

Why don't people lie? Negative affect intensity and preferences for honesty in budgetary reporting

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ABSTRACT

Budgets are instrumental in management control systems but are prone to gaming behavior that creates slack and limits the effectiveness of budgets. Research suggests, however, that subordinates have preferences for adhering to a social norm of honesty that limits slack in their budgetary reporting. As such, an increased understanding of subordinates' preferences for honesty can improve participative budgeting systems. We develop and test theory that increases our understanding of the drivers of preferences for honesty. We test the theory that preferences for honesty originate from an individual's desire to avoid negative affect from violating social norms. Further, individuals systematically differ in the intensity with which they experience their negative affective reactions. Those with higher levels of this intensity (negative affect intensity, NAI), experience more negative affect and disutility from violating a norm of honesty. Thus, NAI is predictive of subordinates' preference for honesty. Experimental results support our theory. Budgetary slack is constrained by preferences for honesty and NAI increases preferences for honesty. As such, preferences for honesty are a stronger informal control for subordinates with higher NAI. We discuss the implications of our theory for contract design and job assignment.

1. Introduction

Participative budgeting can improve firms' planning and control if subordinates convey some of their private information (Libby and Lindsay, 2010). However, subordinates benefit from misreporting. Research on misreporting in participative budgeting suggests that subordinate preferences for adhering to an honesty norm ("preferences for honesty")¹ reduce budgetary slack and firms can benefit from understanding these preferences for honesty (Demski and Feltham, 1978; Mittendorf, 2006; Rankin et al., 2008; Douthit and Stevens, 2015). Our theory increases our understanding of why preferences for honesty exist and predicts which subordinates have stronger preferences for honesty. Specifically, we test whether the trait intensity with which one experiences negative affective reactions predicts their preferences for honesty.

Subordinates trade off their preferences for honesty and wealth when reporting (Luft, 1997; Evans et al., 2001; Brüggem and Luft, 2011) and individuals differ in the strength of their preferences for honesty (Murphy, 1993). We argue that preferences for honesty arise from negative affect. Subordinates create slack by misreporting, but this

diverges from a social norm of honesty. Diverging from a social norm triggers a negative affective reaction (Damasio, 2007). Individuals are negative affect-averse and anticipate affect when making decisions (Rivis et al., 2009). The desire to avoid expected negative affect from violating a norm of honesty causes subordinates to exhibit preferences for honesty. As such, the more intensely one experiences their negative affective reactions (negative affect intensity, "NAI"), the stronger their preferences for honesty. Importantly, individuals possess a stable trait level of NAI (Larsen, 2009).² Individuals with higher NAI experience greater negative affect from diverging from a norm of honesty. In turn, this increases the utility from adhering to a norm of honesty, holding preferences for wealth constant, and increases preferences for honesty. Thus, we predict that NAI is a key driver of subordinate preferences for honesty.

Several factors could reduce the influence of NAI on preferences for honesty. First, our theory assumes that honesty is a social norm in participative budgeting. If not, there can be no affective reaction to diverging from a norm of honesty and, thus, no preferences for honesty from NAI. While some argue that creating slack is a behavioral norm (Jensen, 2001) and preferences for honesty may not be salient (Rankin

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¹ These preferences are the intrinsic desire to avoid false factual assertions (Rankin et al., 2008).

² NAI does not capture how easily an individual has an affective reaction, but how strong a given reaction will be.

et al., 2008), the extant literature argues that preferences for honesty are important (Brown et al., 2009). Second, our theory assumes that individuals can anticipate the intensity of their affective reaction from diverging from a norm of honesty. However, individuals sometimes can err when predicting their affect intensity (Gilbert and Wilson, 2007) and such affective forecasting errors would potentially mute the effect of NAI on preferences for honesty. Finally, negative affect can have many sources, including losses of wealth (Kermer et al., 2006). To the extent that individuals view foregoing slack as a loss of wealth, it is possible that *not* misreporting could also cause negative affect and limit NAI's predictive ability. However, this argument ignores the implicit property rights in the participative budgeting setting (Douthit and Majerczyk, 2018).³

We test our theory with an incentivized experiment where we measure NAI using the Affect Intensity Measure psychometric inventory (Larsen et al., 1986) prior to a participative budgeting task. In the budgeting task, the subordinate privately learns the actual cost and reports a budget to the firm. The subordinate keeps any slack, creating strong incentives to misreport. When the budget is a cost report, preferences for honesty restrict how much slack the subordinate creates. However, other intrinsic preferences, such as for fairness, also affect misreporting (Salterio and Webb, 2006; Brown et al., 2009), making slack a noisy proxy for the effect of preferences for honesty. Thus, we capture the incremental effect of preferences for honesty by manipulating whether the budget communication requires a factual assertion of the cost or does not require a factual assertion (offers a share of profits). While residual motivations operate in both settings, slack creation requires an explicit false assertion of fact when the budget requires a factual assertion but not when it takes the form of a profit offer. Thus, as in prior research, the difference in slack between treatments captures the effect of preferences for honesty incremental to other concerns (Rankin et al., 2008; Douthit and Stevens, 2015).

Results support our theory. A subordinate's NAI is predictive of their preferences for honesty. Relatedly, in the setting where preferences for honesty are relevant, a subordinate's NAI increases their self-reported desire to be honest. Further, we use our theory of why preferences for honesty exist to examine the effectiveness of preferences for honesty as an informal control. For subordinates with high (low) NAI, preferences for honesty are an effective (ineffective) control that yields higher (lower) firm profit than that expected from a formal hurdle rate (Antle and Eppen, 1985). As a whole, our results suggest that avoiding negative affect is the genesis of preferences for honesty and NAI can therefore predict the strength of preferences for honesty. Our results suggest that understanding the relative NAI of a subordinate population is important to firms when deciding whether to rely on formal or informal controls and supports claims that understanding preferences for honesty can improve contracting (e.g., Mittendorf, 2006).

Our study makes several contributions. We peer into the “black box” of why subordinates have preferences for honesty by investigating one source of such preferences – to avoid negative affect from norm divergence – capitalizing on a strength of experiments (Luft, 2016). We provide a strong test of our theory by using an *ex ante* measure of NAI to predict preferences for honesty. We also extend trade-off models used to explain slack creation (e.g., Luft, 1997) by examining a factor that explains why preferences for honesty exist and predicts their magnitude. Further, we extend a pair of financial misreporting studies which argue that anticipated negative affect drives preferences for honesty (Murphy, 2012; Mayhew and Murphy, 2014). They find that participants experience “residual negative affect following an unethical act (p. 424),” which demonstrates that dishonesty can lead to negative affect.⁴ We extend this research by directly testing the causal mechanism

theorized to drive preferences for honesty, answering a call in Mayhew and Murphy (p. 439). We measure individual preferences for honesty and test the theoretical link between anticipated negative affect and ethical behavior.

