How Far Will Managers go to Look Like a Good Steward? A Re-Examination of Honesty Preferences in Managerial Reporting

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Abstract: This study reports the results of two experiments that re-examine how preferences for honesty affect managers' excessive consumption of firm resources. In our investor-manager investment game, if the investor chooses to invest, the manager privately observes production costs, chooses his or her personal pay, and provides a cost report in one of three reporting regimes: aggregated reporting, disaggregated without discretion, or disaggregated with discretion. In experiment one, we do not find evidence of an incremental effect for honesty preferences. Instead, we find that managers appear more concerned with looking like a good steward to investors than with actually being one (i.e., they classify some personal pay as production costs when the setting allows for reporting discretion over cost classification). In experiment two, we further investigate the incremental effect of honesty by allowing managers to choose either an aggregated report or a disaggregated report with reporting discretion. Our evidence again suggests that the weight of honesty preferences in the managers' utility function is much lower than the weight for a preference to look like a good steward worthy of the investors' capital investment. This evidence has implications for accounting researchers, standard setters, and regulators.

1. Introduction

Over the last three decades, a series of experimental studies in managerial accounting have widely examined managerial honesty in reporting using a participative budgeting setting. In that setting, managers have economic incentives to build slack into their budget by misreporting their private information. Experimental results often document systematic deviations from agency theory's stark predictions of dishonest, self-interested behavior as managers often do not completely misreport their private information to create maximum slack in budget. In their seminal work, Evans et al. (2001) argue that managers possess *preferences for honesty* and that these preferences significantly reduce misreporting. Because managers benefit economically from slack at the expense of investors, this measure of managerial honesty comingles preferences for honesty with preferences for wealth and fairness.

More recent work by Rankin et al. (2008) attempts to disentangle these preferences by comparing managers' slack when submitting budget reports to an equivalent allocation decision that does not require a report submission. They find that managers create less slack when a report is required and conclude that a preference for honesty has an incremental effect beyond preference for being fair. However, as Rankin et al.'s measure of honesty has wealth implications for the manager and principal, it still comingles a preference for being honest with a preference for being fair. In this paper, we re-examine the incremental effect of honesty preferences by conducting two novel experiments that use reporting disaggregation and discretion over classification to decouple preferences for honest reporting and providing a fair return by removing the *direct* wealth consequences of honesty.

Managers are required to submit various forms of accounting reports either to request resources (e.g., budget reports) or to communicate outcomes (e.g., performance reports). The

aforementioned experimental studies assumed a budget reporting setting in which managers learn their private information, then report it to investors to request resources. However, in richer settings, economic outcomes for principals could be determined jointly by agents' consumption of resources in addition to other events non-controllable by agents. In such cases, budget requests and performance reports could include more or less detail, where economic outcomes could be linked to a summary request or outcome, and where discretion over the details could allow agents the opportunity to report information honestly or use their reporting discretion to look as if they are better stewards (i.e., fair and trustworthy), holding constant their economic allocation choice. Such a setting would decouple preferences for being a good steward from looking like a good steward and thus provide an opportunity to reexamine the incremental effect of honesty on agents' personal consumption of firm resources.

To examine these issues, we develop a modified form of the classic investment game.[1] As in the original investment game, if the investor chooses to invest her endowment with the manager, the amount is increased, reflecting a productive process. However, unlike the original game, we introduce an exogenous shock that determines production costs. The actual cost is observed only by the manager and is analogous to the random cost draw from the classic Evans et al. (2001) budget setting. After the manager observes the exogenous shock, he chooses his personal pay and provides a report to the investor showing costs and the amount returned to the investor. Because we use a single-period setting with anonymous pairing, managers have no direct financial incentives to return more than a minimal amount to the investor, and investors cannot impose

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[1] The original investment game was developed by Berg, Dickhaut, and McCabe (1995). For detailed reviews of the investment game, see Camerer (2003) and Smith (2008). Different variations of the investment game have also been used by accounting researchers (Hales and Williamson 2010; Davidson and Stevens 2013).

social sanctions on managers. Therefore, the non-cooperative prediction from game theory is that investors will not invest, regardless of the reporting regime used by managers.

In Experiment 1, we randomly assign participants to take the role of either the investor or the manager, and we assign them to one of three reporting regimes: (1) an aggregated report, (2) a disaggregated report *without* reporting discretion, and (3) a disaggregated report *with* reporting discretion. In the first condition, the manager makes an allocation decision of personal pay knowing that the report aggregates their personal pay together with production costs, such that the report reveals only the net amount returned to the investor. This reporting regime, therefore, maintains information asymmetry about the manager's personal pay and so provides a measure of managers' preference for making a fair allocation decision absent the ability for investors to know for sure how much the managers consumed.

In the second condition, the report accurately reveals both the production cost and how much pay the manager took of the remaining surplus. In this setting, because the report is accurate and fully transparent, it eliminates any information asymmetry between the manager and investor. As the manager's personal consumption is credibly revealed, the manager's allocation decision in this condition, relative to the aggregated condition, serves as a measure of the incremental effect of the manager's preference for being perceived as a good or bad steward based on the fairness of their allocation decision.

In the third condition, the two costs are again reported separately, but the manager now has reporting discretion over what to classify as personal pay and production costs. As such, managers in the third condition can choose to report their personal pay honestly or misclassify it – either partially or fully – as production costs. Therefore, this reporting regime maintains information asymmetry about the manager's personal pay, similar to the aggregated report. In addition, the

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classification choice of managers serves as a measure of reporting honesty that is not directly tied to the managers' economic incentives. Therefore, relative to the aggregated report, this report allows us to examine the incremental effect of the managerial preferences for honesty.

