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Management Accounting Research

journal homepage: www.elsevier.com/locate/mar

Mood and honesty in budget reporting

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ARTICLE INFO

Keywords:

Participative budgeting
Reporting
Honesty
Budgetary slack
Mood
Experiment

ABSTRACT

In this paper, I investigate whether the honesty of managers' budget reporting depends on the state of their mood. The results from a laboratory experiment demonstrate that managers in a positive mood report their budgets more honestly than managers in a negative mood. Attaining a neutral mood state, however, does not increase honesty sufficiently to balance out the effects of a negative mood state. The hedonic contingency theory suggests that the cognitive process underlying a display of higher honesty when the manager is in a positive mood stems from the manager's desire to maintain this mood by reporting the budget more truthfully. The results of supplemental analyses show that the effect of the manager's mood on honesty remains stable over multiple reporting periods. By examining the expected firm profits, I reveal that a contract based on the assumption that a manager will be honest is more beneficial than a truth-inducing contract derived from economic theory. If the manager is in a more positive mood, this relative advantage increases due to the effect of mood on honesty.

1. Introduction

Many organizations invest large amounts of funds to create positive work environments for their employees. A famous example is Google, which claims that it has invested tremendous efforts to boost its employees' job satisfaction. In addition, large companies often try to win competitions for the best workplaces (Dill, 2016; Glassdoor, 2017). These investments seem to make sense, as a recent Gallup survey estimates that unsatisfied employees' behavior results in negative consequences that translate into \$483 to \$605 billion in lost productivity each year in the U.S. (Gallup, 2017). Research shows that the employees' job satisfaction is often related to their mood at work (e.g., Dimotakis et al., 2011; Judge and Ilies, 2004; Weiss et al., 1999), which suggests that the employees' mood can also be a relevant factor for companies to avoid undesirable and foster desirable employee behaviors. In this paper, I investigate whether a manager's mood influences their honesty in budget reporting and identify the consequences regarding the expected firm profit.

Hedonic contingency theory (Wegener and Petty, 1994) provides a framework that can be applied to better understand the effects of mood in a participative budgeting situation. According to this theory, people can manage their mood through their behavior. Mood management refers to the cognitive effort exerted by people to maintain or enhance their mood; namely, they process the affective consequences of different actions and then perform an action that enables them to either maintain or improve their mood. This process seems to work mostly subconsciously (Handley et al., 2004; Hirt et al., 2008). The amount of

cognitive effort invested in mood management depends on the current mood state. People who are in a positive mood state only have a limited number of behavioral choices that will enable them to maintain this mood. They process the affective consequences of the available actions and then perform an action that allows them to maintain their positive mood, i.e., they invest high amounts of cognitive effort in mood management.

In contrast, according to hedonic contingency theory, people in a negative mood state need to invest less cognitive effort in mood management. In other words, they do not need to process the affective consequences of their behavior, as almost every kind of behavior will enable them to maintain or improve their mood state. Regarding a neutral mood state, the theory does not predict directional differences in mood management, as compared to the negative mood state. This is due to two opposing effects: (1) A person in a neutral mood state has fewer mood-enhancing behavioral alternatives than a person in a negative mood state, increasing the amount of cognitive effort invested in mood management; and (2) compared to both the positive and negative mood states, a neutral mood state has a reduced salience, which leads to a lower investment of cognitive effort in mood management.

By considering the affective consequences of honest and dishonest behavior, I develop predictions regarding the managers' budget reporting. Previous research has shown that people often experience positive feelings when they are honest (Park et al., 2017; Ten Brinke et al., 2015) and negative feelings when they are dishonest (Abe et al., 2007; Garrett et al., 2016). Linking these findings with hedonic contingency theory suggests that in participative budgeting, managers in a

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<https://doi.org/10.1016/j.mar.2020.100707>

Received 5 February 2018; Received in revised form 20 July 2020; Accepted 21 July 2020

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positive mood state will process the affective consequences of (dis) honesty, because they invest high amounts of cognitive effort in mood management. As a result, the managers will try to maintain their positive mood by reporting honestly. In contrast, managers in a negative mood state will rarely process the affective consequences of different reporting behaviors, as people in negative mood states invest only low amounts of cognitive effort in mood management. Therefore, these managers will display less honest reporting behavior than managers in a positive mood state. Since hedonic contingency theory does not predict directional differences in mood management displayed by individuals in neutral or negative mood states, the level of honesty displayed by managers in a neutral mood state may be higher, lower, or similar to the level of honesty displayed by those in a negative mood state.

Taken together, I predict the following: First, in participative budgeting, managers will report more honestly if they are in a positive mood state than if they are in a negative or neutral mood state. Second, the level of honesty displayed by managers in a neutral mood state may not differ substantially from the level of honesty they display in a negative mood state.

I conducted a laboratory experiment to assess the influence of different mood states on managers' honesty in budget reporting. This experiment involved three groups of participants, acting in the role of division managers, in whom different mood states were induced: positive, neutral, and negative mood states. Participants in all groups had a monetary incentive to report untruthfully by overstating their budgetary needs.

The data analyses demonstrate that mood can influence the managers' budget reporting honesty. Managers in a positive mood report more truthfully than managers in a negative mood. However, the difference in honesty observed between managers in a positive mood and those in a neutral mood is statistically insignificant. The findings also show that budget reporting honesty does not differ significantly between managers in a neutral and a negative mood. Interestingly, the effect of mood on honesty remains stable over the twelve reporting periods. The stable reporting pattern as well as the responses to the exit questionnaire support the theoretical prediction that managers try to maintain their positive mood by reporting honestly.

In order to illustrate the potential effects of budget reporting on the earnings situation of an organization, I carried out an additional analysis to compare the expected firm profits of the experimental groups with the one under a contract suggested by conventional economic theory (Antle and Eppen, 1985). The findings reveal that a contract based on the assumption that a manager will be honest yields a higher expected firm profit than a truth-inducing contract, which relies on the assumption that a manager has purely selfish, wealth-maximizing preferences. This is because, in all groups, the managers' honesty levels are substantially higher than assumed by conventional economic theory. Nonetheless, the difference observed in the expected firm profit between the two contract forms increases with a more positive mood.

This study contributes to the accounting literature that addresses the influence of mood on decision-making in various situations, including subjective performance evaluations (Ding and Beaulieu, 2011), inventory valuations (Chung et al., 2008), and evaluations of auditors (Kadous, 2001). The present findings indicate that the mood state of the managers can affect their honesty in budget reporting, potentially resulting in positive consequences for an organization. As mood is a situational variable, the current paper also contributes to research regarding the influence of situational factors on budget reporting (e.g., Arnold and Schreiber, 2013; Cardinaels, 2016; De Baerdemaeker and Bruggeman, 2015; Hannan et al., 2006). Moreover, the findings of this study add to the literature that addresses the impact of mood on ethical decision-making in accounting (e.g., Cianci and Bierstaker, 2009; Curtis, 2006). By demonstrating that mood has an enduring effect on honesty over multiple reporting periods, the study further contributes to research that observes honesty in budgeting in the course of time

(Arnold and Schreiber, 2013; Cardinaels, 2016; Douthit and Stevens, 2015; Matuszewski, 2010; Paz et al., 2013) as well as to research in economics on prosocial behavior over time (Engel, 2011).

The findings suggest that in practice, organizations can benefit from paying attention to the mood of their managers as a positive mood potentially increases budget reporting honesty. This is in line with the observation that firms like Google invest a lot of money in their employees' job satisfaction, which is often related to the employees' mood (e.g., Dimotakis et al., 2011; Judge and Ilies, 2004; Weiss et al., 1999). Potential methods to promote a positive mood among employees include giving constructive feedback (Sommer and Kulkarni, 2012), fostering a charismatic leadership style (Erez et al., 2008), or designing a pleasant work environment (George and Brief, 1992). This study suggests that mood improvement can offer an alternative for organizations to enhance honesty in budgeting besides formal ways of controlling managers' behavior.

