Budgeting: An Experimental Investigation of the Effects of Negotiation

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ABSTRACT: Despite the common use of negotiations to set budgets in practice, accounting research has focused primarily on budgets set unilaterally by subordinates, while goal-setting research in management has focused primarily on budgets set unilaterally by superiors. In addition, budgeting research in accounting has focused almost exclusively on the planning aspects of budgets to the exclusion of their motivational aspects. This study complements prior research in two ways. First, the study examines how budgets and the economic consequences of the budget-setting process differ when budgets are set through a negotiation process vs. when set unilaterally. The study also considers factors associated with negotiation agreement and the relation between agreement and the economic consequences of negotiated budgets. Second, the economic consequences examined are budgetary slack and subordinate performance, allowing us to address the trade-offs between the planning and motivational aspects of budgets.

Negotiated budgets differ from unilaterally set budgets in a manner consistent with social norms and/or information transfer occurring during negotiations. Both the budgets and the economic consequences of the budget-setting process differ when budgets are set through a negotiation process where superiors have final authority in the event of a negotiation impasse vs. when set unilaterally by superiors. Further, negotiation agreement significantly affects the economic consequences of negotiated budgets. Budgets set

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through a negotiation process ending in agreement contain significantly less slack. A failed negotiation followed by superiors imposing a budget has a significant detrimental effect on subordinate performance.

**Key Words:** Budgeting, Budgetary slack, Negotiation, Participative budgeting.

**Data Availability:** Data are available from the authors upon written request.

## I. INTRODUCTION

Almost all large and medium-size companies have formal budgeting programs (Umapathy 1987, 18), with the budget usually set through a negotiation process between superiors and subordinates (Howell and Sakurai 1992, 32; Anthony and Govindarajan 1994, 383). Despite the use of negotiation to set budgets in practice, accounting research has focused primarily on situations where subordinates unilaterally set budgets (e.g., Chow et al. 1988, 1991, 1995; Waller 1988; Young 1985), and goal-setting research in management (Locke 1968; Locke and Latham 1990) has focused primarily on situations where superiors unilaterally set the goal. Thus, budget negotiation has drawn little attention in either accounting or management research.

Negotiation research in social psychology and economics (see Lewicki et al. [1994] or Hey [1991] for reviews) often uses a bilateral monopoly setting where subjects negotiate a selling price for a good (Rubin and Brown 1975). Such negotiations differ from budget negotiations in important ways, limiting the generalizability of that research to budget negotiations. First, in the bilateral monopoly setting, a negotiation impasse is resolved either by using third-party arbitration or by simply withdrawing from the negotiation, neither of which are typical options in budget negotiations (Umapathy 1987). Second, the outcome in bilateral monopoly negotiations (i.e., selling price) directly determines the negotiators’ respective payoffs, whereas the outcome in budget negotiations (i.e., budget) is only an intermediate step in determining the negotiators’ respective payoffs. Subordinates must exert effort before final outcomes and payoffs can be determined, and their effort level may be a function of the negotiation process and/or negotiated budget. These differences limit what we learn about extant budget negotiations from studies of behavior in bilateral monopolies.

In addition, budgeting research in accounting has focused almost exclusively on the planning aspect of budgets (i.e., budgetary slack) to the exclusion of their motivational aspects, whereas goal-setting research has focused almost exclusively on the motivational aspects of budgets (i.e., subordinate performance) to the exclusion of their planning aspects. However, Umapathy’s (1987, 27) finding that nearly 75 percent of the companies in his sample use the same budget for both planning and motivational purposes suggests it is important to examine simultaneously the planning and motivational aspects of budgets, particularly since there may be trade-offs between those aspects (Barrett and Fraser 1977, 141).

The broad issue addressed in this paper is whether budget negotiation affects budgetary outcomes. We examine whether negotiating budgets vs. unilaterally setting budgets affects the budget level and resulting economic consequences (i.e., budgetary slack and subordinate performance). This analysis allows us to compare the economic consequences of negotiated budgets to those of budgets unilaterally set in prior accounting and organizational behavior.

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1 We define a negotiation process as any iterative budget-setting process where both superiors and subordinates participate. Such processes could vary from a series of budget reviews and revisions to formal negotiation procedures.
research. Our comparisons provide evidence about the generalizability of results from prior research that focused on unilaterally set budgets to the more common setting where budgets are set through negotiation. In addition, we examine how negotiation impacts both budgetary slack and subordinate performance, which provides evidence about the trade-offs between the planning and motivational aspects of budgets.

One factor likely to affect negotiation outcomes is negotiation power (Salancik and Pfeffer 1977). Negotiators have power when they have the ability to bring about outcomes they desire (Lewicki et al. 1994). Being able to unilaterally set the budget implies complete power over the budget level. To isolate the effects of negotiation, it is necessary to hold constant the power to affect the final budget. We therefore examine (1) budgets set unilaterally by subordinates vs. budgets set through a negotiation process where subordinates have the power to set budgets in the event of a negotiation impasse, and (2) budgets set unilaterally by superiors vs. budgets set through a negotiation process where superiors have final authority. The party (superiors or subordinates) who begins the negotiation is a second factor likely to affect budget outcomes (Neale and Bazerman 1991). We therefore consider the effect of which party makes the initial budget proposal on the level of negotiated budgets.

We also examine negotiation agreement because it is a fundamental aspect of any negotiation (Tripp and Sondak 1992), and because it is expected to be associated with the degree of budget slack and the level of subordinate performance. Given the expected importance of budget agreement, we examine (1) factors associated with whether budget negotiations end in agreement, and (2) how agreement impacts budgetary slack and subordinate performance. Moreover, when comparing the economic consequences of unilaterally set vs. negotiated budgets, we partition negotiated budgets based on whether the negotiation dyads reach agreement. Examining the effects of negotiation agreement provides knowledge about the costs associated with failing to reach agreement and provides a foundation for a better understanding of budget negotiations.

We conducted a laboratory experiment in which subjects were assigned the role of either superior or subordinate in a budget-setting task. The results indicate that budgets set through a negotiation process differ from budgets set unilaterally and that superiors and subordinates in the negotiation condition adopt different negotiation strategies. Superiors in the negotiation condition take initial positions not significantly different from their desired budgets (i.e., unilaterally set budgets) and then make concessions in the subsequent negotiation process that lead them away from their desired budgets. Such concessions are consistent with a social norm of making concessions in negotiations (Pruitt and Carnevale 1993) and/or with responding to information provided by subordinates during negotiations. On the other hand, subordinates take initial negotiation positions significantly below their desired budgets. Such initial positions allow them to make concessions in negotiations while arriving at final budgets not significantly different from their desired budgets. The results also provide insight into the precursors and consequences of negotiation agreement. The differences in negotiators’ initial positions are significantly smaller for dyads that reach agreement than for dyads that do not. The effect of negotiation agreement on budgetary slack is not independent of whether superiors or subordinates have final budgetary decision authority. Budgetary slack is greater when subordinates agree to budgets and superiors have final budget authority than when superiors agree to budgets and subordinates have final budget authority. Importantly, a failed negotiation followed by superiors imposing a budget has a significant detrimental influence on subordinate performance. Overall, the results indicate that negotiation generates different budgets and economic consequences than a unilateral budget-setting process.
The remainder of the paper is organized as follows. The hypotheses are developed in the next section. In Section III, the experimental method is described. The results are reported in Section IV. The concluding section discusses the implications of the findings, the study's limitations, and directions for future research.