We extend theory by including behavioral factors that predict deviations from traditional theory. Our finding that profit is higher under a contract relying on preferences for honesty than under a formal hurdle for high NAI subordinates supports claims that firms can improve contracts by understanding and incorporating preferences for social norms (Mittendorf, 2006; Stevens and Thevaranjan, 2010). This result also suggests that management control systems that encourage honesty in lieu of control systems that restrict dishonesty may be more valuable for high NAI subordinates (Salterio and Webb, 2006). We also contribute to research on the interplay of monetary incentives and affect. Farrell et al. (2014) find that monetary incentives mitigate, but do not remove the impact of affect when affect leads to dysfunctional behavior. We find that affect can support desirable behavior, through negative affect's ability to drive preferences for honesty, despite incentives for opportunism. Thus, we extend research on how incentives, cognition, and affect combine (Lee and Allen, 2002).

Our study is valuable to firms as it refines our understanding of the psychological basis of preferences for honesty. Firms prefer employees with strong preferences for honesty, particularly in jobs with reporting functions. However, subordinates also likely see value to being perceived as having strong preferences for honesty (cynically, this increases chances for opportunism). Thus, subordinates with weak preferences for honesty may game questionnaires to mimic those with strong preferences for honesty. This behavior is less likely when firms assess preferences for honesty with NAI as this link is less obvious to subordinates. Further, understanding that preferences for honesty are caused by negative affective reactions to diverging from a norm of honesty may allow firms to increase preferences for honesty by heightening the salience of violations of social norms such that affective reactions to misreporting are more likely to occur. For example, firms could highlight the damage done to the company by bad budgets. Additionally, our results suggest that firms may benefit more from control systems that encourage honesty (sanction lying) with high (low) NAI subordinates, consistent with the discussion in Salterio and Webb (2006).

It is possible that the benefit of NAI we highlight is not sufficient to outweigh all the potential concerns associated with high NAI subordinates. However, high NAI individuals exist and firms can benefit from understanding both the strengths and weaknesses of these employees. Our study highlights one aspect where high NAI can be beneficial – increasing preferences for honesty. Our results suggest that firms can rely on preferences for honesty as an informal control more when subordinates with high NAI are in participative budgeting settings. The heterogeneity in individuals' levels of NAI, and their subsequent preferences for honesty, helps explain some of the heterogeneity of budgeting procedures in practice and suggests that firms with relatively high (low) NAI subordinates will be more likely to rely on less (more) formal budget controls.

2. Prior literature, theory and hypothesis

2.1. Literature review

2.1.1. Participative budgeting and preferences for honesty

Subordinates often possess private information due to their proximity to operations. Firms can improve budgets by bringing subordinates into the budgeting process if subordinates accurately convey some of their private information. However, the incentives of subordinates and superiors diverge. Subordinates want budgets with considerable slack, while superiors want accurate budgets. Although traditional theory suggests that subordinates will maximize slack, there is a large body of research on factors that limit the propensity to create slack (c.f., Brown et al., 2009). Specifically, this research suggests that subordinates have intrinsic preferences for adhering to social norms

³ We discuss why we expect NAI to predict preferences for honesty despite these arguments in Section 2.2.

⁴ We discuss differences between these studies and ours in Section 2.1.2.

that influence their level of slack (e.g., Hannan et al., 2010; Cardinaels and Yin, 2015; Douthit and Stevens, 2015).

Honesty is considered the most prominent norm in participative budgeting, with a robust body of research espousing that preferences for adhering to a norm of honesty (“preferences for honesty”) constrain slack (e.g., Evans et al., 2001; Hannan et al., 2010; Church et al., 2012; Newman, 2014). Preferences for honesty capture subordinates’ intrinsic desire to avoid making false assertions of fact despite pecuniary incentives to do so (Baiman and Lewis, 1989; Rankin et al., 2008). That is, subordinates with preferences for honesty gain utility for adhering to a norm of not making false assertions of fact, although such assertions increase their wealth.

Despite the repeated claims of preferences for honesty’s prominent role in reducing slack, much of the prior research cannot directly attribute changes in slack to preferences for honesty. As the superior’s pay is tied to subordinates’ reports, preferences for other non-pecuniary factors, such as altruism and fairness (Zhang, 2008; Matuszewski, 2010; Douthit and Stevens, 2015), affect slack. This makes slack an imperfect proxy for preferences for honesty. To address this, prior research empirically isolates the effect of preferences for honesty incremental to that of other factors by manipulating the form of the budget communication (Rankin et al., 2008). The budget communication requires subordinates either make a factual assertion of cost or offer the superior a portion of profits. The economic incentives are constant across conditions – overreporting costs or offering less profit creates slack – as are the non-pecuniary incentives other than preferences for honesty. However, preferences for honesty only affect slack when the budget communication requires a factual assertion of cost (i.e., it is impossible to derive an intrinsic utility for avoiding a false assertion of fact when no assertion of fact is possible). As such, the difference in slack between conditions captures the effect of preferences for honesty incremental to other factors that affect slack. Using this cleaner measure of preferences for honesty, research finds that preferences for honesty are a significant driver of reporting behavior both when the subordinate has wide discretion over the budget (Rankin et al., 2008; Haesebrouck, 2018) and when budgets can be rejected (Douthit and Stevens, 2015; Brunner and Ostermaier, 2018).

Research suggests that preferences for honesty are a major slack deterrent and provides some evidence of when preferences for honesty are more impactful. However, it does not provide direct evidence into why subordinates have preferences for honesty. Understanding why subordinates have preferences for honesty is important as understanding and incorporating subordinate preferences for honesty can improve contracting (e.g., Mittendorf, 2006).

