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Determinants of Moral Judgments Regarding Budgetary Slack:An Experimental Examination of Pay Scheme and Personal Values

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ABSTRACT: We study moral judgments regarding budgetary slack made by participants at the end of a participative budgeting experiment in which an expectation for a truthful budget was present. We find that participants who set budgets under a slack-inducing pay scheme, and therefore built relatively high levels of budgetary slack, judged significant budgetary slack to be unethical on average, whereas participants who set budgets under a truth-inducing pay scheme did not. This suggests that the slack-inducing pay scheme generated a moral frame by setting economic self-interest against common social norms such as honesty or responsibility. We also find that participants who scored high in *traditional values* and *empathy* on a pre-experiment personality questionnaire (JPI-R) were more likely to judge significant budgetary slack to be unethical. These results suggest that financial incentives play a role in determining the moral frame of the budgeting setting and that personal values play a role in determining how individuals respond to that moral frame.

Keywords: moral judgment; budgetary slack; pay scheme, personal values; moral frame.

Data Availability: The experimental data used in this study are available from the authors upon request.

INTRODUCTION

Budgetary slack is created when a subordinate understates their capabilities or the capabilities of a business unit in their budget.[1] Budgetary slack may pose a moral dilemma because it allows a subordinate to extract excess resources through deceptive means, and such behavior violates common social norms (Merchant 1995) and basic standards of professional conduct (Davis et al. 2006). Consistent with the view that budgetary slack poses a moral dilemma, prior studies have documented that some individuals judge budgetary slack to be unethical, and this moral judgment causes them to reduce the slack in their budgets (Douglas and Wier 2000; Stevens 2002). Prior experimental studies have also documented, however, that moral judgments regarding budgetary slack are highly variable (Stevens 2002; Schatzberg and Stevens 2008). This variability in moral judgment, which is characteristic of moral dilemmas (Thorne 2000), remains unexplained. We address this gap in the literature by examining the effect of pay scheme and personal values on moral judgments regarding budgetary slack.

Moral judgment describes the determination of whether a course of action is morally right or wrong (O'Fallon and Butterfield 2005).[2] Recent experimental findings suggest that further investigation of moral judgments regarding budgetary slack is warranted. Evans et al. (2001) found that participants sacrifice wealth to provide honest or partially honest cost reports and do not lie more as the payoff to lying increases. Similarly, Stevens (2002) found that participants sacrifice wealth to reduce the amount of slack in their production budget. Stevens (2002) also found that budgetary slack was negatively related to participants' moral judgments regarding budgetary slack, and these moral judgments were invariant to the amount of information the superior possessed regarding production potential. Rankin et al. (2008), however, found that requiring a factual assertion about cost did not reduce slack in the cost budget when a participant superior could reject the budget, and stated that this evidence supported the view that budgeting is essentially devoid of ethical consideration. Consistent with this view, Schatzberg and Stevens (2008) found no evidence that moral judgments reduced budgetary slack in a setting in which budgetary slack and low effort gave the subordinate a larger share of the available surplus, and participant superiors allowed subordinates to set relatively high budgetary slack to induce high effort from the subordinates.

These experimental findings raise a number of important research questions. While results in Evans et al. (2001) and Stevens (2002) suggest that moral judgments affect self-interested behavior in participative budgeting settings, results in Rankin et al. (2008) and Schatzberg and Stevens (2008) downplay the potential effect of such moral judgments. The experimental settings in Rankin et al. (2008) and Schatzberg and Stevens (2008), however, appear to have minimized the potential for a moral dilemma to arise. First, no expectation of a truthful budget was conveyed to participants in the instructions. Second, participants formed anonymous superior/subordinate pairs and communication was limited to budget information via computer terminals. Third, the budget determined the split of a surplus amount and the relative share of the surplus was publicly disclosed to both parties. These features likely caused participants to view the participative budgeting setting in a strategic, economic frame rather than in a moral frame (Salterio and Webb 2006).

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[1] The subordinate may understate his/her capabilities in his/her budget by overstating cost estimates (e.g., the manager of a cost center), understating revenue estimates (e.g., the manager of a revenue center), or understating production estimates (e.g., a producer or supervisor of a production line).

[2] Moral judgment is typically considered to be one step in the process of moral decision-making. Rest's (1986) model views moral decision-making as involving four steps: identifying the moral nature of a given situation (moral awareness), deciding whether a course of action is morally right or wrong (moral judgment), establishing moral intent (moral intent), and engaging in moral action (moral behavior).

We develop hypotheses regarding the effect of pay scheme and personal values on moral judgments regarding budgetary slack and test our hypotheses using data from the budgeting experiment reported in Stevens (2002) and other data not reported in his original study. We find Stevens' (2002) experimental setting to be ideal for our study. First, his instructions contained mundane realism and communicated an expectation for a truthful budget. Second, Stevens (2002) gathered a moral judgment regarding budgetary slack in his exit questionnaire, and this moral judgment was negatively associated with budgetary slack created under a slack-inducing pay scheme. Third, Stevens (2002) gathered but did not report data from a group of participants who were given a truth-inducing pay scheme. Thus, we are able to include data from both pay scheme groups to examine pay scheme effects. Fourth, Stevens (2002) gave participants in his study the Jackson Personality Inventory-Revised questionnaire (Jackson 1994), so we are able to examine the effects of personal values. Fifth, student producers interacted with an experimenter manager, so distributional fairness concerns were minimized.[3] Finally, Stevens' (2002) design incorporated an unambiguous prediction from Agency Theory and a competing prediction from moral theory, which increases the potential for economic theory-building (Brown et al. 2009).

We find that participants who set budgets under the slack-inducing pay scheme judged significant budgetary slack to be unethical on average, whereas participants who set budgets under the truth-inducing pay scheme did not. This pay scheme effect is not driven by justification or hindsight bias (Sligo and Stirton 1998), as participants given the slack-inducing pay scheme built significantly more budgetary slack during the experiment than participants given the truth-inducing pay scheme (41.1 percent versus 3.6 percent of expected production in the final period). In addition, this pay scheme effect is not driven by differences in perceived moral obligation, as both pay scheme groups agreed on average to a statement in the exit questionnaire that the firm desired a budget that reflected expected production. In fact, the truth-inducing pay scheme group agreed marginally more strongly to this statement, perhaps because the financial incentives of their pay scheme supported the statement. Thus, we conclude that the slack-inducing pay scheme generated a moral frame by setting economic self-interest against common social norms such as honesty or responsibility.

Based upon theory and empirical findings in the literature, we examine three personal values that are likely to increase moral reasoning regarding budgetary slack: *Traditional Values*, *Responsibility*, and *Empathy*. Controlling for pay scheme, we find that participants who scored high on the *Traditional Values* scale of the Jackson Personality Inventory-Revised (Jackson 1994, hereafter JPI-R) were more likely to judge significant budgetary slack to be unethical on average. Since traditional values are inconsistent with a utilitarian or "relativist" value orientation, this result is consistent with prior empirical research finding a negative relation between moral judgment and relativism (Forsyth 1980, 1992). We also find that participants who scored high on the *Empathy* scale were more likely to judge significant budgetary slack to be unethical on average. This result is consistent with theory suggesting that empathy enhances moral judgment under a moral dilemma by allowing individuals to look beyond narrow self-interest (Smith 1759/1966; Eisenberg et al. 1994; Eisenberg 2000). In an analysis of the slack-inducing pay scheme group alone, we find that the *Traditional Values* and *Empathy* variables explain the increase in moral judgment under the slack-inducing pay scheme. These results suggest that financial incentives play a role in

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[3] In experiments where the decisions of one group of participants affect the pay of another group of participants (e.g., Hannan et al. 2006; Rankin et al. 2008; Schatzberg and Stevens 2008), distributional fairness can become a significant factor in judgments and decisions. Stevens and Thevaranjan (2010) suggest that distributional fairness concerns can be reduced by making the relative distribution of earnings opaque to participants. See the discussion of the potential confound of distributional fairness in experimental studies of moral decision making in Salterio and Webb (2006).

determining the moral frame of the budgeting setting and that personal values play a role in determining how individuals respond to that moral frame.

