinations (low participation internals and high participation externals) will produce lower absolute difference scores and are expected to be associated with lower performance. In other words, for rejection of H_1 in a fashion consistent with the expectations, a positive β_4 is required.

The results of the regression are presented in Table 3.

INSERT TABLE 3 HERE

β_4 , the interaction coefficient, is found to be positive, although reaching significance only at the .10 level.⁸ β_3 , the participation coefficient, was highly significant ($p < 0.01$), however, suggesting that while the interaction contributes to an explanation of performance differences across the sample, participation alone exerts a substantial positive influence on performance. In other words, participation appears to be generally positively associated with performance, but this association is stronger among internals than externals. β_2 , the coefficient for locus of control, is also positive but fails to reach significance at any reasonable level.

Job Satisfaction: H_2

To test H_2 , the overall measure of job satisfaction from the MSQ was used as the dependent variable in a regression identical to Equation (1). Table 4 presents the results of this regression.

INSERT TABLE 4 HERE

β_4 , the coefficient for the interaction term, is significant ($p < 0.025$), again consistent with expectations. Participation (β_3) apparently exerts

very little direct influence on job satisfaction, its effects strictly depending on locus of control. This is in contrast to the results for performance presented above.

Further Analysis⁹

The tests of H_1 and H_2 reported above were based on the global, or overall, ratings for performance and job satisfaction. Two further sets of regressions identical to Equation (1) were performed to explore the hypotheses for the eight performance sub-dimensions and for the 20 job satisfaction sub-scales.

In the area of performance, the sub-dimensions of planning and staffing produced significant ($p \leq 0.10$) interaction coefficients, both positive, as expected. The regression involving the sub-dimension of planning also produced a significant coefficient for participation. Together, these results suggest that a positive association generally exists between participation and this sub-dimension of performance, but that the association is stronger among internals than externals. The results also reveal significant positive coefficients for participation in the regressions for three other sub-dimensions - evaluating, negotiating, and representing.

Of the 20 regressions involving the job satisfaction sub-scales, 15 produced significant ($p \leq 0.10$) interaction coefficients, all in the expected direction. The strongest results were found for the sub-scales of creativity, recognition, variety, supervision - human relations, responsibility, and security. Seven sub-scales were significantly positively associated with participation. These were ability utilization, creativity, moral values, activity, responsibility, supervision-technical, and recognition.

In cases where the interaction term, but not the participation term, is significant, the results imply that satisfaction with the particular job-aspect is higher for internals in high participation conditions and for externals in low participation conditions. The most significant ($p < 0.05$) results of this type were found for the sub-scales of company policies and practice, security, supervision, and variety. In cases where both the interaction term and the participation term are significant, the results imply that satisfaction is positively associated with participation overall, but that these associations are stronger for internals under high participation and externals under low participation. The most significant ($p < 0.05$) results of this type were found for the sub-scales of creativity, recognition, and responsibility.

As discussed earlier, the patterns of intercorrelation among both the eight performance sub-dimensions, and the 20 satisfaction sub-scales, suggest the need to carefully interpret the results discussed in this section, due to evidence of lack of independence, particularly in the latter case.

DISCUSSION AND LIMITATIONS

Generally speaking, the results of the survey phase of the research program can be viewed as consistent with those of the previously reported experimental phase. The interaction between participation and locus of control affecting performance is significant in both phases of the research, although only marginally in the survey phase. The results support the expectation that participation is most effective for internally-oriented individuals. In the area of job satisfaction, the tentative conclusion from the previous study concerning the interactive

effects of participation and locus of control affecting satisfaction is strongly confirmed in the present study.

One important difference in the results of the two phases concerns the importance of the direct, unmoderated effects of participation. In the experimental phase, participation, taken alone, had insignificant effects on performance. It should be noted that care was taken to ensure that the experimental treatments for high and low participation were designed to ensure that, ceteris paribus, subjects in one experimental condition had no particular advantage (in terms of performance) over those in the other. The results of the experimental phase confirm the success of this endeavor. By contrast, the results of the field study indicate that participation may exert a direct positive influence on performance, (although the nature of this influence appears to be conditioned by locus of control, internals strengthening it, and externals weakening it). This result has some intuitive appeal when considered in the light of the characteristics of the organization from which the sample of subjects was drawn. As mentioned earlier, respondents were drawn from a variety of functional areas across the organization. Notably, there existed a high level of interdependence and, hence, a higher need for cooperation among these areas in the organization studied. Previous literature has suggested the role which participation can play in achieving this cooperation across different functional units (e.g., Waterhouse and Tiessen [1978] and Thompson [1967]). Considering the survey data for performance and job satisfaction together, the results suggest that while participation is not necessarily satisfying, it is viewed as essential to achieve the coordination of activities across independent functional units necessary for effective performance within each.