The remainder of the paper is organized as follows: Section 2 reviews the literature and develops the hypotheses regarding the effect of mood on budget reporting honesty. Section 3 provides an overview of the experimental design and its procedure. Section 4 illustrates and describes the experimental results and the exit questionnaire. Section 5 discusses the findings, concludes the paper, and presents managerial implications.

2. Literature review and hypotheses development

2.1. Background

If information asymmetry exists among managers at different hierarchical levels, a participative budgeting process is frequently used to communicate information among these levels (e.g., Hansen and Van der Stede, 2004; Shastri and Stout, 2008; Shields and Shields, 1998). In this process, managers often have an incentive to report untruthfully to upper levels to create budgetary slack¹ (e.g., Libby and Lindsay, 2010; Van der Stede, 2000). While conventional economic theory does not consider preferences for honesty, the experimental findings of Evans et al. (2001) demonstrate that managers have notable honesty preferences with regard to budget reporting.

In more recent studies, researchers have examined situational factors that potentially change the level of honesty displayed by managers in budgeting. For example, Hannan et al. (2006) and Cardinaels (2016) demonstrate that the use of an information system that helps to reveal misreporting can alter managerial honesty. Church et al. (2012) study the effects of peer preferences. They find that an assistant's preferences regarding honesty can change the manager's behavior if the slack is shared between them. Based on this finding, Altenburger (2017) demonstrates that peer influences in the form of injunctive social norms alter the level of honesty displayed by the managers, but that the effect decreases if some of the peers depart from the respective norms. The study of De Baerdemaeker and Bruggeman (2015) shows that increasing the managers' participation in strategic planning can reduce budgetary slack.

In this paper, I consider the manager's mood as a situational factor that may change the level of honesty displayed in budgeting. Mood can be practically relevant, because it is a potentially cost-efficient variable that companies may be able to influence to foster desired managerial behaviors. By their very nature, people are always in a certain mood state, which may affect their thoughts and actions. As most employees spend a substantial amount of time in their workplace, their mood can also affect their behavior at work (e.g., Dalal et al., 2009; George, 1991;

¹ Schiff and Lewin (1970) define budgetary slack as an intentional understatement of revenues or overstatement of costs by the participating manager. In this sense, budgetary slack usually has negative consequences for an organization.

Scott and Barnes, 2011). Companies can use various methods to influence their employees' moods, including altering the type of feedback given to employees (Sommer and Kulkarni, 2012), the social relationships within the firm (Choi and Cho, 2011), and the physical attributes of the work environment (George and Brief, 1992). Such measures may also foster moods that facilitate honest budget reporting.

While the effects of mood have received growing attention in the fields of accounting and economics in recent years (e.g., Chung et al., 2008; Ding and Beaulieu, 2011; Sawers, 2005), research on the interplay of mood and honesty is lacking. However, a few studies examine the effect of mood on broader but related constructs, namely, prosocial and ethical behaviors. An example taken from the accounting literature is that of Curtis (2006), who tests auditors' whistleblowing intentions regarding incorrect behavior. The findings show that auditors in a negative mood are less likely to whistleblow than those in a positive mood. Cianci and Bierstaker (2009) find that auditors intend to act more ethically when they are in a positive mood than when they are in a neutral or a negative mood. Both studies use hypothetical scenarios that have no economic consequences. I complement this research on ethical intentions in accounting by investigating the ethical behavior displayed in a budgeting experiment that uses economic incentives.

In the economics literature, Capra (2004) investigates the consequences of mood on decisions in a dictator game. The results show that dictators in a positive mood share more money on average than dictators in a negative mood. Mellers et al. (2010) observe that a positive mood has a similar effect on dictators' behavior, as those in a positive mood share more money than those in a neutral mood.²

Although participative budgeting settings are economically similar to these dictator game settings, they also differ in several ways. First, people in participative budgeting settings often have to lie to increase their payoffs, while people only distribute an amount of money in dictator games. Hence, honesty preferences can influence budget reporting (Evans et al., 2001).³ Second, dictators may have reciprocity concerns, as both parties know the amount of money available for distribution.⁴ In budgeting settings, the manager usually has better information about the costs and revenues in his or her division than higher hierarchical levels; i.e., only the manager knows the consumable slack. Thus, reciprocity concerns should be less important. Third, dictators receive an initial endowment that they may share with their recipients. In contrast, managers often do not have an initial endowment in participative budgeting settings but claim funds from the company. These represent two different ways of distributing resources (i.e., giving versus taking). Furthermore, an endowment effect may arise in dictator games. Due to these differences between the participative budgeting and dictator game settings, the aforementioned studies provide only limited predictive power regarding the effect of mood on honesty in budgeting.

2.2. Theory and hypotheses

Theoretical research on mood management may provide ways to validly predict the effect of mood on budget reporting honesty. Several studies in psychology find that people display more prosocial or ethical

² None of these studies simultaneously investigates the impact of positive, neutral, and negative mood on decisions.

³ The aforementioned dictator games include one person as a dictator and one as a receiver. In this case, distributional concerns play important roles. I try to reduce such concerns in the experiment. For example, the headquarters is not represented by a participant but is operationalized as a hypothetical entity. Nonetheless, influences of distributional concerns on reporting cannot be ruled out completely. This limits the interpretations of the interaction between mood and honesty.

⁴ Indirect reciprocity concerns can even arise when players are anonymous and only interact once ("I help you and somebody else helps me") (Diekmann, 2004; Nowak and Sigmund, 2005).

behavior when they are in a positive mood than in other mood states (e.g., Aderman, 1972; Isen, 1970; Levin and Isen, 1975). Building on this research, Wegener and Petty (1994) developed the hedonic contingency theory. This theory assumes that people's behaviors have affective consequences; i.e., their behavior influences their mood. Hence, people can manage their mood through their behavior. Specifically, individuals can invest cognitive effort to maintain or enhance their mood. They process the affective consequences of different actions and perform actions that either help them maintain or improve their mood. This process is called mood management and seems to work mostly subconsciously (Handley et al., 2004; Hirt et al., 2008).⁵ The amount of cognitive effort invested in mood management depends on an individual's current mood state.

Hedonic contingency theory predicts that mood management efforts are highest when an individual is in a positive mood. As people in a positive mood are already 'high' on the mood spectrum, they can only perform a few kinds of behavior to maintain their positive mood. Thus, they process the affective consequences of different actions and perform those actions that allow them to maintain their positive mood. In other words, they invest high amounts of cognitive effort in mood management.

In contrast to the positive mood, the negative mood represents the lower area of the mood spectrum. Hedonic contingency theory suggests that, in order to improve or to maintain this mood state, a person in a negative mood does *not* need to process the affective consequences of various kinds of behavior. This is because performing almost any available action will make that person feel better or at least not worse. Furthermore, the potential drop in mood that results from any action is smaller than the drop experienced by people in a positive mood. Thus, people in a negative mood do not need to invest as much cognitive effort in mood management as people in a positive mood.