II. HYPOTHESIS DEVELOPMENT

Setting and Incentives

The focus of our experiment is on dyads that consist of a superior and a subordinate. We provide subordinates with private information about their own performance capability (from pre-experimental trials). The dyads set production budgets by either (1) a unilateral decision of one party or (2) a process of negotiation between the two parties. Our unilateral budget-setting conditions include budgets established by subordinates and budgets established by superiors because both conditions have been examined in previous research (e.g., Chow et al. 1988; Waller 1988; Locke 1968). In the negotiation conditions, one party proposes a budget and the other party either agrees to the budget or makes a counter offer.

The outcomes of the budget processes include a budget, the subordinates' personal performance goals, the level of subordinates' commitment to the budget, and budgetary slack. Budgets are the formal, institutional performance goals that result from the budget-setting process. Subordinates' personal goals are generally unobservable and represent the performance levels subordinates actually intend to attain (Tubbs and Ekeberg 1991) and may be less than, equal to, or greater than the budget. "Subordinate commitment" refers to subordinates' determination to attain the budget and is a function of the degree of discrepancy between the budget and their personal goals (Locke and Latham 1990). Budgetary slack is the difference between subordinates' best estimate of performance and the budget (Chow et al. 1988, 1991, 1995; Waller 1988; Young 1985; Young et al. 1993). Once the budget is set, subordinates exert effort, which in turn affects their performance and firm revenues.

A precursor to negotiation is conflict (Lewicki et al. 1994). We create conflict in our experiment with the following compensation contracts:

\[ P_{\text{subordinate}} = \begin{cases} F & \text{if } X \leq B \\ F + A(X - B) & \text{if } X > B \end{cases} \]

\[ P_{\text{superior}} = \begin{cases} R(DX - F) & \text{if } X \leq B \\ R(DX - [F + A(X - B)]) & \text{if } X > B \end{cases} \]

where:

- \( P \) = compensation;
- \( F \) = subordinate fixed compensation;
- \( A \) = subordinate compensation per unit of production over budget;
- \( X \) = actual production;
- \( B \) = budget;
- \( D \) = profit, exclusive of subordinate compensation, per unit produced; and
- \( R \) = superior's percentage of firm profit.

The subordinates' contract in equation (1) is a budget-based, slack-inducing contract, which means that it provides incentives for subordinates to understate their production
capability. The superiors' contract in equation (2) is based on firm profit.² The contracts described in equations (1) and (2) provide subordinates and superiors with conflicting incentives in the budget-setting process. To understand the nature of this conflict, one must first understand how equation (1) affects the relation between the budget and subordinate performance. First, consider budgets set below subordinates' performance capabilities. A low budget ensures subordinates an incremental monetary gain from incremental effort and should motivate subordinates to set their personal goals approximately equal to their performance capabilities. Thus, equation (1) provides an incentive for subordinates to produce to their capabilities when the budget is less than their capabilities. Now consider budgets set above subordinates' performance capabilities. The subordinate contract in equation (1) provides no economic incentive to exert effort in such situations.³ Thus when the budget is higher than their performance capabilities, equation (1) provides an incentive for subordinates to set their personal goals below the budget and have a low degree of commitment to the budget. The result will be low subordinate performance.

The nature of the superior-subordinate conflict induced by the contracts specified in equations (1) and (2) can now be made clear. Note that subordinate compensation from equation (1) is maximized when the budget (B) equals zero. However, due to nonmonetary factors such as social pressure (Chow et al. 1988; Young 1985) and disutility for lying, subordinates are likely to prefer budgets that are less than their performance capabilities but greater than zero (see, e.g., Chow et al. 1988; Waller 1988). Superiors' preferences for a particular budget level is less clear. The relation between superior compensation as specified in equation (2) and the budget (B) is more complex because the budget affects both (a) subordinates' motivation to exert effort (and thus firm revenues), and (b) the allocation of firm revenue between superiors and subordinates. For a given performance level, superiors' compensation is positively (negatively) associated with budget level (slack) for budget levels up to the given performance level. As explained above, budgets impact subordinate performance. In particular, budgets set above subordinates' performance capabilities are expected to have a detrimental impact on subordinate performance. The implication is that superiors must trade off the motivational aspects of B with its revenue-sharing aspects. That is, superiors want budgets that motivate substantial subordinate effort, while containing minimal slack.

Hypotheses

The basic issue addressed in this paper is whether budget negotiations affect budget levels and outcomes. In this section, we develop hypotheses about how specific aspects of the budget-setting process affect budget levels, budget slack, and subordinate performance.

² Experimental accounting research has examined both truth-inducing and slack-inducing contracts for subordinates. We use a slack-inducing contract because slack-inducing contracts are common in practice (Henderson 1989; Unapathy 1987) and truth-inducing contracts are rare (Waller 1994). The superior's compensation is dependent on firm profits which is consistent with a common assumption in agency theory that principals (i.e., superiors) have a residual interest in the product of the agency which is influenced by agents' (i.e., subordinates') efforts (Baiman 1982; Magee 1980). In addition, many companies compensate executives based on profit (Crystal 1993; Dillard and Fisher 1990; Healy 1984; Merchant 1989).

³ We assume that subordinates are effort averse. A pure economic perspective would suggest that subordinate performance will drop to zero for budgets that are greater than or equal to subordinates' performance capabilities. However, goal-setting research (Locke 1968), which considers both economic and behavioral factors, provides an alternative perspective. This research documents a negative linear relation between goal (i.e., budget) level and subordinate performance when subordinates are not committed to the goal (Erez and Zidon 1984; Locke and Latham 1990). Goal commitment is generally negatively associated with goal difficulty (Erez and Zidon 1984; Hollenbeck and Klein 1987; Locke and Latham 1990), which suggests a negative relation between budget levels above subordinates' capabilities and subordinate performance.
Effects of Negotiation

Negotiation behavior. If budgets are set through a negotiation process where superiors (subordinates) have final budget-setting authority in the event of a negotiation impasse, the superiors (subordinates) can offer a budget of x and not deviate from that offer. This strategy either (1) forces subordinates (superiors) to agree to a budget of x or (2) creates a negotiation impasse, with the superiors (subordinates) then setting the budget at x. Negotiators who have the power to set the budget in the event of a negotiation impasse are expected to adjust their positions during negotiation due to social norms and/or information transfer. Social norms suggest that negotiators should make concessions in a negotiation, particularly if the other party has done so (Pruitt and Carnevale 1993). Further, Luft and Libby (1997) show that fairness issues, which are the bases for many social norms (Pruitt and Carnevale 1993, 119), cause negotiators to concede, even when doing so is not in the negotiators’ best economic interest. Negotiation also creates the opportunity for one party to obtain information from the other. In our setting, negotiation allows superiors to obtain information from subordinates, who have private information about their individual performance capabilities. Although superiors know subordinates have economic incentives to understate performance capabilities, superiors have incentives to rely, at least partially, on the biased information. For example, negotiation involves subordinates in the budget-setting process and creates the expectation that the final budget will reflect the subordinates’ input (Lindquist 1995). If the superiors fail to adequately incorporate the subordinates’ input into their counteroffers, subordinates are likely to perceive the negotiation process and resulting budget as unfair (Lindquist 1995) and this perception is likely to have a detrimental impact on subordinate performance.