2.1.2. Affect and misreporting

Honesty is one of the most prominent social norms across cultures and violations of this norm are often considered unethical (Murphy, 1993). Divergence from a social norm can create a negative affective response (Frank, 1988; Bandura, 1991), such as guilt (Bicchieri 2006, pp. 24–25), even when no sanctions exist (Elster, 1989) or the divergence is by others (Van’t Wout et al., 2006; Takahashi et al., 2012). In a review of neuroscience studies on emotions and ethics, Damasio (2007) states that “Emotions such as embarrassment, shame and guilt, have as a central theme the blaming of the self for the violation of a norm... The biological impact of such emotions on the subject is important because they deliver punishment to the individual... (p. 5).” Thus, negative affect, from norm divergence, causes a disutility in the form of a biological punishment. This suggests that affect impacts utility and is important in decisions involving social norms.

Murphy (2012) and Mayhew and Murphy (2014) examine financial misreporting due to attitude in the fraud triangle and rationalization from superiors’ instructions, respectively. However, they rely on similar theory to ours.⁵ Specifically, they theorize that reporters are negative affect-averse and seek to avoid it while increasing wealth by

⁵ These papers have interesting results related to their IVs. However, attitude, Machiavellianism, and rationalization are not of interest in our theory. Thus, we focus our discussion here on the results with implications for our theory.

misreporting. They find some support that the act of misreporting relates to subsequent state levels of negative affect.

We extend these studies by addressing one theoretical cause of preferences for honesty. First, several social norms and other factors – such as fairness concerns, interactions, and uncertainty in the performance level – jointly determine the effect of the IVs on misreporting. Avoiding negative affect caused by diverging from a norm of honesty (preferences for honesty) only generates a portion of their effect. Empirically, these studies test the effect of misreporting on measured negative affect after making an ethical choice.⁶ While their theory suggests those who feel more negative affect will not misreport, their results suggest that misreporting increases negative affect and that negative affect is unrelated to the amount of misreporting. Murphy and Mayhew state “We believe that rationalization does play a role in reducing negative affect but that we cannot observe its full effects due to our inability to measure the *anticipated* negative affect of our participant deciding whether or not to misreport (p. 438).” These papers suggest a relation between negative affect and misreporting, but do not provide direct evidence into why reporters have preferences for honesty. Collectively, the research in this subsection suggests that diverging from a norm of honesty causes negative affect, which causes a disutility. As such, we argue that preferences for honesty are the result of negative affect.

2.1.3. Affect intensity

Affect intensity captures how strongly individuals feel affect (Bachorowski and Bratten, 1994; Schimmack and Diener, 1997; Lucas et al., 2003; Larsen, 2009). It does not capture how *often* one feels affect but the *intensity* of one’s reactions when they occur. Affect intensity is a stable trait and can be split into three factors – negative intensity (NAI), reactivity, and positive intensity (Bryant et al., 1996; Simonsson-Sarnecki et al., 2000; Geuens and Pelsmacker, 2002). Organizational psychology research stresses that it is useful to define affect by both its valence and intensity, such as NAI (Cropanzano et al., 2003). If diverging from a norm of honesty causes negative affect then NAI will predict the size of the disutility associated with this divergence and therefore preferences for honesty. Further, as a stable trait, NAI allows for tests based on anticipated negative affect from diverging from a norm of honesty and overcomes the unobservability issue in Mayhew and Murphy (2014).

2.2. Hypothesis

The above discussion suggests that some subordinates have preferences for honesty that reduce slack. We hold this as a maintained hypothesis and formally develop our theory of why subordinates have preferences for honesty. We argue that anticipated negative affect from diverging from a norm of honesty leads to subordinates’ preferences for honesty.

Theoretical research suggests that, beyond their narrow self-interest, individuals receive disutility from violating norms (e.g., Rabin, 1993; Fehr and Gächter, 2000; Cox et al., 2007; Arce, 2013). This is often modeled by adding a term of the form $\theta_i(a_i - a_i^*)$ to utility functions, where θ is i ’s sensitivity to a norm, a_i is i ’s actual adherence with a norm, and a_i^* is i ’s beliefs about the adherence expected. When adherence is less than expected, they receive a disutility. Expected adherence, a^* , is not perfection (i.e., total honesty), but varies with the setting and individual. These models consider the strength of i ’s disutility from norm divergence, θ , but not what θ is. Thus, a theory of what causes the disutility from norm divergence is useful for making predictions with these models.

Building on the previous discussion, we expect that diverging from a

⁶ Further, they examine temporary, context-specific, state affect, in lieu of stable, cross-domain, trait affect.

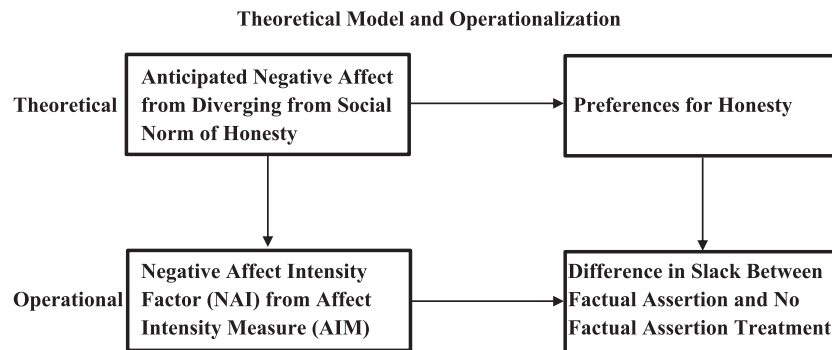


Fig. 1. Theoretical Model and Operationalization.

norm of honesty causes a negative affective reaction that creates a disutility. The magnitude of this disutility is related to both the magnitude of the perceived norm divergence ($a_i - a_i^*$) and the intensity with which one feels their negative affect, θ_i . Given that subordinates recognize honesty as a norm, NAI determines the size of θ_i . Since the disutility from diverging from a norm of honesty increases as an individual's negative affective reactions become more intense, there will be stronger preferences for honesty when negative affective reactions are more intense, *ceteris paribus*. Thus, NAI will increase preferences for honesty. Fig. 1 presents our theoretical model and operationalization of this prediction.

Affective reactions to misreporting may not drive preferences for honesty, as we predict. We assume that honesty is a social norm in participative budgeting. If not, there is no affective reaction from diverging from a norm of honesty. Some argue that slack is a behavioral norm (Jensen, 2001) and ethical concerns may not be salient (Rankin et al., 2008). However, research suggests that preferences for honesty reduce slack in many settings (Rankin et al., 2008; Douthit and Stevens, 2015). We also assume that subordinates accurately anticipate the intensity of their affect. If subordinates inaccurately anticipate their affect from diverging from a norm of honesty, then NAI will not predict preferences for honesty. Individuals often anticipate their affect with error when making decisions (Gilbert and Wilson, 2007). However, diverging from a norm of honesty is likely to be a familiar choice and this familiarity is likely to improve the accuracy of anticipated affect. Finally, losses can cause negative affect (Kermer et al., 2006). If subordinates see foregoing slack as a loss, this would reduce the ability of NAI to predict preferences for honesty. However, it is more likely that subordinates view slack as a gain than foregoing slack as loss due to the property rights implicit in participative budgeting (Douthit and Majerczyk, 2018). Given these arguments, we maintain our hypothesis that NAI drives preferences for honesty.