Hedonic contingency theory also considers the differences in mood management between the neutral mood and negative mood. The theory predicts two opposing effects. On the one hand, people in a neutral mood have fewer ways to maintain or improve their mood than those who are in a negative mood. This would suggest that people in a neutral mood would invest more cognitive effort in mood management than those in a negative mood. On the other hand, a neutral mood has a lower salience than a positive or negative mood. If a person is unaware of his or her current mood, it is improbable that he or she will try to change it. This effect would suggest that people in a neutral mood would invest less cognitive effort in mood management than those who are in a negative mood. As it is hard to assess which of these opposing effects is stronger, the theory does not predict directional differences in mood management between the neutral and the negative mood.⁶

⁵ The subconscious nature of mood management may result from people's prior experiences. Assuming that people have often been in a positive mood during their lifetimes, they may automatically try to maintain this mood over time (Handley et al., 2004). This makes sense, as behaviors that help people to maintain a positive mood foster their physical health and well-being (Tugade and Fredrickson, 2007).

⁶ An alternative theory, the affect-as-information theory (Schwarz, 2012; Schwarz and Clore, 1983), also considers the influence of the affective state on people's thoughts and behaviors. This theory presumes that people will use their feelings as sources of information. When people make judgments or evaluations, they consider their current affective state and ask themselves how they feel about the object or task at hand. For example, if people have positive feelings when seeing a sofa, they infer that, if it evokes positive feelings in them, they seem to like it and evaluate the sofa positively. As another example, if people are in a positive mood, they use their mood as a source of information for their long-term affective state and evaluate their life satisfaction more highly than they would if they were in a negative mood. However, the affect-as-information theory may not provide clear predictions for the budget reporting situation described in the present study. If managers use their current mood as a source of information, would this mean that managers evaluate the budgeting situation positively/negatively per se or would it mean that managers evaluate

By applying hedonic contingency theory to participative budgeting, I can make predictions regarding managers' reporting honesty. Being honest is a form of behavior that is usually socially desirable. Most people have experienced this from their early childhood and on. As a consequence, people who display prosocial forms of behavior, including honesty, often experience positive feelings (Aknin et al., 2013; Martínez-Martí and Ruch, 2014; Park et al., 2017; Ten Brinke et al., 2015). This is even the case if such behaviors are costly (Aknin et al., 2015). In contrast, dishonesty is viewed as a socially undesirable behavior in (almost) every culture in the world (Schwartz and Bardi, 2001). People usually experience negative feelings when they lie for selfish reasons (Abe et al., 2007; Garrett et al., 2016). These affective consequences may influence managers' budget reporting behavior.

According to hedonic contingency theory, people in a positive mood will invest high amounts of cognitive effort in mood management and perform an action that allows them to maintain their positive mood state. As honesty often leads to positive feelings, managers in participative budgeting can maintain their positive mood by reporting honestly. In contrast, reporting budgetary needs untruthfully would often result in negative feelings that would threaten their positive mood. Thus, managers in a positive mood tend to avoid such behavior. People in a negative mood, however, do not need to invest much cognitive effort in mood management, because almost every action allows them to improve or maintain their mood state. In participative budgeting, this means that managers do not need to report truthfully to improve their mood; instead, they can report selfishly, which also enhances or at least does not worsen their mood. Regarding those individuals in a neutral mood as compared to those in a negative mood, hedonic contingency theory does not predict directional differences in mood management. While people in a neutral mood have fewer mood-enhancing alternatives and, thus, may invest more cognitive effort in mood management than people in a negative mood, the reduced salience of neutral mood relative to positive and negative mood may counter this effect. Since the theory does not predict which of these opposing effects is stronger, the managers' honesty levels in participative budgeting may be higher, lower, or similar when they are in a neutral as compared to in a negative mood.

Taken together, these considerations suggest that managers will report more honestly when they are in a positive mood as compared to when they are in a negative or a neutral mood, while the honesty levels of managers who are in a neutral or a negative mood may not differ. The following hypotheses formally state these predictions:

H1. When managers are in a positive mood, their budget reporting honesty is higher than when they are in a negative mood.

H2. When managers are in a positive mood, their budget reporting honesty is higher than when they are in a neutral mood.

H3₀. When managers are in a neutral mood, their budget reporting honesty does not differ from when they are in a negative mood.

3. Experimental design

3.1. Participants

The 106 participants included in this study were business students attending a large university in continental Europe. In total, 51.9 percent of the participants were male and 48.1 percent were female. Most participants (80.2 percent) were bachelor's level students, 18.0 percent were master's level students, and 1.8 percent were doctoral students.

(footnote continued)

a certain behavior positively/negatively? Moreover, the affect-as-information theory does not predict how feelings influence people's prosocial/ethical behaviors.

Approximately 38.7 percent of the participants had gained working experience of up to one year; 41.5 percent, between one and three years; 6.6 percent, more than three years; and 13.2 percent had not worked yet. The average age was 21.80 years (SD = 3.60).

3.2. Setting

I tested the hypotheses in a laboratory experiment. The setting of Evans et al. (2001) was used as the basis for the budget reporting task.⁷ In this setting, an economic incentive exists to report opportunistically by creating budgetary slack. The participants assumed the role of division managers in an organization and reported the production costs of their division to a fictitious headquarters. I did not assign participants to the role of headquarters in order to reduce the possible influence of distributional concerns and to place a focus on managers' honesty.⁸ The participants were informed that, via the cost reports, a division manager requests budgets from headquarters for each of the upcoming twelve months.⁹ Headquarters always provides the requested amounts. The payoff schemes were as follows:

Manager's Payoff: Fixed Salary (w) + [Budgeted Costs (c_B) – Actual Costs (c_A)]

Contribution to Firm Profit: Revenue (r) – Budgeted Costs (c_B) – Fixed Salary (w)

The participants were also informed that each division manager receives a fixed salary of 1000 Currency Units (CU) per month, while the organization sells the products for 6900 CU. CU represented the fictitious currency in the experiment. After the experiment, the earned CU were converted 100/1 into euros, and one month was selected randomly as the payment period. The participants were told that a division manager is able to reliably assess the actual production costs before making their reporting decision by using a private forecasting system. They were also made aware that headquarters is less informed than the manager and is only aware that the production costs are equally distributed between 4000 and 6000 CU per month.¹⁰ Under these experimental conditions, headquarters had some knowledge about the cost structure but did not know the exact amount of the actual costs. The division managers, meanwhile, knew that headquarters provides funds that are equal to the reported costs and that headquarters never becomes aware of the actual costs. As a consequence, the managers knew that they had no risk of being caught if they consumed the difference between the reported and the actual costs as slack. To assess managers' reporting honesty, I use the honesty coefficient of Evans et al. (2001), which is calculated as follows:¹¹

⁷ In numerous other experimental studies, the design has also been based on this setting in order to investigate managers' budget reporting honesty (e.g., Altenburger, 2017; Cardinaels, 2016; Church et al., 2012; Newman, 2014).

⁸ If participants are also assigned to the role of headquarters, the headquarters participant's payment would decrease if the manager participant realizes a monetary gain by reporting untruthfully. This design choice would put a stronger focus on distributional concerns. As such concerns are improbable in organizational practice, because the forgone slack would be distributed among numerous people, such as superiors or shareholders (Church et al., 2012), the present study tries to reduce them.

⁹ I included several reporting periods in order to identify possible time effects.
¹⁰ The monthly costs were randomly determined prior to the experiment and were identical for all participants. This has two advantages: the same cost draw for all participants reduces the noise in the dependent variable and all participants face the same potential payoff (Matuszewski, 2010).

¹¹ Example:
Actual Costs: 4400
Budgeted Costs: 5600
Maximum Possible Report: 6000
Honesty Coefficient: $[1 - (5600 - 4400)/(6000 - 4400)] = 0.25$; $0.25 \times 100 = 25$ percent
Evans III et al. (2001) highlight two major advantages of the honesty

$$\text{Honesty Coefficient } (\pi) = \left[1 - \frac{(\text{Created Slack})}{(\text{Possible Slack})} \right] \times 100 \quad (1)$$

This experimental setting offered three distinct benefits with regard to assessing budget reporting honesty. As the managers did not run any risk that headquarters would detect the slack, their risk preferences should not interfere with their honesty preferences (Evans et al., 2001; Rankin et al., 2008). If headquarters were able to detect the slack, it would not be clear whether the managers would report truthfully because of their honesty preferences or their risk preferences. Moreover, the manager's skill or effort could not have an intervening influence on the production or the total surplus (Evans et al., 2001). Furthermore, this experimental setting provided a way to assess the effects of behavioral factors when strong economic incentives to act opportunistically are present (Church et al., 2012).