This discussion suggests that negotiators who have final authority will make concessions during budget negotiations, causing the final budget to be less extreme than the negotiators’ initial negotiation positions.4

H1: For negotiators who have final authority, budgets will be less extreme than their initial negotiation positions.

Effect of negotiation on budget level. Support for H1 does not necessarily imply that negotiated budgets are different from unilaterally-set budgets. For example, superiors (subordinates) could select initial negotiation positions above (below) their desired budget levels to create room to make concessions. Such strategic behavior by superiors (subordinates) would support H1, but the resulting negotiated budgets could be the same as the budgets set unilaterally. Thus, we examine whether negotiation affects the final budget level. To isolate the effects of negotiation, we hold constant the power to affect the final budget by examining budgets set unilaterally by superiors (subordinates) vs. budgets set through a negotiation process where superiors (subordinates) have the power to set the budget in the event of a negotiation impasse.5

We do not expect negotiation to impact the behavior of superiors and subordinates in the same manner. First, consider budgets set unilaterally by superiors and negotiated budgets

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4 Social norms and information transfer are also expected to cause negotiators who do not have final authority to make concessions during budget negotiations. However, lack of final authority in the budget negotiation is expected to give these negotiators an additional reason to make concessions. Because of this potential confound, we have excluded from H1 negotiators who do not have final authority. However, in the results section we test whether such negotiators engage in concessionary behavior.

5 “Budgets set through a negotiation process” refers to the entire set of negotiated budgets, including those where agreement is reached and those where an impasse is resolved unilaterally.
where superiors have final authority. Assume superiors set budgets of y in the unilateral condition, where y is based on the superiors’ desire to set the budget at a level high enough to avoid excessive incentive compensation to the subordinates but not so high as to demotivate them. Superiors have inferior information about subordinates’ performance capabilities and some unilaterally-set budgets are likely to be set above subordinates’ performance capabilities.

The same concern for subordinate motivation that constrains how high superiors unilaterally set budgets in the unilateral condition also constrains how superiors act in budget negotiations. Specifically, superiors are likely to view a high initial budget proposal or counteroffer from superiors as unreasonable, and the resulting negotiation process and budget as unfair. Such perceptions would be expected to have a negative impact on subordinate performance. Thus, superiors are not expected to engage in strategic selection of initial negotiation positions. In particular, we do not expect the initial negotiation positions of superiors to be significantly greater than y, the level superiors would set if they unilaterally set the budget.

From their initial negotiation positions, superiors are expected to make concessions in order to comply with social norms. Taken as a whole, this discussion suggests that negotiated budgets where residual authority rests with superiors will be less than budgets unilaterally set by superiors.

**H2:** Budgets set through a negotiation process where superiors have final authority will be lower than budgets set unilaterally by superiors.

Now consider budgets set unilaterally by subordinates and negotiated budgets where subordinates have final authority. We expect that the incentive compensation contract specified in equation (1) will lead subordinates in both conditions to exploit their informational advantage and power (Pruitt and Carnevale 1993; Rubin and Brown 1975) to obtain budgets less than their performance capabilities. The issue is whether negotiated budgets differ from unilaterally set budgets.

Assume subordinates set budgets at z in the unilateral condition where z is based on both financial and behavioral factors.\(^6\) Negotiation *per se* does not affect subordinates’ economic incentives or alter the information known by subordinates in our setting (e.g., negotiation does not result in any beneficial informational transfer from superiors to subordinates). A pure economic perspective, therefore, suggests there will be no difference between unilaterally set and negotiated budgets.

A behavioral perspective, in contrast, suggests unilaterally set and negotiated budgets might differ. If subordinates do not anticipate the concessionary nature of negotiation, they will take initial negotiation positions approximately equal to z, the level preferred by subordinates when they unilaterally set the budget. In this situation, the final negotiated budgets will be greater than z if subordinates make concessions during the negotiation. On the other hand, if subordinates anticipate making concessions during negotiation, they are likely to take initial negotiation positions less than z. Whether this strategy results in budgets less than, equal to, or greater than z depends on several factors, including how extreme subordinates’ and superiors’ initial negotiation positions are and their respective concession

\(^6\) Subordinates have an economic incentive to set the budget equal to zero. However, social norms and concern for fairness are expected to influence subordinates who unilaterally set budgets to set them at a level greater than zero.
rates. Thus, we cannot predict how negotiated budgets where subordinates have residual decision authority will differ from budgets unilaterally set by subordinates. Instead, we provide an exploratory analysis.

**Effect of negotiation structure on budget level.** One aspect of negotiation structure is whether superiors or subordinates make the initial budget proposal (Anthony and Govindarajan 1994). Negotiators are expected to set their initial proposals to influence negotiation outcomes in a direction consistent with their incentives. Prior research documents that initial proposals affect outcomes in the context of bilateral monopoly negotiations (Chertoff and Conley 1967; Hinton et al. 1974; Neale and Bazerman 1991; Rubin and Brown 1975). Neale and Bazerman (1991) believe the negotiation outcomes are impacted by initial positions because negotiators anchor on the initial proposal in formulating counteroffers. If this anchoring effect holds in budget negotiations, budgets will be lower when subordinates make the initial budget proposal than when superiors make the initial budget proposal.

**H3:** Negotiated budgets will be lower when subordinates make the initial budget proposal than when superiors do.

**Negotiation Agreement**

Agreement is a fundamental aspect of negotiation (Tripp and Sondak 1992). Prior negotiation research has shown that the failure to reach negotiation agreement can be costly (Tripp and Sondak 1992). We expect budget agreement to be associated with slack and subordinate performance. Consequently, it is important to understand the factors that affect budget agreement.

We assume in our setting that subordinates prefer low budgets and that they have a maximum threshold budget level that is barely acceptable. We also assume that superiors prefer high budgets and that they have a minimum threshold budget level that is just acceptable. The overlap between these minimum and maximum budgets is the superiors’ and subordinates’ zone of agreement (Pruitt and Carnevale 1993; Raiffa 1982). If there is no zone of agreement, there are no mutually acceptable budgets and superiors and subordinates can not reach agreement on a budget. On the other hand, if there is a zone of agreement, superiors and subordinates can agree on a budget.

