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MANAGEMENT CONTROLS AND STAFF PERFORMANCE:

A PROPOSED MODEL AND AN EMPIRICAL TEST

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Management control refers to the process of influencing the goal-related actions of individuals within organizations so that those persons will act in a manner consistent with organizational goals. Two of the more commonly cited definitions of "control" in this sense have been offered by Anthony and Tannenbaum:

Management control is the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishment of the organization's objectives (Anthony [1965], p. 17).

We shall use the term [control] in this way to refer to any process in which a person or group of persons or organization of persons determines, that is, intentionally affects, the behavior of another person, group, or organization (Tannenbaum [1968] p. 5).

The design and implementation of management control systems are particularly significant for accountants. Accountants are presumed to use an underlying rationale for designing and implementing information systems. This rationale includes assumptions made about the way decision agents within organizations react to information signals and the congruence of those reactions with the goals set for the firm,¹ Such a rationale, which is the heart of management control, has not been adequately developed in the literature. For example, neither Anthony nor Tannenbaum provides a testable model in which organizational goals are related to the performance of individuals within

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¹For an expansion of this view, see Demski (1972).

the firm.² Such a model would aid substantially in developing systems for measuring performance which are also motivationally effective,

In this paper, we present a testable model of management control. The proposed research approach facilitates development of a theoretical model of management control from which generalizable principles may be derived. At the same time, it allows application of the model in specific settings. The conceptual model we set forth is not intended to be definitive; rather, it represents an initial formulation which may be adjusted as dictated by the results of future tests.

First, we will briefly review the literature in management control and related disciplines to determine the extent to which a theoretical formulation of the management control process has been developed. We will then describe the model we propose and present the methodology used in operationalizing and testing it in a specific setting. We will conclude with some empirical findings from this test together with their implications for the model and its operational interpretation.

Review of the Literature

A review of the literature discloses a limited number of articles addressing management control, as it is defined by Anthony (1965). Such

²Tannenbaum hypothesizes a direct relationship between organizational effectiveness and the amount of total control in the organization, where organizational effectiveness is defined as "...the extent to which an organization fulfills its objectives and preserves its means and resources" (1968, p. 56). He does not define this model in terms of an individual's performance, nor does he provide a means for identifying and weighting specific organizational objectives, as we intend to do in this paper.

literature, including articles by Stringer (1966), DeValk (1972), Levinson (1973), and Vancil (1973), typically has been based primarily on personal experience and observation rather than empirical testing. One empirical study of a management control system was performed by Todd, Thompson, and Dalton (1974). Unfortunately, their article reporting the study did not provide a theoretical model which could provide predictive propositions.

A number of concepts and theories in related fields address some of the issues pertaining to the process of management control. For discussion purposes, we have grouped these concepts and theories by four perspectives which represent the main focus in a given case: (1) budgetary control; (2) motivation; (3) theory of the firm; and (4) human resource accounting.

Budgetary control perspective

Three classic works in the budgetary control area attempted to determine the effect of different methods of evaluation on the performance and satisfaction of individuals in organizations (Argyris, 1952; Stedry, 1960; and Hofstede, 1967). These studies were followed by a number of works (e.g., Becker and Green, 1962; Stedry and Kay, 1966; DeCoster and Fertakis, 1968; Holstrum, 1971; Milani, 1975; Bruns and Waterhouse, 1975) that examined budgetary control issues using a variety of methodologies in different research settings.³

³For surveys of relevant literature, see DeCoster (1975) and Lawler (1976).

Generally, such studies have tended to be exploratory in nature and highly situation-specific. Moreover, a review of these studies discloses contradictory findings which could not be resolved since the studies excluded the critical analytic phase of theory construction. Although the research has provided some insight into the impact of participative budgeting, acceptance of budget standards, and the level of budget standards on individual performance and satisfaction, few fundamental axioms emerge from these studies to provide a theoretical basis for further research.

Finally, the budgetary control process is an element of the management control system, but it is not the total system. Thus, development of budgetary control theory would enrich our understanding of management control; however, additional theory would be necessary to explain fully the relationship between goal congruence and individual performance.

Motivation perspective

Another element of management control is the method an individual uses to select from among alternative courses of action. Clearly, an ideal management control system encourages the individual to select actions most congruent with organizational goals. In order to encourage such selections, something must be known about the decision process and the motivational factors affecting the individual's behavior. Some theories that have been developed to explain these motivational factors include "equity" theory, as proposed by Adams (1965); "drive" theory, as developed by Hull (1943); Herzberg's (1966) "hygiene-motivator"

theory; Edward's (1961) "subjective expected utility" theory; and Vroom's (1964) "expectancy" theory.

These theories have certain common elements. Most rely on hedonistic principles having a long tradition of acceptance by philosophers, mathematicians, and social scientists. Further, most assume that human behavior is a result of cognitive, or conscious, choice processes. Of these theories, expectancy theory appears to be the most complete, in the sense that it contains all elements of a decision model and it encompasses most of the propositions set forth by other motivational theorists.⁴ Unfortunately, empirical research in expectancy theory is not conclusive; the theory has not been sufficiently operationalized and tested to provide specifics about the assumptions of the model or the way the decision process operates (see Mitchell [1974], Behling and Stark [1973], and Behling, Schriesheim and Tolliver [1975]).

As detailed later, the management control model that we develop incorporates certain principles of expectancy theory which allow explicit recognition of the interaction between individual decision-making and the degree of goal congruence in the organization.

Theory-of-the-firm perspective

The third theoretical perspective, that which focuses on the behavioral theory of the firm, expands traditional economic theory

⁴Extensive reviews relating expectancy theory to other motivational theories can be found in Rush (1969) and Lawler (1971).

to incorporate recent developments in organization theory, March and Simon (1958) and Cyert and March (1963) recognize the need for a theory which describes the way goal conflicts are resolved and the way decision strategies are formulated in an environment of multidimensional goals for both the organization and its members. The propositions set forth by Cyert, March, and Simon are consistent with the management control concept proposed by Anthony. Both require a theory that describes the way individuals are, or may be, influenced to make decisions consistent with organizational goals.

