

No. 2

Motivation and Causal Inferences in the  
Budgetary Control

Yoshihiro Naka

August 1992

Department of Commerce  
Otaru University of Commerce

# Motivation and Causal Inferences in the Budgetary Control

Yoshihiro Naka

30 May 1992

**Abstract:** This paper reports the result of an empirical study designed to examine the relationship between the manager's perceptions of the sources of budget variances and his motivation. A questionnaire survey drew the responses from sixty-eight middle managers sampled from nine manufacturing companies in Japan. The questionnaire mailed to them included a list of possible causes underlying their budgetary performance, the items to measure variables that constitute the expectancy model of motivation, and other variables related to budgeting. Five factors were drawn by the factor analysis of perceived causes of budget variances. And the analysis of the relationship between those factors and motivation revealed that three of those factors influenced it significantly; (a) internal factor, that was composed of the sources existing in his own side, (b) the budget validity factor, that referred to the extent which a manager perceived his budgetary performance properly reflects his efforts, and (c) chance factor, that was composed of economic condition and luck. The internal factor related to the external and internal valences as well as expectancy variables of the motivation model, the budget validity only to the expectancy, and the chance factor had an effect on motivation through the social valence. In addition, the effects of the task uncertainty and a few other variables on the causal factors of variances were examined. This would provide the means for encouraging budgetary motivation.

# 1 Introduction

Accounting information is transformed to manager's behavior via the human information processing process. Cognitive psychologists presume cognitive organizing schema for an individual to perceive and interpret his outer world. He does not perceive it as it is.

The components of cognitive structure are *attributes*. For purposes of analysis, it is assumed that a person perceives objects and events in terms of psychological dimensions. A *psychological dimension* is one's capacity to map consistently a set of responses onto a collection of stimuli that is itself ordered. A specific act of "perceiving" or "cognizing" a given stimulus object or event is regarded as involving the projection of the stimulus onto a set of psychological dimensions, and thereby attributing to it one value from each of those dimensions. Those projected values, attributes, are the elements of the cognitive structure under analysis. (Zajonc, 1968, p. 328)

While cognitive structures (schemata) are a function of past experiences, it is also assumed that they are indispensable in the processing of information. When an individual tries to process the new stimulus information about certain objects, a cognitive schema relevant to those objects is activated. In his interface with environment there are the schemata that mediate the incoming information. Assuming cognitive schemata in human information processing, the analysis of behavior requires two steps. First, there is a cognitive schema of the perceived stimuli. Second, there is a specification of how the cognitive influences the final behavioral response (Weiner, 1972). And this approach of cognitive theory of behavior would be meaningful for the investigation of influence of accounting information upon management behavior.

It is commonly emphasized in management accounting texts that the performance reports to manager as a budgetee have to be prepared in accordance with the principle of responsibility accounting. Responsibility accounting is defined by Ferrara (1964) as: "the essence of responsibility accounting are the accumulation of costs and revenues according to area of responsibility in order that deviations from standard costs and budgets can be identified with the person and group responsible." This definition is given heavy weight in the accounting procedures. However, the main objective of responsibility accounting implied by this definition is to motivate

the managers and to attain effectively organizational goals through their actions. Therefore, it would be interesting from the behavioral viewpoint to see how the responsibility accounting procedures are related to the budgetary motivation.

In most cases so far, motivation in budgeting has been researched on the basis of the expectancy model. (For example, Ronen and Livingstone, 1975; Ferris, 1977; Rockness, 1977; Brownell, 1983; Brownell and McInness, 1986) This model are constructed from the functional relationship among such variables as expectancy, instrumentality, and valences. It allows measurement of the strength of motivation. To obtain the operational statements about the effects of responsibility accounting on motivation, however, the cognitive process that influences the variables of motivation has to be made clear in more detail. In this connection, it seems that the expectancy theory is insufficient to satisfy such an inquiry, as Weiner (1974) criticizes.

Surprisingly, the inferred determinants of expectancy and expectancy shifts as deduced from research on humans are even less satisfying. Investigators in the achievement area have not systematically examined the antecedents of the expectancy (subjective probability) of success. Expectancy is typically manipulated by merely telling subjects their chance of success. To the lesser extent, probabilities have been manipulated by varying past success history, the number of persons against whom one is competing, or objective difficulty of the task. The only determinants of expectancy shifts that have been identified are success and failure. (p.56)

The performance reports that compare actual costs or revenues with the budgeted standards are prepared for each responsible manager. Then, he may perceive many causes of the budget variances, and interpret from which ones his budget performance resulted. This process of causal judgment determine thereafter his attitude toward budgets, motivation and his performance. When referring to the cognitive model of behavior, it is assumed that the cognitive mediating schema were there in such causal assessment process. In this paper, our first endeavor is directed to investigation of the relationship between the cognitive schema of causal inference of budget variances incurred and the manager's motivation. In this endeavor, we will try to apply another cognitive theory of motivation, the attribution theory. This theory is expected to supplement the deficiency mentioned above of the expectancy model. The knowledge about cognitive schema that determines

causal inference of variances would provide the starting point of the present work. After the cognitive framework was found, our second endeavor points to describing the effects of task uncertainty and other behavioral variables, such as participation, goal clarity, and others, upon the causal judgment within the framework. By such a method, we expect, some suggestions for enhancing effective budgeting could be made.

## 2 The expectancy theory and the attribution theory

The expectancy model formulated by House (1971) is as follows.

$$M = IV_b + P_1(IV_a + \sum P_{2i}EV_i) \quad i = 1, 2, \dots, n \quad (1)$$

$M$ : motivation to work

$IV_a$ : intrinsic valence associated with successful performance of the task

$IV_b$ : intrinsic valence associated with goal-directed behavior

$EV_i$ : extrinsic valence associated with the  $i$ th extrinsic reward contingent on work-goal accomplishment

$P_1$ : the expectancy that goal-directed behavior will accomplish the work-goal(a given level of specified performance; the measure's range is  $(0, +1)$ )

$P_{2i}$ : the expectancy that work-goal accomplishment will lead to the  $i$ th extrinsic reward; the measure's range is  $(-1, +1)$ .

The expectancies,  $P_{2i}$ , mean the instrumentals of performance for attainment of desirable outcomes, or for avoidance of undesirable outcomes (Galbraith and Cummings, 1967). As shown in this equation, motivation to achieve the budget is determined as a function of expectancy, instrumentals and valences that are assessed by an individual on the basis of his previous experiences and knowledge about a particular task.

The attribution theory of achievement motivation has a supplementary position to the expectancy model (Campbell and Prichard, 1976). It is based upon the assumption that beliefs about the causes of success and

failure mediate between antecedent stimulus-organism transactions and ensuing achievement behavior. In budgeting, the estimates of variables that consist of the expectancy model may be influenced by the perceived causes that bring out the manager's budgetary performance. Therefore, by using the constructs of the theory, we could shed some light on the perceived causalities of variance and the cognitive structure underlying them as precedings of budgetary motivation.

In the early model developed by Weiner, et al. (1971), it is postulated that individuals utilize four elements of ascription both to postdict (interpret) and predict the outcome of achievement-related event. The four elements are ability, effort, task difficulty, and luck which can be comprised of two basic dimensions; locus of control, and degree of stability as shown Table 1. In the first dimension, locus of control, the causes are classified into internal or external. Internal causes (ability and effort) originate within the individual undertaking the task, and external causes (task difficulty and luck) arise from his environments. Further, the stability dimension has to do with the enduring characteristics of the elements. Some causes (ability and task difficulty) remain stable through repeated performance, whereas the magnitude of other causes (effort and luck) are relatively variable.

Table 1: The two-dimensional classification of perceived causes

| stability | Locus of control |                 |
|-----------|------------------|-----------------|
|           | Internal         | External        |
| Stable    | Ability          | Task difficulty |
| Unstable  | Effort           | Luck            |

Later, the intentionality dimension was added to the original schema by Rosenbaum (1972) to reflect the ability of the performer to consciously control the activity or cause in question. Subsequently, Weiner (1974b, 1979) renamed this dimension as controllability, and locus of control as locus of attribution.

The controllability dimension is particularly interesting for the accountants, because they are frequently required to respect the principle of controllability as well as of responsibility. This principle argues that, in evaluating a manager's performance, only the factors under his control should be considered. The idea is a simple and appealing. Without obeying this principle, the measurements provided by accounting systems might not be

perceived as fair and not accepted by the managers that it applies. Therefore, the responsibility accounting and the controllability are assumed to be not separable. However, the theoretical causal schema suggests that those concepts can be differentiated from each other.

