Antecedents of Participative Budgeting

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ANTECEDENTS OF PARTICIPATIVE BUDGETING*

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Abstract

This paper has four purposes. First, it analyzes 47 published studies on participative budgeting. Almost all of these studies focus on the effects of participative budgeting and not on its causal antecedents. Second, to provide insight into these antecedents, we report the results of a survey which identifies reasons why managers participate in setting their budgets. Third, we report how these reasons are associated with four theoretical antecedents—environmental and task uncertainty, task interdependence and superior-subordinate information asymmetry. The results indicate that participative budgeting is most important for planning and control, specifically vertical information sharing and co-ordinating interdependence, and that specific reasons for participative budgeting are correlated with three of the antecedents. Finally, directions for future research on participative budgeting are presented. © 1998 Elsevier Science Ltd. All rights reserved.

Participative budgeting—usually defined in the accounting literature as a process in which a manager is involved with, and has influence on, the determination of his or her budget—has been one of the most researched topics in management accounting for over 40 years (Hopwood, 1976; Brownell, 1982*a*; Young, 1988; Birnberg *et al.*, 1990). Argyris (1952), the first of many empirical studies published on participative budgeting, investigated organizational and behavioral effects of participative budgeting on subordinate managers. The subsequent empirical research has been motivated by economic, psychological or sociological theories. These theories have been used by the subsequent studies to develop four types of empirical models of the effects of participative budgeting: (1) the modal study has investigated how moderator variables affect the relationship between participative budgeting as an independent variable and dependent variables such as satisfaction, motivation, and performance; (2) the direct effects of participative budgeting on dependent variables; (3) participative budgeting as an independent variable interacting with another independent variable to affect a dependent variable; and (4) participative budgeting moderating the relationship between independent and dependent variables. Only four studies have included causal antecedents to participative budgeting in their empirical models.

We conjecture that the diverse results of these studies arise for at least two reasons. One

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is that the variety of theoretical and empirical models used has caused inter-study variation in results. The effects of model variety have been magnified by the inclusion in these studies' various models of many different variables as independent, moderator and dependent variables. Studies have reported, for example, that participative budgeting has linear positive, linear negative, ordinal and disordinal interaction (with other independent or moderating variables), and no effect on motivation and performance (the dependent variables most frequently used in the extant research). A recent statistical meta-analysis of some of these studies concluded that their diverse results primarily stem from theoretical differences and not from differences in research methods (Greenberg *et al.*, 1994). We propose that the research on participative budgeting has numerous micro and somewhat independent theoretical and empirical models, but there is a lack of general or integrative models.

The second potential reason for the diverse results of the extant research is that most of the studies do not have strong theoretical and empirical links between their assumed reason for why participative budgeting exists[1] and their dependent variables. For example, as analyzed in the next section, some studies assume that participative budgeting exists to increase motivation but they include a variety of dependent variables in addition to, or without including, motivation (or performance) (e.g. attitude, job-related tension, satisfaction). These studies typically do not make a theoretical link between motivation (as the assumed reason for why participative budgeting exists), participative budgeting, and these other dependent variables. In addition, these studies do not directly check that their assumed reason for why participative budgeting exists is consistent with their sample's believed or actual reason. Thus, if their sample is using participative budgeting to increase motivation but motivation (or performance) is not included as a dependent variable, the results of associating participative budgeting with other dependent variables may be suspect. In contrast, if that sample did not use participative budgeting to increase motivation, any detected association between participative budgeting and motivation may be spurious. Thus, one of our recommendations for future research is to choose (independent, moderator, intervening, dependent and consequent) variables to include in an investigation of participative budgeting based on why it is assumed to exist. Moreover, theoretical and empirical models would be more complete and reliable if they also included causal antecedents to participative budgeting in addition to its effects.

This paper has four purposes: (1) to empirically identify reasons why subordinates believe they participate in setting their own budgets; (2) to assess the degree to which these reasons correspond with the reasons assumed in the extant empirical and theoretical literatures; (3) to investigate whether these reasons are associated with four theoretical antecedents to participative budgeting—environmental and task uncertainty, task interdependence, and information asymmetry; and (4) to provide directions for future research. The organization of this paper is first to review and analyze the empirical and theoretical literatures on participative budgeting as a means to identify reasons why it exists, and expected associations between those reasons and the four antecedents. The next section describes the empirical method which is intended to identify reasons for the existence of participative budgeting and whether these reasons are correlated with the four antecedents. The ensuing section presents the results of the empirical inquiry. The final section provides a discussion of the present research and directions for future research.

LITERATURE REVIEW

This section is comprised of three subsections. The first analyzes 47 published empirical studies on participative budgeting in terms

[1]We assume that the reason why participative budgeting exists are consistent with its intended purpose.

of their theoretical models and reported significant results. The second section reviews the theoretical economics, psychological and sociological literatures concerning why participative budgeting exists as a basis to identify theoretical antecedents. The last section develops expectations based on the theoretical literature about associations between various reasons for the existence of participative budgeting and four antecedents to participative budgeting.

Empirical literature

Empirical research on participative budgeting has predominantly investigated—through the use primarily of surveys and secondarily of laboratory experiments—how it, as an independent variable, is either directly associated with dependent variables such as motivation, performance and satisfaction, or how it interacts with either another independent or moderator variable to affect the dependent variables. Some research also has investigated how the effect of participative budgeting as the independent variable on a dependent variable is mediated by an intervening variable.

The definitions of the various types of variables that are used in our analysis of the prior research are consistent with the literature on structural equation models and nomological networks (see Fig. 1) (Cronbach & Meehl, 1955; Blalock, 1964; Cohen & Cohen, 1975; Sharma, *et al.*, 1981; Arnold, 1982; James & Brett, 1984; Davis, 1985; Baron & Kenny, 1986; Bollen, 1989). An antecedent variable is the cause[2] of an independent variable. An independent variable causes a dependent variable. A moderator variable affects the relationship between an independent and a dependent variable, it is not a cause of a dependent variable as is an independent variable, but it is theorized to affect the relationship ***between*** an independent and a dependent variable. A moderator variable is defined as having nonsignificant, bivariate relationships with both the independent and dependent variables. A moderator variable can be modelled to appear to be a cause of a dependent variable, however, by its treatment as an independent variable in a regression analysis or ANOVA. An intervening (or mediating) variable is both caused by an independent variable and a cause of the dependent variable. Finally, a consequent variable is caused by a dependent variable. These definitions are used to classify and analyze the variables included in the prior research.

Appendix A provides information about selected characteristics of 47 published studies which have empirically investigated the relationship between participative budgeting as

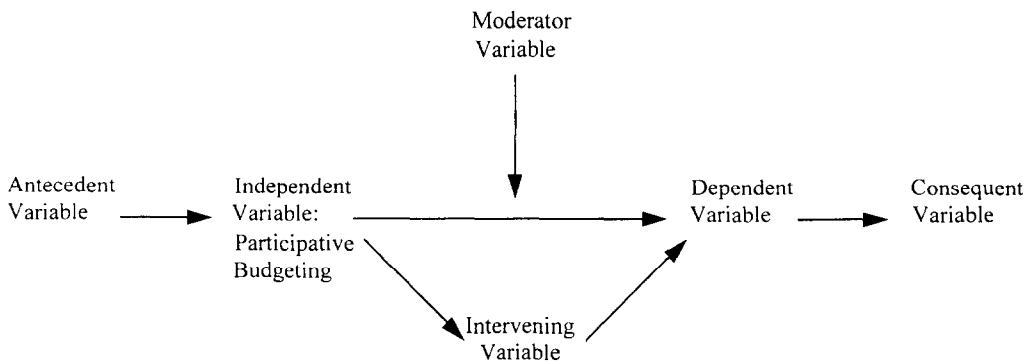

Fig. 1. Nomological network in which participative budgeting is the independent variable.

[2]A cause-and-effect relationship between two variables requires that the effect variable is isolated from all influences except the casual variable, the casual variable must temporally precede the effect variable, and a change in the casual variable is associated with a change in the effect variable (Bollen, 1989).

either an independent or a moderator variable and dependent variables.[3] Studies which focus on goal setting but not in the context of budgets are not included. These 47 studies were identified based on an extensive literature search and include all identified studies published before 1996. Table 1 classifies these studies in terms of their empirical method, assumed reasons for participative budgeting, independent, dependent and moderator variables in their theoretical model, and statistically significant results. Six types of results emerge from analysis of the 45 of the 47 studies which report statistically significant ($p<0.10$) results.

First, none of these studies report (empirical) evidence concerning whether their assumed reason for the existence of participative budgeting that underpins their theoretical or empirical model is consistent with the reasons participative budgeting exists in their samples. Further, many, if not most, of these studies did not provide explicit or detailed disclosures about why they assume participative budgeting exists.[4] The 45 studies mention a total of 62 assumed reasons for the existence of participative budgeting which are grouped into six categories: motivation (23), share information (22),[5] satisfaction (13), reduce the need to create slack (2), co-ordination (1), and job-related tension (1) (Appendix A). Many of these studies have direct connections between their assumed reasons and reported dependent variables. For example, considering those studies in which motivation is the assumed reason, most of them have motivation or performance as dependent variables. However, some of these studies have other dependent variables which are not as obviously related to motivation as the assumed reason. As another example, for those studies in which satisfaction is the assumed reason for why participative budgeting exists, a variety of dependent variables are included and more of these studies use motivation or performance, rather than satisfaction, as their dependent variables. This can be problematic because there is controversy concerning the relationship between satisfaction and motivation/performance in terms of direction of causality and the magnitude of any relationship (Petty *et al.*, 1984; Iaffaldano & Muchinsky, 1985; Podsakoff & Williams 1986; Locke & Latham, 1990).