Clearly, the propositions suggested by the behavioral-theory-of-the-firm literature, if operationalized and empirically tested, would offer a theoretical base for modeling management control systems. However, although specific aspects of these propositions have been investigated, we do not have an empirically tested model of the behavioral theory of the firm that provides a sufficient basis for a model of management control.⁵

Human-resource-accounting perspective

Recent developments in the accounting literature indicate an interest in human resource accounting, which seeks to provide measures

⁵There has been considerable work in the theory of teams (e.g., Marschak, 1955; Radner, 1962) and the theory of syndicates (e.g., Wilson, 1968). Further analysis of the goal conflict issue has been done by Kriebel and Lave (1969). Caplan (1968) attempted to determine the extent to which the assumptions of traditional economic theory of the firm were held by some managers and accountants. Carter (1971) performed an in-depth case study of top-level planning decisions in an organization. This empirical work has focused on specific aspects of the behavioral theory of the firm, rather than on operationalizing and testing a model encompassing the propositions of the theory.

of human resource value expected to be useful in evaluating management's utilization of human assets (Flamholtz, 1972). This evaluation of management's utilization of human resources could contribute to the development of management control theory if the research focused on methods of improving the productivity of employees. The focus of this work, however, has been on developing a measure of human resource value, rather than on the process of improving productivity within the firm. For example, Elias (1972) examined the impact of human resource measures in financial statements on portfolio selection, while Dermer and Siegel (1974) attempted to determine the impact of human resource measures on the decisions of subjects in a laboratory setting. Other authors (e.g., Brummet, Flamholtz and Pyle, 1968; Lev and Schwartz, 1971; Jaggi and Lau, 1974) also have been concerned with developing a measure of human resources, rather than with the process of improving productivity within the firm.

In summary, a number of studies pertinent to management control have been conducted, but no operationalized and tested model of the management control process has been developed. Further, we have a considerable body of "wisdom" literature in management control offering suggestions to managers based on "what worked in this case." Unfortunately, this approach has not provided an integrated theoretical framework of management control.

The Model

Our proposed model of the management control process is presented in Figure 1. This model incorporates two major components: goal congruence and the individual's decision model. No theory of management control would be complete without recognizing the importance of both elements and their interactions,

Goal congruence

A key element in the management control process is the degree of goal congruence of all decision-makers in the firm (Anthony, 1965). Presumably, individuals are more likely to pursue organizational goals if, in doing so, they will be pursuing their own goals simultaneously. Modeling and operationalizing this concept presents several difficulties. First, the goals set for organizations and individuals may be multidimensional. Further, the very type of goals sought at the organizational level may conflict, in some respects, with those sought by individuals. Also, individuals may not accurately perceive the performance criteria at the organizational and individual levels. One way to overcome these difficulties is to recognize the several potential sources of goal conflict explicitly. The proposed model, therefore, identifies five distinct linkages in the goal congruence process as follows (refer to Figure 1 for linkages):

Insert Figure 1 here

At the organizational level, perceptions of the criteria set for evaluating organizational performance (c) are compared with the actual performance criteria (b) used. This comparison provides a measure of the accuracy with which organizational performance criteria are perceived (variable OC^a in our model),

Also at the organizational level, the perceptions of organizational performance criteria (c) are compared with the preferences that individuals have for those criteria (i). This comparison provides a measure of the congruence between preferences for, and perceptions of, organizational performance criteria (variable OC^c in our model).

At the individual level, perceptions of the criteria set for evaluating individual performance (e) are compared with the actual performance criteria (d) used. This comparison provides a measure of the accuracy with which individual performance criteria are perceived (variable IC^a in our model),

Also at the individual level, perceptions of criteria set for evaluating individual performance (e) are compared with the preferences that individuals have for those criteria (i). This comparison provides a measure of the congruence between preferences for, and perceptions of, individual performance criteria (variable IC^c in our model).

The final linkage of the goal congruence process relates to personal goals. Rewards perceived to be provided by the job (g) are compared with personal preferences for rewards (i) to provide a measure of the congruence between desired rewards and those perceived to be provided by the job (variable V in our model). This linkage also provides the interface between the goal congruence and decision model components of management control. It is related to the notion of "valence," or the relative attractiveness of an outcome (reward), defined in the Vroom (1964) model.

Individual's decision model

A model of management control would be incomplete if it did not specify the motivational process leading to individuals' performance decisions which, in turn, determine the extent to which organizational goals are achieved. As previously indicated, a number of theories about this decision-making process have been proposed. This study identifies

individuals' selection of action-alternatives in terms of the variables of the expectancy-instrumentality theory (Vroom, 1964). Expectancy theory has been proposed as the most complete theory of motivation (Lawler, 1971), and it has been extensively tested in a variety of organizational settings.⁶ As indicated in a recent article (Kopelman and Thompson, 1976), the explanatory power of expectancy theory is high when a longitudinal methodology is applied. Therefore, the proposed model incorporates the following expectancy theory variables:

the relative valence (V), of desired and actual decision outcomes, as noted above;

the "expectancy" (E), or perceived probability, that a particular act (e.g., effort on the job) will result in a particular outcome (e.g., job performance).

the "instrumentality" (I), or perceived correlation, between one decision outcome (e.g., job performance) and other outcomes (e.g., rewards from the job).

It should be emphasized, however, that we do not propose to argue the merits or demerits of the expectancy-instrumentality theory of motivation here. Although the expectancy-instrumentality theory was selected for the reasons indicated above, the model of management control proposed here could incorporate any of a number of alternative motivation models. We merely wish to recognize that any proposed model of management control requires the specification of the decision

⁶Excellent reviews of these tests may be found in Mitchell and Biglan (1971), Heneman and Schwab (1972), House and Wahba (1972) and Mitchell (1974).

model by which the individual selects actions in view of the firm's goals and his or her own preferences.

Ability

Finally, the ability to perform is an important element in the total interaction between organizational goals and the goal-related actions of individuals. As Figure 1 shows, decision outcomes are transformed into performance by resources or constraints from the organizational environment and the individual's ability (variable A in our model). Ability is defined to include such factors as native intelligence, manual skills, and personality traits.

Summary

The model described above can be expressed symbolically as

$$(1) \quad P = f (OC^a, OC^c, IC^a, IC^c, V, E, I, A);$$

where P is the performance of individuals in achieving organizational goals, and the independent variables are as described above. The first five independent variables (OC^a , OC^c , IC^a , IC^c and V) represent the goal-congruence part of the model while the last four independent variables (V, E, I, A) incorporate the decision process with the individual's ability to perform.