Birnberg, et al.(1977) and Shields, et al. (1981) provided, as shown in Table 2, a classification schema on the three dimensions relevant to the control system.

Table 2: The three-dimensional classification of perceived causes

| Stable         | Locus of attribution                                 |  |
|----------------|--|--|
|                | Internal   | External   |
| Uncontrollable | Ability of actor                                     | Ability of actor's subordinate(s)  |
|                | Background or training of actor<br>Intrinsic motives | Task ease or difficulty  |
| controllable   | Stable effort<br>Diligence or laziness               | Subordinate's stable effort<br>Ongoing job conflict<br>Performance measurement process |

| Unstable       | Locus of attribution                                  |   |
|----------------|---|---|
|                | Internal  | External  |
| Uncontrollable | Fatigue<br>Personal non-job related temporary problem | Tight budget<br>Economic conditions<br>Luck   |
|                | Effort<br>Response to incentives                      | Cooperation of others<br>Transitory superior-subordinate conflict<br>Subordinate's unstable effort<br>Extrinsic motives |

The distribution of some causes on the three dimensions is explained as follows. About internal causes, ability is stable and uncontrollable. Mood and fatigue are unstable and uncontrollable. In terms of external causes,

task ease or difficulty is stable and uncontrollable. Usual effort of the subordinate is stable and controllable. Chance or luck is unstable and uncontrollable. The temporary conflicts among the organizational units are sorted as unstable and controllable.

While the causal categories shown in Table 2 provide the theoretical basis for elucidating the schema constructed in the field of budgeting, we cannot expect that it precisely corresponds to the schema that a manager would actually make up, because his causal judgment would be dependent on the observed organizational conditions. Therefore, in this research, we will try to look for the cognitive schema in action. But before proceeding to such a trial, we suppose that the theoretical schema would be the case for budgeting, and propose three hypotheses about the relationships between the causal schema and motivation.

The expectancy model indicates that the intensity of aroused motivation is jointly determined by the subjective probability that efforts will lead to the goal and the attractiveness of goal objects. The former is called expectancy, and the latter valence. (For the moment, we could assume that the expectancy,  $P_1$ , and the another variable of the expectancy model, instrumentality,  $P_{2i}$ , are combined so that expectancy includes the instrumentality.) The greater the perceived possibility of goal attainment and the greater the incentive value of the goal, the more intense is the presumed degree of positive motivation.

In the attribution model, it has been proved that expectancy shifts are remarkably influenced by the stability of perceived causes of the success or failures. The ascriptions of an outcome to stable factors produce greater typical shifts (increments in expectancy of success after success, and decrements after failure) in expectancy than do ascriptions to unstable factors. The differential shifts of expectancies as a function of the stability of the attribution is presumed to occur given either internal (ability versus effort) or external (task difficulty versus luck) causal attributions. However, attributions to effort produce greater typical shifts than attributions to luck. This is because effort also has stable characteristics ("He is a lazy person"), and the intent to success is likely to remain relatively constant (Weiner, 1974b, 1974c).

On the other hand, the locus of attribution is, from psychologists' view point, the basis of allocation of responsibility for a task outcome (Weiner, 1974a,b). Therefore, the influence of responsibility accounting procedures on the manager's behavior could be discussed in terms of this dimension.

The attribution model argues that the affective consequences of goal attainment, pride and shame, are maximized when achievement outcomes are ascribed internally and minimized when success and failure are attributed to external causes. Thus, success attributed to high ability or hard work is expected to produce more pride than success that is attributed to the ease of task or to good luck. In a similar manner, failure perceived as due to low ability or lack of effort is expected to result in greater shame than failure that is attributed to a hard task or bad luck. In sum, locus of attribution influences the affective consequences of achievement behaviors (Weiner, 1974b, 1974c).

Thus, on the basis of these arguments, the following null hypothesis is possible.

**Hypothesis 1:** There will be no relationship between the manager's perceived internal causes of budget variances and his motivation.

**Hypothesis 2:** There will be no relationship of the perceived internal and controllable causes with his budgetary motivation.

**Hypothesis 3:** There will be no relationship between the causal ascription of budget variances to the stable dimension and manager's motivation.

The valences to which the attribution theory refers are intrinsic valences, that is, pride and shame. But in organizational settings, the extrinsic valences play important roles for motivation. The examination on the relationships between external rewards and motivation will be tried in the later section in a heuristic and descriptive way.

### 3 An empirical study

A package of survey questionnaires was sent to a representative manager in charge of management control in each corporation that agreed to cooperate with us. He distributed the questionnaires to the managers in his corporation whose activities should be controlled through the use of budgeting. The samples were not strictly random, because final sample selection was left up to him.

Of 123 questionnaires distributed, 73 were returned (rate of response was 67.5 percent) and of those 68 were usable. On the average, the age of respondents was 44.5, their tenure in their companies was 22 years, and the period of being in present position was 4.1 years.

Table 3: Extrinsic and Intrinsic Valences

---

| External   |  |
|--|--|
| 1. Pay raise   |  |
| 2. High pay  |  |
| 3. Respect from boss                                     |  |
| 4. Respect from other employees                          |  |
| 5. Receiving more compliments                            |  |
| 6. Greater chances for independent<br>thought and action |  |
| 7. More chances to make friends                          |  |
| 8. Special reward or recognition                         |  |
| 9. Promotion   |  |
|  |  |
| Internal   |  |
| 1. Personal growth and development                       |  |
| 2. Setting higher standards for yourself                 |  |
| 3. Giving help to others                                 |  |
| 4. Time at work passing fast                             |  |
| 5. Feeling of security                                   |  |
| 6. Setting higher standards for others                   |  |
| 7. Feeling accomplishment                                |  |
| 8. Being not tired                                       |  |

---

The questionnaire contained three sets of items to measure the motivation, causal attribution, and budget related events.

**Motivation:** The scales related with motivation had the purpose of eliciting the measurements on each constructs of the model presented in equation (1). Three constructs are there; valence, expectancy, and instrumentality.

The approach to evaluate those were used from the procedure developed by Lawler and Suttle (1973), and adapted by Brownell (1983) in budgeting. To assess the valences, seventeen outcomes from Lawler and Suttle (1973) that are listed in Table 3 were used in this research. In order to measure the valence of each outcome, the respondents were asked to value on a scale from one to nine (extremely undesirable to extremely desirable) the strength of their preference for that outcome.

Intrinsic valence, as indicated in equation (1), are distinguished between

$IV_b$  and  $IV_a$ . For the intrinsic outcomes, therefore, the respondents were twice asked to value his preference over the same eight outcomes. First, intrinsic valence of achievement behavior,  $IV_b$ , was measured by asking the respondents to value each outcome as it might result from "work hard." Second, by asking to value the same outcomes as might result from "meeting budget goal." The score of  $IV_b$  substituted into the model is the average value of responses from the first set of valuing. The score of  $IV_a$  is also the average value of responses from the second set of valuing. The valences related with the nine external outcomes,  $EV_i$ , were evaluated by same wording as in valuing the second set of internal valences.

Equation (1) calls for the assessment of nine instrumentals associating goal attainment with extrinsic outcomes. These were assessed by asking the respondents, for each of nine outcomes, to value on a scale of one (never) to seven (always) the probability that meeting the budget goal would lead to the outcomes. The expectancy,  $P_1$ , that goal directed behavior would result in the successful attainment of budget goal was measured by asking the respondents to value instrumentals on a similar scale. These ten responses were converted to probabilities in the range of zero to one, and incorporated into equation (1).

**The causal attribution:** In order to investigate the causal ascription of budgetary variances that was associated with motivation, twenty scales were constructed on the basis of the classification scheme presented by Birnberg, et al. (1977) and Shields, et al. (1981). Appendix A contains these scales. The respondent was asked to assess the extent that these causes influenced their budgetary performance in the last year. The responses were coded so that the more a cause works toward increased favorable variance, the higher score it is given (see appendix A).

**Other variables:** In addition to the motivation and the causal ascription, we examined the effects of other budget related variables on causal ascription. The causal ascription would be dependent on the perceived characteristics such as task uncertainty, participation in goal setting, goal specificity and difficulty, and so on. To make clear the relationship between these characteristics and the causal schema provides the cue to improve effective budgeting. Appendix B includes the scales to measure the following characteristics but task uncertainty.