To develop our predictions, we first assume that the managers' utility functions, at least on average, include a preference for *being perceived* as fair and trustworthy (i.e., good stewards), beyond simply being so. Therefore, we first predict that the disaggregated report *without* reporting discretion will motivate managers to reduce their personal pay relative to the aggregated report. However, it is less clear how managers will respond to the disaggregated report *with* reporting discretion. On one hand, a disaggregated report *with* reporting discretion gives managers the opportunity to look like a good steward, regardless of how much personal pay they take, if they misclassify their personal pay as production costs. Therefore, managers may increase their personal pay when they have discretion over cost classification. On the other hand, given the established managerial accounting research which assumes that managers possess honesty preferences (Evans et al. 2001; Rankin et al. 2008), a disaggregated report *with* reporting discretion could still reduce the managers' personal pay relative to an aggregated report, if preferences for being honest have a positive incremental effect over managers preferences for being fair and trustworthy in what they return to managers. We, therefore, state this hypothesis as a null prediction.

The results of our first experiment reveal, as expected, that the amount managers return to investors is higher under the disaggregated report *without* discretion relative to the aggregated report. In contrast, we find no incremental effect for reporting honesty as the amount managers return to investors under a disaggregated report *with* reporting discretion is no different than what they return under an aggregated report. Furthermore, we find that managers misclassify some of

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their personal pay as production cost in the disaggregated report *with* discretion and the magnitude of this classification shifting is negatively correlated with the amounts they return to investors. Interestingly, we find that managers exhibit a self-serving bias in their beliefs about classification shifting, as they did not view classification shifting as being dishonest on average. Nonetheless, we find that investors maintain the view that such behavior was dishonest. This difference in beliefs might help explain why investors who saw disaggregated reports *with* discretion underestimated the amount of report manipulation by managers and also exhibited investment rates in the second half of the experiment that were less sensitive to the returns they earned in the first half of the experiment when compared to investors who viewed aggregated reports, despite earning on average equal returns across these two types of high-information-asymmetry reports.

Overall, evidence from Experiment 1 appears somewhat in contrast with the conclusions from Rankin et al. (2008) of an incremental effect for honesty.[2] Specifically, we find no incremental benefit for a disaggregated report *with* reporting discretion, which allows for honesty preferences to have an effect, relative to an aggregated report. In contrast, our results indicate that managers manipulated their disaggregated report when they had reporting discretion, used the report to look like a good steward despite being more self-serving than what they were willing to report, and that their report manipulation misled investors into believing these managers were relatively good stewards.

To further investigate how honesty preferences affect managers in this reporting setting, we conduct a second experiment in which we require managers to *choose* one of two reporting regimes: an aggregated report or a disaggregated report *with* reporting discretion. We also manipulate between-subjects whether the manager's reporting choice will be communicated to the

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[2] In Appendix A, we present key differences between our experimental setting and earlier studies.

investor before or after the investors make their investment choice. This manipulation allows us to investigate more fully the motives for managers to be dishonest (i.e., manipulate their disaggregated reports). In the *ex-ante* condition, managers may choose to commit to the disaggregated report *with* discretion as cheap talk in hopes that investors will expect them to be better stewards. However, in the *ex-post* condition, a manager who has preferences for honesty and who also wishes to consume more personal pay than they would like the investor to know about could, *ex-post*, simply choose an aggregated report and, thereby, avoid any disutility for dishonesty associated with manipulating a disaggregated report.

Results of Experiment 2 reveal that managers choose the disaggregated report over the aggregated report about seventy percent of the time regardless of whether they commit *ex-ante* or choose the report *ex-post*. In addition, while we find that the magnitude of classification shifting is lower in the second experiment relative to the first experiment, we still observe a remarkably high magnitude of classification shifting for those managers who choose a disaggregated report in both conditions of Experiment 2. That is, a majority of managers gave up an aggregated report for a disaggregated report that they manipulate for their investors. The results of Experiment 2 are noteworthy because they suggest that a preference for being perceived as a good steward carries a significant weight in the managers' utility function and appears to minimize the role of honesty preferences in curbing managerial opportunism. These results are particularly surprising in a completely anonymous setting which prevents reputation building and so minimizes any associated financial or social sanction concerns.

Our study contributes new and important insights to the existing literature on managerial honesty in reporting. Specifically, we provide new evidence on the effects of honesty preferences and how they fit into managers' utility functions relative to other preferences for wealth and

trustworthiness. Our results also help refine existing understanding of honesty preferences when managerial dishonesty is decoupled from wealth preferences for the manager. Contrasting earlier research, we find that managers develop a self-serving interpretation of dishonest reporting and appear to prioritize preferences for appearing trustworthy above honesty. As managerial honesty in both internal and external reporting is of major interest to the accounting literature due to its potential effect in decreasing the investors' agency costs (Brown et al. 2009), our study carries important contributions to theory, and important practical implications to accounting control system designers and standard setters.

The remainder of this paper is organized as follows: In Section II we develop our hypotheses. In Sections III and IV we present our first experiment and results. In Section V we present our second experiment. Then, we conclude by discussing the implications of our study in Section VI.

2. Background and Hypothesis Development

Background

One of the most widely researched topics of experimental research in managerial accounting is honesty in managerial reporting within a participative budgeting setting (Brown, Evans, and Moser 2009). In this setting, to the extent that managers truthfully communicate their private information in the budget, participative budgeting yields useful information for top management to use in resource allocation decisions (Evans, Hannan, Krishnan, and Moser 2001). While traditional agency theory assumes that managers suffer no disutility from dishonestly representing their private information to build slack and maximize their wealth, prior experimental studies of participative budgeting find that managers exhibit honesty concerns in their budget proposals (Young 1985; Chow, Cooper, and Waller 1988; Evans et al. 2001; Stevens 2002;

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Hannan, Rankin, and Towry 2006). These studies also find that such honesty concerns can lead to increased efficiency for the firm in participative budgeting settings (Evans et al. 2001). This suggests that honesty may support the value of reporting under information asymmetry.

Evans et al. (2001), the seminal study in this stream of research, theorize that the experimental findings of these studies reflect that managers possess a preference for being honest, which curbs the amount of rent they extract through slack creation.[3] Research by Rankin, Schwartz, and Young (2008), however, calls into question how honesty is measured in participative budgeting settings. They note that previous experimental studies finding evidence for honesty use budgetary slack as a direct measure of honesty. They argue that budgetary slack is influenced by other non-pecuniary preferences besides honesty, such as preferences for a fair distribution of wealth. Therefore, Rankin et al. contribute to the literature by attempting to isolate the incremental effect of honesty on budgetary slack by manipulating the mode of communication for the budget proposal, such that subordinates either provide a factual assertion of actual project cost or propose a division of the project earnings without a factual assertion. Rankin et al. find less budgetary slack when the budget communication requires a factual assertion in the setting where the subordinate has unilateral authority and, therefore, conclude that honesty preferences have an incremental effect on reducing managerial self-interested behavior.