Note that not all elements shown in Figure 1 are specified in equation (1). Specifically, the linkage between general organizational goals (a) and operational performance criteria (b), the uniqueness of the evaluation system (f), and the role of organizational and environmental

factors (j) are not analyzed, primarily because of the difficulty in measuring these elements of management control.

Hypotheses

The following general, or theoretical, hypotheses are logical extensions of the model. Of course, in many instances, data restrictions do not permit testing these hypotheses in their theoretical form, in which case, it is necessary to develop testable hypotheses which operationalize these more general hypotheses. We present operational hypotheses which we developed for testing the above model in our discussion of the findings. The hypotheses that follow here are more general and presumably appropriate on a theoretical basis for all research settings.

The first five hypotheses relate to the five linkages in the goal congruence process, as noted earlier:

- H.1: (OC^a) There is a direct relation between individual performance in achieving organizational goals and the accuracy with which organizational performance criteria are perceived.
- H.2: (OC^c) There is a direct relation between individual performance in achieving organizational goals and the congruity of perceived and preferred organizational performance criteria.
- H.3: (IC^a) There is a direct relation between individual performance in achieving organizational goals and the accuracy with which individual performance criteria are perceived
- H.4: (IC^c) There is a direct relation between individual performance in achieving organizational goals and the congruity of perceived and preferred individual performance criteria.

- H.5: (V) There is a direct relation between individual performance in achieving organizational goals and the closeness with which desired rewards from the job are perceived to be provided by the job.

Hypothesis 5 also interfaces with the hypotheses relating to the individual's decision model, since Vroom (1964) suggests that an individual directs more effort toward a decision outcome with greater positive "valence" than to one with less positive "valence."

The next two hypotheses focus on the individual's assessment of the probabilities that particular actions (the level of effort exerted) will result in particular outcomes (performance), and the correlation between those decision outcomes and factors helping achieve personal goals (rewards).

- H.6: (E) There is a direct relation between individual performance in achieving organizational goals and the belief that effort will be reflected in performance.

- H.7: (I) There is a direct relation between individual performance in achieving organizational goals and the belief that performance will result in desired outcomes.

Finally, the individual is hypothesized to perform more effectively and efficiently the greater the development of his/her power to perform.

- H.8: (A) There is a direct relation between individual performance in achieving organizational goals and the ability of the individual to perform effectively.

Methodology

Research setting

Certified Public Accounting firms were selected for study because they provide a unique and useful research setting in two ways.⁷ First,

⁷For a more detailed description of the research setting, see Maher (1975).

the individuals in CPA firms are professionals, who may be presumed to have similar educational backgrounds, career objectives, and professional interests. Thus, compared to the staff of an industrial organization, the professional staff of a CPA firm represents a relatively homogeneous group. Second, CPA firms provide a unique setting because the firm's top managers (partners) are also the firm's equity holders. Therefore, such firms provide a research setting in which conflicts between management and owners in establishing organizational objectives are minimized. Thus, the officers of eight CPA firms (two local, two regional, and four national firms) were selected to participate in the study.

Research instruments

An extensive questionnaire was administered to each member of the professional staff in the eight offices. Portions of the questionnaire were based on prior research instruments. The major part of the questionnaire, however, was designed especially for this study to provide operational measures of variables appropriate to CPA firms.

Accuracy and congruence (OC^a, OC^c, IC^a, IC^c). Measures of performance criteria for each firm and individual were based on "in-house" documents provided by some of the participating firms (see Table 1).

Insert Table 1 about here

OC^a and IC^a were determined by comparing managing partners' weightings of organizational and individual performance criteria with those as

perceived by the staff. Similarly OC^c and IC^c were determined by comparing staff-perceived weightings of organizational and individual performance criteria with their preferences.

Valence (V). Measures of "valence," or the attractiveness of rewards, were based on items and format similar to those used by the Pelz and Andrews' (1966) study of the motivation of scientists in organizations (see Table 2). These rewards were reviewed by the

Insert Table 2 about here

managing partners in the participating offices, and revised so that they were appropriate for CPA firms.

Expectancies and instrumentalities (E, I). Numerous prior studies of the expectancy-instrumentality models have provided measures of expectancy and instrumentality. The approach used in this study is based on the measures and procedures used in the Lawler and Suttle (1973), Porter and Lawler (1968), Mitchell and Albright (1972), and Lawler (1968) studies (see Table 3).

Insert Table 3 about here

Ability (A). The ability concept proved to be particularly difficult to operationalize. An extensive review of the literature, coupled with a survey of the managing partners and other professionals in the participating public accounting firms, provided no objective tests of

ability that would be appropriate to professional staff in public accounting firms.⁸ Alternative measures of ability could be provided by examining personnel records for aptitude test scores or other scores administered in prior testing. However, this would violate the confidentiality of respondents, which was believed to be critical for obtaining a high rate of usable responses that accurately reflected the perceptions of the respondents. Consequently, a self-evaluation of ability on each performance dimension in Table 1 was requested. The procedure required each respondent to evaluate his/her own ability in comparison to the average of his/her peers, i.e., those in the firm having similar job titles and duties. Admittedly, the lack of an objective test of ability may limit the inferences drawn from this part of the study.

Procedure

First, the questionnaire was reviewed by academicians familiar with expectancy theory and by present and past partners of CPA firms to ensure that the questionnaire items "made sense" in our research setting. Second, a pilot test of the questionnaire was made in a CPA firm not participating

⁸A common test of ability is the Thurstone and Thurstone test of Mental Alertness (Thurstone and Thurstone, 1952). Previous research, however, indicates that this test and many other similar measures of intellectual ability perform poorly when the nature of the job requires ability on several dimensions (Ghiselli, 1966; Lawler and Suttle, 1973). Further, such tests do not measure the ability to develop new clients, to supervise effectively, to provide good public relations for the firm, or other similar factors.

in the study. After incorporating the revisions suggested by the above pretests, the questionnaire was administered to all of the professional staff (excluding the managing partner and, in some cases, the manager or partner in charge of personnel) at each level in the eight participating firms.