Negotiators’ initial positions are expected to affect agreement. Differences between initial budget proposals and subsequent initial counteroffers are expected to be associated with agreement for at least three reasons. First, a larger difference increases the likelihood that a zone of agreement does not exist. Second, even if a zone of agreement exists, budget negotiations do not last indefinitely. A larger difference implies that before negotiations enter the zone of agreement, there is a larger difference for superiors and subordinates to resolve within the constraints of the negotiation. Third, negotiators are likely to perceive less (more) extreme initial positions as cooperative (competitive) behavior (Benton et al. 1972; Pruitt and Carnevale 1993). The norm of reciprocity suggests that negotiators are

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1 Consider the following situations: First, superiors make larger concessions than subordinates anticipated. If subordinates want to avoid violating the social norm of reciprocity, they may match the superiors’ concessions. This behavior will cause subordinates to make larger concessions than initially planned, leading to budgets greater than z. On the other hand, if subordinates do not match the superiors’ concessions and, instead, continue making the concessions initially planned, budgets will be less than z. Second, superiors may fail to reciprocate the subordinates’ concessions. This behavior may cause subordinates to feel justified in making smaller concessions than initially planned (or even no concessions), leading to budgets less than z. Third, superiors may unexpectedly accept budgets below z.
more likely to respond cooperatively when faced with cooperative opponents, but more likely to respond competitively when faced with competitive opponents (Benton et al. 1972; Morris et al. 1995; Pruitt and Carnevale 1993). That is, cooperative (competitive) behavior generally induces reciprocal cooperative (competitive) behavior, increasing (decreasing) the likelihood of inducing counteroffers that enter the zone of agreement.

**H4:** Differences between initial budget proposals and subsequent initial counteroffers will be smaller when negotiations end in agreement than when they do not.

Negotiation research generally indicates that individual factors are not useful predictors of negotiation outcomes (Neale and Bazerman 1991; Lewicki et al. 1994; Herman and Kogan 1977). Nonetheless, we provide an exploratory analysis to determine whether selected individual factors are associated with negotiation agreement. We also provide an exploratory analysis of how two aspects of negotiation structure—(1) which party makes the initial budget proposal and (2) which party has final authority—affects the likelihood of agreement.

**Economic Consequences of Budget-Setting Process When Superiors have Power**

We expect budgetary slack and subordinate performance to differ across budget-setting processes. In this section, we compare budgetary slack and subordinate performance in three different budget settings: (1) budgets set unilaterally, (2) budgets set through a negotiation process that ends in agreement, and (3) budgets set through a negotiation process that does not end in agreement.

When superiors have the power to set budgets in the event of a negotiation impasse, subordinates presumably will not agree to budgets unless they perceive the budgets to be attainable and are committed to attaining the budgets. On the other hand, if subordinates perceive superiors' final budget proposals to be unreasonably high, subordinates will reject the budgets and have a relatively low level of commitment to that budget level. It follows that when superiors have final authority in budget negotiations, negotiations that end in agreement signal budgets that are lower and more attainable—implying higher slack—than negotiations that do not end in agreement. Also, negotiations that end in agreement signal higher subordinate commitment and performance than negotiations that do not end in agreement.

When superiors unilaterally set budgets, they do not have the opportunity to obtain information from subordinates about their performance capabilities. This implies that some budgets are likely to be above subordinates' performance capabilities and that the subordinate commitment to such budgets will be small. Thus, budgetary slack and subordinate performance are expected to be lower when superiors unilaterally set the budgets than when budgets are negotiated, the superiors have residual decision authority, and the negotiation ends in agreement.

**H5a:** Budgetary slack will be higher when superiors have final authority in the negotiation process and the process ends in agreement than when superiors have final

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* We expect that perceptions of either cooperative or competitive behavior will impact the negotiation process. Cooperative behavior is similar to the concept of altruism, which is positively associated with negotiation agreement in repeated prisoners' dilemma games (Andreoni and Miller 1993). If a negotiator perceives the other negotiator to be altruistic, the former is more likely to make reasonable bids and give concessions with the expectation that the latter will reciprocate.
authority and the negotiation process does not end in agreement or when superiors unilaterally set budgets.

**H5b:** Subordinate performance will be higher when superiors have final authority in the negotiation process and the process ends in agreement than when superiors have final authority and the negotiation process does not end in agreement or when superiors unilaterally set budgets.

Subordinates are likely to perceive both budgets set by superiors following a failed negotiation and budgets set unilaterally by superiors to be at unreasonably high levels. It is impossible to predict *ex ante* how budget levels and subordinate performance will differ across these two conditions. Instead, we provide an exploratory analysis.

**III. METHOD**

**Subjects and Design**
Subjects for the laboratory experiment were 185 undergraduate students enrolled in intermediate accounting, and they were assigned to one of six treatments based on time availability. There were three treatments where superiors had relatively more power in the budget-setting process: (1) superiors unilaterally set the budget, (2) a negotiation process where superiors both made the initial budget proposal and had final authority in the event of a negotiation impasse, and (3) a negotiation process where subordinates made the initial budget proposal and superiors had final authority. There were three similar conditions where subordinates had relatively more power. Subjects completed the entire experiment, except for the negotiation process, via computer.

**Procedure**
The experimental procedure consisted of the following steps:

1. The computer lab was partitioned into two halves using a solid room partition. When subjects arrived, they were randomly assigned to a computer terminal, with half (i.e., subordinates) seated on one side of the partition and half (i.e., superiors) on the other side. Subordinates and superiors were matched anonymously.

2. The first few computer screens explained the production task, which was adapted from Chow (1983) and involved decoding numbers into letters. Subjects were issued a file folder containing a different decoding key for each session. All subjects then completed a five-minute practice session to ensure they understood the basic task.

3. Subordinates next completed three five-minute training sessions to learn their performance capabilities. They earned two cents for each item correctly decoded and received a running total of the number of items correctly and incorrectly decoded. After each session, subordinates received individual summary information on the number of items attempted, correctly decoded, and incorrectly decoded. Superiors also completed three five-minute practice sessions to familiarize them with the task. However, they were neither paid nor given feedback so that knowledge of their

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9 Because there was no explicit role for superiors in the condition where subordinates unilaterally set the budget, all subjects in that condition assumed the role of subordinate. These subjects were, however, told that subjects on the other side of the partition were superiors. The result of matching superiors and subordinates was to reduce the 185 subjects to 70 superior-subordinate negotiation dyads, 15 superior-subordinate dyads where superiors unilaterally set the budget, and 15 subordinates who unilaterally set their own budget, for a total of 100 observations.
own performance capabilities would not affect the subsequent budget-setting process.

4. Subordinates were asked after the last training session for their best estimate of the number of items they could correctly decode in five minutes. This estimate was later used to calculate budgetary slack.

5. The next computer screens described the subordinates’ and superiors’ respective compensation schemes for the work session. Their contracts are described in equations (1) and (2), respectively, with \( F = $1.00 \), \( A = $0.05 \), \( D = $0.08 \), and \( R = 100 \) percent.\(^{10}\) Both compensation schemes were illustrated to all subjects through several numerical examples.