We note that all the above studies have exclusively used a setting in which managers had an economic incentive to be dishonest. That is, a manager who wishes to increase their own wealth *must* be dishonest in the report. However, motives for dishonesty in reporting do not necessarily need to be tied to the manager's economic incentives. For example, a manager may submit a performance report to investors to communicate firm outcomes. If the manager has been

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[3] See also Mittendorf (2006) and Gibson, Tanner, and Wagner (2013).

consuming excessively from firm resources, a manager could dishonestly report the outcomes to look like a good steward to investors, without actually being one, if the reporting rules allow for discretion. As earlier research has exclusively considered the effects of honesty preferences in settings in which a manager has an economic incentive for misreporting, we complement and extend this research by examining honesty preferences when dishonesty is not *directly tied* to a manager's economic rewards.

Hypothesis Development

A Modified Investment Game

In our re-examination of the incremental effect of honesty preferences, we develop a modified form of the classic investment game by Berg, Dickhaut, and McCabe (1995). In the original BDM game, an investor decides how much of an endowment to transfer to a manager and how much to keep, and the manager decides how much to return to the investor after the transferred amount has been tripled. Our modified investment game introduces information asymmetry and reporting into the relationship between the investor and the manager. To introduce the potential for information asymmetry, we increase the multiplier to ten, but then add an exogenous shock (which can be thought of as noise in production costs). Because these production costs are exogenously determined, they do not provide information regarding manager ability or type but rather create uncertainty for the investor regarding gross firm productivity and manager behavior. After the manager privately observes the exogenous shock, he chooses his personal pay and provides a report to the investor showing costs and the amount returned.

As in the original BDM investment game, investment makes the investor vulnerable to the opportunism of the manager in the form of high personal pay. Further, there are no direct financial or social sanctions to motivate managers to be trustworthy and return a reasonable amount of firm

profit to the investor. That is, there are no financial penalties, and managers interact anonymously with investors over a computer network in a repeating, single-period setting where manager-investor pairs rotate at the beginning of each period. Therefore, the non-cooperative prediction from game theory is that investors will not invest in such settings.

The BDM investment game, which is commonly called the "trust game," is an abstract reflection of a simple agency relationship (Camerer 2003; Smith 2008). As the game begins with the investor's choice of whether to invest, the investment conveys trust and expectations of trustworthiness (i.e., good stewardship via providing a fair return) to the manager. Further, the amount returned by the manager conveys trustworthiness or "fulfilling the trust or the stewardship role" (Hardin 2002). Contrary to game theory prediction of non-cooperative behavior, Berg et al. (1995) find that a proportion of investors invests and that trustees/managers generally return more than a minimum amount back to investors. This finding has been replicated in many later experimental studies with different variations (Camerer 2003). In their analysis of the motives for investment and return behavior, researchers argue that expectations of trustworthiness account for most of the observed variance in trust and that the trustees' personal utility from meeting investors' expectations and their distributional preferences account for most of the variation of trustworthiness behavior (Ashraf, Bohnet, and Piankov 2006).

Social norm activation theory, consistent with the above argument, explains that cues and information signals present in an economic setting can activate social norms such as fairness, honesty, reciprocity, and trustworthiness (Bicchieri 2006).[4] A social norm is defined as a

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[4] The notion of social norms affecting behavior has a long history in social psychology (e.g., Schwartz 1977). However, the social norm activation theory's reconstruction of what constitutes a social norm is based on results from experimental tests of game theory, including BDM game (Bicchieri 2006; Stevens 2019). Experimental researchers in accounting have found this theory useful to predict behavioral effects of accounting-related information (Maas and Van Rinsum 2013; Davidson and Stevens 2013; Douthit and Stevens 2015; Abdel-Rahim and Stevens 2018).

behavioral rule that can become salient and affect behavior in a social setting. Social norm activation theory suggests that subjects' preference for norm compliance is conditional on whether "…they *recognize* that the norm applies, they infer from some situational cues what the appropriate behavior is, what they should expect others to do, and what they are expected to do themselves…" (Bicchieri 2006, 59).

In our investment setting, the investor-manager relationship contains the key elements of a trusting relationship. These key elements include *mutuality*, *hidden action*, and *cooperative behavior* (Chami and Fullenkamp 2002). Regarding *mutuality*, the actions of the manager affect the earnings of both the investor and the manager, so the two share mutual interests. Regarding *hidden action*, the investor cannot directly observe the actions of the manager, so there is moral hazard in that the investor is vulnerable to the manager's opportunism. Regarding *cooperative behavior*, the manager may cooperate by not taking full advantage of the vulnerability of the investor. Therefore, the situational cues present in our setting trigger expectations of trustworthiness and activate a trustworthiness norm.

Social norm activation theory, however, does not suggest that compliance is instrumentally motivated by the desire to satisfy others' expectations (which may nevertheless be the case for some managers). The theory argues that preferences for norm compliance, although conditional on expectations, can also be rooted in the intrinsic motivation to do what one ought to do. In other words, the theory recognizes individual differences in social norm sensitivity that could affect the manager's level of conformance with a trustworthiness norm (Blay et al. 2017, Abdel-Rahim and Stevens 2018). For example, managers with high social norm sensitivity may only require the personal conviction that trustworthiness is a valid norm in an investment setting, whereas managers with low social norm sensitivity may require the potential for the violation of a

trustworthiness norm to be detected, resulting in negative social or financial sanctions. Therefore, social norm theory explains how ambiguous situations in which there is high information asymmetry or more than one interpretation of the norm may induce some managers to avoid a trustworthiness norm or manipulate the norm to their advantage (Bicchieri and Chavez 2010; 2013). Below we apply insights from the social norm activation theory to develop the hypotheses that we test in our experimental investment setting.