Second, only four studies include antecedents to participative budgeting (see fn. 3). Of these four studies, only Mia (1987) and Shields and Young (1993) had either uncertainty (environmental, task, or task interdependence) or information asymmetry as an antecedent variable, as is predicted by theories of participative budgeting based on economic, psychological or sociological theories (see the next subsection). In contrast, six studies include environmental or task uncertainty or information asymmetry as either independent or moderator variables. Such treatment, however, is inconsistent with theory. Moreover, since uncertainty and

[3]Inspection of these 47 studies revealed that 43 have models in which participative budgeting is an independent or moderator variable but they did not include an antecedent to participative budgeting. The other four studies treated participative budgeting as an independent variable and they also included antecedents (Merchant, 1981, 1984; Mia, 1987; Shields & Young, 1993). Three of the studies included participative budgeting as an independent variable and they also included intervening and dependent variables (Brownell & McInnes, 1986; Chenhall & Brownell, 1988; Kren, 1992*a*). For these three studies, participative budgeting is classified as an independent variable and the intervening variable is classified as the dependent variable because the scope of our analysis is limited in this section to the variable directly caused by participative budgeting (i.e. the variable treated in these three studies as the dependent variable is excluded).

[4]In most studies, the disclosure was either at most a couple of sentences or a reference to another paper, thus implicitly adopting the assumed reasons mentioned in the other paper.

[5]These studies have variation in the degree of disclosure about what they mean by information sharing. Some studies couch their analysis in terms of sharing external (environmental) and/or internal (to the firm such a task) information whereas other studies do not make such a distinction and refer to sharing information (Appendix A). Thus, these 22 reasons include sharing internal information, sharing external information, and sharing information. Subsequently in this paper, we distinguish between sharing internal and external information.

TABLE 1. Classification of Prior Research by their assumed reasons for participative budgeting, dependent variables, type of model and statistically significant results for participative budgeting (studies are referenced by numbers identified in Appendix A)

Assumed reasons for participative budgeting	Dependent variables	Significant ($p<0.10$) results classified by theoretical model type (I=Independent Variable; M=Moderator Variable; (+/−)=Sign association)*		
		I=participative budgeting I=other variables(−___)	I=participative budgeting M=other variables (−___)	I=other variables (−___) M=participative budgeting
Co-ordinate Interdependencies	Attitude Information Job-related Tension Motivation/Incentives Performance Role Ambiguity Satisfaction Slack		36-Organizational Size	
Job-related Tension	Attitude Information Job-related Tension Motivaton/Incentives Performance Role Ambiguity Satisfaction Slack			20+
Motivation	Attitude	28(+), 40(+)	24-Environmental Uncertainty, 35(+)	
	Information			
	Job-related Tension	28(−)		
	Motivation/Incentives	10(+), 27(+), 28(+), 29(+), 44(+)	35(+), 45(+), 47-Incentives × Standard Tightness	5 Management by Exception
	Performance	1-Incentives, 10(+), 15-Incentives, 28(+), 40(+)	2-Locus Control, 3-Locus Control, 12-State Information, 23-Locus Control, 24-Environmental Uncertainty, 31-Locus of Control, 35-Organizational Size, 39-Job Difficulty, 41-Socially Desirable Responding, 47-Standard Tightness	16-Budget Emphasis, 32-Budget Emphasis × task difficulty

(*continued*)

Table 1—*contd*

Assumed reasons for participative budgeting	Dependent variables	Significant ($p<0.10$) results classified by theoretical model type (I=Independent Variable; M=Moderator Variable; (+/−)=Sign association)*		
		I=participative budgeting I=other variables(−___)	I=participative budgeting M=other variables (−___)	I=other variables (−___) M=participative budgeting
	Role Ambiguity			
	Satisfaction	1-Incentives, 15-Incentives, 27(+)	3-Locus of Control, 23(+), 33-Budget Attainability	
	Slack		24-Environmental Uncertainty	
Reduce the Need to Create Slack	Attitude		24-Environmental Uncertainty	
	Information			
	Job-related Tension			
	Motivation/Incentives			
	Performance		24-Environmental Uncertainty	
	Role Ambiguity			
	Satisfaction			
	Slack	43(−)	24-Environmental Uncertainty	
Satisfaction	Attitude	28(+)	34-Budget Favorability	
	Information			
	Job-related Tension	28(−)		26-Budget Emphasis
	Motivation/Incentives	27(+), 28(+)		
	Performance	6-Leadership Style, 15-Incentives	2-Locus of Control, 3-Locus of Control, 23-Locus of Control	4-Budget Emphasis
	Role Ambiguity	14(−)		
	Satisfaction	6-Leadership Style, 15-Incentives	3-Locus of Control, 13-Authoritarian Dyad, 18-Managerial Level (Vertical Hierarchy), 23(+)	
	Slack			
Share Information	Attitude	37(+)	35(+), 24-Environmental Uncertainty	
	Information		30(+)	
	Job-related Tension			9-Budget Emphasis × Task Uncertainty
	Motivation/Incentives	10(+), 27(+), 46(+)	35(+)	

(continued)

Table 1—*contd*

	Performance	10(+), 17-Evaluation Agreement	7-Functional Area, 11-Product Standardization, 12-State Information, 21-Information Asymmetry, 24-Environmental Uncertainty, 25-Decentralization, 35-Organizational Size, 36-Organizational Size, 38-Attitude, Motivation, 39-Job Difficulty	8-Budget Emphasis × Task Uncertainty, 8-Budget Emphasis × Task Difficulty, 20(+), 32-Budget Emphasis × Task Difficulty
	Role Ambiguity	14(−)		
	Satisfaction	27(+)		
	Slack	19-Information Asymmetry ×Budget Emphasis	24-Environmental Uncertainty	

*When no variable is reported after the study identification number, this means that a significant bivariate correlation between participative budgeting and the dependent or moderator variable was reported but no significant interaction between participative budgeting and an independent or moderator variable was reported.

information asymmetry theoretically are causal antecedents to participative budgeting (i.e. they are correlated with it), it is inconsistent to treat them as moderator variables as did Govindarajan (1986) and Kren (1992*a*) because moderator variables by definition are not correlated with independent variables. It is also inconsistent to treat uncertainty and information asymmetry as independent variables when participative budgeting is also an independent variable as did Dunk (1993*a*) because they cause participative budgeting. Finally, as previously discussed, it is contrary to theory to treat participative budgeting as a moderator variable and uncertainty as an independent variable as did Brownell and Dunk (1991), Brownell and Hirst (1986) and Lau *et al.*, (1995) because uncertainty causes participative budgeting and independent and moderator variables are not supposed to be correlated. As discussed in the ensuing subsection, theory suggests that uncertainty and information asymmetry are antecedent variables when participative budgeting is an independent variable.

Third, eight categories of dependent variables are associated with the reported significant ($p<0.10$) results (Appendix A). Performance is the dependent variable most frequently associated with reported significant results (28 studies, 30 significant effects). The other dependent variables that are reported to be statistically significant are motivation or incentives (10 studies), satisfaction (9), attitude (towards the budget, job, superior, or organization) (6), job-related tension (3), slack (3), role ambiguity (1), and information (1).

Fourth, these studies report 22 significant ($p<0.10$) bivariate associations between participative budgeting and the 8 categories of dependent variables, and 41 significant ($p<0.10$) interactions involving participative budgeting (Table 1, Appendix A). These interactions have three general forms: (1) participative budgeting as an independent variable interacting with another independent variable (5 studies, 8 interactions); (2) participative budgeting as an independent variable interacting with a moderating variable (20 studies, 25 interactions); and (3) participative budgeting as a moderator variable interacting with an independent variable (7 studies, 8 interactions). The 41 significant interactions involving participative budgeting reported in 32 studies include many independent and/or moderator variables. For example, when performance is the dependent variable, there are 20 different interactions (i.e. independent or moderator variables included besides participative budgeting). These other variables include characteristics of the employees (e.g. locus of control, leadership style), task characteristics (e.g. difficulty, uncertainty), budget characteristics (e.g. tightness, incentive-contingent), management style (e.g. budget emphasis in performance evaluation, management by exception), organizational structure (e.g. decentralization, functional area), and environmental characteristics (e.g. uncertainty).

Fifth, the prior empirical research on participative budgeting can be, ex-post, interpreted as having a temporal dimension. The empirical research on participative budgeting began in the early 1970s[6] by primarily examining the direct effects of participative budgeting on motivation and performance and it always found positive associations that are either statistically significant or nonsignificant (Appendix A). In the late 1970s and early 1980s, the empirical literature expanded its focus, at least in part in response to Hopwood's (1976) and Brownell's (1982*a*) contingency frameworks. In the early 1980s, numerous studies began to investigate how the relationship between participative budgeting and various dependent variables is affected by many independent and moderator variables.[7] These studies, in total,

[6]The exceptions are Argyris (1952) and Hofstede (1967).