1. Task uncertainty: The organizational control by budgeting has been said to be most effective in stable task environment. Galbraith (1974) argued that the organic organization confronting uncertain environ-

ment tends to create cross sectional coordinating function, and other integrating devices in complement to goal settings, decision makings in the hierarchies, and rules. Bruns and Waterhouse (1975) suggested that the use of budgets for control purposes is thought to be dependent upon the ability to plan with fairly high degree of certainty and measure output or role performance with relatively high degree of accuracy. These preconditions of effective budgeting may be difficult to meet in practice. We tried to examine the effects on the motivation of task uncertainty as a major factor violating the responsibility accounting requirements. The concept of task uncertainty was defined by Perrow(1966) on the two dimensions, task difficulty, and task variability. The former refers to the analyzability of the work itself and the extent to which there is a known procedure that specified the sequence of steps to be followed in performing the task. The latter refers to the number of exceptional cases encountered in the work requiring different methods or procedures for doing the task. The scales were constructed on the basis of measures developed by Van de Ven and Delbeque (1974).

2. Budget goal clarity: This variable refers to the extent to which budget goals are stated specifically and clearly, and are understood by those who are responsible for meeting them.
3. Budget goal difficulty: Budget goal ranges from loose and easily attainable budget to tight and unattainable. The extent of difficulty was measured by asking the respondents to estimate the subjective probability, and easiness or tightness of budget attaining <sup>1</sup> .
4. Participation: This is the behavioral variable well known in budgeting, and refers to the extent to which managers participate in preparing

---

<sup>1</sup>It is noted that a similar scale to one of the causes of budget variance that used to derive the cognitive causal schema was included in each of the measure of budget goal clarity and goal difficulty. This dual use of the variable is based on the following reasons. First, a judgment in the context of determining the cause of variances incurred might be different from one in the other context. For example, before implementing the budget, budget tightness would have to do with task difficulty, but at the stage of performance assessment, it might be more related to the perceived budget validity, to say, if not attained, to denying the budget. Second, we will try to study the cognitive schema of variances by means of factor analysis, and the solution of the analysis is orthogonal. The effects of a causal variable tends to be interpreted in relationship with one factor that is independent of other factors. This means that the investigation may be limited to the effects of the variable through only one causal path on motivation. The problem about budget tightness has been a subject of behavioral accounting research. Therefore, in addition to the effects of it via a single path on motivation, it would be interesting to research them from more a broad viewpoint. For this treatment, we had this variable take dual roles.

budget and influence the budget goal of their responsibility centers. The measure to assess this variable consists of two sets of scales. One asked the extent of cooperation with the respondent's superior and other departments in his organization, and the other asked the extent of his influence.

5. The propensity to create slack: Slack occurs when an organization unit controls more resources than are needed to maintain its viability. Budgetary slack is one important form of slack that is defined as the excess of the amount budgeted in an area over that which is necessary. In this research, the scales did not directly measure the amount of slack created by managers, but tried to measure the propensity to create slack by using four scales developed by Onsi (1973).
6. Management by exception: The control function of budgeting is performed through variance analysis. Emphasizing the deviations from predetermined plan expedites managerial control. Ronen and Livingstone (1975) suggested that, under management by exception, the response to favorable variance not requiring corrective action often seems to be weaker than unfavorable deviation. And budget attainment which are not connected to prize or rewards with same frequency and extent as the unattainment is to blame and penalty, the result being defensive and overcautious behavior. It is anticipated that management by exception would accompany adverse behavioral consequences (Brownell, 1983). This management mode may therefore also influence the causal schema and motivation.

## 4 The results

Cognitive framework underlying the perceived causality of variances was ascertained by factor analysis. Table 4 shows the solution of factor analysis that was derived through repetitive estimations of communalities by the principal axis method, and then, to aid interpretation, subjected to varimax rotation. The factor loadings that were more than .50 are underlined.

Five factors with eigenvalue greater than 1.0 were extracted which together accounted for approximately 62.3 percent of total variance. These factors were labeled as follows:

1. Self ascription: Extent of internal causal ascription of budget variances.

Table 4: The factor pattern of causes of variances

|                                 | FACTORS              |                      |                     |                         |              | Communality |
|---------------------------------|----------------------|----------------------|---------------------|-------------------------|--------------|-------------|
|                                 | I<br>Self<br>ascrptn | II<br>Org.<br>relatn | III<br>Task<br>ease | IV<br>Budget<br>validty | V<br>Chance  |             |
| 1. Ability of subord.           | 0.142                | 0.290                | 0.025               | <u>0.587</u>            | 0.256        | 0.515       |
| 2. task difficulty              | 0.056                | 0.140                | <u>0.614</u>        | -0.010                  | 0.195        | 0.437       |
| 3. stable effort                | <u>0.655</u>         | 0.250                | 0.065               | 0.116                   | 0.039        | 0.510       |
| 4. Ongoing job conflict         | 0.169                | 0.234                | 0.119               | <u>0.553</u>            | 0.141        | 0.423       |
| 5. Perfo. measurmnt process     | 0.128                | -0.051               | 0.048               | <u>0.621</u>            | -0.015       | 0.407       |
| 7. Subord.'s table effort       | 0.385                | <u>0.604</u>         | -0.218              | 0.271                   | 0.141        | 0.654       |
| 8. Tight budget                 | -0.142               | -0.113               | <u>0.826</u>        | 0.225                   | 0.058        | 0.769       |
| 9. Economic conditions          | 0.029                | 0.013                | 0.289               | 0.255                   | <u>0.680</u> | 0.612       |
| 10. Effort                      | <u>0.806</u>         | 0.315                | -0.047              | 0.079                   | 0.074        | 0.763       |
| 11. Luck                        | 0.101                | 0.206                | 0.048               | 0.035                   | <u>0.655</u> | 0.485       |
| 12. Coop.w. other departmnt     | 0.286                | <u>0.742</u>         | 0.161               | 0.048                   | 0.180        | 0.693       |
| 13. Transtry sup.-sub. conflict | 0.361                | <u>0.786</u>         | 0.065               | 0.145                   | 0.094        | 0.782       |
| 14. Sub.'s unstable effort      | 0.462                | 0.486                | -0.312              | 0.156                   | 0.194        | 0.609       |
| 15. Ability                     | <u>0.820</u>         | 0.403                | 0.139               | 0.062                   | -0.150       | 0.880       |
| 16. Background or training      | <u>0.752</u>         | 0.464                | 0.045               | 0.111                   | -0.114       | 0.808       |
| 17. Sub.'s resp. to incentvs    | <u>0.590</u>         | 0.058                | -0.175              | 0.186                   | 0.213        | 0.462       |
| 18. Response to incentives      | <u>0.696</u>         | 0.052                | -0.184              | 0.177                   | 0.228        | 0.604       |
| 19. Intrinsic motives           | <u>0.904</u>         | 0.111                | 0.011               | 0.105                   | 0.081        | 0.847       |
| 20. Fatigue                     | <u>0.764</u>         | 0.246                | 0.001               | 0.131                   | 0.036        | 0.662       |
| Eigenvalue                      | 5.221                | 2.605                | 1.429               | 1.403                   | 1.265        | 11.923      |
| proportion of variance          | 0.273                | 0.151                | 0.073               | 0.071                   | 0.063        | 0.623       |

Item 6 was excluded, because of skewed distribution.

2. Organizational relationship: Extent of interpersonal interactions with subordinates and other department managers to attain budget goals.
3. Task ease: Extent of budget ease. It may be preferred to name this factor task difficulty, but in the present study, this factor was labeled task ease, because the variables that had higher loadings on it were scored so that the tighter the budgets were, the lower the scores given, and *vice versa*.
4. Budget validity: Extent of the perceived reliability of budget that contains not so much contradiction within it, and fairly reflects the respondent's performance.
5. Chances: Extent of budgetary performance to be determined by uncontrollable elements such as luck and economic condition.