Report Disaggregation and Discretion over Classification

We introduce three reporting regimes to our setting: an aggregated report, a disaggregated report *without* reporting discretion over cost classification, and a disaggregated report *with* reporting discretion over cost classification. Although the three reports serve the same purpose of communicating to the investor how much the manager has allocated to her from firm surplus, they are uniquely distinct in capturing different managerial preferences.

First, a report that aggregates the manager's personal pay and the production costs into a single line item maintains high information asymmetry regarding the manager's trustworthiness. Therefore, the managers' choice of how much personal pay they allocate to themselves in an aggregated report provides a measure of the managers' preferences for being trustworthy (i.e., a good steward who provides a fair allocation). Second, a report that disaggregates the manager's personal pay and the production costs into two line items *without* discretion over cost classification eliminates information asymmetry regarding the manager's trustworthiness. Therefore, the managers' choice of personal pay in a disaggregated report *without* reporting discretion provides a measure of the incremental effect of the managers' preferences for being perceived as trustworthy above the managers' preferences for being trustworthy. Third, a report that disaggregates the manager's personal pay and the production cost *with* reporting discretion over cost classification

allows the manager to choose how much personal pay to allocate to themselves, similar to the above two reports. However, it also gives the managers the ability to either honestly report personal pay or misclassify part or all of it as production costs.

To summarize, the disaggregated report *with* reporting discretion maintains high information asymmetry about the manager's trustworthiness, similar to the aggregated report. Importantly, comparing manager behavior between these two conditions provides a measure of honesty preferences and their incremental effect on managerial opportunism when reporting honesty is not directly linked to lower managerial opportunism.

The Incremental Effect of Preferences for Being Perceived as Trustworthy

As stated earlier, an aggregated report *with* reporting discretion maintains high information asymmetry regarding the manager's trustworthiness. However, a disaggregated report *without* discretion over cost classification eliminates any information asymmetry about the trustworthiness level of the manager by separating the manager's personal pay from the exogenously-determined production costs. That is, a disaggregated report *without* discretion makes transparent the extent to which the manager has engaged in excessive consumption at the expense of the investor.

Recent experimental studies in the participative budgeting literature have documented that reducing the information asymmetry between the investor (principal) and the manager can decrease the manager's excessive consumption of budgetary slack (Hannan et al., 2006; Abdel-Rahim & Stevens, 2018). Specifically, in a face-to-face budget reporting setting, both Hannan et al. (2006) and Abdel-Rahim and Stevens (2018) find that providing the principal with an information system that provides a signal regarding the actual cost of the manager significantly reduces the manager's budgetary slack. Abdel-Rahim and Stevens (2018) further theorize that this result can be attributed to the activation of a social norm for honesty in budget reporting, and the

managers' increased desire to meet their principals' expectations for honesty under lower levels of information asymmetry.

Consistent with the social norm activation theory, the evidence from the above studies suggests that the managers' utility functions include a preference for *being perceive*d as following the social norm that is most appropriate in the setting. In our investment setting, because the manager's conformance with the trustworthiness norm is ambiguous with the aggregated report, we expect that a disaggregated reporting *without* discretion over cost classification will motivate more trustworthy managerial behavior by making violations of a trustworthiness norm transparent to the investor. Therefore, a disaggregated report *without* reporting discretion will reduce managers' consumption of firm resources relative to the aggregated report. We state this prediction formally in our first hypothesis:

H1: Managers' consumption of firm resources will be *lower* under a disaggregated report *without* discretion over cost classification than under an aggregated report.

The Incremental Effect of Honesty Preferences

When managers are granted discretion over cost classification, they are required to make a factual assertion about the amount of personal pay they allocated to themselves. In that sense, a disaggregated report *with* reporting discretion is similar to the participative budgeting settings utilized in earlier experiments as it contains the contextual cues necessary for activating an honesty social norm (Douthit and Stevens 2015; Abdel-Rahim and Stevens 2018). However, when a disaggregated report comes *with* reporting discretion, investors have limited ability to discern the honesty (i.e., truthfulness) of the manager's cost classification. Thus, discretion over cost classification in a disaggregated report also creates ambiguity regarding how much of the firm's profit has been consumed by the manager, similar to an aggregated report. Yet, a manager who desires to maximize their personal consumption of firm resources and keep it hidden from the

investor must engage in classification shifting by misclassifying personal pay as production costs when the report is disaggregated, which is not the case when the two line items are aggregated together. This brings in the question of whether preferences for honesty will have an incremental effect on managers' excessive consumption of firm resources relative to an aggregated report.

As we discuss above, ambiguity due to aggregated reporting may induce managers to not follow the trustworthiness norm as their level of trustworthiness is not transparent to investors. In contrast, however, if we assume that managers possess preferences for honesty, some managers may refrain from misclassifying their personal pay in a disaggregated report *with* reporting discretion. For those managers, if they hold high preferences for being perceived as trustworthy, they will curb their consumption of firm resources in a disaggregated report, even when they have discretion over classification. This will render a positive incremental effect for honesty and higher benefit for a disaggregated report with discretion than an aggregated report. This argument is in line with Rankin et al.'s (2008) theory and experimental evidence.

Alternatively, however, the potential for classification shifting in the disaggregated report *with* reporting discretion offers managers the opportunity to *appear* more trustworthy while simultaneously increasing their consumption of firm resources. We note here that a major difference in our measure of honesty compared to the earlier literature on participative budgeting is that dishonesty from classification shifting is not directly tied to the managers' economic payoffs, but allows mangers to "window dress" the report presented to investors. This may induce some managers to develop a self-serving interpretation of classification shifting as not violating honesty, but simply a tool to facilitate excessive consumption of firm resources while appearing to fulfill the trustworthiness norm and avoid suffering the disutility from not meeting investors' expectations of trustworthiness. This argument of developing self-serving biases in interpreting

expectations for the norm to promote own personal interests is suggested by some researchers in the social norm literature (Posner 2000; Bicchieri and Chavez 2013).[5] This leads to our second prediction:

> **H2:** Managers' consumption of firm resources will be *higher* under a disaggregated report *with* discretion over cost classification than under a disaggregated report *without* discretion.