This research advances our understanding of the moral content of participative budgeting settings. Budgetary slack has traditionally been viewed as an organizational and behavioral issue, but researchers have begun to view budgetary slack as an ethical issue (Salterio and Webb 2006). This evolving view is due in large part to empirical evidence that some managers and experiment participants judge budgetary slack to be unethical, and this moral judgment causes them to reduce the slack in their budgets (Douglas and Wier 2000; Stevens 2002). To date, however, there is a lack of research examining why some individuals judge budgetary slack to be unethical. Recent experimental evidence suggests that budgetary slack may not raise moral concerns when participants observe high budgetary slack in others (Schatzberg and Stevens 2008) or budgetary slack is part of a strategic game that determines the split of a surplus amount between the subordinate and a participant superior (Rankin et al. 2008; Schatzberg and Stevens 2008). The results reported here, therefore, provide new and useful insights regarding the features of the participative budgeting setting that may raise moral concerns.

This research also advances our understanding of the role of economic incentives and personal values in moral reasoning within the organization. Our study suggests that by setting economic self-interest against common norms for honesty and responsibility, a slack-inducing pay scheme generates a moral dilemma. This moral dilemma generates a moral frame in the subordinate that engages moral reasoning. Further, our study suggests that personal values determine how the subordinate will respond to a given moral frame. Within business organizations, duties and obligations frequently arise that conflict with economic self-interest and generate moral dilemmas (Jansen and Von Glinow 1985; Bowie and Duska 1990; Beauchamp and Bowie 2004; Bicchieri 2006). Thus, our results are likely to generalize to other settings within the organization besides the participative budgeting setting.

The remainder of this paper is organized as follows. First, we develop the hypotheses that we test in this study. Next, we present our experimental method and results. We conclude by discussing the implications of our results.

HYPOTHESIS DEVELOPMENT

Participative budgeting and the problem of budgetary slack have been studied extensively in the accounting literature (Argyris 1952; Onsi 1973; Umapathy 1987). Subordinate participation in the budgeting process is driven by environmental and task uncertainty, task interdependence, and superior-subordinate information asymmetry (Shields and Shields 1998). The main purpose of participative budgeting, from an organizational perspective, is for the superior to gain information from the subordinate that is useful to plan and coordinate production, reduce uncertainty, and thereby increase profitability. Thus, participative budgeting is an organizational solution to an information asymmetry problem, and there is potential gain to the organization if the subordinate truthfully reveals his or her expected performance in the budget (Stevens 2002; Salterio and Webb 2006; Schatzberg and Stevens 2008).

The same conditions that make participative budgeting valuable to the organization, however, also provide the subordinate with an opportunity to gain at the expense of the organization. In particular, environmental uncertainty and information asymmetry allow the subordinate to profit by presenting a distorted picture of his or her capabilities in the budget (Merchant 1995). When a subordinate creates budgetary slack, he misrepresents his capabilities to make the budget easier to attain, and thereby uses his superior knowledge to unfair advantage (Douglas and Wier 2000). When a subordinate subsequently surpasses the budget, he typically receives increased remuneration or perquisites. Budgetary slack, with its potential to mislead the superior and transfer resources to the subordinate, may therefore generate a moral dilemma that requires moral judgment

on the part of the subordinate (Stevens 2002; Salterio and Webb 2006; Schatzberg and Stevens 2008).[4] Below, we develop hypotheses predicting that moral judgments regarding budgetary slack will be affected by pay scheme and personal values.

The Effect of Pay Scheme

To develop our first hypothesis predicting a pay scheme effect on moral judgments regarding budgetary slack, we reference theory relating to framing effects in social norm theory and moral philosophy. According to Bicchieri (2006), the existence of a social norm depends on a sufficient number of people believing that the social norm exists, that it pertains to a given setting, and that a significant number of people will follow it in similar settings. Accordingly, a social norm for narrow self-interest could arise and persist in some settings. In general, however, the purpose of social norms is to control self-interest in settings where there is a potential conflict between self-interest and pro-social behavior. Social norms (e.g., fairness, reciprocity, cooperation, honesty, and promise-keeping) exist precisely because it might not be in the individual's immediate self-interest to behave in a socially beneficial way in a given setting.

Bicchieri (2006) emphasizes that a social norm must be activated before it can be applied to a given setting. For a social norm to be activated, however, a person must infer from the various cues in the setting what the appropriate behavior is, what they should expect others to do, and what they are expected to do themselves (Bicchieri 2006, 59). Thus, attention to cues plays a critical role in social norm activation, and attending to different cues may cause individuals to frame the same setting very differently. This emphasis on cue processing and framing has its counterpart in the moral philosophy literature. For example, Rest's (1986) model of moral decision-making suggests that an individual must first interpret a decision setting as having a moral frame (moral awareness) before deciding which course of action is morally right (moral judgment). Other models of moral decision making also imply that a given situation must generate a moral frame before a moral judgment is made (e.g., Ferrell and Gresham 1985; Hunt and Vitell 1986; Trevino 1986; Jones 1991; Forsyth 1992). Economists have also begun to recognize the importance of framing effects in designing and interpreting experimental studies (Samuelson 2005).[5]

This discussion suggests that the cues surrounding the budgetary slack decision are instrumental in generating a moral frame leading to moral reasoning. We argue that a slack-inducing pay scheme will be more likely than a truth-inducing pay scheme to generate a moral frame leading to moral reasoning because it sets economic self-interest against common social norms. Slack-inducing pay schemes, which are common in practice, motivate the subordinate to create budgetary slack by paying a bonus for performance that surpasses the budget (Stevens 2002). Thus, a slack-inducing pay scheme will likely activate moral reasoning by causing the subordinate to focus on the conflict between his economic self-interest and his obligation to be truthful in the budget. In contrast, a truth-inducing pay scheme will be less likely to activate moral reasoning because it sets economic self-interest in harmony with common social norms. Thus, we predict that subordinates who set budgets under a slack-inducing pay scheme will be more likely to judge significant budgetary slack to be unethical on average. This leads to our first hypothesis:

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[4] This discussion of budgetary slack assumes a production or sales budget. In the context of a cost budget, the subordinate would build slack into the budget by *overstating* the expected costs for a given period. This discussion also ignores the literature in organizational slack, which often suggests that organizational slack can be useful to absorb fluctuations in an uncertain operating environment (Cyert and March 1992). While we do not discount this issue, our experimental study focuses on the case in which budgetary slack negatively affects the organization.

[5] In his review of economic theory and experimental economics, Samuelson (2005) states that experimental settings are likely to raise models of behavior in subjects' minds. He calls these models "experimental game protocols."

H1: Subordinates who set budgets under a slack-inducing pay scheme will be more likely to judge significant budgetary slack to be unethical than subordinates who set budgets under a truth-inducing pay scheme.

The Effects of Personal Values

To develop our hypotheses predicting the effects of personal values on moral judgments regarding budgetary slack, we reference moral decision-making theory and related theory in moral philosophy and moral psychology. Consistent with Rokeach (1973), we define personal values as an individual's prescriptive beliefs concerning the desirability of modes of conduct or end-states. Thus, personal values are similar to personal preferences in economic theory. Economic theory typically assumes, however, that personal preferences only include wealth and leisure (see Stevens and Thevaranjan [2010] for an exception).[6] Personal values, as described in moral philosophy and moral psychology, are more comprehensive and individualistic. In particular, personal values can include honesty, integrity, fairness, responsibility, and empathy (concern for others). These personal values are the result of personal and cultural experiences and can vary across individuals due to differences in such experiences. Further, personal values can develop over time as a result of "the process of maturation" (Glover et al. 1997).