In order to investigate the effect of managers' mood on budget reporting honesty, different mood states were induced in the experiment.¹² I used the procedure of Weyant (1978) to place participants either in a positive, neutral, or negative mood group (1 × 3 between-subjects design). In the experiment, headquarters assigned a work task to the managers. This task required the participants in the positive and negative mood groups to decipher anagrams. In the neutral mood group, the participants were asked to assess how easily these anagrams could be pronounced. Thus, these participants were exposed to the same stimuli as those in the other two groups; however, they did not experience a sense of success or failure that could potentially change their mood.¹³ After the work was completed, the participants received either positive, neutral, or negative feedback about their work. This feedback was expected to alter their mood into the desired state.¹⁴ I conducted a pretest to confirm the effectiveness of this mood manipulation technique.

3.3. Procedure

The experimental instructions and decisions were displayed in Z-Tree (Fischbacher, 2007). The procedure was as follows:

1. The participants in each session came to the laboratory on the

(footnote continued)

coefficient. First, it expresses the created slack relative to the maximum slack and, thus, allows comparing honesty on the basis of varying amounts of actual costs. Second, it offers the possibility to assess the expected firm profit as a function of honesty.

¹² Mood manipulations are often used in experimental research to examine the effect of mood on various dependent variables (e.g., Capra, 2004; Cianci and Bierstaker, 2009; Isen, 1970). Mood inductions should increase internal validity as compared to the measurement of mood without any intervention. However, it cannot be ruled out that mood manipulations also trigger other affective or cognitive processes that might cause variations in the dependent variable. This applies to the present experiment as well and represents a limitation of the findings. Another issue concerns the classification of moods. Mood inductions only allow determining relative differences between mood states. Hence, it is difficult to assess whether individuals are objectively in a certain mood state. Although the present study refers to positive, negative, and neutral moods due to better readability, this limitation must be considered.

¹³ If the participants in the neutral mood group would also decode anagrams, they could count their solved anagrams and compare their score to some standard. This standard, for example, might be a self-set standard or an expectation to decode all anagrams correctly. Achieving or not achieving this standard would potentially change the mood. As the personal standard of each participant is unclear, much noise would be added to the mood manipulation technique. Assessing the pronounceability of the anagrams eliminates the potential for alterations in mood that are caused by individual success/failure experiences.

¹⁴ Experimental researchers frequently use this or similar techniques to induce different mood states (e.g., Curtis, 2006; Forgas et al., 2008; Isen, 1970; Swinyard, 1993).

- appointed date and took a seat at a computer.
2. They drew a random ID number to ensure their anonymity. The participants were made aware that the experimenter could not link the personal data to the ID number.
3. The instructions stated that the participants' decisions had direct consequences on the amount of money (euros) they would receive for participating in the experiment. The rate of conversion between the CU and euros was displayed.
4. The participants saw information about the budget reporting task, the payoff structures, and the effects of different reporting behaviors.
5. Participants took part in training sessions that helped them become familiar with the reporting task. These sessions were irrelevant for their payoff but allowed them to become familiar with the possible monetary consequences of their reporting behavior on their payoffs and on their division's contribution to the firm profit.
6. To ensure that the participants had read and understood the instructions and the consequences of their actions, they had to answer thirteen comprehension questions. Only participants who answered these questions correctly were allowed to advance to the next stage. Otherwise, they had to read the instructions and answer the questions again.
7. Headquarters asked the participants to perform a task. The design of the task depended on the randomly assigned group. In the two groups in which a positive or negative mood should be induced, the participants deciphered 25 anagrams. The neutral mood group judged these anagrams with regard to how easily they could be pronounced.
8. Before beginning the task, the participants answered comprehension questions about the task. If they chose an incorrect answer, then they were redirected to read the instructions and answer the questions again.
9. The participants worked on the task. Afterward, they either received positive, neutral, or negative feedback about their work. In the positive and negative mood groups, each participant saw his or her number of correctly decoded anagrams. In these groups, the type of feedback depended on the individual performance (i.e., the number of correctly decoded anagrams) as compared to the performance of the other participants in the room. People that were above (below) the average performance level received the following message: "Your performance on this work task is above (below) average, this means you are among the best (worst) performing participants." The statement received by participants in the neutral mood group was: "Your assessments have been forwarded to headquarters."
10. The participants reported their budgetary needs for the twelve months separately. The periods were shown sequentially; this meant that participants could only progress to the next period if they had sent their budget report for the current period. They knew their current financial needs but did not have information on the financial needs of future periods. Participants needed 20–30 min on average to send the twelve budget reports. The data were then used to calculate the participants' payoffs and to perform the analyses.
11. The participants completed an exit questionnaire. This consisted of questions regarding their behavior, motives, and demographic data.
12. The participants left the room and claimed their payoffs from an independent person who had no information about the experimental design. In order to guarantee that participants could not infer each other's reporting behavior, only one person at a time

claimed the payoff. An average experimental session took about 45 min.

4. Results

The show-up fee was 10 euros, and participants additionally consumed 3.96 euros on average as slack by reporting untruthfully.¹⁵

4.1. Pretest

In order to confirm the effectiveness of the mood manipulation technique (Weyant, 1978), I conducted a pretest several weeks before the experiment was carried out.¹⁶ I used the Brief Mood Introspection Scale (BMIS) (Mayer and Gaschke, 1988) score of the participants as the dependent variable and the measure for the participants' moods. The results of the statistical analysis reveal that participants who received positive feedback are in a significantly more positive mood than participants who received neutral feedback ($t = 1.791$, $p = 0.038$). However, the mood of participants who received neutral feedback is significantly better than of those who received negative feedback ($t = 3.238$, $p < 0.001$). Hence, this mood manipulation technique induces the desired mood states.

4.2. Descriptive statistics

Table 1 shows the descriptive statistics for the honesty coefficients of the three experimental groups. The average honesty coefficients are also graphically illustrated in Fig. 1. The total honesty coefficient is 60.41 on average. Thus, participants created 39.59 percent of the possible slack. The group in a positive mood has the highest honesty coefficient, with 66.28 on average. The neutral mood group has an average honesty coefficient of 61.30. The mean honesty coefficient of the group in a negative mood is 53.33. Hence, the honesty coefficients of the three experimental groups correspond to the expectations formulated in the hypotheses. The results of the analyses described in the next section reveal whether these differences are statistically significant.

As in most experimental studies that examine budget reporting honesty (e.g., Cardinaels, 2016; Evans et al., 2001; Newman, 2014), the managers' behavior in the current study differs from what conventional economic theory predicts. The mean honesty coefficient in each group is significantly higher than 0 (all $p < 0.001$).¹⁷ This indicates that managers frequently have honesty preferences and deviate from wealth-maximizing reporting behavior.

4.3. Tests of hypotheses

The first hypothesis predicts a difference in budget reporting honesty between managers, depending on whether they are in a positive or a negative mood. The mean honesty coefficients of these groups are 66.28 and 53.33, respectively, as shown in Table 1. Panel A of Table 2 documents that the difference between the two means is statistically significant in a t -test ($p = 0.044$). Therefore, the results show that managers in a positive mood report more honestly than managers in a negative mood, providing support for Hypothesis 1.