On examining this factor pattern with reference to the classification schema shown in Table 2, it is recognized at first glance that a prominent

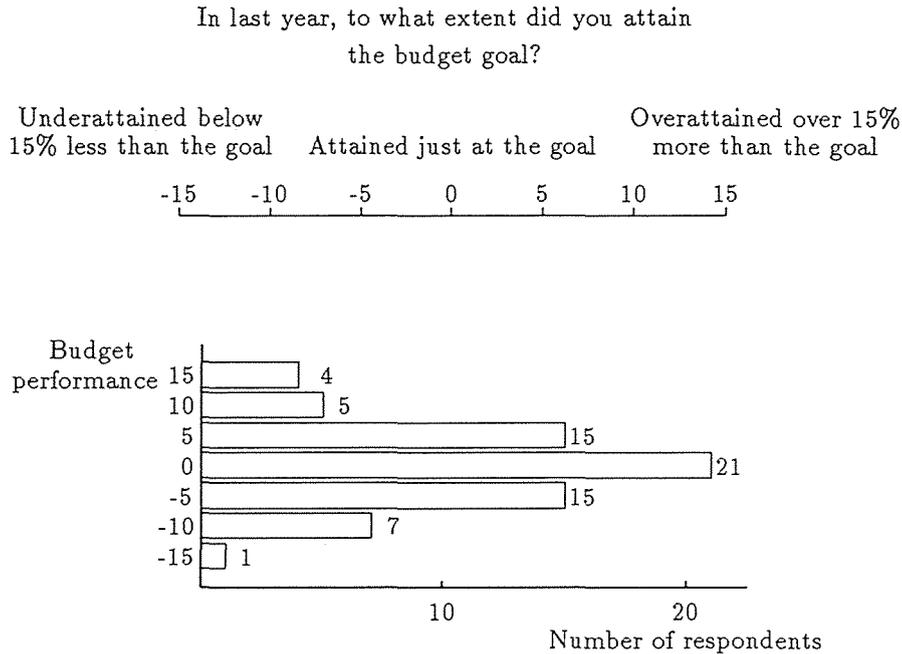
dimension underlying the perception of causality was the locus of attribution. Factor I, Self ascription, includes all the causes thought of as internal, and among those causes could not be found the classification on stability or controllability dimension. All other than this factor represent external causes of variances. Factor II is constructed from the external and controllable causes, but confounds on stability. Factor III summarizes the external and uncontrollable ones, but also confounds on stability. Factor IV, Budget validity, represents the external, uncontrollable and stable ones. Factor V, Chance, is external, uncontrollable and unstable causes. It was found from this factor pattern that the causal classification which most interested managers in the organizational situation was whether the causes of budgetary performance originated from the manager himself or not. It seems that, so far as this factor pattern is concerned, once he found a cause was internal, no further information search for the cause were there. Therefore, the concept of responsibility was not necessarily restricted by controllability. With regards to external causes, however, the perceptual differentiation on the controllability and/or stability dimension appeared. In this region, information search by the manager might be more detailed, and the tissues of his perception be fine.

Before advancing to the examination of relationship between the causal ascription and motivation, it is preferred to make sure that these ascriptions were dependent upon the budget variances. We asked the respondents to indicate the extent to which their observed budget achievement deviated from the budget goal. The scale used to measure it and frequencies on each level of deviations is provided in Figure 1.

Table 5 shows the correlation between each of the five factor scores and the extent of deviation, that is, budgetary performance. All the correlations are not so great, but, statistically significant. Therefore, it could be ascertained that the causal ascriptions anchored into the actual budgetary performance. In addition, the self evaluating scale of performance developed by Mahoney, et al. (1963) was included in the questionnaire of this study. This scale was frequently adapted by Brownell(1982,1983), and Brownell and McIness(1986), Table 5 also indicate the correlations between each of factor scores and the score of single overall rating scale that included in the measure by Mahoney, et al.. Significant levels of those correlations are on the average less than those of budget performance, but both correlations seem to be in the same direction.

The hypothesized relationships were tested by the significant Spearman

Figure 1: The budgetary performance of the respondents



rank order correlation coefficients. Of the five correlations between the factors and motivation, three are significant. The hypothesis 1 assumed that internal causal ascription of variances have nothing to do with the motivation. Table 5 shows that the correlation between the internal ascription factor and motivation was highly significant ( $r = 0.42, p < 0.01$ ). Therefore, this hypothesis is rejected, and the fundamental assumption of the responsibility accounting is verified as effective. Hypothesis 2, assumed that the internal and controllable causal ascriptions are not related to motivation, cannot be tested, because these causes did not form any separable factor. The test of the final hypothesis, assumed that there will be no relationship between the causal ascription of budget variances to the stable dimension and manager's motivation, was somewhat complicated. On the stability dimension are the factors of organizational relationship and task difficulty. However, it was not clearly judged whether the budget validity represents the stable causes or not. Of causes which constitute this factor, the subordinate's ability and the inconsistent elements contained in the task are interpreted as stable ones. But, by reference to the theoretical categories shown in Table 2, manager's confidence in the performance measurement

Table 5: The correlations of causal factors with motivation and budgetary performance

|    |                          | FACTORS              |                      |                     |                         |                   |
|----|--------------------------|----------------------|----------------------|---------------------|-------------------------|-------------------|
|    |                          | I<br>Self<br>ascrptn | II<br>Org.<br>relatn | III<br>Task<br>ease | IV<br>Budget<br>validty | V<br>Chance       |
| 1. | Motivation               | 0.42*                | 0.13                 | 0.02                | 0.26 <sup>+</sup>       | 0.23 <sup>?</sup> |
| 2. | Budgetary<br>performance | 0.33*                | 0.42*                | 0.35*               | 0.35*                   | 0.34*             |
| 3. | Mahony's<br>measure      | 0.35*                | 0.23 <sup>?</sup>    | 0.16                | 0.17                    | -0.03             |

Significance level of two tailed.

\*  $p < 0.01$

+  $p < 0.05$

?  $p < 0.10$

Correlation of each pair

0.19 for 1. and 2.

0.22<sup>?</sup> for 1. and 3.

0.46\* for 2. and 3.

process is an unstable cause. The *a priori* classification of causes are not deterministic in practice however. So this cause could be assumed as stable. If so, this factor would be located on the stable end of the dimension. And then, because the relationship between this factor and motivation is significant, it tends to reject hypothesis 3. However, contrary to our expectation, Factor V, Chance was also significantly related to motivation. The economic environment or fortune is interpreted as the typical unstable cause. Thus, the fact that the ascription to unstable causes as well as stable ones had an effect on motivation make it difficult to reject hypothesis 3. This ambiguity was caused by the effects of external rewards.

In order to study these results in more detail, The effects of causal ascriptions on each of variables of expectancy model were analyzed further. Table 6 shows the correlations among the relevant variables, namely, the correlations between causal factors of variances and the variables of the expectancy model of motivation derived from the total sample (N=68), and, in addition, the corresponding correlations from three groups that composed total sample. Those groups are the following; the first group named 'Success', that overattained their budget goal more than 5 percent(N=24), the second group named 'Just attained', that just attained their goals, and the third group (N=21) named 'Failure', that failed to arrive at their goal

Table 6: The rank order correlations between the factors of causality and the variables of expectancy models, total N=68 (Success=24,Just attained=21,Failure=23)