Tests for reliability and validity were incorporated directly into the questionnaire. Respondents were requested to complete two separate sets of questions for all measures except ability. One set of questions used a Likert-type scale while the other asked the respondent to rank-order the same list of criteria. These separate evaluations of the same measures were correlated to determine the degree of association between them.⁹

As part of our tests for reliability and validity, follow-up interviews were held with twenty-four of the respondents to ascertain whether they had difficulty in perceiving the meaning of questions accurately. On the basis of these tests for reliability and validity, along with prior tests of measures taken from extant literature, we were satisfied as to the reliability and validity of our research instruments.

Measures of the dependent variable (P)

Two separate, dichotomous measures of the independent variable, P (performance in achieving organizational goals), were obtained. The

⁹Of 87 pairs of measures correlated in this fashion, 78 were significantly correlated beyond the .001 level, seven more were significantly correlated at the .10 level. See Maher (1975) for further reliability and validity data.

first was objectively determined on the basis of the individual's present level in the firm. Presumably, promotion in the organization is an indication of performance; thus, we assumed that individuals at higher levels in the organization (i.e., manager and partners) achieved that level as a result of their past performance. We contrasted the perceptions of this group (manager and partners) with those of entry-level professionals (junior staff) who, we assumed, represent a cross-section with respect to performance (i.e., some high, some average, some low performers).

The second measure of P was obtained by requesting the managing partner(s) in each firm to identify the top 25 to 30 percent of their staff (i.e., the "high performers") at each of the following levels in the firm: (1) junior/senior staff, (2) supervisor/manager and (3) partner. Identical questionnaires were distributed to both the high performer group and the remaining staff, except for a coding difference used to discriminate between the two groups when the questionnaires were returned. The participants were not told who had been identified by the managing partner(s) as a high performer. Respondents were assured of confidentiality in their responses, since nobody could identify any response with a particular individual.

The findings for both performance classifications are presented in this study. The high performance group under either performance classification will be designated P'', while the other group will be designated P'. This dichotomous performance grouping does not provide as great a differentiation between high and low performers as might a more refined

measure of performance (e.g., comparing perceptions of high and low performers using a three-way grouping--high performer, average performer, low performer). This reduces the power of our tests to accept the hypotheses. A more refined measure of performance was difficult to obtain, however, primarily because the managing partner(s) were unable or unwilling to identify particular individuals as "low performers."

Statistical treatment

Since a dichotomous measure of the dependent variable is provided, discriminant analysis using parametric statistics would be the appropriate test of the model. Discriminant analysis has strict data requirements, however (e.g., equality of the covariance matrices and normal frequency distributions); and several authors have stated that discriminant analysis performs poorly with departures from normality (e.g., Marks and Dunn, 1974). Our tests for closeness of fit, skewness, and kurtosis rejected the null hypothesis that the distributions were normal in several instances. Thus, we abandoned testing with parametric statistics, and used the Mann-Whitney (one-tail) test as recommended by Siegel (1956) for samples as large as ours.

Findings

Virtually all of the professionals in the eight offices, including audit, tax, management services, and small business services, participated in the study. In all, 297 participants provided 234 (79%) usable responses.

The findings from these responses are presented in Tables 4 through 10. Each set of findings is presented together with the operationalized hypotheses tested, which in turn are keyed to the general hypotheses previously set forth.

The numbers reported in the tables are the means of the respective distributions of differences between the "actual" and perceived importance of organizational performance criteria. The means are presented to indicate whether differences between groups are as predicted. Recall, however, that significance tests are based on differences between the total distributions, not between the means.

As previously hypothesized, we expected to find more accurate perceptions of performance criteria, greater goal congruence, closer association of effort and reward, and a higher level of self-assessed ability for the high performance groups (P'') than for the other groups (P'). In general, the findings were consistent with these expectations, particularly in the case of goal congruence at the individual level. It was less evident for goal congruence at the organizational level, however, as detailed below.

Organizational performance criteria: accuracy of perceptions (OC^a)

A measure of the accuracy of perceptions is provided by the absolute value of differences between the "actual" importance, or weighting, of organizational performance criteria as indicated by the managing partner(s) in each office and the importance perceived by each respondent. The absolute value of differences closer to zero represent more accurate

perceptions while those farther from zero represent less accurate perceptions of organizational performance criteria. Accordingly, general Hypothesis 1 is operationalized as follows:

The absolute value of differences between perceived and actual organizational performance criteria is smaller for P'' (high performing group) than for P'.

Insert Table 4 about here

The findings for Hypothesis 1 (H.1) are presented in Table 4. These findings provide considerable support for Hypothesis 1 when the measure of performance is based on prior promotion to present level in the firm. Differences between groups are as predicted by H.1 for nine of the ten performance criteria; further, these differences are significant ($p < .05$) for five criteria. Some support for H.1 is also shown for the performance classification provided by managing partners, especially for one performance criterion: "developing new clients" ($p < .05$).

These results clearly indicate that those at higher levels in the firm more accurately perceive organizational performance criteria. Of more significance, however, is the question whether (a) a relatively accurate perception of organizational performance criteria is required for promotion or (b) the employee develops a more accurate perception of organizational performance criteria the longer he or she stays with the firm. Our results suggest that the latter is more likely, since the accuracy of perceptions differed little between P'' and P' when the

high performers were selected at each level by the managing partners. One exception is the accuracy with which the employee perceives the importance of "developing new clients," which consistently differentiates P" from P' regardless of the performance classification method.

Organizational performance criteria: congruence with preferences (OC^C)

The degree of congruence is measured by the absolute numerical value of the difference between the perceived and preferred importance of each performance criterion, with smaller numbers reported representing greater congruence than larger numbers. Accordingly, general Hypothesis 2 is operationalized as follows:

The absolute value of differences between perceived and preferred firm performance criteria is smaller for P" than for P'.

Insert Table 5 about here

As Table 5 shows, findings pertaining to H.2 are similar to the results for H.1. They strongly support the hypothesis in terms of the performance classification according to level in the firm. Differences between groups are in the direction predicted by H.2 for eight of the ten criteria; these differences are significant ($p < .10$) for four criteria. Support for H.2 is also shown for the performance classification according to managing partners, especially for one criterion, "quality of supervision," for which the difference between groups is significant ($p < .10$) in the direction predicted by H.2.

These results may indicate that the accuracy with which organizational goals are perceived (OC^a) and the congruence of those perceptions with preferences for organizational goals (OC^c) are only weakly associated with performance. The results disclosed a strong association between the independent variables, OC^a and OC^c , and performance in the direction predicted when performance was measured by past promotion to present level in the organization. These results support the view that the longer individuals remain with an organization, the more accurately they perceive and influence its goals. Individuals with goal conflicts probably have resolved those conflicts by the time they achieve higher levels in the firm, or they have left the organization.