Hypothesis: Subordinate trait NAI will increase preferences for honesty.

3. Experimental design

We conducted a 1×2 experiment that manipulated the mode of budget communication (Factual Assertion vs. No Factual Assertion) between-subjects. Participants were finance majors from a single class at a U.S. university. There were four sets of sessions, ranging from 10 to 28 participants. Each set of sessions consisted of two separate sessions that took place one week apart and lasted 90 min total. Participants earned one point of extra credit for the first session and four more points if they returned for the second.⁷ Additionally, participants earned an average of \$22 based on their decisions. The study employed pen and paper methods.

⁷ This study was approved by the relevant IRB. Participants were from outside of the authors' classes. The five points of extra credit represent about 1% of a course grade. Five participants did not return for the second session.

3.1. First experimental session

3.1.1. Negative affect intensity

Participants gave their consent and then completed the 40-item Affect Intensity Measure (AIM). The AIM is the most common and validated measure of affect intensity (Larsen et al., 1986; Larsen and Diener, 1987; Larsen, 2009). The AIM has participants record how they react to typical events on a 6-point Likert ("Never", "Almost Never", "Occasionally", "Usually", "Almost Always", "Always"). AIM captures an individual's general affect intensity.

3.1.2. AIM attention check and distractor task

After the AIM, each participant read and responded to one short article. Each article was either an informational article on the English language or one of two stories. The informational article was used to elicit neutral affect and each story was used to elicit positive (negative) affect by describing a happy (tragic) event. The stories have been widely used to elicit affect (e.g., Johnson and Tversky, 1983; Blay et al., 2012). After reading their article, participants completed a short PANAS scale asking participants to indicate how well several terms described how they felt at that moment on a 9-point Likert (1 = "very slightly or not at all", 9 = "extremely;" Watson et al., 1988). These terms represent positive (excited, enthusiastic, inspired, determined) and negative (nervous, anxious, worried, upset) arousal (Mano, 1991). Each participant only saw one of the articles. This activity helps confirm that our participants attended to the AIM. If participants paid attention to both the AIM and article, participants with higher AIM scores should react more strongly to the affective stories.

Finally, participants completed an incentivized risk preference task (Holt and Laury, 2002) and a brief risky investment case. In the case, they chose between two investments: a riskless project working with an unkind manager and a project with an uncertain outcome and a lower expected payoff that involved working with a kind manager. These two tasks took about 10 min and resulted in between \$4 and \$6. The risk-based task reduced any perceived link between the two experimental sessions. At the end of the first session, participants received a ticket to return for a session a week later and their earnings from the risk-based task.

3.2. Second experimental session

In the second session, we use a participative budgeting task and employ a between-subject design (Factual Assertion vs. No Factual Assertion). Specifically, we use the trust contract in Evans et al. (2001) and manipulate the mode of budget communication to capture the strength of subordinates' preferences for honesty, as in Rankin et al. (2008) and Douthit and Stevens, (2015). No aspects of the first session were considered in the execution of the second session and participants were randomly assigned to treatments. We present an overview of the budgeting task for "Factual Assertion" and then discuss the changes from our manipulation.

3.2.1. Budgeting task overview

Participants were assigned the role of a divisional manager of a firm. Each divisional manager learned the private production cost of a project that yielded certain revenue of 6.00 Lira per unit for 1000 units. The cost of the project was uniformly distributed from 4.00 to 6.00 Lira in 0.05 increments. After learning the cost, each participant submitted a budget reporting the cost to corporate headquarters. It was common knowledge that corporate headquarters was not a participant.⁸ The participant kept any slack (actual less reported cost). Therefore, if the actual cost was 5.00 Lira per unit and the participant reported a cost of 5.50, the participant would receive the 0.50 Lira of slack for each of the 1000 units. Participants also earned a salary of 250 Lira from corporate headquarters each period. While participants knew the actual cost each period with certainty, corporate headquarters only knew the distribution of possible costs. Thus, participants knew that there were no repercussions for misreporting. Lira were converted to US\$ at a rate of 50 Lira = \$1. There were 10 periods total and payment was for one period, randomly determined at the end of the experiment.⁹ Each period the project cost for each participant was randomly determined from the uniform distribution of costs with replacement. All of this information was common knowledge except the costs of other participants.

Each period, participants received a response sheet showing the project's cost and a table showing the effect of all possible reports on their own and corporate headquarters' earnings. In addition to reporting a cost, participants had to indicate their own and corporate headquarters' earnings. These served as a comprehension check. At the end of the 10th period, participants filled out a questionnaire and were paid their earnings for the day in private by an assistant who was unaware of the details of the experimental design.

3.2.2. Budget communication manipulation and preferences for honesty

Preferences for honesty affect slack in our basic setting (Factual Assertion), but so do other non-pecuniary factors, such as fairness. As such, reductions in slack do not clearly indicate preferences for honesty. To more cleanly capture the effect of preferences for honesty, we follow the between-subject manipulation from Rankin et al. (2008). It is important to cleanly capture the effect of preferences for honesty as our theory tests whether avoiding negative affective reactions from diverging from a norm of honesty causes preferences for honesty.

To isolate the incremental effect of preferences for honesty, we manipulated the form of budget communication between-subjects (No Factual Assertion vs. Factual Assertion). The task overview above describes the Factual Assertion treatment. In this treatment, subordinates report their budgets as the project's cost. In the No Factual Assertion treatment, subordinates report their budgets by offering an amount of profit from the project to corporate headquarters. Subordinates still learned the project cost when they learned the profit (profit = 6.00–actual cost). Slack in the No Factual Assertion treatment is the amount of profit kept. This is economically equivalent to the slack claimed when reporting costs in Factual Assertion. As discussed previously, the only difference between treatments is that the Factual Assertion treatment requires a false assertion of fact to create slack while the No Factual Assertion treatment does not. In the Factual Assertion treatment, preferences for honesty, altruism, and fairness all affect slack, while only preferences for altruism and fairness affect slack with No Factual Assertion. Thus, the differences in slack between treatments captures relative preferences for honesty (Rankin et al., 2008; Douthit and Stevens, 2015; Brunner and Ostermaier, 2018; Haesebrouck, 2018). Given that we expect anticipated negative affect to

⁸ Not having a participant as corporate headquarters aids in isolating our construct of interest. It reduces the likelihood that fairness impacts behavior (Newman, 2014). Also, it parallels reporting incentives in practice where subordinates view misreporting as hurting "the firm" and not an individual (Evans et al., 2016).