Hypothesis 2 predicts that managers in a positive mood report more honestly than managers in a neutral mood. To test this prediction, I compare the honesty coefficient of the positive mood group to that of the neutral mood group. Panel B of Table 2 reveals that a corresponding

¹⁵ The lowest cost draw was 4,155 CU. Therefore, 18.45 euros was the highest possible payout for the slack in the experiment and the possible range for the slack was between 0 and 18.45 euros.

¹⁶ The participants in the pretest came from the same subject pool as the ones in the experiment. Hence, the demographic data of the samples are very similar.

¹⁷ All p -values are two-tailed unless stated otherwise.

Table 1
Descriptive Statistics of the Honesty Coefficients.

Group	Mean	SD
Positive Mood (n = 37)	66.28	28.97
Neutral Mood (n = 34)	61.30	33.31
Negative Mood (n = 35)	53.33	34.27
Total	60.41	32.34

Variable definitions:

Honesty Coefficient = $[1 - (\text{Created Slack} / \text{Possible Slack})] \times 100$.

Positive Mood = experimental group in which participants were induced to be in a positive mood.

Neutral Mood = experimental group in which participants were induced to be in a neutral mood.

Negative Mood = experimental group in which participants were induced to be in a negative mood.

t -test yields an insignificant p -value of 0.252. Hence, the results of the statistical analysis do not provide support for Hypothesis 2. There might be various reasons that the difference in honesty is insignificant. According to hedonic contingency theory, people's mood management when they are in a neutral mood depends on two opposing effects. While limited alternatives for improving the mood should lead to an investment of cognitive effort in mood management, the low salience of neutral mood should reduce this cognitive effort. Thus, one explanation might be linked to the set of mood-enhancing alternatives. Managers in a neutral mood may associate even moderate levels of misreporting with a drop in their mood. This would also mean that, in order to maintain or improve their mood state, they feel as though they have to send rather honest reports. Moreover, in a participative budgeting setting, a neutral mood may have a fairly high salience for managers. This would lead to only small reductions in the cognitive effort invested in mood management and, thus, reduce misreporting tendencies.

Hypothesis 3 does not predict a significant difference in a particular direction, regarding the reporting behavior of managers in a neutral or a negative mood. A t -test comparing the mean honesty coefficients of the corresponding groups yields an insignificant p -value of 0.331 (Table 2, Panel C). This result does not lead to a rejection of the third hypothesis and implies that enhancing a negative mood to a neutral mood does not result in a substantial increase in managerial honesty in budgeting.

In order to test the hypotheses with another dependent variable, I analyze the medians of the honesty coefficients of the three experimental groups. These medians are 71.40, 70.52, and 48.36 for the positive, neutral, and negative mood groups, respectively. Comparing these medians in a median test yields the same statistical results regarding their significance as the t -tests above. Hence, the results of this non-parametric test also support the first and the third hypotheses, while the second hypothesis is not supported.

I conduct a repeated-measures ANOVA to identify possible time effects in budget reporting. The twelve reporting periods are the within-subjects factor. The analysis shows that this within-subjects factor *period* is insignificant and does not interact with the between-subjects factor *mood* (both $p > 0.10$). A comparison of the two average honesty coefficients between periods 1–6 and 7–12 also indicates that no significant difference exists in any group (all $p > 0.10$). These results suggest that budget reporting honesty does not change substantially over time. Further support for this stable effect comes from the participants' responses on the exit questionnaire. Two questions addressed whether the participants changed their behavior to more truthful or to more untruthful reporting over the course of time. Neither ANOVA shows a significant difference among the three experimental groups (both $p > 0.10$). Comparisons between the means of the two questions within each group also yield no significant differences (all $p > 0.10$). These results from the exit questionnaire responses provide further evidence that mood has a stable effect on the reporting behavior over time. In addition, the findings regarding the

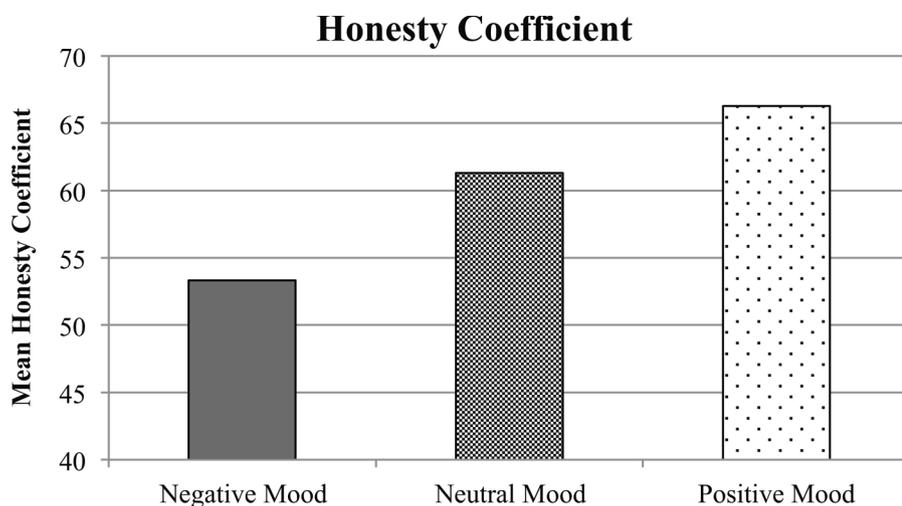


Fig. 1. Illustration of the Mean Honesty Coefficients for the Experimental Groups.

Variable definitions:

$Honesty\ Coefficient = [1 - (Created\ Slack / Possible\ Slack)] \times 100$.

Positive Mood = experimental group in which participants were induced to be in a positive mood.

Neutral Mood = experimental group in which participants were induced to be in a neutral mood.

Negative Mood = experimental group in which participants were induced to be in a negative mood.

Table 2
Tests of Hypotheses.

Panel A: Test of Hypothesis 1			
	t-statistic	p-value ^a	
H1: Honesty Positive Mood > Honesty Negative Mood	1.734	0.044	
Panel B: Test of Hypothesis 2			
	t-statistic	p-value ^a	
H2: Honesty Positive Mood > Honesty Neutral Mood	0.673	0.252	
Panel C: Test of Hypothesis 3			
	t-statistic	p-value	
H3 ₀ : Honesty Neutral Mood ≈ Honesty Negative Mood	0.979	0.331	

The dependent variable in these analyses is *Honesty*, which is the mean honesty coefficient for each manager over all reporting periods.

Variable definitions:

Honesty = honesty coefficient, which is calculated $[1 - (Created\ Slack / Possible\ Slack)] \times 100$.

Positive Mood = experimental group in which participants were induced to be in a positive mood.

Neutral Mood = experimental group in which participants were induced to be in a neutral mood.

Negative Mood = experimental group in which participants were induced to be in a negative mood.

^a One-tailed p-value.

development of honesty over time support the prediction that managers in a positive mood invest high amounts of cognitive effort in mood management to maintain this mood, as these managers keep their honesty at a high level.

In order to rule out the possibility that the participants' performance on the work task caused the differences in budget reporting honesty, I compare the sums of the correctly decoded anagrams with the honesty coefficients within each group. The correlation coefficients are insignificant for both the positive and the negative mood groups with p -values of $p = 0.680$ and $p = 0.627$, respectively. This result supports the argument that the different moods influenced budget reporting honesty and not the performance on the work task.

Taken together, the results of these analyses show that mood can influence managers' budget reporting honesty. The difference in reporting behavior is most pronounced between managers who are in a positive mood and those who are in a negative mood.¹⁸ Elevating a negative mood to a neutral mood does not seem to be sufficient to substantially increase honesty. The findings also reveal that the effect of

mood on budget reporting honesty remains stable over the reporting periods.