Individual Performance Criteria: Accuracy of Perceptions (IC^a)

As before, a measure of accuracy is the absolute value of differences between the "actual" importance of the criteria for evaluating individual performance as indicated by the managing partner(s) in each office and the importance perceived by each respondent. Smaller numbers (values) indicate more accurate perceptions of individuals performance criteria, larger numbers represent less accurate perceptions. Accordingly, general Hypothesis 3 is operationalized as follows:

The absolute value of differences between perceived and actual individual performance criteria for (a) merit pay increases and (b) promotions is smaller for P'' than for P'.

Insert Table 6 about here

The results shown in Tables 6a and 6b generally support H.3. For the performance classification by level in the firm, differences are in the direction predicted for fifteen of the twenty criteria. Eight of these differences are significant ($p < .05$), while none of the differences in the direction opposite that predicted by H.3 are significant. For the performance classification according to managing partner, fourteen differences are in the direction predicted by H.3, four are significant ($p < .10$). Of the differences in the opposite direction, only one is significant ($p < .10$). Tables 6a and 6b also show considerably more support for performance criteria used to grant merit pay increases than promotions. These findings support the view that the individual has difficulty distinguishing between seniority and job performance as important variables for promotion, assuming minimum standards have been met. On the other hand, satisfying certain performance criteria may be perceived as highly instrumental to obtaining merit pay increases. In summary, more explicit communication of the relative importance of individual performance criteria may be highly influential in assuring that employees take actions consistent with the objectives of the organization.

Individual Performance Criteria: Congruence with Preferences (IC^C)

The degree of congruence is measured by the absolute value of the difference between perceived and preferred criteria, and numbers close to zero represent greater congruence than those farther from zero. Accordingly, general Hypothesis 4 is operationalized as follows:

The absolute value of differences between perceived and preferred individual performance criteria for (a) merit pay increases and (b) promotions is smaller for P'' than for P'.

Insert Tables 7a and 7b about here

Hypothesis 4 is supported by the results shown in Tables 7a and 7b. For the performance classification according to level in the firm, differences are in the direction predicted for all twenty criteria; ten of these differences are significant ($p < .10$). For the performance classification according to managing partner(s), differences are in the direction predicted by H.4 for sixteen of the twenty criteria; five of these being significant ($p < .10$). One of the differences in the opposite direction is significant ($p < .05$).

The findings under H.3 and H.4 indicate several interesting patterns among the criteria we used to operationalize IC^a and IC^c. The accuracy with which the importance of "quality of technical work" appears more closely associated with performance than the "quantity of technical work." Three criteria which intuitively seem linked, "relationships with present clients," "selling additional services to present clients" and "developing new clients," are associated with performance. These results support the view that a correct assessment of the importance of relatively long-run objectives that are harder to measure, such as the quality of output and firm growth, are more important than a correct assessment of a quantifiable short-term performance indicator like quantity of output.

Congruity of Desired and Actual Rewards (V)

The degree of congruity between desired rewards and those perceived to be provided by the job is measured by the absolute value of differences between desired and perceived rewards. Thus, numbers close to zero indicate a higher congruence between desired and actual rewards, while those farther from zero indicate lower congruence. Accordingly, general Hypothesis 5 is operationalized as follows:

The absolute value of differences between desired rewards and those perceived to be provided by the job is smaller for P'' than for P'.

Insert Table 8 about here

Considerable support is shown for Hypothesis 5 by the findings, as shown in Table 8. Differences between P'' and P' are in the direction predicted for nine of the ten rewards specified (six significant at $p < .05$) for the performance classification based on past promotion to current level in the firm. For the performance classification according to managing partner, differences between P'' and P' are in the direction predicted for eight rewards (three are significant at $p < .10$), while one is significant in the opposite direction ($p < .10$). Differences between groups are as predicted, particularly for intrinsic rewards (e.g., "working with highly competent colleagues and supervisors," "having freedom to carry out own ideas," "working on problems of value to the nation's well-being"). For such extrinsic rewards as "earning

a very good salary" and "gaining promotions," however, the findings do not support H.5.

Expectancy (E) and Instrumentality (I)

Measures of expectancy and instrumentality are based on responses on a seven-point scale, in which larger numbers reflect greater expectancy or instrumentality. Accordingly, general Hypotheses 6 and 7 are operationalized as follows:

Expectancy--The perceived effort-to-performance relation is greater for P'' than for P'.

Instrumentality--The perceived performance-to-reward relation is greater for P'' than for P'.

Insert Table 9 about here

The findings presented in Table 9 are very supportive of H.6 and H.7 when P'' is measured by prior promotion to present level in the firm; all differences between P'' and P' were significant ($p < .10$) in the direction predicted. On the other hand, little difference between P'' and P' was found for the performance measure based on the classification by managing partner. While our research design does not enable us to determine causality, these findings support the view that the direction of relationship may be $P \rightarrow E$ and I , rather than $E, I \rightarrow P$. That is, past high performance, approximately rewarded, strengthens the belief that future great efforts will lead to high performance that will be appropriately rewarded. However, those employees having little

past experience do not see as strong a relation between efforts and rewards.

Ability

Responses to the questionnaire were made on a seven-point scale with larger values reflecting greater perceived ability by the respondents. Accordingly, the general Hypothesis 8 is operationalized as follows:

Greater perceived ability is indicated by P'' than by P'.

Insert Table 10 about here

The results shown in Table 10 support Hypothesis 8 for the performance classification according to past promotion. Nine of the ten ability measures are in the direction predicted, six of these are significant ($p < .10$). For the performance classification made by the managing partner(s), all ten measures are in the direction predicted, three of these are significant ($p < .10$). These findings clearly indicate that the individuals identified as P'', whether identified by partners in charge of offices or through prior promotions, do perceive themselves as having greater ability than their peers. Further research needs to be done to determine if these perceptions are confirmed by objective measures of ability.