In summary, there is not a clear prediction about how a disaggregated report *with* discretion will influence managers' choice over personal pay compared to an aggregated report. On the one hand, we suggest that some managers may hold a self-serving bias in interpreting their violation of honesty in reporting. On the other hand, the extant research in managerial accounting research on participative budgeting suggests that the managers' preferences for honesty will reduce their likelihood of engaging in classification shifting. If so, the only way for managers to appear trustworthy is by actually reducing their consumption of firm resources. Given these two competing forces, we present the following null prediction:

> **H3 (null):** Managers' consumption of firm resources will be *no different* under a disaggregated report *with* discretion over cost classification than under an aggregated report.

3. Experiment 1

Participants

One hundred twenty students from a large Southeastern university participated in one of six 90-minute experimental sessions (twenty participants per session). Participants were primarily undergraduate students (56 percent juniors, 36 percent seniors, and 8 percent graduate students)

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[5] Posner (2000) defines social norms as behavioral regularities that emerge as a consequence of people acting in their rational self-interest and their desire to reap the financial rewards of such behavior. He argues that individuals do not have preferences for social norms *per se* but only for the signaling benefits of social norm behavior. Thus, Posner's definition of social norms is consistent with our definition of self-serving bias in social norm expectations.

and evenly split between male and female. The investor and manager roles were randomly assigned and fixed throughout each session and were labelled using neutral terminology (i.e., orange and blue players) to guard against the extraneous influence of role playing (Haynes and Kachelmeier 1998; Hales and Williamson 2010). We conducted the experiment in a computer research laboratory using z-tree software (Fischbacher 2007). The experiment involved no deception of any kind.

Procedures

Instructions and Practice Periods

When students entered the laboratory, they were given cards that indicated their experimental identification numbers. After being seated, participants reviewed and signed an informed consent form. Participants began each experimental session by reading through a set of instructions and then completing a quiz to ensure that they understood the instructions. In the few cases where there were misunderstandings, further guidance was provided by an experimenter. After the quiz, participants worked through six practice investment periods. The practice periods were identical in all respects to the regular investment periods with two exceptions: participants were not compensated, and they made decisions for both roles to ensure that they fully understood the economic incentives tied to each role. After the practice periods, participants were informed of the role to which they had been randomly assigned.

Sequence of Decisions

Figure 1 presents the investment decision as presented to participants (Panel A) and the full decision tree (Panel B). Participants made decisions sequentially over ten periods. At the start of each period, the investor (i.e., the orange player) chose whether to invest (continue to stage two) or not invest (exit at stage one). If the investor chose not to invest, the period ended at stage one

with compensation of 10 points for the investor and 0 points for the manager. If the investor chose to invest, the 10 points were multiplied by 10 and stage two started with 100 points of gross productivity. The manager (i.e., the blue player) then privately observed the exogenous shock, which decreased the gross productivity by 50, 60, 70, 80 or 90 points. These points were labeled black points. The remaining unmarked points were then available for the manager to keep or return to the investor. The manager could keep any amount of the remaining points by marking them blue in increments of five, so long as they returned at least five points to the investor by marking them orange. The points kept by the manager reflected self-selected personal pay. At the end of the period, the manager submitted a report communicating costs and the amount returned to the investor.

[Insert Figure 1 about here]

Experimental Design and Manipulations

Within the context of our modified investment game, we manipulated two factors between subjects. The first factor we manipulated between subjects was whether the report submitted by the manager to the investor contained aggregated or disaggregated costs. Nested within the disaggregated reporting condition, we also manipulated between subjects the presence of manager discretion over classification of the reported line items of costs. This nested design resulted in three reporting regimes: an aggregated report, a disaggregated report *without* reporting discretion, and a disaggregated report *with* reporting discretion. Data for all ten investment periods are used in the analysis and, therefore, a third factor was period. Each of the ten periods is considered independent because investor-manager pairings were anonymous and rotated at the beginning of each period so no investor interacted with the same manager more than once. States of the exogenous shock were determined randomly in advance so that each participant had the same set of states. To control

for potential order effects, the order of the states were counterbalanced at two levels, and so order is a fourth factor. Because order has no effect on our results, it is excluded from further discussion.

The three reporting regimes differed based on the level of detail presented regarding the period costs or the discretion granted to the manager over cost classification (see Appendix B for illustrations of each report). In the aggregated report, the period costs were reported to the investor as a single line item (i.e., the black and blue point total). In the two disaggregated reports, the period costs were reported separately as two line items: one for the exogenously determined production costs (black points) and one for the personal pay (blue points). In the disaggregated report *without* discretion, the two line items were automatically populated when the manager chose his personal pay. In the disaggregated report *with* discretion, the manager first chose his personal pay (how many points to mark blue) and then indicated the amount of personal pay he wanted to report. If the manager chose to report personal pay lower than the actual pay he allocated to himself, the difference was reported as black points. In all reporting regimes, the manager saw a screen summarizing the unmarked points he allocated to himself and what the report would look like prior to submitting his final report to the investor.

Our three main dependent variables are: (a) manager consumption from available firm profit after the reduction from the exogenous shock (i.e., manager self-selected personal pay), (b) classification shifting, and (c) frequency of investment by investors. Our experimental design ensures that managers' monetary incentives for opportunistic consumption are identical across the three experimental conditions and controls for any direct social or financial penalties for such manager opportunism. In particular, investor-manager pairings were anonymous and lasted for only one period. As such, we control for reputational concerns and direct social sanctions that might motivate some managers to fulfill a trustworthiness norm in their return behavior. By design,

there was high information asymmetry about costs in both the aggregated report and the disaggregated report *with* discretion over classification. In these two conditions, therefore, we elicited investors' beliefs about the exogenous shock. After investors reviewed their report, they were asked to indicate what they believed the exogenous shock was for the period (e.g., a reduction of 50, 60, 70, 80, or 90). This provides a useful measure of investors' conjectures regarding the trustworthiness and reporting honesty of managers after they received the report and learned their returns for the period.