⁹ Paying participants from one random period simulates a series of independent, repeating, single-period decisions.

cause preferences for honesty, we expect the difference in slack between treatments (preferences for honesty) to be predicted by NAI (from the first session).

4. Results

4.1. Preliminary analyses

4.1.1. Attention check to affect intensity measure

The AIM is designed to measure how strongly individuals experience affective reactions, given that a reaction has occurred. While the AIM is widely used and validated (Larsen, 2009), we conduct a test to provide assurance that our participants attended to the AIM.¹⁰ If participants attended to the AIM, then those with higher AIM scores should react more strongly to the first session's affect-manipulation articles, given that the articles caused a reaction. First, we test if the stories created the desired reactions. A *t*-test of the differences in positive (negative) affective reactions in response to the positive (negative) story relative to the informational article shows that each story created the expected response (both p 's < .01). Panel A of Table 1 presents these results. Next, we test if the magnitude of these reactions is related to AIM scores. We estimate an OLS regression of the effect of the AIM on the magnitude of reaction to the stories and find that AIM is positively related to the magnitude of reaction to the stories ($t = 2.21$, $p = .016$, one-sided). Panel B of Table 1 presents these results. These results support that participants attended to the AIM and that the AIM captures the intensity of participants' affective reactions.

Research on the AIM suggests the AIM is best represented as a three-factor model, with one factor capturing negative intensity (Williams, 1989; Bryant et al., 1996; Simonsson-Sarnecki et al., 2000; Geuens and Pelsmacker, 2002). As our theory is concerned with the effect of NAI, the negative intensity factor is a cleaner measure of our construct than raw AIM scores. Thus, we conduct a principal-components factor analysis on AIM responses for a three-factor model and apply a varimax rotation to loadings to achieve a simple structure and aid in interpretability (Cattell, 1978; Gorsuch, 1983; Bryant and Yarnold, 1995). While the factor analysis captures the loadings of all 40 items into each factor, it suggests that six items strongly and uniquely relate to negative intensity.¹¹ Other items have varying loadings into the negative intensity factor, but are weaker and either less unique or more strongly connected to another factor. The items that load most strongly are similar to those classified as belonging to the negative intensity factor in prior research (e.g., Bryant et al., 1996). As the factors are based on all 40 items of the validated scale, we use the rotated factor loadings from all 40 items for the negative intensity factor to compute our factor scores. The factor scores for negative intensity are our measure of NAI.¹²

To provide support for our NAI measure, we return to the analyses in Table 1. If NAI captures our desired construct, it should predict how strongly participants who read the negative story experienced negative affect. We conduct an OLS regression on the effect of NAI on negative affective responses for those who received the negative story. Panel C of Table 1 presents these results, which are consistent with our expectation ($t = 1.75$, $p < .05$, one-sided).

¹⁰ For the AIM in our population, Cronbach's $\alpha = 0.83$, demonstrating good internal consistency.

¹¹ The statements that load most strongly into the NAI factor are: [30] When I do feel anxiety it is normally very strong, [36] When I feel guilty, this emotion is quite strong, [25] When I do something wrong I have strong feelings of shame and guilt, [6] My emotions tend to be more intense than those of most people, [15] My friends might say I'm emotional, [34] My friends would probably say I'm a tense or "high-strung" person.

¹² For robustness, we construct an NAI measure using the factor loadings reported in Simonsson-Sarnecki et al. (2000), though it only reports the strongest items, and find inferentially similar results for our primary analyses.

Table 1
Preliminary Analyses and Affect Intensity Measures.

Panel A: Affect Manipulation			
	Positive Affect	Negative Affect	Observations
Positive Story	17.46	N/A	26
Informational Article	9.00	5.14	14
Negative Story	NA	19.57	28
t-test of difference	t = 3.35***	t = 7.74***	

Panel B: Regression of the Effect of AIM on Affective Reactions			
Factor	Coefficient	t	p-value (one-sided)
AIM	0.139	2.21	0.016

Panel C: Regression of the Effect of NAI on Negative Affective Reactions			
Factor	Coefficient	T	p-value (one-sided)
NAI	1.977	1.75	0.046

Positive Affect is the sum of individual responses to how well an adjective describes how an individual is feeling on a 7-point Likert scale for the terms: excited, enthusiastic, inspired, and determined.

Negative Affect is the sum of individual responses to how well an adjective describes how an individual is feeling on a 7-point Likert scale for the terms: nervous, anxious, worried, and upset.

The dependent variable in this regression is *Affective Reactions*, which is the Positive Affect score for those individuals who read the positive story and Negative Affect for those individuals who read the negative story. Individuals who read the informational article did not have a meaningful affective reaction and are excluded from the regression in Panel B.

AIM is an individual's total score on the 40-item Affect Intensity Measure questionnaire. A higher score indicates a higher affective intensity for an individual.

NAI is the negative affect intensity factor of the individuals' score on the 40-question Affect Intensity Measure.

4.1.2. Participants and manipulation checks

We exclude three of the 63 participants who took part in both sessions. Two of these failed comprehension checks and incorrectly filled out their response forms in all 10 periods. Without properly filling in their forms, it is impossible to interpret the intended behavior or code an appropriate action. The other consistently took large negative personal earnings (up to negative \$28) and had negative average slack. Since the participant could not be penalized for negative slack beyond losing their experimental salary (\$5), their choices are not enforceable economic decisions. As such, the responses of this individual are not interpretable.

We define slack as a percentage of the slack available (claimed/available). Any period observations with negative slack are recorded as 0 slack (Evans et al., 2001).¹³ In untabulated tests, we examine exit questionnaire responses to see if our manipulations were effective. All questions were asked on a 7-point Likert. Participants correctly responded that corporate headquarters was not a participant, they were paid a fixed salary, they were asked to report a cost (offer a profit), they were allowed to report any budget within the feasible range, and their choice was independent and anonymous (all *p*-values < .01). Finally, we tested to see if the first session manipulations of the affective stories influenced behavior in the second session. As expected, the first session manipulation does not affect the second session behavior.