Moral decision-making theory suggests that moral judgment can be affected by personal values. For example, models in Kohlberg (1969), Rest (1986), Trevino (1986), and Jones (1991) stress the role of moral development in establishing a person's moral capacity or ability to respond to a moral dilemma. In contrast, models in Ferrell and Gresham (1985) and Hunt and Vitell (1986) assume the pre-existence of personal values that affect moral judgment. Theoretically, personal values are not affected by short-term contextual factors (Thorne 2000). Thus, theory suggests that personal values reflect the long-term potential for an individual to form a sufficient moral judgment under a given moral setting or moral frame.

A consistent result in the empirical literature is that individuals who reject moral rules in favor of a more "relativist" approach exhibit lower moral judgment (see Forsyth 1992). In their review of the empirical ethical decision-making literature, O'Fallon and Butterfield (2005, 400) emphasize this result and call on researchers to examine additional personal values that affect moral judgment. Based upon theory and empirical findings in the literature, we examine three personal values that are likely to increase moral reasoning regarding budgetary slack: *Traditional Values*, *Responsibility*, and *Empathy*. We explain our expectations for these three personal values below.

Traditional Values

Individuals tend to use a given value orientation when faced with a moral dilemma (Glover et al. 1997). If an individual uses a deontological value orientation, then he/she will rely primarily on universal moral rules or social norms in determining the course of action that is morally right. If, on the other hand, an individual uses a utilitarian value orientation, then he/she will rely primarily on assessments of the maximum utility outcome in determining the course of action that is morally right. Because of its reliance on absolute moral rules, deontological value orientation is associated with "traditional values." Because of its rejection of absolute moral rules, in contrast, utilitarian value orientation is associated with "relativism."

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[6] Stevens and Thevaranjan (2010) present a principal-agent model where the agent possesses some level of moral sensitivity that causes him disutility if he provides less than an agreed-upon level of effort. They compare the "moral solution" that emerges in their model with the traditional incentive solution that is required when the agent is assumed to have zero moral sensitivity. They conclude that adding moral sensitivity increases the descriptive, prescriptive, and pedagogical usefulness of the principal-agent model.

The empirical literature suggests that a utilitarian or "relativist" value orientation is negatively related to moral decision-making (O'Fallon and Butterfield 2005). In particular, relativism has been found to reduce moral judgment (Forsyth 1980, 1992), decrease sensitivity to ethical issues (Shaub et al. 1993), and increase the willingness of professional managers to engage in budgetary slack and other budget gaming behavior (Douglas and Wier 2000). In our study of the determinants of moral reasoning regarding budgetary slack, however, we focus on personal values that are likely to *increase* moral reasoning regarding budgetary slack. Given moral theory suggesting that a deontological value orientation leads individuals to rely on universal moral rules or "traditional values," and budgetary slack tends to conflict with such rules and values, we predict that a personal value for traditional values will increase moral reasoning regarding budgetary slack. Thus, we test the following personal value hypothesis:

H2: Subordinates who value traditional values will be more likely to judge significant budgetary slack to be unethical.

Responsibility

Some individuals value being responsible and following through on their commitments (Jackson 1994). If a subordinate sees a truthful budget as part of his/her responsibility to the superior, and values following through on commitments, then he/she is more likely to view budgetary slack as a wrongful act. This is consistent with arguments in Stevens and Thevaranjan (2010) that an agent is likely to feel some level of disutility (guilt or regret) for failing to follow through on a previous agreement with the principal. Further, this is consistent with Stevens' (2002) evidence of a negative relation between a personal value for responsibility and budgetary slack. Given this theoretical support and empirical evidence, we predict that a personal value for responsibility will increase moral reasoning regarding budgetary slack. Thus, we test the following personal value hypothesis:

H3: Subordinates who value responsibility will be more likely to judge significant budgetary slack to be unethical.

Empathy

In moral philosophy, concern for others is a key underpinning of moral reasoning (Glover et al. 1997). In his lesser-known treatise, *The Theory of Moral Sentiments*, Adam Smith (1759/1966) addressed the fundamental question of moral philosophy: "Why do we regard certain actions or intentions with approval and others with disapproval?" Smith (1759/1966) developed an answer to this question based on the ability of individuals to judge and act from the perspective of an "impartial observer." In particular, Smith (1759/1966) argued that moral judgments, both with respect to one's own conduct and that of others, require an individual to enter into the situations of others and imagine the circumstances and "passions" that gave rise to their behavior. He asserted that individuals approve of a given behavior if, as an impartial spectator, they can "sympathize" with the sentiments and motives that directed the behavior. Thus, sympathy or empathy formed the foundation of Smith's (1759/1966) moral system.

Recently, researchers in moral psychology have asserted that judgments of right and wrong require a capacity for empathy, and that psychopaths and other moral degenerates lack this capacity (Deigh 1995; Gordon 1995). Eisenberg et al. (1994) define empathy as an affective response that stems from the apprehension or comprehension of another's emotional state or condition. Empathy is associated with other-oriented motivation, and this motivation is a requirement for altruistic behavior (Eisenberg 2000). Thus, empathy can be viewed as a moral emotion that helps individuals overcome self-interest or egoism (Deigh 1995). Individuals who possess empathy will,

therefore, be more likely to look beyond economic self-interest when that self-interest conflicts with common social norms. Given the supporting theory in moral psychology and moral philosophy, we predict that a personal value for empathy will increase moral reasoning regarding budgetary slack. Thus, we test the following personal value hypothesis:

H4: Subordinates who value empathy will be more likely to judge significant budgetary slack to be unethical.

EXPERIMENTAL METHOD

We test our hypotheses using the experimental setting in Stevens (2002). We find his experiment to be useful because it utilizes methods from both experimental economics and behavioral psychology. Consistent with experimental economics, participants were paid privately in cash and multiple decision periods were included to reduce the influence of learning effects. These features are important in experimental tests of the effects of economic incentives on judgments (Smith 1991; Smith and Walker 1993; Moser 1998). Consistent with behavioral psychology, the experiment contained mundane realism in that the instructions described a production setting in which participants produced units and set budgets for a production company. This feature is important in experimental tests of the effects of personal values and perceptions (Haynes and Kachelmeier 1998). Finally, the instructions emphasized that the company desired a truthful budget and the experimental procedures carefully guarded the privacy of the participants' decisions.[7] These features are important in experimental tests of moral reasoning (Stevens 2002).

Participants and Experimental Task

The data for this study came from 104 student volunteers enrolled in upper-level accounting courses at a large midwestern university in the United States. Our sample includes 52 participants who were included in Stevens' (2002) original study of budgetary slack and 52 participants not reported in his study. Twenty-four experimental sessions were conducted over a four-week period. In each experimental session, up to five participants came to a computer laboratory and performed a computerized experimental task in private cubicles. The computerized production task required participants to translate two-digit numbers into letters using the ASCII numeric code (65 = A, 66 = B, 67 = C,…,90 = Z). The successful translation of six numbers into letters constituted one unit of production. Participants performed the production task and submitted budgets to an experimenter who played the role of the manager at a production company. Each experimental session included two training periods and five production periods and lasted approximately one hour. In each production period, participants entered a budget and forecast of production into the computer, performed the production task for three minutes, and then received a summary of their earnings for the period.

The day before their scheduled experimental session, participants came to the computer laboratory to complete the Jackson Personality Inventory-Revised (Jackson 1994). The JPI-R consists of 300 true/false questions that measure 15 personality scales or attributes.[8] This personality questionnaire has been widely used for personal and career counseling, employment screening,

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[7]   Procedures that were used to carefully guard the privacy of participants' decisions included the use of private cubicles, un-networked personal computers, and random identification codes in place of names.