Compensation

Participants received a $5.00 show-up fee for participating in an experimental session. In addition, participants received $1.00 for each point earned during a randomly selected period. This further broke the association between investment periods and emphasized our repeating, single-period investment setting. After completing an online post-experimental questionnaire, participants were paid privately in cash and then dismissed from the experimental lab. Average total compensation was $20.33 and ranged from $5.00 to $50 for the 90-minute experiment.

4. Results

Descriptive Statistics

Table 1 contains a summary of descriptive statistics across each of the three reporting regimes. Panel A presents the average manager consumption (self-selected personal pay) over all ten investment periods, the early periods (1-5), and the later periods (6-10). Manager consumption is measured as the percentage of available points that the manager allocated to himself (hereafter called Manager Percent Consumption). This panel shows that manager percent consumption appears lowest under the disaggregated report *without* discretion over cost classification. Panel B

presents the frequency of investment by investors for all ten investment periods, the earlier periods, and the later periods.

[Insert Table 1 about here]

Tests of Hypotheses

Hypothesis 1 predicts that disaggregated reporting *without* discretion over cost classification will increase the amount managers return to investors on their investment compared to an aggregated report. Table 2 presents an analysis of manager return behavior as measured by manager percent consumption. The table shows that manager percent consumption is significantly lower under the disaggregated report *without* discretion over cost classification than the aggregated report ($t = -1.98$, p = 0.027, one-tailed). The effect is present across all ten investment periods, as well as the earlier periods and the later periods. Thus, we find strong and consistent support for H1.

[Insert Table 2 about here]

Hypothesis 2 predicts that managers will self-justify their violation of an honesty norm to appear more trustworthy than they actually are in the disaggregated report *with* discretion. Consistent with H2, we find that, compared to a disaggregated report *without* discretion, introducing discretion results in a significant increase in manager percent consumption ($t = 2.22$, p = 0.016, one-tailed).

Hypothesis 3 captures the competing effects of H1 and H2 for the incremental effect of honesty preferences on managerial consumption of firm resources. As shown in Table 2, we find no significant difference between managerial consumption under an aggregated report and a disaggregated report *with* reporting discretion over cost classification ($t = 0.33$, p = 0.75, two-tailed). Therefore, our evidence suggests that when dishonesty is not directly tied to the manager's

economic outcomes, managers self-justify their dishonesty and eliminate an incremental effect for honesty suggested by earlier studies within a participative budgeting context.

Process Measures

To directly examine whether managers engaged in this internal form of self-serving interpretation of expectations of a social norm for honesty, we test the response to two items on the post-experimental questionnaire (PEQ, hereafter). Participants responded to these PEQ items on a 7-point Likert scale with 1 labeled "Strongly Disagree," 4 labeled "Neutral," and 7 labeled "Strongly Agree." We first test the response to the following PEQ item: "I consider a report that indicates BLUE points that are lower than the actual points marked BLUE as a dishonest report." As presented in Panel A of Table 3, we find that participant responses to this item differed significantly by role. The average response to this item was 5.95 for participants in the investor role but only 4.45 for participants in the manager role, which is significantly different ($t = 3.36$, p = 0.002, one-tailed). We also test the response to the following PEQ item: "If a Blue player reports BLUE points lower than the actual points marked BLUE, I consider this acceptable." While the average response to this item was higher for participants in the manager role than those in the investor role, the difference in responses was not statistically significant ($t = 0.98$, p = 0.16, one-tailed). Overall, these two PEQ items provide some support that managers developed a self-serving bias in their interpretation of an honesty norm and self-justified engaging in classification shifting.

We also examine the motive for classification shifting by considering whether classification shifting is positively associated with the amount managers allocate to themselves – that is, whether more opportunistic managers will also be more likely to engage in higher levels of classification shifting. Table 3 presents the reporting behavior of managers. As Panel B shows, the percent of classification shifting ranges from 0 to 100 percent with an average of 48.35 percent. In

addition, as Panel C shows, manager percent consumption is highly correlated with the percent of classification shifting across all ten investment periods ($r = 0.74$, $p < 0.01$, two-tailed), as well as the earlier periods ($r = 0.81$, $p < 0.01$, two-tailed) and the later periods ($r = 0.68$, $p = 0.03$, two-tailed). This provides strong and consistent evidence that managers engaged in classification shifting to appear more trustworthy to investors than they actually were.

[Insert Table 3 about here]

Supplemental Analyses of Investor Behavior

While managers' trustworthiness can be transparently observed from a disaggregated report *without* discretion, investors must form subjective beliefs about managers' trustworthiness in the two reporting regimes that contain information asymmetry. These beliefs are important because embedded in reporting misclassification is the notion that investors will swayed by the misclassification and underestimate the extent to which managers have allocated resources to themselves. To better understand investors' beliefs about the managers' trustworthiness in these two reporting regimes, we asked investors to indicate what they believed the exogenous shock was for each period (i.e., a reduction of 50, 60, 70, 80, or 90). We categorize the responses to this question into three categories: the investor underestimated, accurately estimated, or overestimated the actual reduction from the exogenous shock.[6]

Table 4, Panel A shows that investors receiving an aggregated report had estimates of the exogenous shock that were more accurate than what would be expected by pure chance (31% vs 20%; $\chi^2 = 11.47$, $p < 0.01$). This increase in accuracy arises because managers are not completely

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[6] To generate this categorical variable, we first calculated the difference between the point reduction in gross productivity from the exogenous shock and the investor's estimation of those points (measured each period after reviewing the manager's report). Then we assigned an ordinal ranking based on whether the difference is positive (investors held a belief that it was a better exogenous shock than actual), zero (investors accurately estimated the exogenous shock), or negative (investors held a belief that it was a worse exogenous shock than actual).

opportunistic. As such, the net amount returned to the investors reveals information about the realized state of nature. However, it's clear that a high degree of information asymmetry remains. When investors receive a disaggregated report *with* discretion, their estimate accuracy further increases relative to what we would expect if they were as accurate as in the aggregated condition (45% vs 31%; $\chi^2 = 12.54$, $p < 0.01$). Because there is no difference in the amounts returned to investors between a disaggregated report *with* discretion and an aggregated report, this additional reduction in information asymmetry likely comes from the honesty of some managers combined with investor belief in those disaggregated reports, despite the managers having discretion over classification.