4.4. Exit questionnaire

The following statement on the exit questionnaire addressed the participants' feelings about their reporting behavior: "I (would have) felt bad if I (had) reported higher than the actual costs. (on a Likert scale of 1–7, where 1 = not at all and 7 = completely)." The answers to this statement may reveal additional support for the mood management process that guides managers' reporting behavior. Table 3 illustrates the mean answers obtained from the three experimental groups. The results of an ANOVA show a marginally significant difference between the three means ($F = 2.640$, $p = 0.076$). In addition, the positive and negative mood groups differ significantly in a t -test ($t = 2.173$, $p = 0.033$). These results indicate that managers in a positive mood process the affective consequences of their behavior to a greater extent than managers in a negative mood. Therefore, the former anticipate that reporting untruthfully would worsen their mood, and so they report more honestly. Furthermore, the answers imply that managers in a positive mood associate reporting dishonestly with a higher potential drop in their mood than managers in a negative mood. These findings provide additional support for the predictions of the hedonic contingency theory regarding mood management.

A comparison of the participants' feelings between the neutral mood group and the negative mood group reveals a marginally significant difference in their responses ($t = 1.828$, $p = 0.072$). This finding supports the aforementioned conjectures, namely, that the salience of neutral mood is rather high in budgeting and that even managers in a neutral mood already seem to associate moderate levels of dishonesty with a drop in their mood. This helps to explain why the second hypothesis is not supported, i.e., why I find only an insignificant difference in honesty between those managers in a positive and a neutral mood.

In order to test whether mood also changes the reporting attitudes, the participants answered the two questions "To what extent do you think one should report honestly (selfishly) in the given situation?" on a Likert scale of 1–7, where 1 = not at all and 7 = completely. I calculate the

¹⁸ The standardized effect size (Cohen's d) for the difference between positive and negative mood is $d = 0.41$ (Cohen, 1988). This is similar to that reported by other studies that examine the effect of mood on ethical decision-making in accounting, where d is in the range $d = 0.31$ to $d = 0.79$ (Cianci and Bierstaker, 2009; Curtis, 2006). Mood also seems to have a comparable impact on budget reporting relative to other situational factors for which d often lies between $d = 0.36$ and $d = 0.44$ (e.g., Hannan et al., 2006; Nikias et al., 2010; Rankin et al., 2008).

Table 3
Descriptive Statistics of the Degree of Feeling Bad When Reporting Dishonestly.

Group	Mean	SD
Positive Mood (n = 37)	4.11	2.23
Neutral Mood (n = 34)	3.91	2.02
Negative Mood (n = 35)	3.06	1.86
Total	3.70	2.08

Participants read the following statement: “I (would have) felt bad if I (had) reported higher than the actual costs.”

They responded on a Likert scale of 1–7, where 1 = not at all and 7 = completely. Their responses are the dependent variable for this analysis.

Variable definitions:

Positive Mood = experimental group in which participants were induced to be in a positive mood.

Neutral Mood = experimental group in which participants were induced to be in a neutral mood.

Negative Mood = experimental group in which participants were induced to be in a negative mood.

Table 4
Descriptive Statistics of the Attitudes toward Honesty.

Group	Mean	SD
Positive Mood (n = 37)	1.41	2.95
Neutral Mood (n = 34)	0.94	3.46
Negative Mood (n = 35)	0.17	2.97
Total	0.85	3.14

The difference between participants’ answers to the following two questions is the dependent variable in this analysis:

1. “To what extent do you think one should report honestly in the given situation?”
2. “To what extent do you think one should report selfishly in the given situation?”

Participants responded to both questions on a Likert scale of 1–7, where 1 = not at all and 7 = completely. Calculating the difference (= ‘answer question 1’ minus ‘answer question 2’) leads to a scale in which –6 reflects a completely selfish attitude and +6 reflects a completely honest attitude.

Variable definitions:

Positive Mood = experimental group in which participants were induced to be in a positive mood.

Neutral Mood = experimental group in which participants were induced to be in a neutral mood.

Negative Mood = experimental group in which participants were induced to be in a negative mood.

difference between the two answers for each participant to be able to assess which attitude (i.e., honesty or selfishness) prevails.¹⁹ Table 4 summarizes the mean difference in each experimental group. The results show that most participants have an attitude toward reporting honestly, as all mean differences are greater than zero. While the results of an ANOVA show that the means of the three groups do not differ significantly ($F = 1.421$, $p = 0.246$), a pairwise comparison made between the answers from the positive mood group ($M = 1.41$) and the negative mood group ($M = 0.17$) reveals a marginally significant difference ($t = 1.770$, $p = 0.081$). These findings indicate that the managers’ moods not only influence their budget reporting behavior but also their attitudes toward honest/selfish reporting to some extent.

4.5. Firm profit analysis

As budget reporting honesty is likely to influence the economic

¹⁹ The questionnaire contains two questions instead of a single one in order to have the same labeling as prior and subsequent questions (i.e., 1 = not at all, 7 = completely). It is necessary to calculate the difference between the two answers to get the same directional result obtained when a single question is asked about the participants’ attitudes, using the labels “honest” and “selfish” as the endpoints.

outcome of an organization, I calculate the expected firm profit based on the experimental data. The results should be interpreted with care, as they also depend on the chosen experimental parameters. The procedure used is almost identical to those used by Evans et al. (2001) and Altenburger (2017). This procedure compares the effects of two contract designs, a trust contract (TC) and a hurdle contract (HC). The TC was used in the present experiment. Under this contract, the reporting honesty of the managers strongly influences the firm profit. The HC is derived from conventional economic theory and is drawn up under the assumption that managers are selfish and want to maximize their wealth (Antle and Eppen, 1985).²⁰

Adjusted to the experimental setting, the HC includes a cost hurdle that determines whether production takes place or not. If the manager reports costs above this cost hurdle, no production will take place. However, if he or she reports costs below this threshold, production will take place, and the manager always obtains funds equal to the amount that he or she would receive when reporting the hurdle rate. Hence, the manager has no incentive to report untruthfully. Within the parameters of the experiment, the HC yields an expected firm profit of 51.25 CU, as derived in Appendix A. The expected firm profit under the TC depends on the managers’ honesty levels and can vary from a loss of 100 CU to a profit of 900 CU (see Appendix A). I use the experimental honesty coefficients to assess the expected firm profit of each group under the TC. Managers in a positive mood generate an expected firm profit of 562.79 CU, while managers in a neutral or a negative mood generate 513.04 CU and 433.34 CU, respectively. Fig. 2 illustrates the expected firm profit as a function of the honesty coefficient under the TC and the HC.²¹

Under the TC, a wealth-maximizing manager would always report 6000 CU, which corresponds to an expected firm loss of 100 CU. In this case, an organization would prefer to use the HC, as this would yield an expected profit of 51.25 CU. Fig. 2 illustrates that the relative advantage of the two contract forms changes at an honesty coefficient level of 15.125. If the manager’s honesty is below this threshold, then the use of the HC yields a higher expected firm profit than the use of the TC. As each of the three experimental groups has an average honesty coefficient above 15.125, a company may refrain from using the HC.²² The relative advantage of the TC over the HC increases even further with a more positive mood of the manager.

Table 5 shows the total surplus under the two contract forms and the corresponding shares allotted to the company and the manager.²³ The use of the TC yields a higher total surplus, as production does not take place if the costs are above the hurdle under the HC. Note that the manager’s share of the total surplus is higher under the HC. This occurs because the HC shifts more slack to the manager than they would have created under the TC.