[8]   The 15 scales in the JPI-R include Complexity, Breadth of Interest, Innovation, Tolerance, Empathy, Anxiety, Cooperativeness, Sociability, Social Confidence, Energy Level, Social Astuteness, Risk Taking, Organization, Traditional Values, and Responsibility. For each personality scale in the JPI-R, ten questions are designed so that *true* is consistent with the trait and ten questions are designed so that *false* is consistent with the trait. All 300 true/false questions are also randomized so that the participants cannot perceive what particular traits are being measured.

and research (Jackson 1994). Participants were paid $3 for completing the JPI-R along with their other earnings, which averaged approximately $9, at the end of the experimental session.

Dependent Variable

For our dependent variable, we use Stevens' (2002) measure of moral judgment regarding budgetary slack. This measure is similar to other studies of moral judgment in the ethics literature (e.g., Kaplan 2001; Chung and Monroe 2003; Kaplan et al. 2007). On the exit questionnaire, which included 25 items, participants responded to the following statement: "To have set the budget significantly below the forecast of production would have been unethical." The response to this question ranged from 1 "strongly disagree" to 7 "strongly agree" with 4 labeled as "neutral."

Pay Scheme Manipulation

The participants were randomly assigned to one of two pay scheme conditions.[9] Half of the participants were given a "slack-inducing" pay scheme that paid a flat salary plus a bonus for each unit of production beyond the budget. In particular, the slack-inducing pay scheme paid the following each period:

$$P = \$1.35 + \$0.05(A - B), \quad \text{if } A \geq B,$$

$$P = \$1.35, \quad \text{if } A < B,$$

where P, A, and B represent the pay, actual units produced, and participant's pre-set budget for the production period, respectively. This pay scheme is slack-inducing because it motivates the subordinate to set the budget at 0. Stevens (2002) included the 52 participants in the slack-inducing pay scheme group in his original study of budgetary slack.

The other half of the participants were given a "truth-inducing" pay scheme that paid a bonus of $0.10 for each unit in the budget, a penalty of $0.15 for each unit of production below the budget if production fell short of the budget, and a bonus of $0.05 for each unit of production above the budget if production surpassed the budget. In particular, the truth-inducing pay scheme paid the following each period:

$$P = \$0.10B + \$0.05(A - B), \quad \text{if } A \geq B,$$

$$P = \$0.10B + \$0.15(A - B), \quad \text{if } A < B.$$

This pay scheme is truth-inducing because it motivates the subordinate to set the budget at expected production (i.e., forecasted production). Stevens (2002) did not include the 52 participants in the truth-inducing pay scheme group in his original study. While truth-inducing pay schemes are rarely found in free-market economies (Kaplan and Atkinson 1998), they are commonly used in experimental studies of pay scheme incentives (e.g., Chow et al. 1988, Waller 1988, Libby 2003). We find it useful to implement a truth-inducing pay scheme in our study to examine

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[9] The experiment also manipulated information asymmetry between the experimenter manager and the participant subordinates at three levels. In the "No Information Asymmetry" condition, subordinates exited their cubicle before each production period to give the experimenter manager a report containing the current period budget and the prior period budgets and production levels. In the "Low Information Asymmetry" condition, subordinates gave the manager a report containing only the current period budget and prior period budgets. In the "High Information Asymmetry" condition, subordinates did not interact with the manager during the production periods, i.e., budget choices and production outcomes were completely anonymous each period. With both pay schemes included, we find no relation between the information asymmetry manipulation and moral judgments regarding budgetary slack, consistent with results reported in Stevens (2002) with the slack-inducing pay scheme only. Thus, we ignore this manipulation in our study and merge the three information asymmetry conditions.

the effect of financial incentives on moral judgments regarding budgetary slack. In addition, contrasting moral judgments under a truth-inducing pay scheme and a slack-inducing pay scheme may help explain why truth-inducing pay schemes are rarely used in practice.

Measures of Personal Values

We utilize three personality scales from the JPI-R to test our hypotheses regarding the effects of personal values on moral judgments regarding budgetary slack: *Traditional Values*, *Responsibility*, and *Empathy*. Each scale is measured by the response to 20 true/false questions from the JPI-R, so potential scores on each scale range from 0 to 20 (see footnote 8). The *Traditional Values* scale assesses the degree to which an individual values traditional norms and beliefs, and is the opposite of relativism (Jackson 1994). The *Responsibility* scale assesses the degree to which an individual feels an abstract moral obligation to other people and to society at large, and is the opposite of negligence (Jackson 1994). The *Empathy* scale assesses the degree to which an individual identifies or sympathizes with other people and their problems, and is the opposite of indifference (Jackson 1994).

Control Variables

Based on intuition and prior empirical findings, we include three control variables in our model of moral judgments regarding budgetary slack: *Moral Obligation*, *Senior Year in Business School*, and *Justification*. We use an item from the exit questionnaire as a measure of perceived *Moral Obligation*. As mentioned in the introduction, the instructions to the experiment communicated an expectation for a truthful budget. In particular, the instructions stated, "Alpha would like its workers to produce as many units as they can and to set their budgets at their forecast of production."[10] This statement was repeated in the exit questionnaire and participants responded to the statement on a Likert scale from 1 = "strongly disagree" to 7 = "strongly agree" with 4 labeled as "neutral." We use the response to this statement as a measure of *Moral Obligation* perceived by the participant during the experiment, and predict a positive relation between this control variable and moral judgments regarding budgetary slack.[11]

Prior research has shown that time in business school can affect moral reasoning (O'Fallon and Butterfield 2005). In particular, Tse and Au (1997) found that senior business school students in New Zealand tended to be less ethical in their moral judgments than did junior business students. Thus, we include *Senior Year in Business School* as a control variable in our study. The exit questionnaire revealed that 1.9 percent (2) of the participants were sophomores, 28.8 percent (30) were juniors, 67 percent (70) were seniors, and 1.9 percent (2) were graduate students. Thus, we code this control variable as 0 for sophomores and juniors and 1 for seniors and graduate students. Based on prior results (Tse and Au 1997), we predict a negative relation between this control variable and moral judgments regarding budgetary slack.

Finally, prior research has shown that justification or hindsight bias can affect moral reasoning (Sligo and Stirton 1998). The moral judgments regarding budgetary slack used in our study were made by participants at the end of an experiment in which they had built various levels of budgetary slack over five production periods. Thus, those who built relatively high levels of budgetary slack may have been motivated to justify their behavior in their moral judgment of

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[10] Alpha Production Company was the name given the hypothetical company in the experimental materials.

[11] The statement on the exit questionnaire that we used to capture perceived moral obligation was used as a manipulation check by Stevens (2002). Consistent with his study using only slack-inducing participants, we find that participants across both pay schemes agreed with this statement *on average*. Given theory suggesting that a sense of moral obligation is required for moral reasoning to arise, however, we use this statement to control for potential *individual differences* in perceived moral obligation. It is also important for us to control for this measure of perceived moral obligation empirically, as it differed marginally by pay scheme in our study (see below).

budgetary slack. We use budgetary slack in the fifth and final production period to capture this justification effect. Budgetary slack in the final production period is a reasonable measure of this construct because it reflected all of the participants' experimental learning and was the closest production period to the moral judgment in the exit questionnaire. As in Stevens (2002), we measure budgetary slack as the difference between the subordinate's expected performance and chosen budget divided by the subordinate's expected performance. The average of production in the prior two periods is used to proxy for the subordinate's expected performance. Based on prior results (Sligo and Stirton 1998), we predict a negative relation between this control variable and moral judgments regarding budgetary slack.