[7]For example, considering when performance is a significant dependent variable, four studies report that participative budgeting as an independent variable interacted with another independent variable, and 16 studies report that it interacted with a moderator variable.

report that the degree to which participative budgeting, for example, has positive effects on motivation and performance depends on the levels of various independent and moderator variables (i.e. these other variables have positive, ordinal interactions with participative budgeting). However, some studies have reported a disordinal interaction in which the sign of the association between participative budgeting and the dependent variable depends on the level of the moderator variable (e.g. the relationship between participative budgeting and performance is positive (negative) when environmental uncertainty is high (low) (Govindarajan, 1986)).

Sixth, the empirical literature on participative budgeting began to implicitly merge with another stream of studies that sought to explain the divergent results of previous studies in which budget emphasis in performance evaluation was the focal independent variable (Briers & Hirst, 1990). In this other stream of studies, budget emphasis is the focal independent variable, performance or job-related tension typically is a dependent variable, and participative budgeting frequently is the moderator variable. Unfortunately, the theoretical treatment of participative budgeting in these two literatures is not consistent. For example, when performance or motivation is the dependent variable, the participative budgeting research classifies participative budgeting as an independent variable (20 studies), whereas the performance evaluation research treats it as a moderator variable (five studies). This difference in theoretical treatment has important theoretical and empirical implications because, as previously discussed, an independent variable is assumed to be a causal determinant of a dependent variable but a moderator variable is not. In this case, when performance is the dependent variable, the theoretical treatment of participative budgeting as an independent or a moderator variable should not differ depending on whether the study is focused on participative budgeting or performance evaluation because it always is, or is not, theoretically a causal determinant of performance.

Overall, the preceding six-part analysis of the extant empirical literature on participative budgeting highlights its weakness in terms of insufficient attention to developing and testing a general theory of participative budgeting and a corresponding nomological network. This weakness is apparent in the lack of explicit statements about the (assumed) reasons for the existence of participative budgeting, the variety of independent, moderator and dependent variables included in the various studies, and the lack of inclusion of antecedent variables. This inattentiveness to a general theory has been exacerbated by the blending of two literatures and a contingency focus on numerous, (typically) three-variable, nomological networks (e.g. a network consisting of an independent, a dependent and a moderator variable). The result of the proliferation of these small, nomological networks is a lack of general theory development because the individual networks typically do not tie into a single, broader nomological network based on an evolving, comprehensive theory of participative budgeting. This research strategy appears to have produced a lot of empirical evidence but little which is generalizable from or to a broader theoretical perspective.

We argue that a desirable, if not necessary, condition for research on participative budgeting to make more systematic progress in developing a general theory is to focus on understanding why it exists (Shields & Young, 1993). Such a perspective emphasizes understanding and modeling of why participative budgeting exists as a prerequisite to researching its effects. Knowing the reason(s) why participative budgeting exists can be used for at least three purposes.

First, when researching participative budgeting, the reason(s) why it exists can be used to identify other variables which should be included in a nomological network. Such theoretically driven networks also should specify the nature of the relationships among the set of variables, i.e. antecedent, independent, moderator, intervening, dependent and consequent variables. It is important to highlight that these

reasons for why participative budgeting exists are not necessarily the antecedents of participative budgeting *per se* but, instead, they can be used to identify which variables would be expected to be its antecedents. For example, if the reason that an organization gives for having participative budgeting is information-sharing between a superior and a subordinate, then an expected antecedent of participative budgeting would be a superior-subordinate information asymmetry. In contrast, if a theory assumes that participative budgeting exists to increase subunit co-ordination, then an antecedent would be task interdependence. However, the modal study has treated participative budgeting as an independent variable with performance as the dependent variable, and such a study would have had information asymmetry as either another independent or moderator variable which interacts with participative budgeting. In contrast, as is developed in the next section, the theoretical literature models information asymmetry as having an antecedent relationship with participative budgeting. Thus, empirical research should treat it as an antecedent to participative budgeting.

Second, when testing a theory involving participative budgeting, empirical research should directly verify that the reason assumed by the theory corresponds with the reasons why its test sample believes it uses participative budgeting. Such a test effectively serves as a validity check on the theory, relative to the test sample.

Third, when an empirical investigation is not driven by theory, learning the reason why an organization has participative budgeting can be used to guide an exploratory or inductive investigation intended to identify other variables that might be related to participative budgeting.

Before investigating the effects of participative budgeting, we recommend that researchers seek to understand why participative budgeting exists in their test samples. While the extant empirical literature has made assumptions about why participative budgeting exists, we could not identify any empirical evidence concerning the accuracy or completeness of those assumptions.[8] Thus, a priority is to empirically identify why participative budgeting exists and whether these reasons correspond to the reasons and antecedents assumed in the theoretical literature. We now turn to the theoretical literature to identify those assumed reasons why participative budgeting exists and its antecedents.

Theoretical literature

The theoretical basis for why participative budgeting exists is primarily rooted in economics, psychological and sociological theories. This subsection reviews the research which has developed theoretical models of antecedents of participative budgeting based on these theoretical perspectives. Based on this theoretical literature, the ensuing subsection identifies four antecedent variables which are expected to be associated with the identified reasons why participative budgeting exists.

Economics. Since the economics literature assumes that a subordinate knows more about his or her task and task environment than does his or her superior, participative budgeting is modeled as being used by the superior to gain information—reduce uncertainty—about the subordinate's task and task environment (Christensen, 1982; Baiman & Evans, 1983; Penno, 1984; Kirby *et al.*, 1991). A consequence of this information sharing is that the

[8]An approach to verify an assumed reason for why an organization uses participative budgeting would be, as part of a survey for example, to ask respondents in an open-ended question to list the reasons they believe their organization has participative budgeting, assuming that they have it. This question provides a check on the validity of the assumed reason that underpins the model being tested. This verification differs from investigating whether participative budgeting is correlated with an environmental or organizational variable. For example, just because a significant correlation is detected between participative budgeting and (say) uncertainty, this does not necessarily indicate that participative budgeting is being used to reduce or cope with uncertainty. But a direct question asking why the respondents believe participative budgeting is used in their organization provides increased assurance that the detected correlation relates to the assumed purpose of participative budgeting in the model which is being tested.

superior is able to design and offer the subordinate a more efficient, goal-congruent incentive contract which increases subordinate motivation to achieve the budget. Besides modeling how participative budgeting is caused by uncertainty and vertical information asymmetry, this research has modeled how participative budgeting can be used to reduce horizontal information asymmetries by enabling the superior to gain information about subordinates' interdependent tasks and thus co-ordinate their budgets (Kanodia, 1993).

Psychology. Participative budgeting research based on psychological theories (Becker & Green, 1962; Ronen & Livingstone, 1975; Hopwood, 1976; Brownell, 1982*a*; Young, 1988; Murray, 1990) considers three mechanisms by which participative budgeting involving a superior and a subordinate causes effects—value attainment, cognitive, and motivation (Locke & Schweiger, 1979; Locke & Latham, 1990). Value attainment is theorized to affect satisfaction and morale because the process (act) of participation allows a subordinate to experience self respect and feelings of equality arising from the opportunity to express his or her values. The other two mechanisms, motivation and cognitive, are theorized to affect performance. The motivational mechanism depicts the act of participation as increasing a subordinate's trust, sense of control, and ego-involvement with the organization, which then jointly cause less resistance to change and more acceptance of, and commitment to, the budget decisions, in turn causing improved performance. Finally, the cognitive mechanism assumes that the process of participation improves subordinate performance by increasing the quality of decisions as a result of the subordinate sharing information with the superior. While the theoretical psychology-based research on participative budgeting has almost exclusively investigated the effects of participative budgeting, for all three of the mechanisms that are assumed to cause participative budgeting's effects, the assumed cause of participative budgeting is either uncertainty or a superior–subordinate information asymmetry. Regarding the latter cause, when a subordinate possesses better job-related information, the superior is assumed to use participative budgeting to learn more about this information in order to develop a higher quality decision (budget); this cause of participative budgeting has been called information exchange (Hopwood, 1976; Lawler & Rhode, 1976; Locke & Schweiger, 1979).

Sociology. Sociological theories have been used to model how organizational context (e.g. environmental uncertainty) and structure (e.g. decentralization, functional differentiation) are antecedents to participative budgeting. The theoretical underpinning of this research has been the contingency theory of organizations (Hopwood, 1976; Brownell, 1982*a*; Otley & Wilkinson, 1988; Fisher, 1995). This theory predicts that as an organization's external environment becomes more uncertain, it responds by increasing its differentiation (e.g. number and type of subunits) which consequently requires an increase in the use of integrating mechanisms, such as participative budgeting, to co-ordinate the actions of its subunits (Lawrence & Lorsch, 1967; Brownell, 1982*a*). Thus, participative budgeting is assumed to be caused by environmental uncertainty.

Participative budgeting. Why it exists and its antecedents

This subsection develops expectations about associations between seven reasons why participative budgeting exists and four theoretical antecedents—environmental and task uncertainty, task interdependence, and superior–subordinate information asymmetry. These expectations are based on the theoretical research previously reviewed.