[Insert Table 4 about here]

To better understand how discretion affects investor beliefs, we next consider whether investor trust in reports results in biased investor estimates about the magnitude of the exogenous costs. Table 4, Panel B presents multinomial repeated measures logistic regressions on investor beliefs. Using two different measures, we find that investors' beliefs about the states of the exogenous shock (for the identical set of states) were significantly higher when they received a disaggregated report *with* discretion than when they received an aggregated report. In other words, although manager consumption was almost equal under the two reporting regimes, investors believed that managers were more trustworthy under the disaggregated report *with* discretion over classification.

Finally, given the above misattribution, we examine how discretion alters investor belief revision and investment. In particular, we examine whether investors' choice to invest in later rounds is less sensitive to investors' prior returns when discretion over cost classification is present in the disaggregated report. To test this, we conduct an ANOVA of investors' investment

frequency in the second half of the experiment conditional on the reporting regime and the level of return investors received in the first half of the experiment. For the dependent variable, we sum up the number of times investors chose to invest (continue to Stage 2) in the last five periods of the experiment. For our investor returns variable, we construct a dichotomous variable reflecting whether or not investors had received above median returns in the first half of the experiment.

As presented in Panel C of Table 4, we find that investors are highly sensitive to the level of returns they received in the first half of the experiment ($F = 20.22$, $p < 0.01$). However, this relation differs significantly across reporting regimes ($F = 5.17$, $p < 0.01$). In untabulated results, we find a significant positive correlation between an investor's investment decision in a given period and the amount allocated to her in the prior period in the disaggregated reporting *without* discretion regime ($r = 0.21$, $p = 0.02$, two-tailed) and in the aggregated reporting regime ($r = 0.24$, $p < 0.01$, two-tailed). In the disaggregated reporting *with* discretion regime, however, the correlation is no longer significant ($r = 0.12$, $p = 0.19$, two-tailed). As shown in Figure 2, investors are the most sensitive to returns under the disaggregated reporting *without* discretion regime and the least sensitive under the disaggregated *with* discretion regime.

[Insert Figure 2 about here]

Collectively, our results suggest that, although a disaggregated report *with* discretion reduces information asymmetry regarding managers' trustworthiness relative to an aggregated report (because some reports are honest), managers who misclassify were at least partially successful in appearing more trustworthy to investors by engaging in classification shifting. In addition, this misclassification has implications for investor willingness to invest.

5. Experiment 2

Our evidence from Experiment 1 is somewhat at odds with earlier conclusions from Rankin et al. (2008) of a positive incremental effect for honesty preferences in curbing managerial opportunism. Instead, our results suggest that, when managers are asked to report on their own consumption, but they also have reporting discretion, they use that discretion in reporting to *appear* trustworthy despite being relatively selfish compared to what they do when their behavior is accurately and transparently reported. Moreover, the more managers take, the more they misclassify, when possible, to hide their opportunism. To further investigate how honesty preferences affect managers in this reporting setting, we conduct a second experiment in which we require managers to choose which report to submit to the investor: an aggregated report or a disaggregated report *with* reporting discretion. We manipulate between-subjects whether managers commit to one of the two reports *ex-ante* before investors decide whether to invest or, alternatively, choose the report *ex-post* after investors make their investment choice. The design for Experiment 2 is presented in Figure 3.

[Insert Figure 3 about here]

Our additional manipulation in this experiment allows us to investigate more fully the motives for managers to be dishonest (i.e., engage in classification shifting). In the *ex-ante* condition, managers may engage in a form of cheap talk with the hope that investors will view them as better stewards if they commit to use the disaggregated report. However, in the *ex-post* condition, managers who have preferences for honesty, but who also want to take more personal pay than they would like the investor to know, could, *ex-post*, choose an aggregated report to keep their pay uncertain while also avoiding any disutility from dishonesty associated with manipulating

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a disaggregated report. Alternatively, managers may prefer having discretion if their preferences for appearing trustworthy dominate their preferences for honesty.

We recruited 120 students for Experiment 2 from the same student population as the first experiment with 30 pairs under the *ex-ante* condition and 30 pairs under the *ex-post* condition. Recruiting and experimental procedures were conducted in a similar manner to the first experiment and students' demographics were not statistically different from the first experiment.

Results of Experiment 2 are presented in Table 5. As documented in Panels A and B, managers choose the disaggregated report over the aggregated report about seventy percent of the time regardless of whether they commit ex-ante or choose the report ex-post. In addition, as documented in Panel C, we find that the magnitude of classification shifting is about 40 percent in both experimental conditions. While classification shifting is lower than that documented in the first experiment, it is still a remarkably high magnitude of classification shifting for those managers who choose a disaggregated report in both conditions. That is, a majority of managers gave up an aggregated report for a disaggregated report that they manipulate for their investors.

[Insert Table 5 about here]

Next, we consider the difference in managerial consumption across the aggregated report and the disaggregated report with discretion across the *ex-ante* and the *ex-post* report selection conditions. As presented in Figure 4 and Panel C of Table 5, managers who choose an aggregated report under the *ex-post* condition consumed significantly more firm profits than managers who chose a disaggregated report with discretion in that condition. This suggests that some managers in the *ex-post* condition choose to maximize consumption without having to violate honesty by choosing the aggregated report.

[Insert Figure 4 about here]

Overall, the results of Experiment 2 suggest that a preference to appear as a good steward carries a significant weight in the managers' utility function and appears to minimize the role of honesty preferences in curbing managerial opportunism. This finding is particularly striking in a completely anonymous setting which controls for reputation building, or otherwise any or social sanctions or concerns for the managers.