RESULTS

Figure 1 presents frequency histograms of participants' responses to the moral judgment statement in the exit questionnaire. The histogram for the entire sample is presented in Panel A, the histogram for the subsample of participants given the slack-inducing pay scheme is presented in Panel B, and the histogram for the subsample of participants given the truth-inducing pay scheme is presented in Panel C. The histogram in Panel A reflects wide variance in moral judgments regarding budgetary slack in the full sample. The mean response across all participants is 4.32 (Std. Dev. 2.00), which is not significantly different from the neutral response of 4 ($p = 0.11$). The histograms in Panels B and C, however, display a strong differential response based on pay scheme. The modal response for the slack-inducing subsample in Panel B is 6 and 65 percent of the responses (34 out of 52) are above the neutral response of 4. In contrast, the modal response for the truth-inducing subsample in Panel C is 4 and only 35 percent of the responses (18 out of 52) are above the neutral response of 4.

Table 1 presents simple tests of mean differences across pay scheme. Hypothesis 1 predicts that subordinates who set budgets under a slack-inducing pay scheme will be more likely to judge significant budgetary slack to be unethical than subordinates who set budgets under a truth-inducing pay scheme. The first row of Table 1 shows that participants receiving the slack-inducing pay scheme more strongly agreed that significant budgetary slack was unethical than participants receiving the truth-inducing pay scheme ($p = 0.01$). Interestingly, the mean response of 4.81 for the slack-inducing group is significantly above the neutral response of 4 ($p < 0.01$) whereas the mean response of 3.83 for the truth-inducing group is not significantly different from the neutral response of 4 ($p > 0.10$). Thus, not only did the truth-inducing pay scheme group exhibit lower moral judgment, but also the truth-inducing pay scheme group did not judge significant budgetary slack to be unethical on average. These results support H1.

The second and third rows of Table 1 suggest that the pay scheme effect we document is not attributable to differences in perceived moral obligation or justification. The second row shows that the average response to the moral obligation statement of 5.96 for the slack-inducing pay scheme group was marginally lower than the average response of 6.48 for the truth-inducing group ($p = 0.06$). Both of these average responses, however, are significantly above the "neutral" response of 4 ($p < 0.01$). The marginally lower response for the slack-inducing group suggests that our pay scheme result is not attributable to the slack-inducing participants perceiving a higher moral obligation to present a truthful budget. The marginally lower response for the slack-inducing group may be attributable to the inconsistency between their pay scheme and the expectation of a truthful budget conveyed in the instructions. The third row shows that the average budgetary slack of 41 percent for the slack-inducing group was significantly higher than the average budgetary slack of 4 percent for the truth-inducing pay scheme group ($p < 0.01$). Thus, the pay scheme group that judged budgetary slack to be unethical also created the most budgetary slack, which suggests that our pay scheme result is not attributable to the previously documented justification effect on moral reasoning (O'Fallon and Butterfield 2005).

FIGURE 1
Moral Judgments Regarding Budgetary Slack in the Total Sample and by Pay Scheme[a]

Panel A: Histogram of the Total Sample (n = 104)
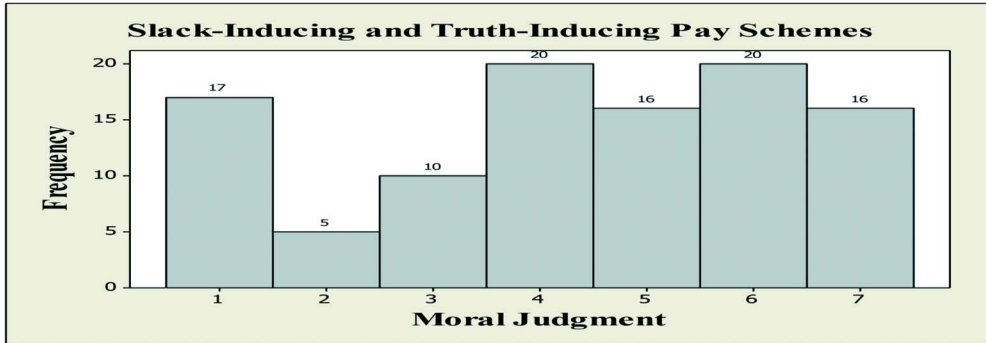
Panel B: Histogram of the Subsample Given the Slack-Inducing Pay Scheme (n = 52)
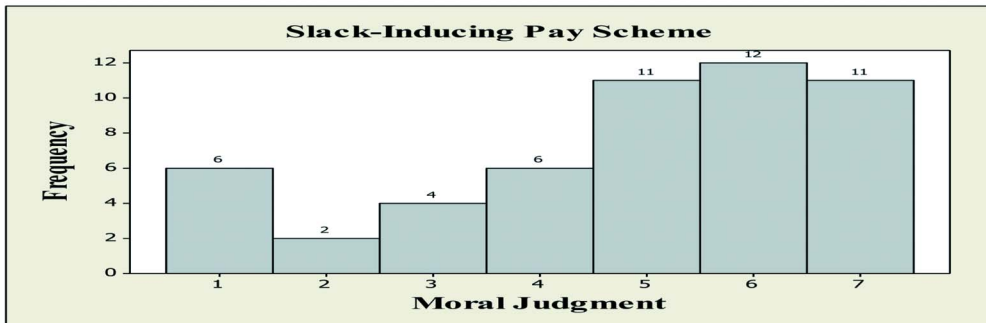
Panel C: Histogram of the Subsample Given the Truth-Inducing Pay Scheme (n = 52)

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[a]   Moral Judgment: The response to the following statement in the exit questionnaire: "To have set the budget significantly below the forecast of production would have been unethical." The response ranges from 1 = strongly disagree to 7 = strongly agree (4 = neutral).

TABLE 1

Simple Tests of Mean Differences across Pay Scheme*

	Slack-Inducing Pay Scheme[d]	Truth-Inducing Pay Scheme[e]	t-test (p-value)
Moral Judgment[a]	4.81	3.83	2.57
	(1.93)	(1.97)	(0.01)
Moral Obligation[b]	5.96	6.48	1.92
	(1.72)	(0.94)	(0.06)
Budgetary Slack[c]	0.41	0.04	6.90
	(0.39)	(0.07)	($<$0.01)

*Means tests use t-tests for equality of means. Where cell means are presented, the standard deviations are in parentheses. Where t-tests are presented, the two-tailed probabilities are in parentheses.

[a] Moral Judgment: The response to the following statement in the exit questionnaire: "To have set the budget significantly below the forecast of production would have been unethical." The response ranges from 1 = strongly disagree to 7 = strongly agree (4 = neutral).

[b] Moral Obligation: The response to the following statement in the exit questionnaire: "Alpha Production Company would like its workers to produce as many units as they can and to set their budgets at their forecast of production." The response ranges from 1 = strongly disagree to 7 = strongly agree (4 = neutral).

[c] Budgetary Slack: Budgetary slack in the final period (period 5), calculated as the difference between the subordinate's expected performance and chosen budget divided by the subordinate's expected performance. (The average of production in the prior two periods is used to proxy for the subordinate's expected performance.)

[d] Slack-Inducing Pay Scheme: The pay scheme under which participants set their budgets was slack-inducing, i.e., Pay = \$1.35 + \$0.05 $(A-B)$ if $A \geq B$, and Pay = \$1.35 if $A < B$, where A = Actual Production and B = Budgeted Production.

[e] Truth-Inducing Pay Scheme: The pay scheme under which participants set their budgets was truth-inducing, i.e., Pay = \$0.10B + \$0.05 $(A-B)$ if $A \geq B$, and Pay = \$0.10B + \$0.15 $(A-B)$ if $A < B$, where A = Actual Production and B = Budgeted Production.

Table 2 presents bivariate correlations for variables in our regression model of *Moral Judgment*. These bivariate correlations are consistent with our predictions. *Pay Scheme* (coded 0 for the truth-inducing pay scheme and 1 for the slack-inducing pay scheme) is highly positively correlated with *Moral Judgment*, consistent with H1. In addition, *Traditional Values* and *Responsibility* are highly positively correlated with *Moral Judgment* at the 1 percent level. Although a bit more weakly than the other two personal values, *Empathy* is also positively correlated with *Moral Judgment* at the 5 percent level (10 percent level for the nonparametric Spearman correlation). These results support H2, H3, and H4, respectively. These bivariate results, however, must be interpreted with care as they do not control for the presence of other variables in the model. Interestingly, *Responsibility* is positively correlated with both *Traditional Values* and *Empathy*, although the latter two personal values are not correlated with each other at traditional levels of significance.[12] Thus, a multivariate analysis appears warranted to separate out incremental effects of each variable on moral judgments regarding budgetary slack.