Vertical information sharing. The theoretical research in economics (e.g. Baiman & Evans, 1983) and psychology (e.g. Locke & Schweiger, 1979; Locke & Latham, 1990) that was reviewed assumes that participative budgeting exists to share information between a superior and a subordinate. The psychological research assumes that a subordinate has better job-relevant information and that participative budgeting is used by the subordinate and

superior to learn how to do the job better. The economics research models participative budgeting as being used by the superior to learn about a subordinate's private information in order for the former to design more efficient budget-based incentives for the latter. Both types of research assume that the demand for participative budgeting is caused by environmental and task uncertainty and information asymmetry. Thus, the existence of participative budgeting for *sharing external information* is expected to be associated with environmental uncertainty and information asymmetry, and the existence of participative budgeting for *sharing internal information* is predicted to be associated with task uncertainty and information asymmetry.

Co-ordinating interdependencies. Some the oretical economics (Kanodia, 1993) research that was reviewed analytically models how participative budgeting exists to co-ordinate task interdependence between subunits under conditions of asymmetric information. Thus, we expect that the use of participative budgeting for *co-ordinating interdependencies* will be associated with task interdependence and information asymmetry.

Motivation and attitudes. The psychological theory-based research reviewed assumes that participative budgeting exists to increase *motivation* and *job satisfaction* and to decrease the *need to create slack* and *job-related tension* (Hopwood, 1976; Brownell, 1982*a*; Young, 1988). This research indicates that when participative budgeting exists for these four reasons, it is caused by environmental and task uncertainty. Thus, we expect that when participative budgeting exists for these motivation and attitude reasons, they will be associated with environmental and task uncertainty.

EMPIRICAL METHOD

Sample

This survey research used a sample of 60 managers who were graduates of an Executive MBA program. Seventy-five surveys were mailed out and 63 were returned, of which three had missing data. The respondents had a mean of 9 years of managerial experience and 8 years of experience with responsibility for operating budgets. One-third of these managers had profit-budget responsibility and the other managers had responsibility for other types of budgets.[9] These managers were located at all levels of their organizations' management hierarchies,[10] and worked in a variety of industries, and sales for their organizations ranged from $1 million to $2 billion, with a mean of $188 million.[11]

Survey instrument

Since no prior study has measured the reasons for the existence of participative budgeting, we developed two approaches, each with a different response format: open-ended and forced-choice. At the beginning of the survey, the open-ended format asked respondents to write on the survey why they believe that they participate in developing or setting their own budgets.

At the end of the survey, the forced-choice format had each respondent indicate on a 7-point Likert scale the importance of each of seven reasons why they participate in developing or setting their own operating budget. These seven reasons are: sharing external information; sharing internal information; co-ordinating interdependence; increasing motivation; increasing satisfaction; reducing the need to create slack; and reducing job-related tension. Each response scale was anchored by 1=Ext-

[9]The results to be reported did not significantly vary with the type of budget responsibility (profit, cost or revenue).

[10]Since the sample consists of respondents from all levels of their organization's management hierarchy, most of them are both superiors and subordinates. A contagion effect would be expected to result in their involvement in participative budgeting as a subordinate to be for the same reason or purpose that they are involved with it in their role as a superior. Thus, the reasons provided by these respondents in their role as subordinates would be similar to the reasons they would give in their role as a superior. The results reported did not significantly vary with level in management hierarchy.

[11]The results reported did not significantly vary with sales.

remely Unimportant and 7=Extremely Important. There was another response alternative, labeled Other, which provided the respondents with the opportunity to include another reason. Only 9 of the 60 respondents used the Other category. This category was dropped from any further analysis because the reasons given did not center around any identifiable theme.

The four antecedent variables were measured by using previously developed and validated instruments which were adapted to fit the context of this research study. The scaling of these instruments was such that a higher value indicated more of that variable was present. The measurement instrument used for each of these variables, except task interdependence, had multiple scales and a respondent's mean rating on a variable's scales was calculated. The measure of environmental uncertainty was based on Khandwalla (1977) and Gordon and Narayanan (1984). The measure of task uncertainty was based on Perrow (1967) and Macintosh and Daft (1987). The measure of task interdependence was based on Van de Ven *et al.* (1976) and Macintosh and Daft (1987). The measure of information asymmetry was based on Shields and Young (1993).

RESULTS

This section contains three subsections. The first subsection presents the descriptive statistics. The last two subsections report the results of the inferential analysis of the forced- choice and open-ended reasons for participative budgeting.

Descriptive statistics

The variables' means, standard deviations, actual and theoretical ranges, and Cronbach alphas are in Table 2. Table 3 contains a Pearson correlation matrix for the forced-choice and open-ended reasons for participative budgeting.[12] The four antecedent variables' actual ranges typically were almost as large as their theoretical ranges, and their means were approximately at the middle of those ranges. All of the variables with multiple measures had satisfactory reliability as evidenced by their Cronbach alphas being greater than 0.6.

Forced-choice results

As shown in Table 2, the two most important reasons for the existence of participative budgeting were sharing external information (mean=5.27) and co-ordinating interdependence (5.15). The means for the other five reasons were increasing motivation (4.22); sharing internal information (3.93); increasing job satisfaction (3.80); reducing the need to create slack (3.02); and reducing job-related tension (2.65).[13]

Considering interrelationships among these reasons (Table 3), all three of the correlations among sharing internal and external information and co-ordinating interdependencies were positive and significant ($p<0.05$). The four motivation and attitude reasons—motivation, job satisfaction, need to create slack and job-related tension—were all positively and significantly ($p<0.05$) correlated. A factor analysis with varimax rotation yielded similar results (Table 4). It had two factors with Eigenvalues greater than one and explained 64.6% of the

[12]A correlation matrix of all of the measured variables is available from the authors.

[13]A one-way repeated-measures MANOVA with pairwise-Bonferroni contrasts was used to test for differences between the means of the seven forced-choice reasons. Overall, the seven means were significantly different ($F=154$, $p<0.001$). Based on the contrasts, these means can be partitioned into three groups (the overall alpha of 0.05 was equally divided among the 21 contrasts). The first group consisted of the two reasons which had the highest means—sharing external information (5.27) and co-ordinating interdependence (5.15). These two means were not significantly different ($p<0.05$) and they were significantly higher than the means of the other five reasons ($p<0.05$). The middle group consisted of three reasons whose means were about four—increasing motivation (4.22). sharing internal information (3.93) and increasing job satisfaction (3.80). These three means were not significantly different ($p<0.05$). The third group consisted of reducing the need to create slack (3.02) and reducing job-related tension (2.65). These two means were not significantly different ($p<0.05$) and they were significantly lower than the other five means ($p<0.05$).

TABLE 2. Descriptive statistics (N=60)

Variable	Theoretical range	Actual range	Mean	Standard deviation	Cronbach alpha
Environmental and organizational characteristics					
Environmental Uncertainty	1-7	2.33-6.42	4.87	1.10	0.60
Task Uncertainty	1-7	1.20-4.20	2.69	0.74	0.73
Information Asymmetry	1-7	2.40-7.00	4.85	1.16	0.80
Task Interdependence	0-100	0-100	69.33	30.09	N.A.
Forced-choice reasons					
Share External Information	1-7	1-7	5.27	1.36	N.A.
Co-ordinate Interdependencies	1-7	1-7	5.15	1.61	N.A.
Increase Motivation	1-7	1-7	4.22	1.78	N.A.
Share Internal Information	1-7	1-7	3.93	1.73	N.A.
Increase Job Satisfaction	1-7	1-7	3.80	1.82	N.A.
Reduce Need to Create Slack	1-7	1-7	3.02	1.75	N.A.
Reduce Job-related Tension	1-7	1-7	2.65	1.65	N.A.
Open-ended reasons					
Planning and Goal Setting	0-1	0-1	0.25	0.44	N.A.
Responsible for Budget Performance	0-1	0-1	0.20	0.40	N.A.
Superior-Subordinate Information Asymmetry	0-1	0-1	0.20	0.40	N.A.
Organizational Policy	0-1	0-1	0.17	0.38	N.A.
Performance Measurement and Control	0-1	0-1	0.13	0.34	N.A.
Communication	0-1	0-1	0.13	0.34	N.A.

variance.[14] Sharing external and internal information and co-ordinating interdependence loaded on the same factor (factor loadings > 0.6), and motivation, satisfaction, reduce slack and job-related-tension loaded on the other factor (factor loadings > 0.6).

Two of the 14 predicted correlations between the forced-choice reasons for participative budgeting and the antecedents were significant (p<0.05): co-ordinating interdependence with task interdependence (r=0.27) and increasing motivation with task uncertainty (r=0.25). These results indicated that participative budgeting was used for co-ordinating interdependence when there was higher task interdependence and for motivating a subordinate when task uncertainty was higher.

Open-ended results

The coding of the open-ended reasons was a three-step process. First, based on an analysis of the 67 reasons provided by the respondents, a classification scheme was inductively developed by the authors. Second, the authors repeatedly classified the responses and refined the boundaries and number of categories until there was complete agreement between them. Third, using the final classification scheme, another person who was unaware of the purpose of the research classified the responses. Ninety-four percent of the codings of the authors and the other person were identical.[15]

The coding of the open-ended measure of reasons why the respondents participated in developing or setting their own operating budgets resulted in six categories of reasons (Table 2). Selected examples of reasons classified into each category are in Appendix B. These reasons were coded as 1 if present and 0 if absent. Listed by decreasing order of their means (Table 2), these categories were planning and goal setting (0.25); responsible for

[14]Qualitatively, the same result was obtained when an oblique rotation was used.