5. Conclusions

The results of this study suggest that the manager’s mood can influence their budget reporting honesty. When managers are in a positive mood, they report significantly more honestly than when they are

²⁰ There is no analytical model that incorporates honesty preferences and mood in budget reporting at the present date. Thus, this contract acts as a benchmark from theory.

²¹ This analysis does not include costs for inducing mood or for setting up a hurdle contract. Hence, the depicted firm profits represent the upper boundary of the possible firm profits.

²² The revenue of the company is held constant in the experimental setting. However, if it changes, the relative advantages of the two contract forms may change as well. Under the HC, a company forgoes more profit if projects with higher revenues will not take place. For such projects, even a low honesty level might be enough to make the TC preferable. If the rate of return goes down, the effect of forgoing production on the firm profit becomes smaller.

²³ Appendix A includes the calculations.

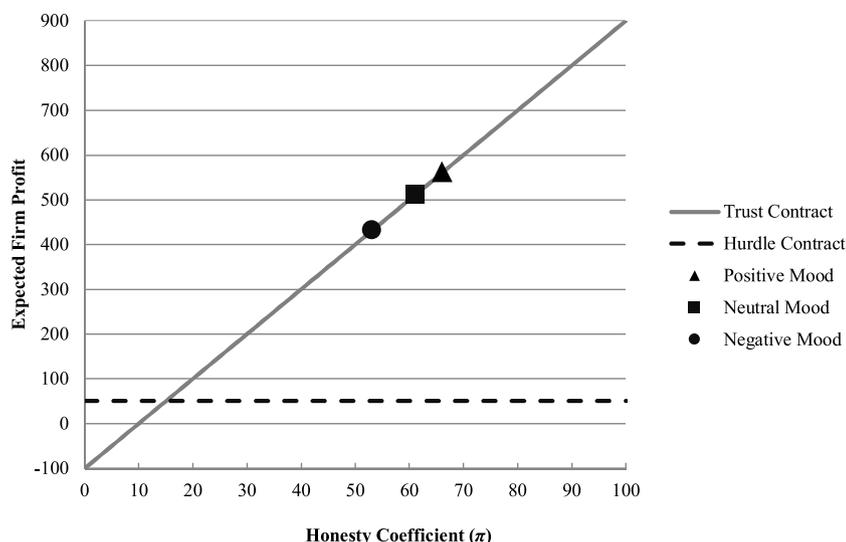


Fig. 2. Expected Firm Profit as a Function of the Honesty Coefficient.

Variable definitions:

Expected Firm Profit = the firm profit in Currency Units (CU) assuming the realization of the expected costs of 5,000.

Honesty Coefficient (π) = $[1 - (\text{Created Slack} / \text{Possible Slack})] \times 100$.

Trust Contract = expected firm profit under the trust contract, which is calculated. $-100 + 1000 \times \text{Honesty Coefficient } (\pi)$.

Hurdle Contract = expected firm profit under the hurdle contract, which is 51.25 (see Appendix A for details).

Positive Mood = experimental group in which participants were induced to be in a positive mood.

Neutral Mood = experimental group in which participants were induced to be in a neutral mood.

Negative Mood = experimental group in which participants were induced to be in a negative mood.

Table 5
Company's Share, Manager's Share, and Total Surplus under the TC and the HC.

Group	Trust Contract (TC)			Hurdle Contract (HC)				
	CS	MS		CS	MS		TS	
		Fixed salary	Slack		Fixed salary	Slack		
Positive Mood	563	1000	337	1900	51	1000	526	1577
Neutral Mood	513	1000	387	1900	51	1000	526	1577
Negative Mood	433	1000	467	1900	51	1000	526	1577

Variable definitions:

Trust Contract (TC) = contract that provides a budget equal to the reported costs.

Hurdle Contract (HC) = contract that provides a budget only if the reported costs are below an optimal hurdle.

Fixed salary = the fixed salary of each manager.

Slack = expected difference between reported and actual costs given the experimental honesty coefficients.

TS = total surplus of each contract.

CS = company's share of the total surplus.

MS = manager's share of the total surplus.

Positive Mood = experimental group in which participants were induced to be in a positive mood.

Neutral Mood = experimental group in which participants were induced to be in a neutral mood.

Negative Mood = experimental group in which participants were induced to be in a negative mood.

in a negative mood, as predicted by the first hypothesis. The findings do not support the second hypothesis, as managers in a positive mood are not significantly more honest than those in a neutral mood. The findings support the third hypothesis, however, as the reporting honesty of managers in a neutral mood does not differ significantly from that of managers in a negative mood. This implies that elevating a negative mood to a neutral mood does not sufficiently increase honesty and, thus, it may be beneficial to induce a positive mood in managers.

This paper contributes to the accounting literature that examines the effects of mood on decision-making, such as in subjective performance evaluations (Ding and Beaulieu, 2011), inventory valuations (Chung et al., 2008), and evaluations of auditors (Kadous, 2001). While some of these latter studies have indicated that eliminating the influence of mood can enhance decision-making, the findings of this study suggest that mood can provide a way for organizations to encourage managers to display the desired behavior in a budgeting context. As mood is a situational factor, the findings also contribute to literature

that addresses situational influences on budget reporting honesty in the presence of monetary incentives to create slack (e.g., Arnold and Schreiber, 2013; Cardinaels, 2016; De Baerdemaeker and Bruggeman, 2015; Hannan et al., 2006). However, unlike internal audits (Arnold and Schreiber, 2013) or information systems (Cardinaels, 2016; Hannan et al., 2006), the mood of its employees is always present in an organization. Hence, it can be beneficial to invest effort and funds to influence the moods of company employees, reducing negative moods and encouraging positive moods, if a company wants to facilitate budget reporting honesty.

The present study also complements accounting research on the effects of mood on ethical decision-making by auditors (Gianci and Bierstaker, 2009; Curtis, 2006). While the latter studies have shown that the auditor's mood alters their intentions to whistleblow and to act in accordance with the professional code of ethics, the current study shows that mood can also alter the manager's reporting honesty in budgeting. Budgeting differs from auditing, as budgeting is an internal management control system that often comprises a tradeoff between the interests of the organization and the manager. In particular, budgetary slack can act as an economic incentive, motivating the manager to act selfishly at the expense of the firm's owners. The present findings suggest that mood not only influences ethical auditing decisions with unclear economic outcomes but also influences decision-making, potentially resulting in distinct economic consequences. Thus, this paper also contributes to research regarding the economic consequences of differing mood states (e.g., Capra, 2004; Mellers et al., 2010). While many studies of this research field examine fairness preferences in dictator games, the present study extends this literature by showing that mood can have effects on another ethical construct, namely, honesty.

The results of the analysis of the reporting pattern indicate that mood has a stable influence on the managers' reporting behavior over multiple periods. This suggests that the managers will continue to report honestly when they are in a positive mood in order to maintain this mood. The stable effect of mood on budget reporting identified in this study is interesting, considering the fact that several other experiments have observed a general decline in honesty or a decreasing effect of management factors on honesty over the reporting periods (e.g., Arnold and Schreiber, 2013; Cardinaels, 2016; Douthit and Stevens, 2015; Matuszewski, 2010; Paz et al., 2013). The present findings imply that a positive mood can reduce the tendency of managers to behave more dishonestly over time. Taking into account that the frequency of budget reporting has increased in companies in recent decades (e.g., Fauré and Rouleau, 2011; Sponem and Lambert, 2016), maintaining honest reporting behavior may have become more important in current

organizational practice. The finding regarding the stable effect of mood on the reporting behavior over time also contributes to the economics literature on dictator games to some extent. As the interplay between mood and prosociality over time has not been investigated so far, this study provides a first insight into this relationship. This insight suggests that a positive mood can help to prevent the general decline of prosocial behaviors over time, a finding that is frequently found in dictator games (Engel, 2011).