Table 3 presents a step-wise regression analysis of moral judgments regarding budgetary slack. In Model 1, the pay scheme variable *Slack-Inducing* is included along with the three control

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[12] One of the major goals behind the formation of the personality scales in the JPI-R was to maximize discrimination among the scales (Jackson 1994, 40). Correlations among the JPI-R personality scales, however, are expected to occur and differ somewhat by sample. In an analysis of correlations between personality scales by gender, both male and female samples exhibited similar correlations to what we document. In particular, while there was very little correlation between the *Traditional Values* and *Empathy* scales, the *Responsibility* scale was positively correlated with both scales and was more strongly correlated with the *Traditional Values* scale than the *Empathy* scale (Jackson 1994, 53).

TABLE 2

Bivariate Correlations for Variables in the Regression Models of Moral Judgment*

Variable	Moral Judgment	Pay Scheme	Trad. Values	Responsibility	Empathy	Moral Obligation	Senior Year in B-School	Justification
Moral Judgment[a]	1.00	0.25 (0.01)	0.33 (<0.01)	0.25 (0.01)	0.23 (0.02)	−0.06 (0.57)	−0.17 (0.07)	−0.14 (0.15)
Pay Scheme[b]	0.26 (0.01)	1.00	−0.11 (0.25)	0.08 (0.42)	−0.16 (0.10)	−0.19 (0.06)	−0.04 (0.68)	0.56 (<0.01)
Traditional Values[c]	0.31 (<0.01)	−0.13 (0.18)	1.00	0.34 (<0.01)	0.16 (0.10)	−0.03 (0.80)	0.01 (0.90)	−0.02 (0.87)
Responsibility[d]	0.26 (0.01)	0.10 (0.34)	0.33 (<0.01)	1.00	0.23 (0.02)	0.01 (0.90)	−0.07 (0.51)	−0.05 (0.60)
Empathy[e]	0.17 (0.08)	−0.15 (0.13)	0.15 (0.13)	0.19 (0.05)	1.00	0.04 (0.68)	−0.07 (0.50)	−0.07 (0.47)
Moral Obligation[f]	−0.06 (0.54)	−0.11 (0.26)	−0.04 (0.72)	−0.03 (0.78)	−0.03 (0.78)	1.00	0.08 (0.44)	−0.06 (0.55)
Senior Year in B-School[g]	−0.15 (0.12)	−0.04 (0.68)	−0.02 (0.85)	−0.04 (0.70)	−0.06 (0.53)	0.04 (0.70)	1.00	0.02 (0.81)
Justification[h]	−0.07 (0.52)	0.60 (<0.01)	−0.01 (0.95)	−0.02 (0.83)	−0.07 (0.52)	−0.04 (0.70)	−0.08 (0.40)	1.00

*Pearson correlation statistics are reported above the diagonal and nonparametric Spearman correlation statistics are reported below the diagonal. Two-tailed p-values are in parentheses.

[a] *Moral Judgment*: The response to the following statement in the exit questionnaire: "To have set the budget significantly below the forecast of production would have been unethical." The response ranges from 1 = strongly disagree to 7 = strongly agree (4 = neutral).

[b] *Pay Scheme*: Coded as 0 if the participant was paid according to the truth-inducing payment scheme and 1 if the participant was paid according to the slack-inducing payment scheme.

[c] *Traditional Values*: The degree to which an individual incorporates old values, such as honesty, frugality, modesty, respect for authority, and patriotism; measured by the Traditional Values scale of the JPI-R questionnaire, which ranges from 0 to 20.

[d] *Responsibility*: General sensitivity to moral obligations to other people and to society at large measured by the Responsibility scale of the JPI-R questionnaire, which ranges from 0 to 20.

[e] *Empathy*: Identifying closely with other people and their problems; measured using the Empathy scale of the JPI-R questionnaire, which ranges from 0 to 20.

TABLE 2 (continued)

[f] *Moral Obligation*: The response to the following statement in the exit questionnaire: "Alpha would like its workers to produce as many units as they can and to set their budgets at their forecast of production." The response ranges from 1 = strongly disagree to 7 = strongly agree (4 = neutral).

[g] *Senior Year in Business School*: Coded as 0 for sophomores (2) and juniors (30) and 1 for seniors (70) and graduate students (2).

[h] *Justification*: Measured by budgetary slack created in the final period, calculated as the difference between the subordinate's expected performance and chosen budget divided by the subordinate's expected performance. (The average of production in the prior two periods is used to proxy for the subordinate's expected performance.)

TABLE 3

Regression Models of Moral Judgments Regarding Budgetary Slack[a]
Slack-Inducing and Truth-Inducing Pay Schemes

$Moral\ Judgment = \alpha_0 + \alpha_1 Slack\text{–}Inducing + \alpha_2 Traditional\ Values + \alpha_3 Responsibility$

$+ \alpha_4 Empathy + \alpha_5 Moral\ Obligation + \alpha_6 Senior\ Year\ in\ B\text{–}School$

$+ \alpha_7 Justification + \varepsilon$

Variable	Predicted Sign	1	2	3	4
Intercept		4.20***	1.77*	1.54	0.63
Pay Scheme					
Slack-Inducing (H1)	+	1.88***	2.13***	2.08***	2.26***
Personal Values					
Traditional Values (H2)	+		0.22***	0.21***	0.20***
Responsibility (H3)	+			0.03	<0.01
Empathy (H4)	+				0.11**
Control Variables					
Moral Obligation	+	0.03	0.06	0.05	0.05
Senior Year in B-School	−	−0.64**	−0.65**	−0.64**	−0.58**
Justification (Budgetary Slack)	−	−2.42***	−2.59***	−2.53***	−2.61***
Adjusted R^2		0.17	0.31	0.31	0.35
Sample Size		104	104	104	104

*, **, *** One-tailed significance at the 0.10, 0.05, and 0.01 levels, respectively, for predicted effects.

[a] *Moral Judgment*: The response to the following statement in the exit questionnaire: "To have set the budget significantly below the forecast of production would have been unethical." The response ranges from 1 = strongly disagree to 7 = strongly agree (4 = neutral).

See Table 2 for definitions of other variables.

variables. In the following three models, the three personal values are added one at a time in order of the hypotheses. The probability levels presented in the table reflect one-tailed significance for our predicted effects. In all four models, the coefficient for the *Slack-Inducing* variable is positive and highly statistically significant (one-tailed $p < 0.01$). The magnitude of the coefficient in each model is also economically significant as it suggests that *Moral Judgment* increased by about two points on the seven-point Likert scale under the slack-inducing pay scheme relative to the truth-inducing pay scheme. These results provide strong support for H1.

The coefficient on the variable *Traditional Values* is positive and highly significant in Model 2 (one-tailed $p < 0.01$) and remains highly significant when the other two personal values are added in Models 3 and 4. Across the three models, the coefficient on *Traditional Values* remains stable at about 0.20, suggesting that *Moral Judgment* increased by about four points on average as an individual's score on this personality scale went from the minimum of 0 to the maximum of 20. This result provides strong support for H2. Inconsistent with H3, however, the variable *Responsibility* is not significant when it is present in Models 3 and 4. This result is likely attributable to the high correlation between *Responsibility* and the other two personal values. The variable *Em-*

pathy is significantly positive when added in Model 4 (one-tailed $p < 0.05$) and the coefficient of 0.11 suggests that *Moral Judgment* increased by about two points on average as an individual's score on this personality scale went from the minimum of 0 to the maximum of 20. This result provides strong support for H4. Interestingly, adding the personal values variables doubles the explanatory power of the model from an adjusted R^2 of 0.17 to 0.35.