4.2. Preferences for honesty and negative affect intensity

Our between-subjects manipulation of the mode of budget

¹³ There were 27 period observations (4.4%) where participants reported budgets with negative slack. These generally occurred in instances where 0 slack resulted in negative corporate earnings due to the manager's salary.

Table 2
Descriptive Statistics and Main Effect of Honesty.

Panel A: Descriptive Statistics		
Full Sample	Mode of Budget Communication	
	No Factual Assertion	Factual Assertion
Participants	31	29
Average Slack	0.628	0.481
St. Dev. Slack	0.310	0.363
Average NAI	-0.14	-0.04
St. Dev. NAI	0.987	0.940
<i>Low NAI</i>		
Participants	16	11
Average Slack	0.675	0.722
St. Dev. Slack	0.312	0.259
Average NAI	-0.91	-0.95
St. Dev. NAI	0.464	0.422
<i>High NAI</i>		
Participants	13	14
Average Slack	0.644	0.307
St. Dev. Slack	0.271	0.327
Average NAI	0.80	0.71
St. Dev. NAI	0.658	0.676

Panel B: Main Effect of Factual Assertion on Slack		
Comparison	T	p-value (one-sided)
No Factual Assertion (62.8%) versus Factual Assertion (48.1%)	1.68	0.049

Slack is determined as slack claimed/slack available.

NAI is the negative affect intensity factor of the individuals' score on the 40-question Affect Intensity Measure.

communication is intended to capture the effect of preferences for honesty on reporting. Prior research suggests that preferences for honesty reduce slack and, as such, our Factual Assertion treatment will have lower slack than our No Factual Assertion treatment. This captures the average effect of preferences for honesty. Panel A of Table 2 presents descriptive statistics. The mean slack with No Factual Assertion (63%) is more than with Factual Assertion (48%).¹⁴ Consistent with prior research and suggesting that preferences for honesty exist in our setting, we find that slack is lower in the Factual Assertion treatment ($t = 1.68, p = .049$, one-sided). Panel B of Table 2 presents the results of this test.

We hypothesize that NAI predicts subordinates' preferences for honesty. That is, the difference in slack between the Factual Assertion and No Factual Assertion treatment (preferences for honesty) will be larger for participants with greater NAI. Statistically, this suggests that NAI moderates the effect of a Factual Assertion on slack. Fig. 2 shows the graph of the linear best-fit of the relation between NAI and slack by treatment. This figure supports that NAI predicts preferences for honesty. To formally test our hypothesis, we estimate an ANCOVA including the mode of budget communication, NAI, and the interaction of these factors on slack.¹⁵ Panel A of Table 3 presents the results of this analysis. We find the predicted interaction ($F = 3.83, p = .028$, one-sided), suggesting that trait NAI predicts preferences for honesty.

¹⁴ To control for the multiple observations from each participant, we average the slack over all periods from each participant and use this as a single observation for each participant. In untabulated results, we conduct a repeated-measure ANOVA to test for period effects. We document no main effect of period but do document an interaction of period with our manipulation. This is due to abnormally high slack in Period 8 for Factual Assertion, the only period where slack is higher when the budget requires a factual assertion than when it does not. Our results are stronger and the interaction of period and treatment disappears if we exclude this period. However, we retain period 8.

¹⁵ Since sessions occurred at different times and days with different sizes and individuals self-selected into their sessions, we include fixed session effects in our analyses, as prescribed by Frechette (2012).

The Effect of Negative Affect Intensity on Budgetary Slack by Mode of Budget Communication

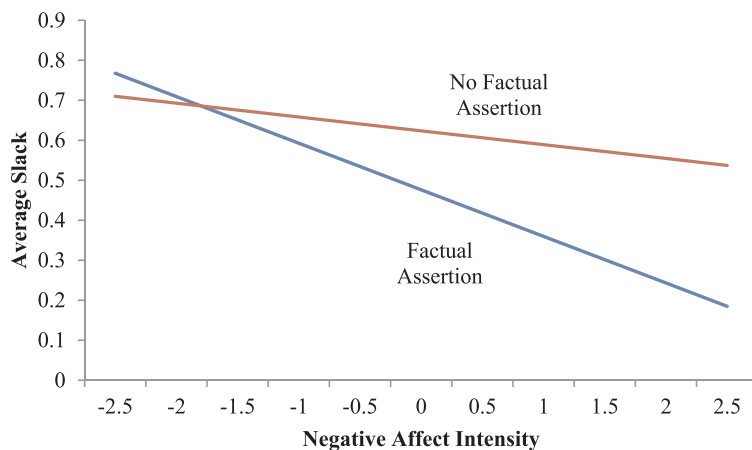


Fig. 2. The Effect of Negative Affect Intensity on Budgetary Slack by Mode of Budget Communication. These lines represent the linear best-fit of *Negative Affect Intensity* on *Average Slack* between treatments. *Average Slack* is budgetary slack, defined as slack claimed/slack available. *Factual Assertion* is the treatments where the budget communication was a cost report. *No Factual Assertion* is the treatments where the budget communication was a profit offer. *Negative Affect Intensity* is the negative affect intensity factor of the individuals' score on the 40-question Affect Intensity Measure.

To provide further evidence regarding this interaction, we conduct simple effects tests. Panel B of Table 3 presents the results of these tests. There is a significant effect of NAI on slack with a Factual Assertion ($F = 5.82, p = .012$, one-sided), where preferences for honesty are relevant, but not with No Factual Assertion ($F = 0.01, p = .920$). Thus, NAI does not explain changes in slack that arise from preferences other than honesty, but does explain changes in slack from preferences for honesty. To examine the effect of preferences for honesty at different levels of NAI, we split our sample into high and low NAI groups and examine the impact of the mode of budget communication in each group. Since it is difficult to characterize observations near the mean as high and low, we drop the 5% of our sample with NAI scores just above and the 5% of our sample with NAI scores just below the mean. We then classify those in the top (bottom) of our remaining sample as high (low) NAI. Simple effects tests reveal preferences for honesty for high NAI ($F = 7.43, p = .012$, two-sided), but not low NAI ($F = 0.13, p = .732$, two-sided) subordinates.¹⁶ Thus, we find support for our theory that NAI predicts preferences for honesty.