6. The budget-setting process was explained next. Subjects in the negotiation cells were told who would make the initial budget proposal (superiors or subordinates), who had final authority, and that the negotiation would last a maximum of four rounds. Subjects in the unilaterally set cells were told who would set the budget.

7. Subjects next answered a series of factual questions about the subordinate and superior compensation schemes and the budget-setting process. An incorrect answer on any question returned subjects to the explanatory computer screens and then back to the questions. These forced manipulation checks ensured that subjects understood both the compensation schemes and budget-setting process before beginning the budget-setting process.

8. Superiors and subordinates were given average performance information for the third training session, based on the performance of 25 people drawn from the same population as the subjects. The average was 70.2 decoded correctly, and all subjects were aware that both superiors and subordinates received this information. Thus, superiors knew the average performance capability for subordinates but not for their specific subordinate, whereas subordinates knew both their own and average performance capabilities.

9. Superiors or subordinates—as appropriate—set the budget in the unilateral condition. Subjects in the negotiation conditions began negotiations. To control for interpersonal factors, superiors and subordinates were separated by a room partition and conducted negotiations on a negotiation form (rather than face-to-face). In the negotiations, subjects who made the initial proposal wrote a budget target on the negotiation form. The administrator took the form to the other member of the dyad, who then wrote a counteroffer. An offer and counteroffer constituted one round. An equal offer and counteroffer indicated agreement and ended the negotiation. If negotiation dyads failed to reach agreement within four rounds, the party who had final authority set the budget.

10. Once the budget was set, subordinates completed a five-minute work session. Afterwards both members of a dyad learned the subordinate’s performance in the work session and completed an exit questionnaire. Payments were then calculated and disbursed.

Measures

FORECAST is the subordinates’ performance estimate of the number of items they could correctly decode in five minutes. Subjects made this estimate after the last training session. BID and COUNTER are the initial budget proposal and the initial counteroffer.

\(^{10}\) The minimum compensation for subordinates was \( F \). To avoid superiors having to pay \( F \) from their own resources in the event firm revenues were less than \( F \), all superiors were endowed with \( $1.00 \).
respectively, made in the negotiations. AGREE is whether the negotiation dyad reached agreement. BUDGET is the final budget, and SLACK is measured as FORECAST minus BUDGET. PERFORM is the number of items subordinates correctly decoded in the work session.

IV. RESULTS

Preliminary Analysis

The negotiation conditions can be classified into four categories based upon whether superiors or subordinates (1) make the initial budget proposals and (2) have final authority in the event of a negotiation impasse. Descriptive statistics for the four negotiation conditions are reported in Table 1. Table 1 reveals that FORECAST is quite similar across the four conditions, ranging from 61 (when superiors both make the initial budget proposal and have final authority) to 63 (when superiors make the initial proposal and subordinates have final authority). Consistent with superiors’ and subordinates’ respective economic incentives, BID (COUNTER) is higher (lower) when superiors make the initial budget proposals. Which negotiator has final authority appears to affect BUDGET, SLACK and PERFORM, whereas which negotiator makes the initial budget proposal does not. We examine these variables more closely in our tests of hypotheses.

We also collected information from subjects in all six budget-setting conditions that is not summarized in Table 1. As a check on our experimental manipulation, we assess subjects’ perceptions of their power to influence the final budget. Subjects perceive they possess significantly more power to influence the final budget when they unilaterally set the budget or have final authority in the negotiation than when they do not unilaterally set the budget or have final authority. We also assess the change in subordinate performance between the second and third training sessions and tests indicate no significant change. This lack of improvement suggests that learning curve effects should not affect the results. Finally, we measure subjects’ performance capability using their performance in the third training session. There is no significant difference across (1) the six different budget-setting processes, or (2) negotiation outcomes (agreement/impasse). Tests using FORECAST yield the same conclusion. These results suggest that performance capability is successfully randomized across all budget-setting processes and across negotiation agreement/impasse.

Tests of Hypotheses

Effect of Negotiation

Negotiation behavior. Hypothesis 1 states that the initial negotiation position of negotiators who have final authority will be more extreme than the final budget. Negotiators’ initial budget positions are BID if they made the initial budget proposal or COUNTER if they did not. Accordingly, we measure the extremity of negotiators’ initial negotiation positions relative to the final budgets by calculating the difference between BID or COUNTER—whichever is appropriate—and BUDGET. Because the expected sign of this difference depends on whether superiors or subordinates have final authority, we measure the difference as (1) BID − BUDGET (COUNTER − BUDGET) when superiors have final authority and superiors (subordinates) make the initial budget proposal, and (2) BUDGET − BID (BUDGET − COUNTER) when subordinates have final authority and subordinates (superiors) make the initial budget proposal. Hypothesis 1 implies that the mean difference should be positive.
TABLE 1
Mean (Standard Deviation) for Key Experimental Variables by Negotiation Process by Condition

<table>
<thead>
<tr>
<th>Makes Initial Budget Proposal</th>
<th>Final Budget Authority</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Superior</td>
<td>Subordinate</td>
<td>Superior</td>
<td>Overall</td>
</tr>
<tr>
<td>N/# of Dyads</td>
<td>38/19</td>
<td>30/15</td>
<td>68/34</td>
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<tr>
<td>FORECAST</td>
<td>63.00</td>
<td>61.00</td>
<td>62.12</td>
</tr>
<tr>
<td>(4.27)</td>
<td>(4.68)</td>
<td>(4.50)</td>
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<tr>
<td>BID</td>
<td>79.95</td>
<td>84.61</td>
<td>82.00</td>
</tr>
<tr>
<td>(16.26)</td>
<td>(21.87)</td>
<td>(18.78)</td>
<td></td>
</tr>
<tr>
<td>COUNTER</td>
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<td>46.47</td>
</tr>
<tr>
<td>(23.97)</td>
<td>(15.64)</td>
<td>(20.52)</td>
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</tr>
<tr>
<td>BUDGET</td>
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<td>54.91</td>
</tr>
<tr>
<td>(27.54)</td>
<td>(18.23)</td>
<td>(25.56)</td>
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<tr>
<td>SLACK</td>
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<td>−4.93</td>
<td>7.21</td>
</tr>
<tr>
<td>(27.73)</td>
<td>(18.39)</td>
<td>(26.13)</td>
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<td>59.87</td>
<td>62.82</td>
</tr>
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<td>(3.34)</td>
<td>(14.19)</td>
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<tr>
<td>% of Dyads Agreeing</td>
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<td>61.76</td>
</tr>
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<td>72/36</td>
</tr>
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<td>62.93</td>
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<td>(4.50)</td>
<td>(4.71)</td>
<td>(4.54)</td>
<td></td>
</tr>
<tr>
<td>BID</td>
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</tr>
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<td>(11.10)</td>
<td>(18.41)</td>
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<td>82.27</td>
<td>75.97</td>
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<td>BUDGET</td>
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<td>66.73</td>
<td>52.55</td>
</tr>
<tr>
<td>(20.70)</td>
<td>(9.15)</td>
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<td>−3.80</td>
<td>9.89</td>
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<tr>
<td>(21.10)</td>
<td>(10.60)</td>
<td>(20.91)</td>
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</tr>
<tr>
<td>PERFORM</td>
<td>65.14</td>
<td>56.87</td>
<td>61.69</td>
</tr>
<tr>
<td>(4.63)</td>
<td>(19.93)</td>
<td>(13.72)</td>
<td></td>
</tr>
<tr>
<td>% of Dyads Agreeing</td>
<td>71.43</td>
<td>33.33</td>
<td>55.56</td>
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</table>