Summary and Conclusions

This study was performed to develop and test a model of management control describing the interaction of organizational goals and the

goal-related actions of individuals within those organizations. A review of the literature revealed that very little progress had been made in developing theoretical foundations from which generalizations could be made for designing and implementing management control systems. A number of a priori efforts had been made which were not testable in specific settings, while the studies done in specific settings provided only limited generalizable principles. In short, no methodology was found which provided for theory-testing at a conceptual level while simultaneously facilitating and operationalizing testing in specific settings.

The present study was conducted to provide some initial closure to this gap in the research. A model was developed that could be generalized to a variety of settings on a conceptual level yet, by virtue of its design, could be operationalized in different settings. Different sets of organizational and individual goals in different organizations, for example, would not require a change in the conceptual model; instead, different operational definitions (e.g., performance criteria) would be provided for the conceptual variables. We believe that the successful development and application of this methodology is a major contribution of this study since it facilitates both theory development and situation-specific application of the theory.

In this study, the model was operationalized for the offices of certain CPA firms. Operational hypotheses were developed and tested in this setting. Major findings of those tests are summarized below.

1. Performance does not appear highly related to the accuracy of perceptions (OC^a), or congruence with preferences (OC^c), of criteria used for measuring organizational success.
2. Performance appears highly related to accuracy of perceptions (IC^a), and congruence of perceptions, of criteria (IC^c) used to measure individual's contribution to organizational process.

Together, these findings suggest that high performers noted stronger links in terms of criteria used to evaluate individual performance than criteria used to measure organizational success. Specifically, the goal congruence linkages IC^a and IC^c appear more dominant than the goal congruence linkages OC^a and OC^c in determining performance of staff. One possible implication might be that greater effectiveness of management control systems could result more readily from better specification and communication of performance criteria used to measure individual performance than similar efforts on criteria used to measure organizational success. This conclusion may not be generalizable to all organizations, since the match between organizational success criteria and each individual's performance criteria is closer in CPA firms than in many other types of organizations (e.g., industrial firms).

3. Performance appears highly related to congruence with preferences for intrinsic rewards. Further, it is much more related to congruence for intrinsic rewards than to congruence for extrinsic rewards.

This finding might be reflective of the professional character of a CPA firm. Typically, such firms are characterized by high selection standards and above-average financial remuneration. Their very nature

tends to emphasize professional competence and recognition as the means to personal growth and professional advancement. Furthermore, accountants choosing to join CPA firms might, as a group, be more concerned with the "work itself" than accountants working in industrial or governmental organizations.

4. Perceptions of high effort-to-reward relations appear to follow, rather than precede, high performance.

The data analysis does not allow a definitive explanation of this finding. Indeed, a case could be made that the process is circular over time. One way to gain further insights in this area might be to conduct a longitudinal study using the same research design.

5. Performance appears closely linked to self-assessment of ability.

There are two possible explanations for this finding. Higher performers might possess higher levels of self-confidence than all other staff. Second, positive feedback from their firms provided further reinforcement for their self-image.

The associative relationships found in the specific setting of public accounting firms are generally supportive of the model of management controls proposed in this study. We are strengthened in our belief that additional research in different settings (e.g., industrial and governmental organizations) using the basic approach proposed here would lead to a more definitive specification of the hypothesized relationships and thus to a fully developed model of management control.

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Figure 1
Management Control: Interaction Between Organizational Goals and the Goal-related Performance of Employees