|                  |               | FACTORS            |                   |                    |                    |                   |
|------------------|---------------|--------------------|-------------------|--------------------|--------------------|-------------------|
|                  |               | I                  | II                | III                | IV                 | V                 |
|                  |               | Self               | Org.              | Task               | Budget             |                   |
|                  |               | ascrptn            | relatn            | ease               | validty            | Chance            |
| External valence |               |                    |                   |                    |                    |                   |
| 1.               | Formal reward | 0.15               | 0.00              | -0.10              | -0.01              | 0.05              |
|                  | Success       | 0.47 <sup>+</sup>  | -0.03             | -0.20              | -0.10              | 0.01              |
|                  | Just attained | 0.38 <sup>?</sup>  | 0.13              | -0.02              | 0.02               | 0.14              |
|                  | Failure       | -0.39 <sup>?</sup> | -0.09             | -0.29              | -0.05              | 0.18              |
| 2.               | Social reward | 0.20               | 0.09              | -0.05              | 0.14               | 0.27 <sup>+</sup> |
|                  | Success       | 0.30               | -0.05             | -0.22              | -0.20              | -0.15             |
|                  | Just attained | 0.38 <sup>?</sup>  | 0.01              | -0.41 <sup>?</sup> | 0.24               | 0.39 <sup>?</sup> |
|                  | Failure       | -0.04              | 0.16              | 0.08               | 0.19               | 0.43 <sup>+</sup> |
| Internal valence |               |                    |                   |                    |                    |                   |
|                  | Success       | 0.29 <sup>+</sup>  | 0.00              | -0.23              | 0.10               | 0.05              |
|                  | Just attained | 0.53 <sup>*</sup>  | -0.10             | -0.14              | -0.19              | -0.11             |
|                  | Failure       | 0.53 <sup>*</sup>  | -0.07             | -0.38 <sup>?</sup> | 0.04               | 0.22              |
|                  | Failure       | -0.02              | 0.17              | -0.22              | 0.23               | -0.02             |
| expectancy       |               |                    |                   |                    |                    |                   |
|                  | Success       | 0.22 <sup>?</sup>  | 0.02              | 0.01               | 0.45 <sup>*</sup>  | 0.07              |
|                  | Just attained | 0.37 <sup>?</sup>  | -0.31             | 0.08               | 0.35 <sup>?</sup>  | 0.06              |
|                  | Failure       | 0.33               | 0.20              | -0.01              | 0.41 <sup>?</sup>  | -0.09             |
|                  | Failure       | 0.01               | 0.12              | -0.11              | 0.56 <sup>*</sup>  | 0.03              |
| Instrumentality  |               |                    |                   |                    |                    |                   |
| 1.               | Formal reward | 0.31 <sup>*</sup>  | -0.04             | 0.01               | -0.05              | 0.29 <sup>+</sup> |
|                  | Success       | 0.22               | -0.28             | -0.17              | -0.07              | 0.36 <sup>?</sup> |
|                  | Just attained | 0.47 <sup>+</sup>  | 0.03              | 0.05               | -0.10              | -0.05             |
|                  | Failure       | 0.23               | -0.01             | 0.09               | 0.01               | 0.46 <sup>+</sup> |
| 2.               | Social reward | 0.29 <sup>+</sup>  | 0.24 <sup>?</sup> | 0.14               | 0.06               | 0.25 <sup>+</sup> |
|                  | Success       | 0.54 <sup>*</sup>  | 0.06              | 0.05               | -0.21              | 0.14              |
|                  | Just attained | 0.25               | 0.13              | 0.18               | -0.07              | 0.21              |
|                  | Failure       | -0.02              | 0.10              | 0.07               | -0.37 <sup>?</sup> | 0.34              |

Significance level, \*  $p < 0.01$ , +  $p < 0.05$ , ?  $p < 0.10$

(N=23).

The valences were classified into three categories by means of factor analysis. The external valences were constituted by two factors; one was named formal reward (contained item 1,2, and 9 in Table 3), and the other was social reward (item 3,4,5,6,7, and 8). Internal valences,  $IV_a$ , formed one factor. This classification was consistent with the three modes of management control, which are organizational control, personal control, and self control (Hopwood, 1974).

From the analysis of the total sample, it is found first that the internal ascription had to do with all the variables of the expectancy model. Second, the effects of chance ascription on motivation were made through the external valences and instrumentals, especially, those through social rewards were more intense. And third, the ascription to budget validity had a close relationship with only the expectancy.

Investigation by groups revealed the different patterns of relationships. For Failure group, its psychological situation seemed to be a negative one. The self ascription negatively correlated to formal valence ( $r = -.39, p < .10$ ), and not significantly to other valences. And the correlation between the budget validity ascription and expectancy was very high. It was inferred that the validity ascription in this group meant the aggressive response to budget or the control systems. For Success group, the self ascription worked with the preference to formal reward, and did not influenced the valence of social reward so much.

The results of analysis about the 'Just attained' group attracted our attention in particular. Members of this group perceived self ascription, that is, confronted by the difficult task, they met the budget goal through their effort and ability and thier other qualities. Furthermore, they recognized the help of chance for attaining the budget, too. As a result, these increased the values of internal and external valences for them.

The effects of the chance ascription upon motivation appear in 'Just attained' and 'Failure' group. The situation in which these groups, especially the former group, was put is inferred as follows. Present research was carried out at the time when the Japanese managements tried to adapt their organizations eagerly to the changes of external environments. At the time, for example, when the foreign exchange rate rises from ¥ 180 per dollar to ¥ 128 during two years, recession would be anticipated. One of the means to get over those adverse economical conditions was, for example, the rearrangement of product mix in accordance with changing demands in market.

In those circumstances, if a manager achieved these goals reflected in the budget, his success may be important not only to himself, but also for his organization as a whole, because such a success might inform about the current market conditions and provide some cues to adapt the organization to environment. Thus, even if his success were perceived as having originated from external chance conditions, his results may meet directly the strong desires of organization or of the section he belongs to, and so he would given the social rewards for his fortune. Also for the 'Failure' group, a similar, but not so favorable, situation was supposed. These will be referred to in next section.

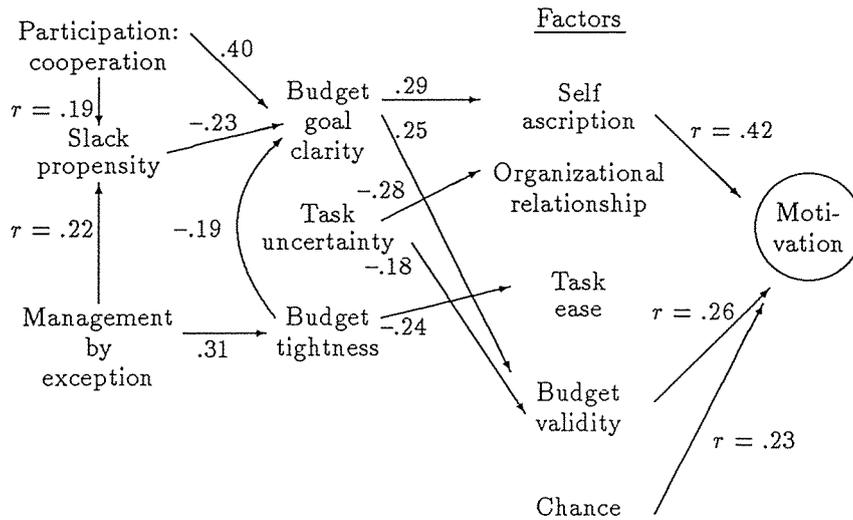
After the relationships between the causal ascription and motivation have been ascertained, the next question of interest was to search the variables that influence the ascriptions. Those antecedents were task uncertainty, budget goal clarity, goal difficulty, participation, and propensity to create slack. To examine the effects of antecedents on the the five factors of causal ascription of variances, stepwise regression analysis was applied in two stages. At the first stage, each of the five factors were regressed on the antecedents. As a result, three variables, namely, budget goal clarity, task uncertainty and budget tightness, appeared as explainable variables. At the second stage, these three variables were inputed as dependent variables, and regressed on the other antecedents. Figure 2 shows the result of these regression analysis. The arrows and numbers in this figure indicate the assumed direction of causality and the standard regression coefficients. Independent variables can be kept in or rejected from regression equations at the critical significance level of 0.10.

The main factors that had direct relationship with the budgetary motivation were self ascription, budget validity, and chance. Because the chance factor was isolated from antecedents, it will be described here how the remaining two factors were directed by the antecedents, and what they were directed.

The self ascription factor was significantly regressed on the budget goal clarity, and the budget validity regressed on two antecedents, task uncertainty and goal clarity. Then it was found that budget clarity had a broad influence on motivation, that is, the effects of all antecedents but task uncertainty were mediated by this variable to motivation.

The effects of participation on causal ascription were indirect. Of two components that consist of participation, cooperation with superior and/or other departments related significantly to budget goal clarity that influ-

Figure 2: Relationships between the antecedents and the causal factors



enced the ascriptions. Other explainable variables of the goal clarity was the propensity to create slack. In addition, the correlation between the cooperation and the propensity was 0.22 ( $p < 0.10$ ). From these relationships, it was inferred that notwithstanding the participation, in particular, the cooperation with other departments or superior, tended to increase the budget goal clarity, on the other hand, it's influence was in the direction of hastening the slack propensity, and the latter tended to decrease the goal clarity. These inconsistent relationships are very interesting and will be discussed in the next section again.

## 5 Discussion

While inquiring about the motivation in budgeting, three constituents related to it, namely, the cognitive schema underlying causal perception of budget variances, the relationship between the schema and motivation, and antecedents that determine the causal ascription, were investigated so far.