(Continued on next page)
TABLE 1 (Continued)

<table>
<thead>
<tr>
<th>Overall</th>
<th>Final Budget Authority</th>
<th>Subordinate</th>
<th>Superior</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>60/30</td>
<td>140/70</td>
</tr>
<tr>
<td></td>
<td>FORECAST</td>
<td>62.53</td>
<td>61.97</td>
<td>62.29</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4.36)</td>
<td>(4.72)</td>
<td>(4.49)</td>
</tr>
<tr>
<td></td>
<td>BID</td>
<td>56.28</td>
<td>66.00</td>
<td>60.44</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(29.44)</td>
<td>(25.46)</td>
<td>(28.03)</td>
</tr>
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<td>COUNTER</td>
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<td>61.64</td>
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<tr>
<td></td>
<td></td>
<td>(25.15)</td>
<td>(23.25)</td>
<td>(24.41)</td>
</tr>
<tr>
<td></td>
<td>BUDGET</td>
<td>44.23</td>
<td>66.63</td>
<td>23.70</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(23.95)</td>
<td>(14.18)</td>
<td>(23.02)</td>
</tr>
<tr>
<td></td>
<td>SLACK</td>
<td>18.30</td>
<td>-4.37</td>
<td>8.59</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(24.19)</td>
<td>(14.76)</td>
<td>(23.45)</td>
</tr>
<tr>
<td></td>
<td>PERFORM</td>
<td>65.15</td>
<td>58.37</td>
<td>62.24</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4.01)</td>
<td>(17.07)</td>
<td>(11.96)</td>
</tr>
<tr>
<td>% of Dyads Agreeing</td>
<td>65.00</td>
<td>50.00</td>
<td>58.57</td>
<td></td>
</tr>
</tbody>
</table>

FORECAST = subordinates’ performance estimate of the number of items they could correctly decode in five minutes;
BID = initial budget proposal made by the party who starts the negotiation;
COUNTER = first counteroffer made by the party who does not start the negotiation;
BUDGET = final budget;
SLACK = FORECAST – BUDGET; and
PERFORM = number of items subordinate correctly decoded in the five-minute work session.

The mean difference is 10.00, which is significantly greater than zero (t = 6.05; p < 0.01).\textsuperscript{11} This result supports H1.\textsuperscript{12} Post-hoc tests using Bonferroni’s procedure for multiple comparisons to determine the adjusted p-values (Lindman 1992) indicate that this result holds both when subordinates have final authority (t = 2.34; adjusted p < 0.03) and when superiors do (t = 7.71; adjusted p < 0.01). The average concession of 4.68 units by subordinates and 17.10 units by superiors indicates that both subordinates and superiors make concessions in negotiation even when they have the power not to do so. The existence of such concessions is consistent with subordinates and superiors both adhering to social norms. In addition, the significantly larger concessions for superiors (t = 4.12; p < 0.01) could suggest that information transfer from subordinates to superiors occurs during the negotiation.

\textsuperscript{11} Unless otherwise indicated, all p-values are one-tailed.
\textsuperscript{12} We conduct a similar analysis for negotiators who did not have final authority. The mean difference is 25.71, which is significantly greater than zero (t = 9.24, p < 0.01). This mean difference is significantly greater than the mean difference reported in the H1 results suggesting that those with power make concessions in negotiation, but do so to a lesser extent than those who do not have power.
Effect of negotiation on budget level. Hypothesis 2 states that budgets set through a negotiation process where superiors have final authority will be lower than budgets set unilaterally by superiors. This hypothesis is predicated on two conditions: (1) superiors will take initial negotiation positions that are not inflated by anticipated concessions and (2) superiors will make concessions during the negotiations due to social norms and/or information transfer. Comparing superiors’ initial budget negotiation proposals to the budgets superiors set unilaterally provides evidence related to the first condition. BUDGET is 86.67 when superiors unilaterally set it, and BID is 84.61 when superiors make the initial budget proposal and have final authority. This difference is not significant ($t = 0.28; p < 0.78$, two-tail), suggesting that superiors do not take strategic initial negotiation positions. The test of H1 provides evidence that superiors make concessions in the negotiation process. Thus, the two preconditions upon which H2 rests exist within our setting. A direct test also supports H2. In particular, BUDGET is 66.63 for the negotiation process vs. 86.67 for the unilateral process. These values for the final budget level are significantly different from each other ($t = 3.74; p < 0.01$).

The effect of negotiation on budget levels when subordinates have power is exploratory. BUDGET is 44.23 when set through a negotiation process vs. 52.86 when set unilaterally. These budget levels are not significantly different from each other at conventional levels ($t = 1.30; p < 0.20$, two-tail). Given that subordinates make concessions during negotiations (as discussed in the prior section), a possible explanation for no significant difference in the final budget is that subordinates choose initial negotiation positions significantly below their desired budget levels to create room for concessions. A comparison of subordinates’ initial budget proposals in the negotiation (34.86) to the budgets subordinates set unilaterally (52.86) indicates a significant difference ($t = 2.87; p < 0.01$), consistent with subordinates strategically selecting initial positions.

The fact that superiors do not choose overstated initial negotiation positions while subordinates choose understated initial negotiation positions seems consistent with the nature of the information asymmetry between the superiors and subordinates in our experiment. Subordinates know that superiors’ initial positions above the mean performance level are strategic choices because superiors have no knowledge of an individual subordinate’s performance capability. Thus, subordinates immediately detect strategic initial positions made by superiors. Our results indicate that superiors are aware that their strategic behavior is detectable and they act as if the strategic selection of an initial position has a detrimental impact on the negotiation process. On the other hand, superiors do not know subordinate performance capabilities, so they cannot know whether a subordinate’s below average initial negotiation position is a strategic choice or a statement that performance capability is below average. Our results suggest that subordinates are aware that superiors cannot determine whether their initial positions are strategic and they take advantage of this uncertainty by choosing initial negotiations positions strategically.