A useful contrast can be drawn between the results of this study and those of Milani [1975], who, using the same participation measure, could find only weak evidence of positive effects of participation on performance. It is worthy of note that his sample of questionnaire respondents were all drawn from the production area of one organization. Hayes [1977] has indicated that production is one area within the organization which often enjoys some buffering from external environmental factors (including factors internal to other functional areas within the organization), especially when its own activities are more or less routine. Hage and Aiken [1969] and Swieringa and Moncur [1975, pp. 25-27] have suggested that, for the planning of such activities, centralized, non-participative structures can be successful. In other words, Milani's results could have been attributable to the nature of the activities engaged in by the organizational sub-unit from which his sample was drawn. Participation might not be expected to contribute substantially to performance in such circumstances where non-participative schemes are equally effective.

The above discussion should be tempered by a consideration of the limitations of this study and, indeed, the entire research program. Several deserve elaboration.

In connection with the measurement instruments used in the survey study, it should be recognized that these are subject to some limitations. The measurement of performance remains problematic, and, despite the advantages of self-ratings alluded to earlier, it should be noted that any rating of performance, from whatever source, is highly subjective. The possibility of attributional biases in these ratings cannot be ruled out. For example, it is not inconceivable that highly participating managers

will rationalize their investment of time in this process by perceiving, and hence rating, their own performance higher. The causal linkage in this relationship should also be carefully assessed. High performance on the part of managers might be viewed by the organization as a prerequisite to participation. That is, the causal linkage could be the reverse of that conventionally proposed.

A potential limitation of the survey phase of the research program concerns the unknown consequences of administering the questionnaire immediately at the conclusion of the experimental sessions. As noted earlier, it is possible that the differential experimental treatments (high and low participation) gave rise to some systematic differences in questionnaire responses from these two groups of respondents.¹⁰ The benefits of achieving a 100 percent response rate must be traded off against the potential costs associated with the procedure used here.

The role of variables omitted from the present research design should also not be overlooked. Reward structure is one variable mentioned previously [Browmell, 1981] for which evidence exists [Gregory, 1978] to suggest its importance in the present context. Future research would do well to examine this and other types of variables likely to exert an impact on the relationship. Variables from the interpersonal (e.g., leadership style) and organizational levels (e.g., structure) represent two classes of influences on the participation/criterion relationship which remain largely unstudied, and the inclusion of which would likely have substantially improved the overall explanatory power of the models tested in this study.

Finally, the focus on a single organizational sample constitutes further grounds for caution in interpreting the results too liberally.

Notwithstanding these limitations, the two phases of this research program have provided mutually supportive evidence of the need to recognize the existence of important moderating effects of the personality variable, locus of control, on the relationship between participation and both performance and job satisfaction.

The potential implications of these results (and others confirming the role of different personality traits as moderators of the effect of participation) are possibly most important in the areas of managerial selection and placement, and, perhaps, control system design. For organizations that are permitted discretion over the level of budgetary participation afforded its members, it is conceivable that the role specifications could be modified (as far as participation is concerned) to suit the personality characteristics of the role occupant or incumbent. Even where this is not feasible, management can at least be aware of the need to consider a possible mismatch between the characteristics of organizational roles and their occupants as a cause of sub-standard performance and/or job satisfaction.

More likely than the above scenario is the possibility that environmental and technological circumstances confronting the organization necessitate a particular level of participation in budgetary matters. For example, a readily programmable, routine activity can often be most effectively controlled via a centralized, non-participative process involving procedure specification and rule-setting (see, for example, Crozier [1964]). By contrast, other activities in the organization may be poorly specifiable and subject to environmental uncertainty. The resulting increase in task complexity associated with these activities has been suggested [Burns and Stalker, 1961; Thompson 1967] to be best managed

through a decentralized, highly participative process. In these circumstances, it will often be the case that the best information base to support managerial decisions will be located at the action point rather than with top management [Galbraith, 1977]. In circumstances where management is constrained by these types of factors to build a specific level of budgetary participation into role descriptions, the burden of achieving the right fit between individuals and roles shifts to personnel selection and placement.