First, the statistical factor analysis revealed that the most obvious dimension in causal cognitive structure was the locus of attribution. This dimension corresponds to responsibility in the psychological meaning. The

variances internally ascribed did increase the elements of the motivation model, expectancy, instrumentals, internal and external valences. Therefore, from behavioral viewpoint, it was found that if the principle of the responsibility accounting were successfully applied, then the managers would be highly motivated through the budgeting. But the effectiveness of the controllability principle advocated in most management accounting literatures could not be tested. Discrimination of controllable from uncontrollable causes were not found within the causes ascribed internally.

While the causes ascribed internally constituted only one factor, the ones ascribed externally produced several factors. There appeared the stability and controllability dimension for external causes. Several reasons could be given as to why the causal cognition of external variances was more detailed than internal ones.

In the hierarchies of organization, the attitudes of a superior toward his subordinates vary to the extent that he infers the causes of performance are internal to them. In the study applying attribution theory to leadership, it is argued that the superior tends to seek the causes in the internal and stable ones of subordinate, while the subordinates are prone to seek the causes externally (Mitchel and Wood, 1980). This difference of causal attribution results in the conflicts between them (Martinko and Gardner, 1987), and may emerge outstandingly on the dimension of locus of attribution. Furthermore, by imputing the poor performance to external ones, an individual could be allowed to excuse his responsibility, and maintain his self-esteem (Weiner, et al., 1971), as a result, the locus of attribution becomes the primary dimension of perceiving the causes of budgetary performance. Management function is essentially for the adaptation to the organizational environments. Managers in the relatively low level might acquire better knowledge and experiences about their environments, because they have many opportunities to contact directly with environments. And their job includes, as an important role, the coordination and negotiation with other units of the organization. Those situations surrounding managers might lead to detail knowledge about external causes of their performance.

Of the external factors, the budget validity as well as self ascription factor had important relationship with motivation, regardless of whether or not budget goals were met. "Although it is accurate to state that budgets are composed of 'cold, nonhuman symbols' (i.e., figures), it is equally valid to state that once human being use these 'nonhuman figures,' they project on to them all the emotions and feelings at their command" (Argyris, 1953,

p.106). Because of such characteristics, budgets are vulnerable, and tend to be object of criticism or aggression by budgetees. In particular, when there occurs a failure to attain the budget goal, frustration and dissatisfaction would be directed solely towards it. And if its validity were denied, effective budgeting could not be expected. Therefore, to have sure budget validity maintained, it would be indispensable to know what and how antecedents influence it.

In the preceding section, it was found that the causal ascription to chance factor produced a main effect on motivation by way of the social valences and the instrumentals related with these. We interpreted this result by the specific circumstance that was dominating at the time when this survey was carried out. However, it may be possible that such a situation is common and pervasive in certain organizational settings. Therefore, this relationship would be worth discussing in more detail.

Recently, considerable attention was directed to the construct of prosocial organizational behavior (Brief and Motowidlo, 1986) or citizenship behavior (Smith, et al., 1983) by a number of behavioral and social scientists. Brief and Motowidlo (1986) defined this construct as follows. Prosocial organizational behavior is behavior which is (a) performed by a member of the organization, (b) directed toward an individual, group, or organization with whom he or she interacts while carrying out his or her organizational role, and (c) performed with the intention of promoting the welfare of the individual, group, or organization toward which it is directed.

This definition is so broad that it includes almost all the interpersonal acts that are carried out with the purpose of producing and maintaining the well-being and integrity of others. Some prosocial behaviors are organizationally functional, because they contribute the achievement of organizational goal. Functional prosocial behaviors include behaviors such as cooperating with others, protecting organization from unexpected hazards, suggesting organizational improvements. Others are dysfunctional, because they support other person's intention that is inconsistent with organizational goal. In budgetary setting, for example, it is possible in certain circumstance that accountant or superior would accept implicitly other person's or subordinate's manipulating figures for slack creating or concealing unfavorable variances.

Prosocial behaviors are concomitant with costs both for persons providing and receiving them. To receive the support by other persons might mean that the person receiving it falls into inferior position in comparison

with the others. This concern is the psychological cost for both sides. He who is directed prosocial behavior would run the risk of his self concepts being deteriorated (Fisher, et al., 1982). The benefactor must consider the possibility that beneficiary misinterprets his behavior were manipulative. Another cost is psychological reactance (Brehm, 1966). A favor performed by one person for another could threaten the latter's freedom. The individual receiving it would be obliged to do a return favor, or be concerned that the favorer might request him to take a certain act in return. Therefore, prosocial behavior may be hindered by these costs.

There are cases that remove these hindrances. One is dependent upon the reasons why supports by other persons are required. We have ascertained that the most prominent dimension consisting of cognitive causal schema is the locus of attribution. This dimension corresponded with the concept of responsibility. Then if a manager's poor budgetary performance was anticipated or resulted from external causes, in particular, from chance causes that were far out of his responsibility, there are no dangers that threaten his self concepts. In this circumstance, he requires his superior and his co-workers to help him, and they could take positive supporting behavior without any apprehension or psychological hindrances. Furthermore, in the period of recession, prosocial organizational behaviors would be eagerly required by members of each other. The interpersonal behaviors in such a process are likely to increase the social valences. This explains, for the 'Failure' group and 'Just attained' group, that the more the causes of variance were ascribed to chance factor, the higher the social valence were.

Budget goal clarity had the most remarkable influences on the causal ascription. This variable evaluated the budgetee's extent of perception that budget goals are clear and unambiguous, not containing contradicting factors within them, and the priorities on them are predetermined. The effects of other many antecedents upon the self ascription and budget validity factor were mediated by this variable. Therefore, the relationships between goal clarity and some antecedent variables may be worth discussing.

While it has been said that participation leads to the acceptance of budget goals, and as a result, increases motivation, many empirical investigations failed to verify this relationship. Although there seems to be consensus that participation is effective in order that the executives be informed of external environmental changes by the lower managers, its motivation effects could not easily be generalized. As Hopwood (1974) said.

While it appears that an increase in participation in decision

making can often improve morale, its effect on productivity is equivocal at the best, increasing it under some circumstances but possibly even decreasing it under other circumstances. The practical problem is in trying to identify which conditional factors determine the wider impacts of a particular type of participative management programme. (p.79)

The same ambiguity occurs for the effects of participation on motivation through goal clarity. In this study, participation was subdivided into the budgetee's say and cooperation in budgeting, and the latter variable, cooperation with superiors and staffs, works significantly by way of promoting goal clarity. But its effect on goal clarity through another path, the propensity to create slack, is not positive. This indirect effect tended to deteriorate the clarity.

Onsi (1973) argued that participation decreases the necessity to create slack, it results in positive communication and perception so that there is no pressure to necessitate creating slack. As found out in this research, however, it is too optimistic to assume that participation always has slack decreasing effects. It is possible that the influence of lower manager works in the direction of protecting his self-interests or the interests of his department. If organizational members tended to pursue their self-interests and act opportunistically, participation in decision making is likely to result in slack. Then, the increment of slack propensity through participation would lead to obscuring budget goal clarity. Onsi said that the manager who responded positively to slack formation shows negative attitude towards budget. He tends to perceive that the budget is a mere accounting tool and budgeting is only a game. The effects of participation through slack propensity on goal clarity may be the same as this. The unstable interrelationships described here indicate the dynamics that may frequently occurs in budgeting. The behaviors of accountants to deal with this problem may be critical for effective budgeting.

The effect of management by exception could not be neglected. The management by exception enable management to direct its attention to the area of significant problems, and to function effectively. However, this management style results in negative attitude toward budgeting, because it inclines to weigh more heavily the unfavorable than the favorable variances. It was found in this study that the correlations of the management by exception variable with the propensity to create slack and the perceived budget goal difficulty were significant. Since both the latter variables had

negative relationship with budget goal clarity, the management by exception decreased it indirectly.

## Conclusion

In this study, the effects of budget variances on motivation were investigated by assuming causal schema in the cognitive process. Such a schema in the budgetary practice could make it possible to know how and through which paths the variance information influences motivation, and to provide some cues for the effective budgeting.

The most important precondition for motivation was the internal attribution of causes that brought out variances. Self ascription augmented the strengths of all the variables of the motivation model. This reassured the arguments of responsibility accounting that the variance reports should be prepared in accordance with the area of the budgetee's responsibility. The same thing as this could be said of other controls. The encouraging effects of organizational decentralization are well known, for example.