Effect of negotiation structure on budget level. Hypothesis 3 states that budgets will be lower when subordinates make the initial budget proposals than when superiors do. This hypothesis is predicated on: (1) initial budget proposals will be lower when subordinates make the initial budget proposals, and (2) superiors and subordinates will then anchor on the proposals. As expected, BID is significantly lower when subordinates make the initial bid than when superiors make the initial bid ($40.08$ vs. $82.00; t = 9.34; p < 0.01$), providing support for the first condition. However, although the difference in BUDGET is in the predicted direction ($52.55$ vs. $54.91$), the difference is not significant ($t = 0.43; p < 0.40$). Thus, the evidence does not support H3 and suggests that subjects do not anchor on initial budget proposals in their negotiations.
Negotiation Agreement

Hypothesis 4 states that the difference between initial budget proposals and subsequent counteroffers will be smaller for negotiations that end in agreement. Because the expected sign of this difference depends on whether superiors or subordinates make the initial budget proposal, we measure the difference as BID – COUNTER when superiors make the initial budget proposal and as COUNTER – BID when subordinates make the initial proposal. The difference is 26.46 for negotiation dyads that reach agreement vs. 48.79 for negotiation dyads that do not. The difference is significant (t = 3.99; p < 0.01), supporting H4.

Although individual differences generally are not useful for predicting negotiation outcomes (Neale and Bazerman 1991; Lewicki et al. 1994; Herman and Kogan 1977), we provide an exploratory analysis of the following demographic variables: negotiation dyad’s combined age, combined work experience, and combined G.P.A. None of these factors differ significantly across dyads that do and do not reach agreement (lowest p > 0.81, two-tail). In addition, as mentioned earlier, there is no significant difference across agreement conditions in either subordinate or superior performance in the third training session. Thus, consistent with findings from nonaccounting negotiation research, individual factors are not useful in predicting budget negotiation agreement.

Overall, 58.57 percent of the negotiation dyads reach agreement. Tests of differences in proportions (Agresti and Finlay 1986) indicate that the likelihood of dyads reaching agreement is not significantly affected by which party makes the initial budget proposal (z = 1.27; p < 0.60, two-tail) or has final authority (z = 1.27; p < 0.20, two-tail). However, whether the negotiation structure is pure (i.e., negotiators who make the initial proposal also have final authority) or mixed significantly affects the likelihood of agreement. In the pure negotiation structures, 69.44 percent of the dyads reach agreement, compared to only 47.06 percent in the mixed structures (z = 1.95; p < 0.05; two-tail). Thus, in this experiment, negotiation structure affects the likelihood of agreement.

Economic Consequences of Negotiation

Table 2 contains descriptive statistics for three conditions: (1) negotiation dyads that reach agreement, (2) negotiation dyads that do not reach agreement, and (3) dyads where the budget is set unilaterally.13 Panel A contains data for cases in which superiors have budget-setting power, and Panel B contains data for cases in which subordinates have budget-setting power.

Hypothesis 5a (5b) predicts that slack (subordinate performance) will be higher when superiors have final authority and the negotiation process ends in agreement than when there is no agreement or superiors unilaterally set budgets. We also conduct an exploratory analysis of slack (subordinate performance) across nonagreement and unilateral conditions. We use Bonferroni’s procedure to control the overall alpha level and determine the adjusted p-values (Lindman 1992). SLACK is 1.73 for negotiations ending in agreement, −10.47 for negotiations not ending in agreement, and −23.40 when superiors unilaterally set the budget. SLACK is significantly greater in the agreement condition than in either the nonagreement condition (t = 2.45; adjusted p < 0.04) or the unilateral condition (t = 4.18; adjusted p < 0.01). These results support H5a and that the existence and outcome of negotiation (agree/impasse) affect budgetary slack. SLACK is not significantly different in the nonagreement condition and unilateral condition (t = 1.76; adjusted p < 0.30, two-tailed).

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13 The party making the initial budget proposal does not significantly affect SLACK or PERFORM for negotiated budgets, so we do not report descriptive statistics partitioned by who makes the initial budget proposal.
### TABLE 2
Mean (Standard Deviation) by Negotiation Agreement and Unilaterally-Set

**Panel A: Superior Power**

<table>
<thead>
<tr>
<th></th>
<th>Negotiation Dyads Agreed</th>
<th>Negotiation Dyads Did Not Agree</th>
<th>Overall Negotiation Process</th>
<th>Superior Unilaterally Sets Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>30</td>
<td>30</td>
<td>60</td>
<td>30</td>
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<td># of Dyads</td>
<td>15</td>
<td>15</td>
<td>30</td>
<td>15</td>
</tr>
<tr>
<td>FORECAST</td>
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<td>60.87</td>
<td>61.97</td>
<td>63.27</td>
</tr>
<tr>
<td></td>
<td>(3.58)</td>
<td>(5.54)</td>
<td>(4.72)</td>
<td>(5.57)</td>
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<td>BUDGET</td>
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<td>71.33</td>
<td>66.63</td>
<td>86.67</td>
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<td>(8.83)</td>
<td>(16.88)</td>
<td>(14.18)</td>
<td>(18.48)</td>
</tr>
<tr>
<td>SLACK</td>
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<td>-4.37</td>
<td>-23.40</td>
</tr>
<tr>
<td></td>
<td>(7.39)</td>
<td>(17.80)</td>
<td>(14.76)</td>
<td>(22.11)</td>
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<tr>
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<td>51.87</td>
<td>58.37</td>
<td>64.20</td>
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<tr>
<td></td>
<td>(4.10)</td>
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<td>(17.07)</td>
<td>(5.28)</td>
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</table>

**Panel B: Subordinate Power**

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<th></th>
<th>Negotiation Dyads Agreed</th>
<th>Negotiation Dyads Did Not Agree</th>
<th>Overall Negotiation Process</th>
<th>Subordinate Unilaterally Sets Budget</th>
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<td># of Dyads</td>
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<td>14</td>
<td>40</td>
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<td>63.00</td>
<td>62.53</td>
<td>62.47</td>
</tr>
<tr>
<td></td>
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<td>(3.55)</td>
<td>(4.36)</td>
<td>(3.93)</td>
</tr>
<tr>
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<td>(14.82)</td>
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<td>SLACK</td>
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<td>18.30</td>
<td>9.60</td>
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<td></td>
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<td>PERFORM</td>
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<td>65.15</td>
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<td></td>
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<td>(3.33)</td>
<td>(4.01)</td>
<td>(3.14)</td>
</tr>
</tbody>
</table>

*There was no role for superiors in the cell where the subordinate unilaterally set the budget. Thus, all subjects in that cell were assigned the role of subordinate. All variables are defined in Table 1.*

PERFORM is 64.87 for negotiations ending in agreement, 51.87 for negotiations not ending in agreement, and 64.20 when superiors unilaterally set the budget. PERFORM is significantly greater in the agreement condition than in the nonagreement condition ($t = 2.22$; adjusted $p < 0.05$), but is not significantly different in the agreement and unilateral conditions ($t = 0.39$; adjusted $p < 0.95$). Thus, H5b is only partially supported.

The difference in PERFORM between the nonagreement and unilateral conditions is not significant ($t = 2.09$; adjusted $p < 0.14$, two-tail). Superiors impose a budget in both the nonagreement and unilateral conditions. We conducted a second test using an ANCOVA...
with budget level as the covariate to determine whether the circumstances of an imposed budget (i.e., following a failed negotiation vs. as standard procedure) affects performance, independent of the effect of the budget level imposed. After controlling for the significantly larger budgets in the unilateral condition (p < 0.02, two-tail), PERFORM is significantly lower in the nonagreement condition than in the unilateral condition (F = 9.88; adjusted p < 0.02, two-tail).