[15]The results reported did not qualitatively differ depending on which of these two codings were used.

TABLE 3. Pearson correlations for the reasons for participative budgeting (N=60)

	1	2	3	4	5	6	7	8	9	10	11	12
Forced-choice Reasons												
1 Share External Information												
2 Share Internal Information	0.42†											
3 Co-ordinate Interdependencies	0.59†	0.22										
4 Increase Motivation	0.16	0.32	0.20									
5 Increase Job Satisfaction	0.13	0.20	0.29*	0.55†								
6 Reduce Need for slack	0.13	0.18	0.22	0.46†	0.57†							
7 Reduce Job-related Tension	0.00	0.08	0.14	0.35†	0.58†	0.71†						
Open-ended Reasons												
8 Communication	0.00	0.07	−0.07	0.09	0.10	0.02	−0.13					
9 Planning and Goal Setting	0.00	0.07	−0.08	0.04	0.09	0.26*	0.34†	0.11				
10 Organizational Policy	0.04	−0.11	0.15	−0.13	−0.07	−0.16	−0.01	−0.18	−0.26*			
11 Responsible for Budget Perf.	0.15	0.19	0.11	−0.04	−0.04	−0.03	−0.10	−0.20	−0.29*	−0.22		
12 Perf. Measurement and Control	0.00	0.02	0.09	0.34†	0.34†	0.17	0.02	−0.01	0.11	−0.18	−0.07	
13 Superior-Sub. Infor. Asym.	0.09	−0.08	−0.18	−0.13	0.06	−0.10	−0.10	−0.19	−0.17	0.00	−0.04	−0.20
	1	2	3	4	5	6	7	8	9	10	11	12

*p<0.05. †p<0.01.

TABLE 4. Factor analysis on forced-choice reasons for participative budgeting

	Factor 1	Factor 2
Share External Information	−0.012	0.889
Share Internal Information	0.156	0.645
Co-ordinate Interdependencies	0.161	0.763
Increase Motivation	0.663	0.271
Increase Satisfaction	0.816	0.181
Reduce Need for Slack	0.854	0.104
Reduce Job-related Tension	0.854	−0.061
Eigenvalue	2.94	1.59
%Variance Explained	42.0	22.6

budget performance (0.20); superior-subordinate information asymmetry (0.20); organizational policy (0.17); performance measurement and control (0.13); and communication (0.13).[16] Only 2 of the 15 correlations between the six open-ended reasons were significant ($p<0.05$) (Table 3): organizational policy with planning and goal setting ($r=-0.26$) and responsible for budget performance (−0.29).

Four of the 42 correlations between the 7 open-ended and the 6 forced-choice reasons for participative budgeting were significant ($p<0.05$) (Table 3): planning and goal setting with the need to create slack (0.26) and job-related tension (0.34); performance measurement and control with motivation (0.34) and job satisfaction (0.34). Only planning and goal setting was significantly ($p<0.05$) correlated with any of the antecedents, in this case, environmental uncertainty ($r=0.35$, $p<0.01$). This result indicated that participative budgeting was used for planning and goal setting when there was higher environmental uncertainty.

DISCUSSION

This last section has two subsections: overview of the current research and directions for future research.

Current research

The results have four highlights which are discussed below. First is the relative importance of the various reasons for the existence of participative budgeting. The sample's forced-choice reasons for their involvement in participative budgeting revealed that sharing information and co-ordinating interdependence were the most important reasons, and the four reasons related to individual motivation and attitude were less important. The open-ended measures indicated that the respondents participated for six reasons (listed in order of rated importance): planning and goal setting; responsible for budget performance; superior-subordinate information asymmetry; organizational policy; performance measurement and control; and communication.

The second noteworthy result concerns patterns of relationships among the forced-choice reasons for participative budgeting (i.e. the reasons based on the theoretical literature). The results indicated that there are two meta-reasons for the existence of participative budgeting: information sharing and co-ordinating interdependence, and individual motivation and attitude. An implication of these results is that researchers should delineate between models in which participative budgeting is assumed to be used for organizational information sharing/co-ordination vs. for individual motivation/attitude purposes. Since these two reasons operate at different levels of aggregation (organizational to dyad vs. individual), it may imply that different models (i.e. sets of antecedent, independent, dependent, moderator, intervening, and consequent variables) are appropriate.

Third, there was lack of significant correlation—both number and magnitude—between the open-ended and the forced-choice reasons for the use of participative budgeting. Only 4 of the 42 correlations between the forced-choice and open-ended reasons were significant. These four correlations involved the forced-choice reasons of motivation, satisfaction, slack reduc-

[16]Two-tailed proportions tests for dependent samples on all pairwise combinations of these six reasons indicated that there were no significant differences ($p<0.05$) between these means.

tion and job-related tension—all of which were the less important forced-choice reasons. Curiously, the two forced-choice sharing information reasons and the open-ended information asymmetry reason were not significantly associated. We conjecture that this lack of association was due to the way in which these variables were measured.

Fourth, there were not as many significant associations as predicted between the various reasons for the existence of participative budgeting and its four antecedents. Considering the forced-choice reasons, of the 14 predicted associations, only 2 were significant. Considering the open-ended reasons, only planning and goal setting was associated with any independent variables. These results indicated the following three important relationships between reasons for the existence of participative budgeting and the antecedents: participative budgeting exists for planning and goal setting when there is environmental uncertainty; it exists for motivating subordinates when there is task uncertainty; and, it exists for co-ordinating interdependence when there is task interdependence. Whether the relatively few significant correlations was due to measurement problems (e.g. reliance on subjective reports, single-item measurement for some variables, reliability of the coding of the open-ended responses, dichotomous scaling of the open-ended reasons), structural problems (e.g. linear vs. nonlinear relationships, exclusion of interactive relationships), or theoretical limitations (e.g. omitted variables), is uncertain and can only be resolved by additional research.

As with all empirical research, this study has limitations which should be considered when interpreting its results (Birnberg *et al.*, 1990). The empirical analysis was based on a small, non-random sample of graduates of an Executive MBA program. As noted above, the results could have been affected by variable measurement and structure issues. While these limitations are non-trivial but common to empirical research, we believe that the data provided important insights into why and under what conditions participative budgeting exists, which can be used to guide future research.

Future research

Since numerous studies have investigated the effects of participative budgeting, future research should be informed by what has been learned from past research. Their results indicated that, while participative budgeting in some studies has been reported to have positive, direct effects on motivation, satisfaction, attitude and performance, in most studies the effects of participative budgeting have been reported to depend on another variable. The weight of the evidence in these studies is that participative budgeting does not have direct effects on dependent variables, instead its effects are conditional on moderating, other independent and intervening variables. Unfortunately, the extant studies have, in piecemeal fashion, identified numerous conditional variables and no general pattern is apparent. These studies also do not provide direct estimates of the sizes of these effects. In somewhat similar contexts, however, the sizes of the effects of participative decision making and management have been investigated in numerous studies. Locke and Latham (1990) and Wagner (1994) analyzed 11 qualitative and quantitative meta-analysis studies of the effects of participative decision making and management on performance and satisfaction. Their analysis of these studies indicated that the direct effect on performance was an average correlation in the range of 0.15–0.25, and the direct effect on satisfaction was an average correlation of 0.08–0.16. Their conclusion was that, while these effects were statistically significant, they probably lacked practical significance.

The results of these meta-analyses, coupled with the results of the prior research on participative budgeting, has at least three implications for future research. One is that future research might more profitably investigate other topics than participative budgeting since its effects are so small. That is, researchers can find bigger problems to solve. Second, future research should expand the definition and improve the measurement of participative budgeting. Third, and related, future research could expand the scope of investigation to include

other variables in order to develop more complete nomological networks. The latter two implications are considered next.

Future research on participative budgeting could expand its definition and improve its measurement. While participation has many definitions, dimensions and purposes in the organizational behavior literature (Locke and Schweiger, 1979), the accounting literature typically adopts the notion that its purpose is either to increase subordinate motivation or attitude, or to share information between a superior and a subordinate in order to improve motivation, performance and attitudes. The organizational behavior literature also identifies several dimensions of participation: including voluntary or forced (e.g. corporate policy); formal or informal; direct or indirect; degree (or form) (e.g. none, consultation, joint, self-selection); content (e.g. type of decision or budget); vertical vs. horizontal (i.e. participation between a superior and a subordinate vs. participation among subordinate managers); and individual vs. group (e.g. teams, quality circles, etc.) (Locke & Schweiger, 1979; Lawler *et al.*, 1989; Wagner, 1994). Future research might try to decompose participative budgeting into such dimensions. For example, Becker and Green (1962) argued for separating participative budgeting into content (topic of participation) and process (the act of participating), but the subsequent research has not investigated the significance of their distinction. Shields and Young (1993) suggested that a meaningful avenue for future research would be to focus on horizontal, not vertical, participative budgeting. Their suggestion follows from organizations shifting their structures from many vertical layers with up-and-down flows of information, to horizontal structures composed of self-managed, cross-functional teams (e.g. activity-based management, value chains, supplier-customer networks) with horizontal information exchanges and contracts, including horizontal budgets (i.e. budgets for various combinations of these horizontal subunits).