The self ascription led to the enhancement of external motivation as well as internal. In organizational settings, external valences play also important roles. External valences and instrumentals related to them were dependent upon the chance ascription. Any organization must cope with the changes of its environment. Its performances may be considerably impinged by the uncontrollable external factors. There might be seem to be abundant prosocial behaviors in the organization that were able to adapt effectively to its environments. The prosocial behaviors would increase the social valences through the interaction among members, in particular, when they confront the threat from outer worlds. Such a threat would increase interpersonal behaviors in the organization to get rid of it without psychological cost. This is another path of influencing of the chance ascription on motivation.

Budgetary motivation was defined by the perceived validity that means the budget variances precisely reflect budgetee's true performances. Budgets tend to be frequently the object of accusation and aggression by budgetees. For budgeting to be effective, these dysfunctional behaviors must be avoided. Participation has been frequently proposed as a remedy for such difficulties. In this study, participation worked indirectly on motivation through the budget goal clarity. The goal clarity decreased the perceived tightness, and encouraged the self ascription and perceived validity of budget. Furthermore, the effects of other variables, management by exception, propensity to create slack, were related to the causal schema.

Thus, by introducing the mediating factor of causal schema, we could empirically ascertain many arguments about motivation. This approach could contribute to the research of budgetary motivation, and provide meaningful suggestions for improving budgeting as a control device. However, the findings of this study are interpreted in the light of its limitation. This study was on the basis of a small sample drawn from manufacturing companies. Besides, sampling in each company was not random. Response bias common with other similar research that use the questionnaire survey would have occurred in this research. Therefore, one must be cautious in generalizing the results of this study.

## References

- [1] Argyris, C. Human Problems with Budget, *Harvard Business Review*, 1953, 1, 97-110.
- [2] Brief, A.P., and S.J. Motowidlo. Prosocial Organizational Behavior. *Academy of Management Review*, 1986, 11,4, 710-725.
- [3] Birnberg, J.G., I.H. Frieze, and M.D. Shields. The Role of Attribution Theory in Control Systems. *Accounting, Organizations and Society*, 1977, 2, 3, 189-200.
- [4] Brehm, J.W. *A Theory of Psychological Reactance*. Academic Press, 1966.
- [5] Brownell, P. A Field Study Examination of Budgetary Participation and Locus of Control. *The Accounting Review*, 1982, 57,4, 766-777.
- [6] Brownell, P. The Motivational Impact of Management-By-Exception in a Budgetary Context. *Journal of Accounting Research*, 1983, 21, 2. 456-472.
- [7] Brownell, P., and M. McInnes. Budgetary Participation Motivation and Managerial Performance. *The Accounting Review*, 1986, 61,4, 587-600.
- [8] Bruns, W.J., Jr., and J.H. Waterhouse. Budgetary Control and Organization Structure. *Journal of Accounting Research*, 1975, Autumn, 177-203.
- [9] Chenhall, R.H., and P. Brownell. The Effect of Participative Budgeting on Job Satisfaction and Performance: Role Ambiguity as a Intervening Variable. *Accounting, Organization, and Society*, 1988, 13,3, 225-233.

- [10] Champbell, J.P., and R.D. Pritchard. Motivation Theory in Industrial and Organizational Psychology. In M.D. Dunnette (Ed.), *Handbook of Industrial and Organizational Psychology*. John Wiley & Son, 1975, 63-130.
- [11] Ferrara, W.L. Responsibility Accounting - A Basic Control Concept. *N.A.A. Bulletin*, 1964, September, 11-19.
- [12] Ferris, K.R. A Test of the Expectancy Theory of Motivation in a Accounting Environment. *The Accounting Review*, 1977, 52,3, 605-615.
- [13] Fisher, J.D., A. Nadler, and S. Witcher-Alagna. Recipient Reactions to Aid. *Psychological Bulletin*, 1982, 91, 27-54.
- [14] Galbraith, J. *Designing Complex Organizations*. Mass: Addison-Wesley, 1973.
- [15] Galbraith, J., and L.L. Cummings. An Experimental Investigation of the Motivational Determinants of Task Performance: Incentive Effects between Instrumentality - Valence and Motivation - Ability. *Organizational Behavior and Human Performance*, 1967,2,237-257.
- [16] Hopwood, A. *Accounting and Human Behaviour*. Accounting Age books, 1974.
- [17] House, R.J. A Path Goal Theory of Leader Effectiveness. *Administrative Science Quarterly*, 1971, 16, 3, 321-338.
- [18] Kenis, I. Effects of Budgetary Goal Characteristics on Managerial Attitudes and Performance. *The Accounting Review*, 1977,45,4,707-721.
- [19] Lawler III, E.E., and J.L. Suttle. Expectancy Theory and Job Behavior. *Organizational Behavior and Human Performance*, 1973,9, 482-503.
- [20] Mahoney, T.A., T.H. Jerdee, and S.J. Carroll. *Development of Managerial Performance: A Research Approach*. South-Western Publishing, 1963.
- [21] Martinko, M.J., and W.L. Gardner. The Leader/Member Attribution Process. *Academy of Management Review*, 1987, 12,2, 235-249.
- [22] Onsi, M. Factor Analysis of Behavioral Variables Affecting Budgetary Slack. *The Accounting Review*, July 1973, 535-548.

- [23] Perrow, C. A Framework for the Comparative Analysis of Organizations. *American Sociological Review*, 1967, 32, 194-208.
- [24] Rockness, H.O. Expectancy Theory in a Budgetary Settings: An Experimental Examination. *The Accounting Review*, 1977, 52,4, 893-903.
- [25] Ronen, J., and J.L. Livingstone. An Expectancy Theory Approach to the Motivational Impacts of Budgets. *The Accounting Review*, October 1975, 671-685.
- [26] Shields, M.D., J.G. Birnberg, and I.H. Frieze. Attributions, Cognitive Processes and Control Systems. *Accounting, Organization, and Society*, 1981,6,1,69-93.
- [27] Van de Ven, A.H., A.L. Delbecq, and R.K. Koenig,Jr. Determinants of Coordination Modes within Organizations. *American Sociological Review*, 1976, 41, 322-338.
- [28] Weiner, B. *Theory of Motivation: From Mechanism to Cognition*. Markham, 1972.
- [29] Weiner, B. Achievement Motivation as Conceptualized by an Attribution Theorist. In B. Weiner (Ed.), *Achievement Motivation and Attribution Theory*. General Learning Press, 1974a, 1-48.
- [30] Weiner, B. A conceptual Analysis of Locus of Control. In B. Weiner (Ed.), *Achievement Motivation and Attribution Theory*. General Learning Press, 1974b, 105-113.
- [31] Weiner, B. An Attributional Interpretation of Expectancy-Value Theory. In B. Weiner(Ed.), *Cognitive Views of Human Motivation*, Academic Press, 1974c.
- [32] Weiner, B. A Theory of Motivation for Some Classroom Experience. *Journal of Educational Psychology*, 1979,71,1, 3-25.
- [33] Weiner, B., I. Frieze, A. Kukla, L. Read, S. Rest, R.M. Rosenbaum. Perceiving the Causes of Success and Failure. In Johns,E., D.E. Kanouse, H.H. Kelly, R.E. Nisbett, S.Valins, and B. Weiner (Eds.), *Attribution: Perceiving the Causes of Behavior*, Lawrence Erlbaum Associates, 1971, 95-120.
- [34] Zajonc, R.B. Cognitive Theories in Social Psychology. In Lindzey, G., and E. Aronson (eds.) *The Handbook of Social Psychology*, Second Edition, Vol. one. Addison-Wesley, 1968, 320-411.