In order to provide more evidence supporting our claim that NAI predicts subordinate preferences for honesty, we examine responses to the exit questionnaire item “I wanted to be honest,” completed on a 7-point Likert. We only consider responses to this item in the Factual Assertion treatment, since preferences for honesty cannot affect behavior in the No Factual Assertion treatment. Consistent with our theory, an untabulated regression of responses to this item on NAI in the Factual Assertion treatment yields a significantly positive relation ($t = 3.35, p = .002$, two-sided). This further suggests that NAI predicts subordinate preferences for honesty, consistent with our primary analysis that relies on revealed preferences.

Finally, other personality characteristics, such as extraversion and neuroticism, can correlate with NAI (Cooper and McConville, 1993). Our participants completed a Big Five personality metric at the end of the second session and we create metrics of extraversion and neuroticism from these.¹⁷ To ensure that our results are not simply capturing these other factors, we repeat our ANCOVA testing for our hypothesized interaction while controlling for neuroticism and extraversion. Untabulated tests reveal qualitatively similar results for the effect of NAI on preferences for honesty. Further, we do not find a significant predictive ability (i.e., no interaction) for either extraversion or neuroticism on preferences for honesty while controlling for NAI (each

¹⁶ Unless otherwise noted, results are qualitatively unchanged if High (Low) is defined as above (below) mean NAI or using top (bottom) third of NAI.

¹⁷ Unlike NAI, we cannot test that participants took care when completing the Big Five or validate its scores.

Table 3
The Effects of Factual Assertion and Negative Affect Intensity on Budgetary Slack.

Panel A: Analysis of Variance				
Factor	df	Mean Squares	F	p-value ^a
Factual Assertion	1	0.190	2.16	0.148
NAI	1	0.379	4.31	0.043
Factual Assertion*NAI	1	0.337	3.83	0.028
Error	53			

Panel B: Simple Effects				
	df	F	p-value	
Effect of NAI within Factual Assertion	1	5.82	0.012	
Effect of NAI within No Factual Assertion	1	0.01	0.920	
Effect of Factual Assertion with High NAI	1	7.43	0.012	
Effect of Factual Assertion with Low NAI	1	0.13	0.723	

The dependent variable in this analysis is budgetary slack, which is defined above.

Factual Assertion is a dummy variable equal to 1 if the budget communication was a cost report and 0 if the budget communication was a profit offer.

NAI is the negative affect intensity factor of the individuals' score on the 40-question Affect Intensity Measure.

*Factual Assertion*NAI* is the interaction of *Factual Assertion* and *NAI*.

High NAI is the subset of our sample with NAI scores more than 5% above the mean NAI.

Low NAI is the subset of our sample with NAI scores more than 5% below the mean NAI.

These analyses include fixed session effects.

^a All *p*-values are two-sided, except for those related to directional predictions. These are one-sided *p*-values and are denoted in bold.

$p > .32$). This further supports our claim that avoiding negative affect from diverging from a norm of honesty predicts preferences for honesty.

4.3. Preferences for honesty as an informal control

While our results suggest that preferences for honesty can serve as an informal control, it is unclear if this is beneficial relative to the established effects of prescribed formal controls. To this end, we examine the effect of incorporating preferences for honesty into contract design for firm profit. Under traditional assumptions, the solution to this problem relies on a formal hurdle contract (Antle and Eppen, 1985). In this solution, superiors commit to accept any budget below a certain point (the hurdle) and pay the hurdle for any accepted budget. Any

budget above the hurdle is rejected. While the rejection of high budgets reduces slack, it causes a costly reduction in production. The hurdle is set based on the distribution of costs to maximize profit considering the hurdle's effect on slack and rejections, assuming subordinates take any available slack. Given our cost distribution, the hurdle is set at 5.00 Lira and any accepted budget pays 5.00 Lira. Any budget above 5.00 will be rejected.¹⁸ Given our parameters, half of projects will be funded at 5.00 Lira. After paying the manager's salary of 250 Lira, expected firm profit is 250. The hurdle contract is a baseline against which to test alternative theories, as prescribed in Brown et al. (2009). The expected profit of the hurdle is an aggressive benchmark since Rankin et al. (2003) suggest superiors struggle to set hurdles that balance slack and rejections.

Our theory predicts that subordinates with high (low) NAI will have stronger (weaker) preferences for honesty. Incorporating this understanding, theory suggests that firms can profit from the use of preferences for honesty as an informal control versus the use of formal hurdle contracts for high NAI populations. Conversely, with low NAI populations, firms will prefer to use formal controls instead of relying on preferences for honesty.¹⁹

Panel A of Table 4 presents descriptive statistics for firm profit and Panel B of Table 4 presents comparison tests between profit levels. In the Factual Assertion (No Factual Assertion) treatment, the average firm profit is 309 (110) Lira. With No Factual Assertion, firm profit is lower than the hurdle contract ($t = 2.49$, $p = .019$, two-sided). With Factual Assertion, firm profit is not different from the hurdle ($t = 0.80$, $p = .432$, two-sided). Thus, preferences for honesty are as effective as the formal hurdle in our setting. To investigate the value of incorporating an understanding of the cause of preferences for honesty into contract design, we repeat this analysis using our theory of what motivates preferences for honesty. Specifically, we compare profit between contract types for subordinates with differing levels of NAI.

Our theory predicts that for subordinates with high (low) NAI, firm profit will be higher (lower) for contracts that rely on preferences for honesty than those that use a formal hurdle. Consistent with our predictions, we find that firm profit with Factual Assertion (489) is higher than the hurdle for subordinates with high NAI ($t = 2.48$, $p = .014$, one-sided). Further, firm profit with Factual Assertion (41) is lower than under a formal hurdle contract for subordinates with low NAI ($t = 2.41$, $p = .018$, one-sided).²⁰ These results suggest that incorporating our understanding of what causes preferences for honesty can increase contract efficiency. Firms are better off relying on preferences for honesty (a hurdle) for subordinates with high (low) NAI. Our results support theoretical arguments for incorporating preferences for honesty when choosing between using formal and informal controls, such as preferences for honesty.

5. Conclusion

We develop and experimentally test a model of why subordinates have preferences for honesty in participative budgeting reporting. Subordinates feel negative affect when diverging from a social norm of honesty, which causes a disutility. The size of this disutility is increasing in the intensity with which the affective reactions are felt. The desire to avoid this negative affect drives the desire to adhere to a norm of honesty and yields preferences for honesty. We measure participants' negative affect intensity (NAI) and use an experimental manipulation to

¹⁸ We refer the interested reader to Antle and Eppen (1985) or Evans et al. (2001) to see how this hurdle is set.