These results suggest that a failed negotiation followed by superiors imposing a budget has a significant demotivating influence. Procedural justice (see, e.g., Lindquist 1995) provides a possible explanation for this demotivating effect. The “fair process effect” (Folger 1977) suggests that using a fair process to determine outcomes may increase subordinates’ perceptions of the fairness of the outcomes, which in turn may increase satisfaction and performance. From this perspective, subordinates may perceive having superiors impose a budget following a failed negotiation to be unfair. Negotiation appears to give subordinates both a voice and a vote in setting the budget, which gives subordinates a high degree of perceived process control (Lindquist 1995), and then superiors take away this perceived influence or control by imposing a budget.

For completeness, we also test for differences across conditions when subordinates have final authority. SLACK (PERFORM) is 5.96 (65.12) for negotiations ending in agreement, 41.21 (65.21) for negotiations not ending in agreement, and 9.60 (64.60) when subordinates unilaterally set the budget. The only significant differences are for SLACK. SLACK is significantly greater in the nonagreement condition than in either the agreement condition (t = 5.39; adjusted p < 0.01, two-tail) or the unilateral condition (t = 4.54; adjusted p < 0.01, two-tail). It is not surprising that PERFORM does not differ across these three conditions because the budget is below performance capability in all subordinate power cells.

V. DISCUSSION AND CONCLUSION

This paper examines whether budgets and the economic consequences of the budget-setting process—budgetary slack and subordinate performance—differ when budgets are set through a negotiation process vs. when set unilaterally. The paper also considers (1) the relation between negotiation agreement and the economic consequences, and (2) factors associated with whether negotiation agreement occurs.

Budgets set through a negotiation process where superiors have final authority are significantly lower than budgets set unilaterally by superiors, whereas budgets set through a negotiation process where subordinates have final authority are not significantly different from budgets set unilaterally by subordinates. This is due to superiors and subordinates approaching budget negotiations differently. Subordinates act strategically in the negotiation by taking low initial negotiation positions and then making concessions. This strategy allows them to conform to social norms while also enabling them to negotiate budgets not significantly different from their desired budgets (i.e., the unilaterally set budgets). On the other hand, superiors act relatively “nonstrategically” by taking initial negotiation positions not significantly different from their desired budgets and then making concessions. This strategy causes superiors to negotiate budgets significantly lower than the unilaterally set budgets. Such differences in behavior are consistent with the asymmetric information that superiors and subordinates have about subordinate performance capabilities. Any strategic initial position of superiors is transparent to subordinates, but strategic behavior of subordinates is not transparent to superiors.

Initial negotiation positions also affects the likelihood of negotiation dyads reaching agreement. The difference in negotiators’ initial positions is significantly smaller for dyads
that reach agreement than for those that do not. In turn, negotiation agreement is an important factor in understanding the economic consequences of the budget-setting process. Agreement is associated with the amount of slack in the budget because, when superiors have final authority, agreement by subordinates is more likely to occur if the budgets are lower and more attainable. When subordinates have final authority, agreement by superiors is more likely to occur when the budgets are higher. Thus, we find the absolute value of slack is significantly less for negotiations ending in agreement, which means that negotiation agreement is associated with budgets closer to subordinates’ performance capabilities. Interestingly, the only negotiation condition in which subordinate performance is significantly different is when superiors have final authority in the negotiation and the negotiation does not end in agreement. Procedural justice provides a possible explanation for the demotivating effect caused by superiors imposing a budget following a failed negotiation.

These results have several implications. First, the process used to set budgets can significantly affect budgets and the economic consequences of the budget-setting process. This suggests that the results of prior budgeting studies in which subordinates unilaterally set their own budgets may not be generalizable to the most common external setting in which budgets are established by a negotiation process. For example, contrary to findings in previous studies (e.g., Chow et al. 1988; Waller 1988), our results suggest there may not be a significant difference in slack across truth-inducing and slack-inducing contracts if budgets are set through a negotiation process where superiors have final authority. Our results also suggest that when evaluating different budget-setting processes, companies should not base their decisions solely on budgetary slack because slack is only one economic consequence of the budget-setting process. Companies should consider the effect of their budget-setting process on both budgetary slack and subordinate performance.

Second, some differences between negotiated and unilaterally-set budgets are due to factors unique to the negotiation process, such as negotiators’ initial positions, negotiation social norms, and the opportunity negotiation creates for information transfer between negotiators; whereas some differences are related to negotiation agreement. Given the importance of negotiators’ initial positions and negotiation agreement, research on factors associated with initial negotiation positions and/or negotiation agreement in budget negotiations is warranted. Our study provides at least one direction for this future research. We find that agreement is significantly more likely to occur if the person with the final authority over budget level in the event of a negotiation impasse also makes the initial budget proposal.

This study has several limitations. First, as with all laboratory experiments, the results depend on the specific experimental task, treatments, and parameter values used. Second, employment contracting is a market phenomenon whereby both employers and employees have input on the terms and conditions of employment. However, the contracts used in this study, although common in practice, were set exogenously. Third, to the extent that negotiation costs vary with the length of negotiation, the study ignores an economic consequence associated with negotiated budgets. Fourth, the average past subject performance revealed to subjects was higher than the average forecast made by the subordinates, even though the former was based on individuals drawn from the same population as the subjects. The difference is consistent across all experimental conditions and should not affect the results if the average performance information equally affected subjects’ expectations. To the extent that subject expectations were unequally affected, the generalizability of some results may be limited. Fifth, superiors used budgets solely as an input into the subordinate’s contract; superiors did not use budgets as a basis for resource allocations. Sixth, the experiment used one budgeting period. In most firms, budget setting is repeated over multiple periods. This paper ignores the potential interactions between periods. Finally, to control for a variety of
factors, subjects could only communicate budget proposals via a form. In practice, however, budget negotiation often involves personal interaction between the negotiators and greater information exchange (e.g., justification for the proposed budget or a reason for rejecting a proposed budget).

There are many other avenues for future research on budget negotiations. Research suggests that a variety of environmental and individual factors held constant in the current study may affect the negotiation process and, in turn, the economic consequences of negotiated budgets. Environmental factors include superiors’ and subordinates’ respective compensation schemes (Baiman 1982; Waller 1988), the degree of information asymmetry between superiors and subordinates (Chow et al. 1988; Young 1985), whether the setting is single or multiperiod (Chow et al. 1991), and whether subordinate performance is subject to noncontrollable influences. Potential individual factors include risk preferences (Baiman 1982; Waller 1988), susceptibility to social influences (Frederickson and Cloyd 1998; Young 1985), and personality variables (see, e.g., Brownell 1981; Chenhall 1986; Locata et al. 1986). The demotivating effect of superiors imposing a budget following a failed negotiation also suggests that research on the role of procedural justice in budget negotiations could be fruitful.

REFERENCES


Fisher, Frederickson, and Peffer—Budgeting: Effects of Negotiation