## A The causes of budget variances

The scales below present common causes that could bring out your success or failure to attain budget goals. For each of scale, mark how much you think each was a cause of your last period budget performance.

|   | Extreme<br>influence   | No<br>influence  | Extreme<br>influence   |
|---|--|--|--|
| 1. Subordinate's luck of ability  | <input type="checkbox"/> | <input type="checkbox"/> | subordinate's high ability   |
| 2. Task easiness  | <input type="checkbox"/> | <input type="checkbox"/> | Task difficulty  |
| 3. Your usual extreme effort  | <input type="checkbox"/> | <input type="checkbox"/> | Your usual luck of effort  |
| 4. Unresolvable inconsistency in task. To Attain some goal hinder other goal achievement. | <input type="checkbox"/> | <input type="checkbox"/> | Clear goal. There Mutual enhancing relationships exist. Success to attain some goal enhances other goal attainment |
| 5. Budget variances not properly reflect my performance.                                  | <input type="checkbox"/> | <input type="checkbox"/> | Budget variances properly reflect my performance   |
| 6. Non-job related favorable and personal conditions                                      | <input type="checkbox"/> | <input type="checkbox"/> | Non-job related unfavorable and personal conditions  |
| 7. Subordinate's usual extreme effort   | <input type="checkbox"/> | <input type="checkbox"/> | Subordinate's usual lack of effort   |
| 8. Tight budget   | <input type="checkbox"/> | <input type="checkbox"/> | Easy budget  |
| 9. Favorable economic condition   | <input type="checkbox"/> | <input type="checkbox"/> | Unfavorable economic condition.  |
| 10. Your extreme effort in this period  | <input type="checkbox"/> | <input type="checkbox"/> | Your unusual lack of effort in this period.  |
| 11. Good luck   | <input type="checkbox"/> | <input type="checkbox"/> | Bad luck   |
| 12. Good coordination with other department   | <input type="checkbox"/> | <input type="checkbox"/> | Lack of Coordination with other department   |
| 13. Superior and subordinate's total coordination.  | <input type="checkbox"/> | <input type="checkbox"/> | Superior and subordinate's total lack of coordination.   |
| 14. Subordinate's unusual extreme effort in this period                                   | <input type="checkbox"/> | <input type="checkbox"/> | Subordinate's unusual lack of effort in this period  |

- |     |  |                          |                          |                          |                          |                          |                          |                          |                          |  |
|-----|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--|
| 15. | Your high decision making and leadership ability | <input type="checkbox"/> | Your insufficient decision making and leadership ability |
| 16. | Good result of your experience and training      | <input type="checkbox"/> | Result of your insufficient experience and training      |
| 17. | Subordinate's high extrinsic motivation.         | <input type="checkbox"/> | Subordinate's low Extrinsic motivation.                  |
| 18. | Your high extrinsic motivation                   | <input type="checkbox"/> | Your low extrinsic motivation                            |
| 19. | Your high intrinsic motivation.                  | <input type="checkbox"/> | Your low intrinsic motivation                            |
| 20. | Vitality   | <input type="checkbox"/> | Fatigue  |

Note: Each item was used as a 9 point scale, so that was given score 1 to the right hand end mark and score 9 was given to to left hand. But items 1,4,5, and 8 were reversed

## B Antecedent variables

Following items are antecedents that influence the causal schema of budget variances. These items ask respondents to rate on the seven-point scale the frequency (one equals never, seven always).

### A Goal clarity

- (a) My budget goals are very clear and specific. I know exactly what my budget goals are.
- (b) My budget goals contain some contradicting ones, and it is very difficult for the budget goals to coordinate with each others (reverse item).
- (c) I understand fully which of my budget goals are more important than others. I have a clear sense of priorities on these goal.
- (d) I think my budget goals are clear and unambiguous.

### B Budget goal difficulty

- (a) Generally speaking, What characteristics have the budget goals to which your organization unit are responsible? (1.Very easy; 4.Fair; 7.Very difficult).
- (b) Were the tightness of your budget goals in this year changed in comparison with the last year?

- (c) At the starting point, with what probability did you estimate the attainability of your budget goals that were responsible to your organization unit? (the probabilities are ranged from 10 percent to 90 percent).

C Participation: cooperation

- (a) I work with other unit heads in preparing the budget for my unit.
- (b) I work with financial staff people in preparing the budget for my unit.
- (c) I go to my superior for advice on how to achieve my budget.
- (d) I ask for assistance from staff departments concerned with budget.

D Participation: Influence of subordinate manager

- (a) I am consulted about special factors I would like to have included in the budget being prepared.
- (b) New budget include changes I have suggested.

E Slack

- (a) To protect himself, a manager submits a budget that can safely be attained.
- (b) The plant manager sets two level of standards: one between himself and subordinate, and another standard between himself and superior, to be safe.
- (c) In good business times, the manager submits a reasonable level of slack in a department budget.
- (d) Slack in the budget is good to do thing that cannot be officially approved.

F Management by exception

- (a) Unfavorable variances receive more attention than favorable variances.

The measure of task uncertainty is not shown here. See Van de Ven, et al.(1976).

This Discussion Paper Series is published by the Institute of Economic Research and integrates two old ones published separately by the Department of Economics and the Department of Commerce.

Discussion Paper Series  
Institute of Economic Research  
Otaru University of Commerce

| No. | Title   | Author/s       | Date      |
|-----|---|----------------|-----------|
| 1.  | ホーキング=サイエンの条件に関する諸説の統合について                                | タスクアタ、ティハンカー   | Jul. 1992 |
| 2.  | Motivation and Causal Inferences in the Budgetary Control | Yoshihiro Naka | Aug. 1992 |

Discussion Paper Series  
Department of Economics  
Otaru University of Commerce

| No. | Title   | Author/s                           | Date      |
|-----|---|------------------------------------|-----------|
| 1.  | Monetary Policy in a Model of International Trade with a Sector Sticky Wage Rate              | Takashi Fukushima & Hideki Funatsu | Feb. 1985 |
| 2.  | Export Credit Insurance   | Hideki Funatsu                     | Feb. 1985 |
| 3.  | Asset Trading in an Overlapping-Generations Model: Efficiency of Competitive Equilibrium      | Kenji Yamamoto                     | Oct. 1985 |
| 4.  | Asset Trading in an Overlapping-Generations Model with Production Shocks                      | Kenji Yamamoto                     | Oct. 1985 |
| 5.  | Immiserizing Investment in a Vertically Related International Trade                           | Masao Satake                       | Mar. 1986 |
| 6.  | Dynamic Tax Incidence in a Two-Class Economy  | Jun-ichi Itaya                     | May 1986  |
| 7.  | A Three Factor Model of International Trade with Minimum Wage Rates                           | Hideki Funatsu                     | May 1986  |
| 8.  | A Note of the Maximum Number of Firms with Equal Market Share in a Quantity Setting Supergame | Masaru Uzawa                       | Nov. 1986 |
| 9.  | Tax Incidence in a Two-Sector Growing Economy with Perfect Foresight                          | Jun-ichi Itaya                     | May 1987  |

|   |                                       |           |
|---|---------------------------------------|-----------|
| 10. Two Kinds of Information in Price Search  | Kaoru Endo<br>& Teruya Nagao          | Aug. 1987 |
| 11. On the Hedging and Investment Behavior of the Competitive Firm under Price Uncertainty                                    | Jun-ichi Itaya                        | Oct. 1987 |
| 12. Tax Incidence in a Two-Sector Growing Economy with Perfect Foresight: Long-Run Analysis                                   | Jun-ichi Itaya                        | Mar. 1988 |
| 13. Comparative Statics for the Private Provision of Public Goods in a Conjectural Variations Model with Heterogeneous Agents | Dipankar Dasgupta<br>& Jun-ichi Itaya | Mar. 1991 |
| 14. Capital Accumulation Game of Multifirms with External Adjustment Costs  | Jun-ichi Itaya                        | Mar. 1991 |
| 15. Using the Correct Economic Interpretation to Prove the Hawkins-Simon-Nikaido Theorem: One More Note                       | Dipankar Dasgupta                     | Jul. 1991 |
| 16. Transversality Condition in Infinite Time Horizon Concave Problems  | Tomoichi Shinotsuka                   | Oct. 1991 |

Discussion Paper Series  
Department of Commerce  
Otaru University of Commerce

| No. | Title                            | Author/s      | Date      |
|-----|----------------------------------|---------------|-----------|
| 1.  | 分権化組織における部門間調整と情報インセンティブ・システムの設計 | 井上正<br>& 鶴野好文 | Apr. 1985 |
| 2.  | 日本的雇用慣行とその経済合理性                  | 井上正<br>& 鶴野好文 | May 1989  |

Institute of Economic Research, Otaru University of Commerce  
3-5-21, Midori, Otaru, Hokkaido 047, Japan Tel. 0134-23-1101

小樽商科大学経済研究所  
〒047 北海道小樽市緑3丁目5番21号 Tel. 0134-23-1101(代)