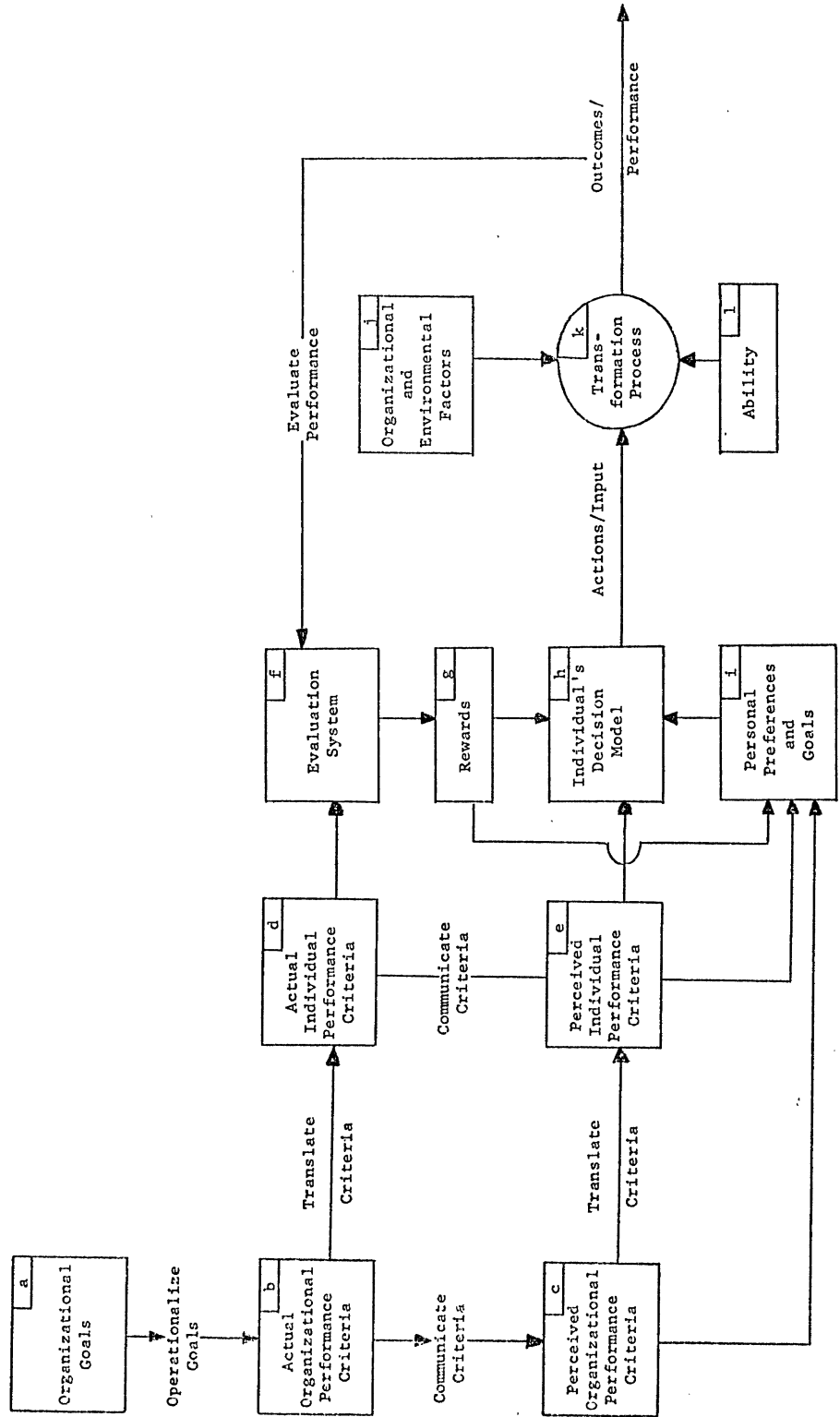


TABLE 1

CRITERIA USED IN PERFORMANCE MEASUREMENT AND ABILITY ASSESSMENT

1. Quantity of technical work, as measured in billable hours (including meeting time estimates)
2. Quality of technical work
3. Personal professional development (e.g., self-study, seminars, courses, etc.)
4. Quality of supervision of others
5. Quality of staff training and development
6. Relationships with other members of the firm, including communication and work cooperation
7. Relationships with present clients
8. Selling additional services to present clients
9. Developing new clients
10. Public relations

TABLE 2

REWARDS USED IN REWARD ATTRACTIVENESS (VALENCE) MEASURES

1. Earning a very good salary
2. Enhancing my learning and technical skills
3. Gaining promotions
4. Providing a chance to work with colleagues and supervisors having a high level of competence
5. Associating with partners or top executives in the organization
6. Building a professional reputation in the field
7. Working on difficult or challenging problems
8. Providing an opportunity to work on problems of value to the nation's well-being
9. Having the freedom to carry out my own ideas
10. Providing security and longevity

TABLE 3

A PARTIAL LIST OF EXPECTANCY AND INSTRUMENTALITY MEASURES

Expectancies:

The purpose of this section is to determine the relationship between the effort you put into your work and your performance on the job. Sometimes the effort we put into work is not reflected in our performance. Sometimes we perform well with little apparent effort, other times we don't perform as well, despite great effort on our part.

Indicate how well the effort you put into your work is reflected in your job performance (as that performance is viewed by your supervisors).

Instrumentalities:

The purpose of this section is to determine how closely the rewards received from working reflect your performance on the job. Indicate how well the following rewards reflect your performance:

The pay I receive, considering my work performance.

The promotions I receive or expect to receive, considering my work performance

The non-financial rewards I receive, considering my work performance.

Table 4
 ACCURACY WITH WHICH CRITERIA ARE PERCEIVED FOR EVALUATING ORGANIZATIONAL PERFORMANCE (OC^a)

Criterion	Means of Differences: Perceived Minus Actual Criteria					
	PERFORMANCE CLASSIFICATION					
	According to Level in Firm		According to Managing Partner			
P"	P'	P"	P'	P"	P'	
	N = 77	N = 78	N = 71	N = 160		
Quantity of technical work	1.04	1.18	1.07	1.16		
Quality of technical work	.81	** 1.13	.96	1.01		
Staff's personal professional development	1.14	** 1.38	1.27	1.22		
Quality of supervision	1.31	** 1.52	1.49	1.45		
Quality of staff training	1.21	1.77	1.47	1.53		
Relationships among staff in the firm	1.36	1.44	1.39	1.52		
Relationships with present clients	.81	** 1.12	1.03	.97		
Selling additional services to present clients	1.13	1.13	1.31	1.21		
Developing new clients	.85	** 1.08	.80	** .99		
Public relations	1.49	1.35	1.34	1.33		

*Difference between groups is significant at $p < .10$.

**Difference between groups is significant at $p < .05$.

***Difference between groups is significant at $p < .01$.

P" = higher performance group.

P' = lower performance group.

Table 5
 CONGRUENCE BETWEEN PERCEIVED AND PREFERRED CRITERIA FOR EVALUATING ORGANIZATIONAL PERFORMANCE (OC⁵)

Criterion	Means of Differences: Preferred Minus Perceived					
	PERFORMANCE CLASSIFICATIONS			PERFORMANCE CLASSIFICATIONS		
	According to Level in Firm P''	P'	N = 78	According to Managing Partner P''	P'	N = 160
Quantity of technical work	.86 *	1.16		1.00	.91	
Quality of technical work	.51 *	.68		.66	.64	
Staff's personal professional development	.91	.88		1.00	.85	
Quality of supervision	1.09	1.20		1.10 *	1.26	
Quality of staff training	.89	.83		1.04	.81	
Relationships among staff in the firm	.70 ***	1.21		.93	1.06	
Relationships with present clients	.56	.60		.68	.63	
Selling additional services to present clients	.79	.86		.83	.93	
Developing new clients	.64 **	.96		.73	.89	
Public relations	.91	1.01		.97	.98	

*Difference between groups is significant at $p < .10$.

**Difference between groups is significant at $p < .05$.

***Difference between groups is significant at $p < .01$.

P'' = higher performance group.

P' = lower performance group.

Tables 6(a) and 6(b)
 ACCURACY WITH WHICH CRITERIA ARE PERCEIVED FOR EVALUATING INDIVIDUAL PERFORMANCE:
 MERIT PAY INCREASES (IC^a) PROMOTIONS (IC^b)

Criterion	Means of Differences: Perceived Minus Actual Criteria											
	PERFORMANCE CLASSIFICATION				PERFORMANCE CLASSIFICATION				PERFORMANCE CLASSIFICATION			
	According to Level in Firm P" N = 78	P' N = 79	According to Managing Partner P" N = 70	P' N = 157	According to Level in Firm P" N = 39	P' N = 79	According to Managing Partner P" N = 51	P' N = 132				
Quantity of technical work	1.09	1.13	1.23	1.13	1.41	1.15	1.20	1.10				
Quality of technical work	1.04 ***	1.49	1.13 *	1.43	1.18	1.35	1.18	1.36				
Personal professional development	1.91	2.14	2.31	2.17	1.74	1.92	2.22 *	1.90				
Quality of supervision	1.50	1.62	1.53	1.62	1.56	1.49	1.78	1.65				
Quality of staff training	1.72 **	2.04	2.03	2.05	1.69	1.75	1.98	1.76				
Relationships with peers in the firm	1.10	1.14	1.23	1.31	1.05	.91	1.02	1.07				
Relationships with present clients	.92 ***	1.46	1.03 ***	1.46	1.21 **	1.57	1.41	1.54				
Selling additional services to present clients	1.23 ***	1.91	1.44 *	1.70	1.13 ***	1.98	1.35 **	1.71				
Developing new clients	1.11 ***	1.95	1.60	1.73	.90 ***	1.77	1.23	1.45				
Public relations	1.56	1.44	1.40	1.53	1.51	1.28	1.24	1.33				

*Difference between groups is significant at p < .10.
 **Difference between groups is significant at p < .05.
 ***Difference between groups is significant at p < .01.