The recognition that participative budgeting has many definitions, dimensions and organizational contexts indicates that future research should revise its measurement. Almost all of the extant research has used the 6-item measure developed by Milani (1975) and a few studies have supplemented it with the 1-item measure developed by Hofstede (1967). The 6-item Milani instrument focuses on superior-subordinate participative budgeting and includes several aspects of participation—frequency, involvement, influence, importance of subordinate input, and the superior's explanations for changes—which have been shown to constitute two orthogonal dimensions (Brownell, 1992*b*,*c*). Future research should incorporate this multidimensionality. For example, it might develop more specific multi-item measures of participative budgeting which correspond to its various definitions, dimensions, and organizational contexts. Besides measuring participative budgeting, future studies should measure why their samples have participative budgeting to provide a validity check on whether their assumed theoretical reasons for participative budgeting are the same as their sample's beliefs about why it exists.

The second, and related, direction for future research is to expand the scope of investigation by including other variables in their nomological networks. Such networks, for example, can include other management accounting variables since participative budgeting usually does not exist by itself but as an important part of a system (set) of variables including budget tightness, controllability filters, budget-based performance measures, budget-based compensation, and budget-based performance evaluation. There is much opportunity for such research because little is known about the interrelationships between these variables. When organizations have accounting- or budget-based systems, depending on the organizational design, their antecedents would be expected to include environmental and task uncertainty (including task interdependence) as well as vertical and horizontal information asymmetries about these uncertainties. There can be numerous effects and consequences of these systems including effects on motivation, attitudes (e.g.

satisfaction, job-related tension, turnover intentions), interpersonal relations, and performance. It is important for research to identify whether these effects are direct (on dependent variables) or indirect (on consequent variables). These nomological networks also could include variables (e.g. goal clarity, goal acceptance) that intervene between participative budgeting and dependent variables like motivation (Locke & Latham, 1990). Finally, since participative budgeting may arise in response to an organization's use of participative decision making and management, future research could include them as antecedents.

Future research also would be more valuable if it were to provide explicit links between a study's nomological network and those of other studies to facilitate the development of general theories of participative budgeting and other management accounting variables. Related to this, studies could develop explicit nomological networks in order to ensure that the assumed relationships among the variables included are appropriate (e.g. moderator variables are not theoretically (or empirically) associated with independent or dependent variables). Further, studies could show how their networks relate to the networks in other studies to facilitate the linking together of these networks to develop a comprehensive system that includes all of the important management accounting variables as well as their antecedents, direct (dependent variables) and indirect (consequent variable) effects, and any moderator and intervening variables. For empirical studies which test such nomological networks, reliance on structural equation models (e.g. path analysis, LISREL) is desirable to test measurement and structure. We hope that these suggestions for future research will facilitate the development and testing of comprehensive models of management accounting systems.

BIBLIOGRAPHY

Aranya, N. (1990). Budget instrumentality, participation and organizational effectiveness. *Journal of Management Accounting Research*, *2*, 67-77.

Argyris, C. (1952). *The Impact of Budgets on People*. New York: Controllership Foundation.

Arnold, H. (1982). Moderator variables: a clarification of conceptual, analytic, and psychometric issues. *Organizational Behavior and Human Performance*. *29*, 143-174.

Baiman, S., & Evans, H. (1983). Pre-decision information and participative management control systems. *Journal of Accounting Research*, *21*, 371-395.

Baron, R., & Kenny, D. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173-1182.

Becker, S., & Green, D. (1962). Budgeting and employee behavior. *Journal of Business*, *35*, 392-402.

Birnberg, J., Shields, M., & Young, S. M. (1990). The case for multiple methods in empirical management accounting research (with an illustration from budget setting). *Journal of Management Accounting Research*, *2*, 33-66.

Blalock, H. (1964). *Causal Inferences in Nonexperimental Research*. New York: Norton Company.

Bollen, K. (1989). *Structural Equations with Latent Variables*. New York: John Wiley & Sons.

Briers, M., & Hirst, M. (1990). The role of budgetary information in performance evaluation. *Accounting, Organizations and Society*, *15*, 373-398.

Brownell, P. (1981). Participation in budgeting, locus of control and organizational effectiveness. *The Accounting Review*, *56*, 844-860.

Brownell, P. (1982*a*). Participation in the budgeting process: when it works and when it doesn't. *Journal of Accounting Literature*, *1*, 124-150.

Brownell, P. (1982*b*). A field study examination of budgetary participation and locus of control. *The Accounting Review*, *57*, 766-777.

Brownell, P. (1982*c*). The role of accounting data in performance evaluation, budgetary participation and organizational effectiveness. *Journal of Accounting Research*, *20*, 12-27.

Brownell, P. (1983*a*). The motivational impact of management-by-exception in a budgetary context. *Journal of Accounting Research*, *21*, 456-472.

Brownell, P. (1983*b*). Leadership style, budgetary participation and managerial behavior. *Accounting, Organizations and Society*, *8*, 307-322.

Brownell, P. (1985). Budgetary systems and the control of functionally differentiated organizational activities. *Journal of Accounting Research*, *23*, 502-512.

Brownell, P., & Dunk, A. (1991). Task uncertainty and its interaction with budgetary participation and budget emphasis: some methodological issues and empirical investigation. *Accounting, Organizations and Society*, *16*, 693-703.

Brownell, P., & Hirst, M. (1986). Reliance on accounting information, budgetary participation, and task uncertainty: tests of a three-way interaction. *Journal of Accounting Research*, *24*, 241-249.

Brownell, P., & McInnes, M. (1986). Budgetary participation, motivation, and managerial performance. *The Accounting Review*, *61*, 587-600.

Brownell, P., & Merchant, K. (1990). The budgetary and performance influences of product standardization and manufacturing process automation. *Journal of Accounting Research*, *28*, 388-397.

Chalos, P., & Haka, S. (1989). Participative budgeting and managerial performance. *Decision Sciences*, *20*, 511-526.

Chenhall, R. (1986). Authoritarianism and participative budgeting: a dyadic analysis. *The Accounting Review*, *61*, 263-272.

Chenhall, R., & Brownell, P. (1988). The effect of participative budgeting on job satisfaction and performance: role ambiguity as an intervening variable. *Accounting, Organizations and Society*, *13*, 225-234.

Cherrington, D., & Cherrington, J. (1973). Appropriate reinforcement contingencies in the budgeting process. *Journal of Accounting Research Supplement*, *11*, 225-253.

Christensen, J. (1982). The determination of performance standards and participation. *Journal of Accounting Research*, *21*, 589-603.

Cohen, J, & Cohen, P. (1975). *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences*. New York: Lawrence Erlbaum.

Cronbach, L., & Meehl, P. (1955). Construct validity in psychological tests. *Psychological Bulletin*, *52*, 281-302.

Davis, J. (1985). *The Logic of Causal Order*. Newbury Park, CA.: Sage Publications.

Dunk, A. (1989). Budget emphasis, budgetary participation and managerial performance: a note. *Accounting, Organizations and Society*, *14*, 321-324.

Dunk, A. (1990). Budgetary participation, agreement on evaluation criteria and managerial performance: a research note. *Accounting, Organizations and Society*, *14*, 171-178.

Dunk, A. (1992). Reliance on budgetary control, manufacturing process automation and production subunit performance: a research note. *Accounting, Organizations and Society*, *17*, 195-204.

Dunk, A. (1993*a*). The effect of budget emphasis and information asymmetry on the relation between budgetary participation and slack. *The Accounting Review*, *68*, 400-410.

Dunk, A. (1993*b*). The effects of job-related tension on managerial performance. *Accounting, Organizations and Society*, *18*, 575-586.

Dunk, A. (1995). The differential effect of information asymmetry on the relation between budgetary participation and departmental performance. *Advances in Management Accounting*, *4*, 147-161.

Fisher, J. (1995). Contingency-based research on management control systems: categorization by a level of complexity approach. *Journal of Accounting Literature*, *14*, 24-53.

Foran, M., & DeCoster, D. (1974). Participation, authoritarianism and feedback. *The Accounting Review*, *49*, 751-763.

Frucot, V., & Shearon, W. (1991). Budgetary participation, locus of control and mexican managerial performance and job satisfaction. *The Accounting Review*, *66*, 80-99.

Gordon, L., & Narayanan, V. (1984). Management accounting systems, perceived environmental uncertainty and organization structure: an empirical investigation. *Accounting, Organizations and Society*, *9*, 33-48.

Govindarajan, V. (1986). Impact of participation in the budgetary process on managerial attitudes and performance: universalistic and contingency perspectives. *Decision Sciences*, *17*, 496-516.

Greenberg, P., Greenberg, R., & Nouri, H. (1994). Participative budgeting: a meta-analytic examination of methodological moderators. *Journal of Accounting Literature*, *13*, 117-141.

Gul, F., Tsui, J., Fong, S., & Kwok, H. (1995). Decentralisation as a moderating factor in the budgetary participation-performance relationship: some Hong Kong evidence. *Accounting and Business Research*, *25*, 107-114.