One limitation of the experiment that affects the interpretation of these conclusions regarding the time effects of mood is that, in the experiment, each reporting period followed immediately after the previous one. Thus, it remains an open question whether mood can influence budgeting decisions made over days, weeks, or months. The shorter the duration of the managers' mood, the more often organizations may want to implement mood-enhancing actions. For example, organizations can encourage a positive mood in employees by providing constructive feedback about their work. Such feedback can be given on a regular basis (Sommer and Kulkarni, 2012). Subsequent field studies may investigate this issue in more depth. Moreover, future research may examine the stability of mood effects in situations where other factors, such as possible budget rejections from a superior, potentially threaten to reduce this stability.

The present study also has practical implications. The findings are consistent with the observation that organizations, such as Google, invest substantial funds in their employees' job satisfaction, which is often related to the employees' mood at work (e.g., Dimotakis et al., 2011; Judge and Ilies, 2004; Weiss et al., 1999). Organizations can influence their employees' moods in several ways. George and Brief (1992) suggest that a small group size, a high group similarity of work teams, and positive social interactions foster a positive mood. This is in line with the findings of Choi and Cho (2011). These authors observe more negative moods if relationship conflicts occur within groups. The findings of Erez et al. (2008) and Bono and Ilies (2006) show that a charismatic leadership style can facilitate a positive mood and reduce a negative mood among employees. As mentioned above, Sommer and Kulkarni (2012) find that constructive feedback enhances the employees' moods in practice. Coulson et al. (2008) observe a positive effect of exercising at work on the mood of employees. Furthermore, the physical design of the workplace can influence the mood of the staff (George and Brief, 1992). The present study suggests that mood improvement can provide organizations with an alternative way to increase honesty in budgeting besides the use of formal methods to control managers' behavior.

The analysis of the expected firm profit shows that companies may benefit from avoiding a hurdle contract derived from conventional economic theory. Based on the experimental data, a contract based on

the assumption that a manager will be honest leads to a higher expected firm profit than a hurdle contract, which assumes that the managers behave purely selfishly. A more positive mood, due to its effect on honesty, even increases the difference in expected firm profit between these two contract forms. However, these findings should be interpreted with care. Varying parameters can change the critical honesty level at which the relative advantage of the contract forms switches. Furthermore, an organization often incurs costs for inducing/maintaining positive mood (e.g., for gathering feedback information or creating a pleasant work environment) or for implementing the respective contract (e.g., for legal consultation). While the present experiment does not consider these or other potentially relevant variables that exist in the organizational reality, future field research may address these possible limitations. Overall, the analysis of the expected firm profit provides support for the prevalent organizational practice of designing contracts that are based on the assumption that a manager will be honest.

Funding

This work was supported by research project funding from the Vienna University of Economics and Business.

The funding source had no involvement in any process regarding the research project.

Declaration of Competing Interest

None.

Acknowledgements

I would like to thank Theresa Libby (editor) and the two anonymous reviewers for their valuable comments and suggestions. I am also grateful for the helpful feedback from Markus Arnold, Thomas Bauer, Florian Elsinger, René Fahr, Stefan Hahnenkamp, Christoph Hörner, Sandra Mauser, Thomas Pfeiffer, Christian Riegler, Christian Schmid, Katrin Weiskirchner-Merten, Jeremy Vinson, and Rick Young. I also thank Stefan Bogner, Eva Eberhartinger, and Richard Fortmüller for a discussion of this study at the Vienna University of Economics and Business (WU), participants at the 2016 Annual Conference for Management Accounting Research (ACMAR), and participants at the 2016 European Accounting Association (EAA) Annual Congress. Finally, I gratefully acknowledge funding from a Vienna University of Economics and Business (WU) research grant.

Appendix A

A.1. Expected Firm Profit

Under the HC, the expected firm profit has the following general form:

$$\text{Expected Firm Profit (HC)} = \text{pr}(c_A \leq H)(r - H - w) + \text{pr}(c_A > H)(-w) \quad (\text{A.1})$$

where c_A are the actual costs, H is the hurdle rate, r the revenue for the produced and sold goods, and w the fixed salary of the manager. In a first step, the optimal hurdle rate is calculated. For uniformly distributed costs like in the experimental setting, the organization's profit maximizing function looks as follows:

$$\max_H \frac{(H - c_l)}{(c_h - c_l)} \times (r - H - w) + \frac{(c_h - H)}{(c_h - c_l)} \times (-w) \quad (\text{A.2})$$

where c_l are the lowest possible actual costs and c_h are the highest possible actual costs. By inserting the parameters from the experiment, this function becomes:

$$\max_H \frac{(H - 4000)}{(6000 - 4000)} \times (6900 - H - 1000) + \frac{(6000 - H)}{(6000 - 4000)} \times (-1000) \quad (\text{A.3})$$

As mentioned in the method section, the revenue amounts to 6900 CU and the fixed salary of the manager is 1000 CU. Actual costs are uniformly distributed between 4000 and 6000 CU, so the constraint is $4000 \leq H \leq 6000$. The fractions $(H - 4000) / (6000 - 4000)$ and $(6000 - H) / (6000 - 4000)$

– 4000) are the probabilities for actual costs below and above the hurdle rate, respectively. $(6900 - H - 1000)$ and (-1000) are the corresponding profits of the firm. The solution of this maximization problem shows that the optimal hurdle rate is $H^* = 5450$. Thus, the expected firm profit for the parameters from the experiment is as follows:

$$0.725(6900 - 5450 - 1000) + 0.275(-1000) = 51.25 \text{ CU} \quad (\text{A.4})$$

Unlike the HC, the TC from the experiment is no truth-inducing contract. The TC is based on the assumption that a manager will be honest, i.e., the firm profit depends on the truthfulness of the manager's report. The expected firm profit can be generally stated as:

$$\text{Expected Firm Profit (TC)} = E[r - w - c_A - (1 - \pi)(c_h - c_A)] \quad (\text{A.5})$$

where π represents the honesty coefficient. The revenue (r), the salary of the manager (w), and the highest possible costs (c_h) were fixed in the experiment. Consequently, these variables are replaced by the used parameters which are 6900 CU, 1000 CU, and 6000 CU, respectively. This leads to the following:

$$\text{Expected Firm Profit (TC)} = E[-100 + \pi(6000 - c_A)] \quad (\text{A.6})$$

The expected firm profit under the TC depends on the reporting behavior of the manager as well as on the actual cost realization. In order to focus on the effect of the manager's honesty, the actual cost realizations are replaced by the expected actual costs (5000). Hence, the expected firm profit function becomes:

$$\text{Expected Firm Profit (TC)} = -100 + 1000\pi \quad (\text{A.7})$$

A.2. Total Surplus

In order to calculate the expected total surplus (obtained by the manager and the firm) under the TC, the expected actual costs (5000) are subtracted from the revenue (6900). Under the HC, production only occurs if costs are below 5450 CU. Thus, the expected total surplus under the HC amounts to:

$$\frac{(5450 - 4000)}{(6000 - 4000)} \times \left(6900 - \frac{(5450 + 4000)}{2}\right) + \frac{(6000 - 5450)}{(6000 - 4000)} \times (0) \cong 1577 \text{ CU} \quad (\text{A.8})$$

where $(5450 - 4000)/(6000 - 4000)$ represents the probability that the actual costs are lower than the hurdle rate of 5450 CU. $(6900 - (5450 + 4000) / 2)$ is the corresponding total surplus that can be calculated by subtracting the expected costs from the revenues. The probability of actual costs above 5450 is $(6000 - 5450)/(6000 - 4000)$. In this case, the total surplus is 0.

Appendix B. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:<https://doi.org/10.1016/j.mar.2020.100707>.

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