P" = higher performance group.
 P' = lower performance group.

Tables 7(a) and 7(b)
 CONGRUENCE BETWEEN PERCEIVED AND PREFERRED CRITERIA FOR EVALUATING INDIVIDUAL PERFORMANCE:
 MERIT PAY INCREASES (IC^c) PROMOTIONS (IC^c)

Criterion	Means of Differences: Preferred Minus Perceived															
	PERFORMANCE CLASSIFICATION				PERFORMANCE CLASSIFICATION				PERFORMANCE CLASSIFICATION							
	According to Level in Firm p"	p'	N = 79	N = 78	According to Managing Partner p"	p'	N = 71	N = 71	According to Level in Firm p"	p'	N = 79	N = 71	According to Managing Partner p"	p'	N = 161	N = 161
Quantity of technical work	.85	.90	.77	.96	.92	1.00	.94	.97	.61	.83	.53	***	.89	.93	.96	.96
Quality of technical work	.68	** .95	.69	** .99	.73	** 1.01	.85	.99	.78	.91	.97	*	1.18	1.15	.87	.88
Personal professional development	.91	.99	.87	.96	.79	.89	.73	.87	.64	*** .95	.69	**	.88	.96	.96	.96
Quality of supervision	.96	1.09	.97	1.02	.97	*	1.18	1.15	.79	.89	.73	*	.87	.96	.96	.96
Quality of staff training	.85	** 1.09	1.04	1.02	.97	*	1.18	1.15	.79	.89	.73	*	.87	.96	.96	.96
Relationships with peers in the firm	.74	* .98	.82	.91	.79	.89	.73	.87	.64	*** .95	.69	**	.88	.96	.96	.96
Relationships with clients	.59	*** .97	.61	** .91	.64	*** .95	.69	.88	.72	** 1.02	.79	*	.97	.96	.96	.96
Selling additional services to present clients	.90	1.05	.94	1.01	.72	** 1.02	.79	.97	1.01	1.06	1.04		1.08	.96	.96	.96
Developing new clients	.91	* 1.10	.90	1.07	1.01	1.06	1.04	1.08	.95	.95	1.08	**	.88	.96	.96	.96
Public relations	.92	1.03	.94	.94	.95	.95	1.08	.88	.95	.95	1.08	**	.88	.96	.96	.96

*Difference between groups is significant at p < .10.
 **Difference between groups is significant at p < .05.
 ***Difference between groups is significant at p < .01.

P" = higher performance group.
 p' = lower performance group.

Table 8

CONGRUITY OF DESIRED AND ACTUAL REWARDS (V)

Reward	Means of Differences: Desired Minus Perceived			
	PERFORMANCE CLASSIFICATION			
	According to Level in Firm p" N = 78	p' N = 79	According to Managing Partner p" N = 71	p' N = 161
Earning a very good salary	1.38	1.57	1.50	1.54
Enhancing learning and technical skills	1.05	.82	1.06	.93
Gaining promotions	1.49	1.59	1.81 *	1.53
Working with highly competent colleagues & supervisors	.85	.99	.81 **	1.02
Associating with partners or top executives in the organization	1.38	** 1.86	1.54	1.60
Building a professional reputation in the field	.92	*** 1.66	1.18	1.36
Working on difficult or challenging problems	.77	*** 1.29	.97	1.11
Working on problems of value to the nation's well-being	1.19	*** 1.90	1.29 *	1.70
Having freedom to carry out own ideas	1.05	*** 1.73	1.15 *	1.43
Longevity & security in the job	1.92	1.95	1.74	1.83

*Difference between groups is significant at $p < .10$.
 **Difference between groups is significant at $p < .05$.
 ***Difference between groups is significant at $p < .01$.
 p" = higher performance group.
 p' = lower performance group.

Table 9

EXPECTANCY (E) AND INSTRUMENTALITY (I)

Measure	Means of Responses (seven-point scale)					
	According to Level in Firm		PERFORMANCE CLASSIFICATION			
	P''	P'	According to Managing Partner		P''	P'
	N = 78	N = 80	N = 72		N = 162	
Perceived relation between effort and performance	5.53 ***	4.88	5.24	5.22		
Perceived relation between performance and pay	3.53 ***	3.15	3.24	3.22		
Perceived relation between performance and promotions	3.97 ***	3.56	3.70	3.66		
Perceived relation between performance and non-financial rewards	3.79 ***	3.41	3.63	3.64		

*Difference between groups is significant at $p < .10$.
 **Difference between groups is significant at $p < .05$.
 ***Difference between groups is significant at $p < .01$.

P'' = higher performance group.
 P' = lower performance group.

Table 10

ABILITY (A)

Measure	Means of Responses (seven-point scale)					
	PERFORMANCE CLASSIFICATION					
	According to Level in Firm		According to Managing Partner			
	P"	P'	P"	P'	P"	P'
	N = 78	N = 80	N = 72	N = 162		
Quantity of technical work	5.00	4.83	5.11	4.98		
Quality of technical work	5.36	5.23	5.44	5.34		
Personal professional development	4.91 *	4.68	4.76	4.73		
Quality of supervision	5.20 **	4.85	5.28 **	4.98		
Quality of staff training	4.77	4.68	4.79 *	4.66		
Relationships with peers	5.34	5.36	5.58	5.24		
Relationships with present clients	5.87 *	5.56	5.81	5.64		
Selling additional services to present clients	5.03 ***	3.88	4.69 **	4.32		
Developing new clients	4.71 ***	3.75	4.24	4.04		
Public relations	4.66 **	4.26	4.38	4.32		

*Difference between groups is significant at $p < .10$.

**Difference between groups is significant at $p < .05$.

***Difference between groups is significant at $p < .01$.

P" = higher performance group.

P' = lower performance group.