Harrison, G. (1992). The cross-cultural generalizability of the relation between participation, budget emphasis and job related attitudes. *Accounting, Organizations and Society, 17*, 1-15.

Hofstede, G. (1967). *The Game of Budget Control*. Assen, The Netherlands: Van Gorcum.

Hopwood, A. (1976). *Accounting and Human Behavior*. Englewood Cliffs, NJ: Prentice Hall.

Iaffaldano, M., & Muchinsky, P. (1985). Job satisfaction and job performance: a meta-analysis. *Psychological Bulletin, 97*, 251-273.

James, L., & Brett, J. (1984). Mediators, moderators, and tests for mediation. *Journal of Applied Psychology, 69*, 307-321.

Kanodia, C. (1993). Participative budgets as coordination and motivation devices. *Journal of Accounting Research, 31*, 172-189.

Kenis, I. (1979). Effects of budgetary goal characteristics on managerial attitudes and performance. *The Accounting Review, 54*, 707-721.

Khandwalla, P. (1977). *The Design of Organizations*. New York: Harcourt Brace Jovanovich.

Kirby, A., Reichelstein, S., Sen, P., & Paik, T. (1991). Participation, slack, and budget-based performance evaluation. *Journal of Accounting Research, 29*, 109-128.

Kren, L. (1990). Performance in a budget-based control system: an extended expectancy theory model approach. *Journal of Management Accounting Research, 2*, 100-112.

Kren, L. (1992*a*). Budgetary participation and managerial performance: the impact of information and environmental volatility. *The Accounting Review, 67*, 511-526.

Kren, L. (1992*b*). The moderating effects of locus of control on performance incentives and participation. *Human Relations, 45*, 991-1012.

Lau, C., Low, L., & Eggleton, I. (1995). The impact of reliance on accounting performance measures on job-related tension and managerial performance: additional evidence. *Accounting, Organizations and Society, 20*, 359-382.

Lawler, E., Ledford, G., & Mohrman, S. (1989). *Employee Involvement in America. A Study of Contemporary Practice*. Houston: American Productivity & Quality Center.

Lawler, E., & Rhode, J. (1976). *Information and Control in Organizations*. Pacific Palisades, CA: Goodyear Publishing Co.

Lawrence, P., & Lorsch, J. (1967). *Organization and Environment*. Homewood, IL: Irwin.

Lindquist, T. (1995). Fairness as an antecedent to participative budgeting: examining the effects of distributive justice and referent cognitions on satisfaction and performance. *Journal of Management Accounting Research, 7*, 122-147.

Locke, E., & Latham, G. (1990). *A Theory of Goal Setting & Task Performance*. Englewood Cliffs, NJ: Prentice-Hall.

Locke, E., & Schweiger, D. (1979). Participation in decision-making: one more look. In *Research in Organizational Behavior*, Vol. 1. Greenwich, CT: JAI Press.

Macintosh, N., & Daft, R. (1987). Management control systems and departmental interdependencies: an empirical study. *Accounting, Organizations and Society, 12*, 49-64.

Magner, N., Welker, R., & Campbell, T. (1995). The interactive effect of budgetary participation and budget favorability on attitudes toward budgetary decision makers: a research note. *Accounting, Organizations and Society, 20*, 611-618.

Merchant, K. (1981). The design of the corporate budgeting system: influences on managerial behavior and performance. *The Accounting Review, 56*, 813-829.

Merchant, K. (1984). Influences on departmental budgeting: an empirical examination of a contingency model. *Accounting, Organizations and Society, 9*, 291-310.

Mia, L. (1987). Participation in budgetary decision making, task difficulty, locus of control, and employee behavior: an empirical study. *Decision Sciences, 18*, 547-561.

Mia, L. (1988). Managerial attitude, motivation and the effectiveness of budget participation. *Accounting, Organizations and Society, 13*, 465-476.

Mia, L. (1989). The impact of participation in budgeting and job difficulty on managerial performance and work motivation: a research note. *Accounting, Organizations and Society, 14*, 347-358.

Milani, K. (1975). Budget-setting, performance and attitudes. *The Accounting Review, 5*, 274-284.

Murray, D. (1990). The performance effects of participative budgeting: an integration of intervening and moderating variables. *Behavioral Research in Accounting, 2*, 104-123.

Nouri, H., Blau, G., & Shahid, A. (1995). The effect of socially desirable responding (SDR) on the relation between budgetary participation and self-reported job performance. *Advances in Management Accounting, 4*, 163-177.

O'Connor, N. (1995). The influence of organizational culture on the usefulness of budget participation by Singaporean-Chinese managers. *Accounting, Organizations and Society, 20*, 383-404.

Onsi, M. (1973). Behavioral variables affecting budgetary slack. *The Accounting Review, 48*, 535-548.

Otley, D., & Wilkinson, C. (1988). Organizational behavior: strategy, structure, environment, and technology. In K., Ferris, (Ed.), *Behavioral Accounting Research: A Critical Analysis* (pp. 147-170). Columbus, Ohio: Century VII Publishing Company.

Penno, M. (1984). Asymmetry of pre-decision information and managerial accounting. *The Accounting Review, 59*, 177-191.

Perrow, C. (1967). A framework for comparative organization analysis. *American Sociological Review, 32*, 444-459.

Petty, M., McGee, G., & Cavender, J. (1984). A meta-analysis of the relationship between individual job satisfaction and individual performance. *Academy of Management Review, 9*, 712-721.

Podsakoff, P., & Williams, J. (1986). The relationship between job performance and job satisfaction. In E. Locke (Ed.), *Generalizing From the Laboratory to Field Settings*. (pp. 207-253). Lexington, MA: Lexington Books.

Ronen, J., & Livingstone, J. (1975). An expectancy theory approach to the motivational impact of budgets. *The Accounting Review, 50*, 671-685.

Searfoss, G. (1976). Some behavioral aspects of budgeting for control: an empirical study. *Accounting, Organizations and Society, 1*, 375-388.

Searfoss, G., & Monczka, R. (1973). Perceived participation in the budgeting process and motivation to achieve the budget. *Academy of Management Journal, 16*, 541-554.

Sharma, S., Durand, R., & Gur-Arie, O. (1981). Identification and analysis of moderator variables. *Journal of Marketing Research, 28*, 291-300.

Shields, M., & Young, S. M. (1993). Antecedents and consequences of participative budgeting: evidence on the effects of asymmetrical information. *Journal of Management Accounting Research, 5*, 265-280.

Tiller, M. (1983). The dissonance model of participative budgeting: an empirical exploration. *Journal of Accounting Research, 21*, 581-595.

Van de Ven, A., Delbecq, A., & Koenig, R. (1976). Determinants of coordination modes within organizations. *American Sociological Review, 41*, 322-338.

Wagner, J. (1994). Participation's effects on performance and satisfaction: a reconsideration of research evidence. *Academy of Management Review, 19*, 312-330.

Young, S. M. (1988). Individual behavior: performance, motivation, and control. In K. Ferris (Ed.), *Behavioral Accounting Research. A Critical Analysis*. (pp. 229-246). Columbus, Ohio: Century VII Publishing Company.

APPENDIX A

TABLE A1. Empirical research on the effects of participative budgeting on dependent variables

Article (article number)	Empirical method	Assumed reason for participative budgeting	Theoretical model: Independent (I) and Moderator (M) variables	Theoretical model: Dependent variables	Statistically significant results with respect to participative budgeting (significant: $p \leq 0.05$; marginally significant: $p \leq 0.10$)
(1) Aranya 1990	Survey	Motivation	I=Participative Budgeting, Budget-based Incentives	Performance, Satisfaction	Significant Interactions with Budget-based Incentives on Performance and Satisfaction
(2) Brownell 1981	Lab Experiment	Motivation, Satisfaction	I=Participative Budgeting M=Locus of Control	Performance	Significant Interaction with Locus of Control on Performance
(3) Brownell 1982*b*	Survey	Motivation, Satisfaction	I=Participative Budgeting M= Locus of Control	Performance, Satisfaction	Marginally Significant Interaction with Locus of Control on Performance, Significant Interaction with Locus of Control on Satisfaction
(4) Brownell 1982*c*	Survey	Satisfaction	I=Budget Emphasis M=Participative Budgeting	Performance, Satisfaction	Significant Interaction with Budget Emphasis on Performance
(5) Brownell 1983*a*	Survey	Motivation	I=Management-by-Exception M=Participative Budgeting	Motivation	Marginally Significant Interaction with Management-by-Exception on Motivation
(6) Brownell 1983*b*	Survey	Satisfaction	I=Participative Budgeting, Leadership Style	Performance, Satisfaction	Significant Interactions with Leadership Style on Performance and Satisfaction
(7) Brownell 1985	Survey	Share External Information	I=Participative Budgeting M=Functional Area	Performance	Significant Interaction with Functional Area on Performance
(8) Brownell and Dunk 1991	Survey	Share Internal Information	I=Budget Emphasis, Task Uncertainty, Task Difficulty, Task Variability M=Participative Budgeting	Performance	Significant Interaction with Budget Emphasis and Task Uncertainty on Performance, Significant Interaction with Budget Emphasis and Task Difficulty on Performance

(continued)