Further research is obviously needed to expand our understanding and awareness of other individual characteristics that complement design features of budgetary control systems. Indeed, the more basic question of what control system features are appropriate to manage activities that face differing environmental and technological circumstances still remains largely unanswered.

FOOTNOTES

- ¹Due to space limitations, the discussion of the measures chosen for performance, job satisfaction and participation is kept relatively brief. However, complete copies of these questionnaire items can be obtained, upon request, from the author.
- ²Halo error is the tendency to evaluate "globally," or on a single cognitive dimension. High intercorrelations among separate performance dimensions is evidence of halo error
- ³Kavanagh, MacKinney and Wolins [1971] provide a good example of the need to avoid this problem. The authors of that study employed a 20-dimension rating scale and obtained disappointing results on a discriminant validity test.
- ⁴The one "most representative" item among the five for each of the 20 sub-scales is prescribed by Weiss et al. [1967]. The chosen item for each sub-scale is that which was found, in developmental work on the measure, to be most highly correlated with its respective total sub-scale score (the sum of five items).
- ⁵A more complete tabulation of data, including descriptive statistics for each of the eight performance sub-dimensions, and the 20 satisfaction sub-scales, can be obtained, upon request, from the author.
- ⁶A more complete tabulation of data, including the Hoyt analysis of variance reliability coefficients for each sub-scale, descriptive statistics for each sub-scale, and the matrix of intercorrelations among the sub-scales, can be obtained, upon request, from the author.
- ⁷Complete tabulation of the results of this analysis can be obtained, upon request, from the author.
- ⁸The three independent variables are virtually uncorrelated, the strongest association being $r=+0.10$ (n.s.) between locus of control and the interaction term. Therefore, the square of the t-statistic is an accurate approximation of the F-statistic conventionally used to test the significance of the added explanatory power of a model which includes the interaction term, over a model which excludes it. It is possible to conclude, therefore, that, in this case, the added explanatory power of the model which includes the interaction term is also approximately significant at the .10 level.
- ⁹Complete tabulation of the results summarized in this section can be obtained, upon request, from the author.
- ¹⁰In the present context, however, no such differences could be uncovered. To test for this possibility, the scores for each of the variables measured in the questionnaire phase (performance, job satisfaction, and participation) were compared across the two experimental treatment conditions. None of the differences between means across the two conditions reached significance at any reasonable level.

TABLE 1

TABLE OF INTERCORRELATIONS AMONG PERFORMANCE DIMENSIONS

	1	2	3	4	5	6	7	8
1. Planning	1							
2. Investigating	37	1						
3. Coordinating	28	25	1					
4. Evaluating	31	39	32	1				
5. Supervising	34	27	28	23	1			
6. Staffing	41	03	29	50	13	1		
7. Negotiating	31	10	20	29	-19	32	1	
8. Representing	32	16	02	47	14	35	51	1

Note: Decimal point suppressed

$r \geq 39$ significant at $p \leq 0.01$

$r \geq 30$ significant at $p \leq 0.05$

CORRELATIONS BETWEEN OVERALL PERFORMANCE AND THE SEPARATE
DIMENSIONS OF MAHONEY MEASURE

Sample	Dimension							
	1	2	3	4	5	6	7	8
Present Study	0.57	0.58	0.28	0.51	0.42	0.27	0.34	0.40
Heneman [1974]	0.55	0.41	0.39	0.33	0.44	0.36	0.40	0.41

TABLE 2

DESCRIPTIVE STATISTICS FOR MEASURED VARIABLES

Variable	Mean	Std. Dev'n	Possible Range	Actual Range	N
Performance	6.85	0.97	1-9	5-8	46
Job Satisfaction	77.95	7.27	20-100	58-93	40
Participation	25.13	7.36	6-42	9-39	46

TABLE 3REGRESSION RESULTS: H_1

Coefficient	Value	Standard Error	t	Probability
β_1	6.6955	0.2040	32.82	<0.01
β_2	0.1480	0.1359	1.09	n.s.
β_3	0.4215	0.1352	3.12	<0.01
β_4	0.2091	0.1409	1.48	<0.10

$R^2=0.27$

$df=36$

TABLE 4
REGRESSION RESULTS: H_2

Coefficient	Value	Standard Error	t	Probability
β_1	75.293	1.704	44.18	<0.01
β_2	1.375	1.135	1.21	n.s.
β_3	-0.640	1.130	-0.57	n.s.
β_4	2.421	1.177	2.06	<0.025

$R^2=0.14$

df=36

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