The signs of the coefficients on the control variables are consistent with predictions. In particular, the coefficient on *Moral Obligation* is consistently positive while the coefficients are consistently negative for *Senior Year in Business School* and *Justification*. The coefficient on *Moral Obligation*, however, does not reach significance in any of the models. The low explanatory power of this control variable, however, may be attributable to its relatively low variability across participants in the experiment. The negative coefficients on *Senior Year in Business School* and *Justification* are significant at the 5 percent and 1 percent levels, respectively, using one-tailed significance levels. While theory and prior empirical results suggest that these three control variables should be included in the model of moral judgment regarding budgetary slack, our main results hold when they are removed from the model.

A main result from this study is that participants only agreed that significant budgetary slack was unethical on average under the slack-inducing pay scheme. To further investigate this result, we present in Table 4 we present a regression model of moral judgments regarding budgetary slack for this pay scheme group alone. In this regression model, the coefficient for the *Traditional Values* variable is significantly positive at the 5 percent level (one-tailed $p < 0.05$) and the coefficient for *Empathy* is highly significantly positive at the 1 percent level (one-tailed $p < 0.01$). The magnitudes of the coefficients suggest that under the slack-inducing pay scheme, *Moral Judgment* increased by about 2.5 and 3 points on average as an individual's score went from the minimum of 0 to the maximum of 20 on the *Traditional Values* and *Empathy* scale, respectively. The *Responsibility* scale, however, remains insignificant. Thus, the *Traditional Values* and *Empathy* effects appear to explain why participants under the slack-inducing pay scheme judge significant budgetary slack to be unethical on average.

In summary, our results support three of our four hypotheses. Consistent with H1, we find that participants who set budgets under a slack-inducing pay scheme were more likely to judge significant budgetary slack to be unethical than participants who set budgets under a truth-inducing pay scheme. In follow-up analyses, we find that this pay scheme result is not attributable to differences in perceived moral obligation regarding the truthfulness of the budget or to justification bias. Consistent with H2, we find that participants who scored high in *Traditional Values* on the JPI-R (Jackson 1994) were more likely to judge significant budgetary slack to be unethical on average. Inconsistent with H3, however, we find no explanatory power for the *Responsibility* scale of the JPI-R with the other variables in the model. This result is likely attributable to the high correlation between *Responsibility* and the other two personal values in the model. Finally, consistent with H4, we find that participants who scored high in *Empathy* were more likely to judge significant budgetary slack to be unethical on average. These results hold under alternative regression models of moral judgment, (i.e., with or without our control variables included in the model) and in the slack-inducing pay scheme group alone, which was the only pay scheme group to agree, on average, that significant budgetary slack was unethical.

DISCUSSION AND CONCLUSION

This study examines moral judgments regarding budgetary slack made by participants at the end of a participative budgeting experiment in which an expectation for a truthful budget was present. While early experimental results suggested that moral judgments regarding budgetary slack are invariant to financial incentives and social settings (Evans et al. 2001; Stevens 2002), recent experimental results suggest that moral judgments regarding budgetary slack are subject to

TABLE 4

Regression Model of Moral Judgments Regarding Budgetary Slack[a]
Slack-Inducing Pay Scheme Only

Moral Judgment = α_0 + α_1Traditional Values + α_2Responsibility

+ α_3Empathy + α_4Moral Obligation + α_5Senior Year in B-School

+ α_6Justification + ε

Variable	Predicted Sign	Slack-Inducing Pay Scheme Only
Intercept		3.50***
Personal Values		
Traditional Values	+	0.12**
Responsibility	+	−0.09
Empathy	+	0.15***
Control Variables		
Moral Obligation	+	0.14
Senior Year in B-School	−	0.06
Justification (Budgetary Slack)	−	−2.91***
Adjusted R^2		0.36
Sample size		52

*, **, *** One-tailed significance at the 0.10, 0.05, and 0.01 levels, respectively, for predicted effects.

[a] *Moral Judgment*: The response to the following statement in the exit questionnaire: "To have set the budget significantly below the forecast of production would have been unethical." The response ranges from 1 = strongly disagree to 7 = strongly agree (4 = neutral)

See Table 2 for definitions of other variables.

framing effects (Rankin et al. 2008; Schatzberg and Stevens 2008). Our results support the framing view of the moral content of participative budgeting settings. In particular, our results suggest that financial incentives play a role in determining the moral frame of the budgeting setting and that personal values determine how individuals respond to that moral frame. Thus, this study provides new and potentially useful insights regarding the moral content of participative budgeting settings.

Our pay scheme result, that participants judged significant budgetary slack to be unethical on average under a slack-inducing pay scheme but not under a truth-inducing pay scheme, suggests that slack-inducing pay schemes are likely to generate a moral frame by setting economic self-interest against common social norms for truthfulness and responsibility. By examining the effects of personal values, we provide evidence regarding determinants of moral reasoning that cause individuals to respond differently to various moral frames. Holding pay scheme constant, we find that traditional values and empathy caused participants to increase their moral judgments regarding budgetary slack. In an analysis of the slack-inducing pay scheme group alone, we find that these two personal values explain the increase in moral judgment under the slack-inducing pay scheme. Our results are consistent with theory and empirical evidence in moral philosophy and moral psychology.

Our results provide one possible explanation for why truth-inducing pay schemes are rarely found in practice (Kaplan and Atkinson 1998). In particular, our results suggest that such pay schemes are unnecessary when subordinates have sufficient moral values and an expectation for a truthful budget is present. Under the slack-inducing pay scheme, participants who scored in the top quartile of moral judgment averaged a moral judgment score of 6.85 (out of 7) and set budgetary slack at 5.6 percent, on average. This level of budgetary slack is very close to the 4 percent set by participants in the truth-inducing pay scheme group. In contrast, those who scored in the bottom quartile of moral judgment averaged a moral judgment score of 2.00 and set budgetary slack at 61.8 percent, on average. A slack-inducing pay scheme may be optimal for other reasons. For example, researchers have argued that slack-inducing pay schemes allow the superior to use budgetary slack as a buffer against environmental uncertainty (Cyert and March 1992), as a reward for superior performance (Merchant 1989), or as an incentive for increased effort (Schatzberg and Stevens 2008). Other researchers have argued that slack-inducing pay schemes increase perceptions of trust (Libby 2003).

Finally, our results support the argument that morality is an effective and efficient control for self-interested behavior that should not be ignored by economists and accountants (DeGeorge 1992; Stevens and Thevaranjan 2010). Future research in this area appears to be warranted. For example, future research could consider other economic settings besides participative budgeting that raise moral dilemmas, such as the traditional investment setting where non-owner managers have an incentive to expropriate the invested funds of owners. Future research could also consider external factors that affect the response to a given moral dilemma, such as a code of ethics. The impact of particular personal values on moral reasoning in accounting also appears to be a fertile area for future research. We find that traditional values and empathy are uncorrelated with each other, yet they both increase moral reasoning regarding budgetary slack. While traditional values may be considered to be a less-developed form of moral reasoning than empathy by some moral theorists, both personal values appear to be important to accounting professionals who bear the responsibility of enforcing rules and regulations.

REFERENCES

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

Beauchamp, T., and N. Bowie. 2004. *Ethical Theory and Business*. 7th edition. Upper Saddle River, NJ: Pearson Prentice Hall.

Bicchieri, C. 2006. *The Grammar of Society: The Nature and Dynamics of Social Norms*. New York, NY: Cambridge University Press.

Bowie, N., and R. Duska. 1990. *Business Ethics*. 2nd edition. Englewood Cliffs, NY: Prentice Hall.

Brown, J., J. Evans, and D. Moser. 2009. Agency theory and participative budgeting experiments. *Journal of Management Accounting Research* 21 (1): 317–345.