Table A1—*contd*

Article (article number)	Empirical method	Assumed reason for participative budgeting	Theoretical model: Independent (I) and Moderator (M) variables	Theoretical model: Dependent variables	Statistically significant results with respect to participative budgeting (significant: $p \leq 0.05$; marginally significant: $p \leq 0.10$)
(9) Brownell and Hirst 1986	Survey	Share Internal Information	I=Budget Emphasis, Task Uncertainty M=Participative Budgeting	Job-related Tension, Performance	Marginally Significant Interaction with Budget Emphasis and Task Uncertainty on Job-related Tension
(10) Brownell and McInnes 1986	Survey	Motivation, Share Information	I=Participative Budgeting	Motivation Performance	Significant Positive Associations with Motivation and Performance
(11) Brownell and Merchant 1990	Survey	Share Internal Information	I=Participative Budgeting M=Product Standardization, Process Automation	Performance	Significant Interaction with Product Standardization on Performance
(12) Chalos and Haka 1989	Lab Experiment	Motivation, Share External Information	I=Participative Budgeting M=State Information, Skill	Performance	Significant Interaction with State Information on Performance
(13) Chenhall 1986	Survey	Satisfaction	I=Participative Budgeting M=Authoritarian Dyad	Satisfaction	Significant Interaction with Authoritarian Dyad on Satisfaction
(14) Chenhall and Brownell 1988	Survey	Satisfaction, Share Information	I=Participative Budgeting	Role Ambiguity	Significant Negative Association with Role Ambiguity
(15) Cherrington and Cherrington 1973	Lab Experiment	Motivation Satisfaction	I=Participative Budgeting, Budget-based Incentives	Performance, Satisfaction	Significant Interactions with Incentives on Performance and Satisfaction
(16) Dunk 1989	Survey	Motivation	I=Budget Emphasis M=Participative Budgeting	Performance	Significant Interaction with Budget Emphasis on Performance
(17) Dunk 1990	Survey	Share Information	I=Participative Budgeting, Performance Evaluation Criteria Agreement	Performance	Significant Interaction with Evaluation Agreement on Performance
(18) Dunk 1992	Survey	Satisfaction	I=Participative Budgeting M=Managerial Level	Satisfaction	Significant Interaction with Managerial Level on Satisfaction
(19) Dunk 1993*a*	Survey	Share Information	I=Participative Budgeting, Information Asymmetry, Budget Emphasis	Budget Slack	Significant Interaction with Information Asymmetry and Budget Emphasis on Budget Slack (Form of Interaction Not As Predicted)

(continued)

Table A1—*contd*

(20) Dunk 1993*b*	Survey	Reduce Job-related Tension, Share Information	I=Job-related Tension M=Participative Budgeting	Performance	Significant Positive Association with Performance
(21) Dunk 1995	Survey	Share Information	I=Participative Budgeting M=Information Asymmetry	Performance	Significant Interaction with Information Asymmetry on Performance
(22) Foran and DeCoster 1974	Lab Experiment	Motivation	I=Participative Budgeting M=Feedback, Authoritarianism	Attitude; Motivation	
(23) Frucot and Shearon 1991	Survey	Motivation, Satisfaction	I=Participative Budgeting M=Locus of Control	Performance, Satisfaction	Significant Positive Association with Satisfaction, Significant Interaction with Locus of Control on Performance
(24) Govindarajan 1986	Survey	Motivation, Reduced Need to Create Slack, Share External Information	I=Participative Budgeting M=Environmental Uncertainty	Attitude, Performance, Propensity to Create Slack	Significant Interactions with Environmental Uncertainty on Attitude, Performance and Propensity to Create Slack
(25) Gul, Tsui, Fong and Kwok 1995	Survey	Share External Information	I=Participative Budgeting M=Decentralization	Performance	Significant Interaction with Decentralization on Performance
(26) Harrison 1992	Survey	Satisfaction	I=Budget Emphasis M=Participative Budgeting, National Culture	Job-related Tension, Satisfaction	Significant Interaction with Budget Emphasis on Job-related Tension
(27) Hofstede 1967	Field Study	Motivation, Satisfaction Share Information	I=Participative Budgeting	Motivation, Satisfaction	Significant Positive Associations with Motivation and Satisfaction
(28) Kenis 1979	Survey	Motivation, Satisfaction	I=Participative Budgeting	Job-related Tension, Attitude, Motivation, Performance	Significant Positive Associations with Attitude, Budget Motivation and Budget Performance, Significant Negative Association with Job-related Tension
(29) Kren 1990	Lab Experiment	Motivation	I=Participative Budgeting	Motivation (=Expectancy × Valance), Performance	Marginally Significant Positive Association with Expectancy
(30) Kren 1992*a*	Survey	Share External Information	I=Participative Budgeting M=Environmental Volatility	Job-relevant Information	Significant Positive Association with Job-relevant Information

(continued)

Table A1—*contd*

Article (article number)	Empirical method	Assumed reason for participative budgeting	Theoretical model: Independent (I) and Moderator (M) variables	Theoretical model: Dependent variables	Statistically significant results with respect to participative budgeting (significant: $p \leq 0.05$; marginally significant: $p \leq 0.10$)
(31) Kren 1992*b*	Lab Experiment	Motivation	I=Participative Budgeting M=Locus of Control	Effort, Performance	Significant Interaction with Locus of Control on Performance
(32) Lau, Low and Eggleton 1995	Survey	Motivation, Share Information	I=Budget Emphasis, Task Uncertainty, Task Difficulty M= Participative Budgeting	Job-related Tension, Performance	Significant Interaction with Budget Emphasis and Task Difficulty on Performance
(33) Lindquist 1995	Lab Experiment	Motivation	I=Participative Budgeting M=Budget Attainability	Performance, Satisfaction	Significant Interaction with Budget Attainability on Satisfaction
(34) Magner, Welker and Campbell 1995	Survey	Satisfaction	I=Participative Budgeting M=Budget Favorability	Attitude	Significant Interaction with Budget Favorability on Attitude
(35) Merchant 1981	Survey	Motivation, Share Internal Information	I=Participative Budgeting M=Organizational Size	Attitude, Motivation, Performance	Significant Positive Associations with Attitude and Motivation, Significant Interaction with Size and Performance
(36) Merchant 1984	Survey	Co-ordination, Share Internal Information	I=Participative Budgeting M=Production Technology, Product Standardization, Product Life Cycle, Market Position, Organizational Size, Functional Differentiation	Performance	Significant Interaction with Organizational Size and Performance
(37) Mia 1987	Survey	Share Information	I=Participative Budgeting	Attitude	Significant Positive Association with Attitude
(38) Mia 1988	Survey	Share Information	I=Participative Budgeting M= Attitude, Motivation	Performance	Significant Interaction with Attitude on Performance, Significant Interaction with Motivation on Performance
(39) Mia 1989	Survey	Motivation, Share Information	I=Participative Budgeting M=Job Difficulty	Motivation, Performance	Significant Interaction with Job Difficulty on Performance
(40) Milani 1975	Survey	Motivation	I=Participative Budgeting	Attitude, Performance	Significant Positive Associations with Attitude and Performance

(continued)

Table A1—*contd*

(41) Nouri, Blau and Shahid 1995	Survey	Motivation	I=Participative Budgeting M=Socially Desirable Responding	Performance	Significant Interaction with Socially Desirable Responding on Performance
(42) O'Connor 1995	Survey	Motivation	I=Participative Budgeting M=Culture	Role Ambiguity, Superior-Subordinate Relationship	
(43) Onsi 1973	Survey	Reduce Need to Create Slack	I=Participative Budgeting	Slack	Significant Negative Association with Slack
(44) Searfoss 1976	Survey	Motivation	I=Participative Budgeting	Motivation	Significant Positive Association with Motivation
(45) Searfoss and Monczka 1973	Survey	Motivation	I=Participative Budgeting M=Need for Independence, Authoritarianism	Motivation	Significant Positive Association with Motivation
(46) Shields and Young 1993	Survey	Share Information	I=Participative Budgeting	Budget-Based Incentives	Significant Positive Association with Budget-Based Incentives
(47) Tiller 1983	Lab Experiment	Motivation	I=Participative Budgeting M=Incentives, Standard Tightness	Budget Commitment, Performance	Marginally Significant Interaction with Incentives and Standard Tightness on Budget Commitment, Marginally Significant Interaction with Standard Tightness on Performance

APPENDIX B
EXAMPLES OF OPEN-ENDED RESPONSES

Planning and goal setting

- To make sure there is a balance between the needs and the resources as determined by priorities that need to get done.
- To help inform managers to be accurate in setting budgets for planning of what it will take to provide products to market at a given cost.

Superior-subordinate information asymmetry

- I have the greatest depth of knowledge of my area's needs.
- Others have less knowledge or overview of technical considerations.

Organizational policy

- It's part of my job description.
- It's an operating practice that department managers set and monitor their own budgets.

Responsible for budget performance

- I view it as one of my key responsibilities and I am held up to managing the budget by my boss.
- I hold overall responsibility for the department's budget.

Performance measurement and control

- It is important to set targets and measure performance against them, evaluate the reasons for misses and successes.
- An operating budget provides me with a tool to achieve my objective.

Communication

- To make a more accurate prediction by talking with project leaders and engineers.
- Communicate department needs.