¹⁹ While preferences for honesty have a benefit over relying on neither preferences for honesty nor a hurdle contract (No Factual Assertion), this does not imply the comparison of preferences for honesty relative to a formal hurdle.

²⁰ This negative effect of low NAI is only marginally significant if we define low NAI as being below mean NAI ($p = .11$). However, this is likely to include those with average NAI and weaken our test by increasing variance.

Table 4
Analysis of Corporate Profit.

Panel A: Descriptive Statistics			
	No Factual Assertion	Factual Assertion	Hurdle Contract
<i>Full Sample</i>			
Average Profit	109.95 Lira	309.37 Lira	250 Lira
Std. Dev.	313.06	400.72	N/A
n	31	29	N/A
<i>High NAI</i>			
Average Profit	124.10 Lira	488.53 Lira	250 Lira
Std. Dev.	300.99	359.87	N/A
n	13	14	N/A
<i>Low NAI</i>			
Average Profit	60 Lira	41.11 Lira	250 Lira
Std. Dev.	316.63	287.04	N/A
n	16	11	N/A
Panel B: Test of differences			
Comparison: Full Sample	t-stat	p-value ^a	
No Factual Assertion (109.95) versus Hurdle Contract (250)	2.49	0.019	
Factual Assertion (309.37) versus Hurdle Contract (250)	0.80	0.432	
Factual Assertion versus No Factual Assertion	2.16	0.035	
Comparison: High NAI Sample	t-stat	p-value ^a	
No Factual Assertion (124.10) versus Hurdle Contract (250)	1.51	0.157	
Factual Assertion (488.53) versus Hurdle Contract (250)	2.48	0.014	
Factual Assertion (488.53) versus No Factual Assertion (124.10)	2.84	0.009	
Comparison: Low NAI Sample	t-stat	p-value ^a	
No Factual Assertion (60) versus Hurdle Contract (250)	2.40	0.030	
Factual Assertion (41.11) versus Hurdle Contract (250)	2.41	0.018	
Factual Assertion (41.11) versus No Factual Assertion (60)	0.16	0.876	

^a All p-values are two-sided, except for those related to directional predictions. These are one-sided p-values and are denoted in bold.

capture the effect of preferences for honesty (e.g., Rankin et al., 2008). We find that preferences for honesty reduce slack and that NAI is predictive of preferences for honesty. Further, firms can benefit from incorporating our understanding of what causes preferences for honesty. For subordinates with high (low) NAI, relying on preferences for honesty as a control leads to higher (lower) firm profit than a theoretically-prescribed hurdle contract (Antle and Eppen, 1985).

Our theory and results, combined with those in Murphy (2012) and Mayhew and Murphy (2014), help clarify why preferences for honesty influence reporting. We supplement their results by documenting an *ex ante* measure of a stable individual difference that predicts the effect of preferences for honesty. Theory suggests, as do our results, that incorporating subordinate preferences for honesty can improve contract efficiency (Mittendorf, 2006). Affect intensity can be measured with a simple, widely vetted, psychometric inventory and allows us to contribute a causal explanation for the observed preferences for honesty in budgetary reporting.

While the primary goal of this study is not to prescribe a method to measure NAI for practice, our findings may be useful to contract designers. Firms prefer employees with strong preferences for honesty, but questions directed at assessing honesty may be gamed by those with weaker preferences for honesty. However, the AIM assesses something different – the intensity with which an individual experiences affect. Thus, the questions it asks obscure the purpose for which we suggest the AIM might help in contract design. The AIM may be less susceptible to gaming and thus more useful than other inventories. The relationship between NAI and preferences for honesty may also have implications for contracting given that factors such as cultures, regions, or self-selection into certain fields may impact the AIM of individuals (Moore, 2004). Understanding whether average differences in affect intensity among populations extends into the participative budgeting setting is left to future research. However, given our causal theory for preferences

for honesty, identifying how populations differ in NAI has the potential to aid in contract design.

We also contribute towards a better theoretical understanding of why individuals have differences in their preferences for honesty. Although understanding preferences for honesty can benefit firms, our theory suggests ways firms may be able to increase preferences for honesty in reporting. As affective reactions create preferences for honesty, firms can implement policies that increase the affective salience of slack creation to increase the odds that affective reactions occur. While NAI is stable, firms can alter subordinates' awareness of a norm, expectations of adherence, and perceptions of norm violations since these are context-specific (Bicchieri, 2006). This is especially valuable for high NAI populations. Our theory's implications apply to other social norms and settings as well and can be useful for future research based on social norms.

Our study is also unique from existing affect research in organizational psychology. Our results suggest that firms can benefit from considering employees' affect intensity when designing control systems and assigning jobs. There is little research on affect intensity or negative affect in organizations and we answer a call for studies on where negative affect can benefit firms (Barsade and Gibson, 2007). While it is useful to show a benefit of negative affect, our result should be applied with care. Research suggests that negative affect can cause several adverse outcomes (Aquino et al., 2004; Miner et al., 2005). Thus, firms should consider other potential behavioral effects that moderate the value of high NAI subordinates (Barsade and Gibson, 2007). However, given that high NAI subordinates exist, our theory suggests that firms can benefit from incorporating their preferences for honesty in contract design and job assignment.

While the benefit of NAI we highlight may not be sufficient to outweigh all the potential costs that could accompany high NAI subordinates along other dimensions, it is valuable for firms to understand the relative strengths and weaknesses of high NAI subordinates. We highlight one aspect where high NAI can be beneficial to firms – increasing preferences for honesty, but future research can consider whether such individuals have other concerns that may limit their heightened value in reporting functions.

As with all experiments, we only capture aspects of the setting that we examine. We do not consider a superior, which abstracts from many budgeting settings (Brown et al., 2014). However, this provides us a cleaner test of theory by enabling us to better isolate preferences for honesty, and research suggests that preferences for honesty persist in settings with both a passive (Rankin et al., 2008) and active superior (Douthit and Stevens, 2015). Further, other social norms affect reporting. As our theory applies across social norms, future research should examine if affect intensity predicts adherence to other social norms and settings. In addition, our participants are students and it is possible that professional roles may interact with the influence of NAI on preferences for honesty. Finally, for the cleanest test of our theory, we use a setting where costs are certain. It would be useful to test the robustness of our results in more complex and risky settings as well.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <https://doi.org/10.1016/j.mar.2018.05.001>.

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