Chow, C., J. Cooper, and W. Waller. 1988. Participative budgeting: Effects of a truth-inducing pay scheme and information asymmetry on slack and performance. *The Accounting Review* 63: 111–122.

Chung, J., and G. Monroe. 2003. Exploring social desirability bias. *Journal of Business Ethics* 44 (4): 291–302.

Cyert, R., and J. March. 1992. *The Behavioral Theory of the Firm*. 2nd edition. Cambridge, MA: Blackwell Publishers.

Davis, S., F. DeZoort, and L. Kopp. 2006. The effect of obedience pressure and perceived responsibility on management accountants' creation of budgetary slack. *Behavioral Research in Accounting* 18: 19–35.

DeGeorge, R. 1992. Agency theory and the ethics of agency. In *Ethics and Agency Theory: An Introduction*, edited by Bowie, N. E., and R. E. Freeman, 59–72. New York, NY: Oxford University Press.

Deigh, J. 1995. Empathy and universalizability. *Ethics* 105: 743–763.

Douglas, P., and B. Wier. 2000. Integrating ethical dimensions into a model of budgetary slack creation.

Journal of Business Ethics 28: 267–277.

Eisenberg, N. 2000. Emotion, regulation, and moral development. *Annual Review of Psychology* 51: 665–697.

———, R. Fabes, B. Murphy, M. Karbon, P. Maszk, M. Smith, C. O'Boyle, and K. Suh. 1994. The relations of emotionality and regulation to dispositional and situational empathy-related responding. *Journal of Personality and Social Psychology* 66 (4): 776–797.

Evans, J., R. Hannan, R. Krishnan, and D. Moser. 2001. Honesty in managerial reporting. *The Accounting Review* 76 (4): 537–559.

Ferrell, O., and L. Gresham. 1985. A contingency framework for understanding ethical decision making in marketing. *Journal of Marketing* 49: 87–96.

Forsyth, D. 1980. A taxonomy of ethical ideologies. *Journal of Personality and Social Psychology* 39: 175–184.

———. 1992. Judging the morality of business practices: The influence of personal moral philosophies. *Journal of Business Ethics* 11: 461–470.

Glover, S., M. Bumpus, J. Logan, and J. Ciesla. 1997. Re-examining the influence of individual values on ethical decision making. *Journal of Business Ethics* 16: 1319–1329.

Gordon, R. 1995. Sympathy, simulation, and the impartial spectator. *Ethics* 105: 727–742.

Hannan, R., F. Rankin, and K. Towry. 2006. The effect of information systems on honesty in managerial reporting: A behavioral perspective. *Contemporary Accounting Research* 23 (4): 885–918.

Haynes, C., and S. Kachelmeier. 1998. The effects of accounting contexts on accounting decisions: A synthesis of cognitive and economic perspectives in accounting experimentation. *Journal of Accounting Literature* 17: 97–136.

Hunt, S., and S. Vitell. 1986. A general theory of marketing ethics. *Journal of Macromarketing* 6: 5–16.

Jackson, D. 1994. *Jackson Personality Inventory-Revised Manual*. Port Huron, MI: Sigma Assessment Systems, Inc.

Jansen, E., and M. Von Glinow. 1985. Ethical ambivalence and organizational reward systems. *Academy of Management Review* 10 (4): 814–822.

Jones, T. 1991. Ethical decision making by individuals in organizations: An issue-contingent model. *Academy of Management Review* 16 (2): 366–395.

Kaplan, R., and A. Atkinson. 1998. *Advanced Management Accounting*. 3rd edition. Upper Saddle River, NJ: Prentice Hall.

Kaplan, S. 2001. Ethically related judgments by observers of earnings management. *Journal of Business Ethics* 32 (4): 285–298.

———, J. McElroy, S. Ravenscroft, and C. Shrader. 2007. Moral judgment and causal attributions: Consequences of engaging in earnings management. *Journal of Business Ethics* 74 (2): 149–164.

Kohlberg, L. 1969. Stage and sequence. The cognitive developmental approach to socialization. In *Handbook of Socialization Theory*, edited by D. A. Goslin, 347–480. Chicago, IL: Rand McNally.

Libby, T. 2003. The effect of fairness in contracting on the creation of budgetary slack. *Advances in Accounting Behavioral Research* 6: 145–169.

Merchant, K. 1989. *Rewarding Results: Motivating Profit Center Managers*. Boston, MA: Harvard Business Press.

———. 1995. Ethical issues related to "results-oriented" management control systems. In *Ethical Issues in Accounting: Proceedings of the Professionalism and Ethics Seminar*. Professionalism and Ethics Committee of the American Accounting Association, St. Charles, IL, June 2–4.

Moser, D. 1998. Using an experimental economics approach in behavioral accounting research. *Behavioral Research in Accounting* 10: 94–110.

O'Fallon, M., and K. Butterfield. 2005. A review of the empirical ethical decision-making literature: 1996–2003. *Journal of Business Ethics* 59: 375–413.

Onsi, M. 1973. Factor analysis of behavioral variables affecting budgetary slack. *The Accounting Review* 48: 535–548.

Rankin, F., S. Schwartz, and R. Young. 2008. The effect of honesty and superior authority on budget proposals. *The Accounting Review* 83 (4): 1083–1099.

Rest, J. 1986. *Moral Development: Advances in Research and Theory*. New York, NY: Praeger.

Rokeach, M. 1973. *The Nature of Human Values*. New York, NY: Free Press.

Salterio, S., and A. Webb. 2006. Honesty in accounting and control: A discussion of "The effect of information systems on honesty in managerial reporting: A behavioral perspective." *Contemporary Accounting Research* 23 (4): 919–932.

Samuelson, L. 2005. Economic theory and experimental economics. *Journal of Economic Literature* 43: 65–107.

Schatzberg, J., and D. Stevens. 2008. Public and private forms of opportunism within the organization: A joint examination of budget and effort behavior. *Journal of Management Accounting Research* 20: 59–81.

Shaub, M., D. Finn, and P. Munter. 1993. The effects of auditors' ethical orientation on commitment and ethical sensitivity. *Behavioral Research in Accounting* 5: 145–169.

Shields, J., and M. Shields. 1998. Antecedents of participative budgeting. *Accounting, Organizations and Society* 23: 49–76.

Sligo, F., and N. Stirton. 1998. Does hindsight bias change perceptions of business ethics?. *Journal of Business Ethics* 17 (2): 111–124.

Smith, A. 1966. *The Theory of Moral Sentiments*. (Original work published 1759). New York, NY: Augustus M. Kelley Publishers.

Smith, V. 1991. Rational choice: The contrast between economics and psychology. *The Journal of Political Economy* 99 (4): 877–897.

———, and J. Walker. 1993. Monetary rewards and decisions cost in experimental economics. *Economic Inquiry* 31: 245–261.

Stevens, D. 2002. The effects of reputation and ethics on budgetary slack. *Journal of Management Accounting Research* 14: 153–171.

———, and A. Thevaranjan. 2010. A moral solution to the moral hazard problem. *Accounting, Organizations and Society* (forthcoming).

Thorne, L. 2000. The development of two measures to assess accountants' prescriptive and deliberative moral reasoning. *Behavioral Research in Accounting* 12: 139–169.

Trevino, L. 1986. Ethical decision making in organizations: A person-situation interactionist model. *Academy of Management Review* 11: 601–617.

Tse, A., and A. Au. 1997. Are New Zealand business students more unethical than non-business students? *Journal of Business Ethics* 16 (4): 445–450.

Umapathy, S. 1987. *Current Budgeting Practices in U.S. Industry: The State of the Art*. New York, NY: Quorum.

Waller, W. 1988. Slack in participative budgeting: The joint effect of a truth-inducing pay scheme and risk preferences. *Accounting, Organizations and Society* 13: 87–98.