6. Conclusion

Using a highly-controlled investor-manager investment game found in the literature we re-examine the effect of honesty preferences when managers do not have direct economic incentives to be dishonest in their reports. In particular, we use a modified version of BDM's single-period investment game where there are no direct social or financial penalties for opportunistic managers who consume most or all of the period profit. In our first experiment, we find that managers return more to investors on their investment under disaggregated reporting than under aggregated reporting, but only when managers do not have discretion over cost classification. When managers have discretion over cost classification, we find that some managers use that discretion to engage in classification shifting and misclassify some of their personal pay as exogenous production cost. This classification shifting reverses the benefit of disaggregation to investors by allowing managers to reduce the amount returned while maintaining a relatively high level of investment.

Our main results and supplemental tests of post-experimental questionnaire items provide evidence that managers exhibit a preference for being perceived as good stewards (i.e., trustworthy in providing a fair return), beyond simply being a good steward, when an accounting report can credibly reveal their behavior. However, we find little evidence that honesty preferences alone can produce a similar effect when the accounting report allows for reporting discretion. Instead, a disaggregated reporting *with* discretion over cost classification induced managers to engage in

classification shifting to look trustworthy while maintaining high consumption of firm resources, and investors underestimated the extent to which managers engaged in classification shifting due to expectations for an honesty norm. Again, the results we document are purely behavioral as managers incurred no direct financial or social penalties to motivate them to be trustworthy in returning a fair amount of firm profit to the investor. Thus, our results provide contribution to the earlier literature on managerial honesty in reporting by providing strong evidence that the incremental effect of honesty may not be present in settings in which managers can use dishonesty to achieve the appearance of being good stewards.

Our theory and experimental results contribute to the accounting literature by documenting effects of honesty preferences in a setting that disentangles honesty from economic incentives for misreporting and provides conditions under which honesty preferences might not have an incremental effect that reduces the agency costs. In addition to our theoretical contribution, our study provides complementary insights for accounting standard setters and regulators. Our study contributes to the literature by suggesting that when managers have discretion over cost classification, they will engage in classification shifting to mislead investors into thinking that they are more trustworthy than they actually are. This potential negative effect of disaggregated reporting has not been previously demonstrated in the literature. Interestingly, classification shifting arose endogenously in our experimental setting due to expectations for a trustworthiness norm. Our study suggests that standard setters and regulators should consider how reporting regimes reinforce or dissipate various social norms.

The results and implications of this study are subject to the same caveats associated with much experimental research. That is, this study contains a stark investment game that was designed to provide a strong test of relevant theory related to investment settings and corporate governance.

Although this experimental setting was designed to capture important aspects of real-world agency settings where capital investment is based on reports provided by the manager, it still abstracts from such settings. To the extent that our experimental design captures important aspects of these investment settings, however, we believe that our results provide useful insights that may generalize to such settings. In particular, we believe that these results have potential implications for theory in managerial accounting and the design of reporting standards with regard to reporting disaggregation.

References

Abdel-Rahim, H. Y., and D. E. Stevens. 2018. Information System Precision and Honesty in Managerial Reporting: A Re-examination of Information Asymmetry Effects. *Accounting, Organizations and Society* 64: 31– 43.

Ashraf, N., I. Bohnet, and N. Piankov. 2006. Decomposing trust and trustworthiness. *Experimental Economics* 9(3): 193-208.

Berg, J., J. Dickhaut, and K. McCabe. 1995. Trust, reciprocity, and social history. *Games and Economic Behavior* 10: 122–142.

Bicchieri, C. 2006. The grammar of society: The nature and dynamics of social norms. New York: *Cambridge University Press.*

_____, and A. Chavez. 2010. Behaving as expected: Public information and fairness norms. *Journal of Behavioral Decision Making* 23 (2): 161–178.

_____, _____. 2013. Norm manipulation, norm evasion: experimental evidence. *Economics and Philosophy 29*(02): 175–198.

Blay, A., E. Gooden, M. Mellon, and D. Stevens. 2017. The usefulness of social norm theory in empirical business ethics research: A review and suggestions for future research. *Journal of Business Ethics* 1–16.

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

Camerer, C. 2003. *Behavioral Game Theory: Experiments in Strategic Interaction.* Princeton, NJ: Princeton University Press.

Chami, R., and C. Fullenkamp. 2002. Trust and efficiency. *Journal of Banking and Finance* 26: 1785–1809.

Chow, C., J. Cooper, and W. Waller. 1988. Participative budgeting: Effects of a truth-inducing pay scheme and information asymmetry on slack and performance. *The Accounting Review* 63 (1): 111–122.

Davidson, B. I., and D. E. Stevens. 2013. Can a Code of Ethics Improve Manager Behavior and Investor Confidence? An Experimental Study. *The Accounting Review* 88 (1): 51–74.

Douthit, J. and D. E. Stevens. 2015. The robustness of honesty effects on budget proposals when the superior has rejection authority. *The Accounting Review* 90 (2): 467–493.

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

Fischbacher, U. 2007. z-Tree: Zurich Toolbox for Ready-Made Economic Experiments. *Experimental Economics* 10: 171–78.

Gibson, R., Tanner, C., & Wagner, A. F. (2013). Preferences for truthfulness: Heterogeneity among and within individuals. *American Economic Review* 103 (1): 532-548.

_____, and M. G. Williamson. 2010. Implicit employment contracts: The limits of management reputation for promoting firm productivity. *Journal of Accounting Research* 48 (1): 147–176.

Hannan, L., F. Rankin, and K. Towry. 2006. The effect of information systems on honesty in managerial reporting: A behavioral perspective. *Contemporary Accounting Research* 23 (4): 885–915.

Hardin, R. 2002. *Trust and Trustworthiness*. New York: Russell Sage Foundation.

Haynes, C. M., and S. J. Kachelmeier. 1998. The Effects of Accounting Context on Accounting Decisions: A Synthesis of Cognitive and Economic Perspectives in Accounting Experimentation. *Journal of Accounting Literature* 17: 97–136.

Maas, V. S., and M. Van Rinsum. 2013. How control system design influences performance misreporting. *Journal of Accounting Research* 51 (5): 1159–1186.

Mittendorf, B. (2006). Capital budgeting when managers value both honesty and perquisites. *Journal of Management Accounting Research* 18 (1): 77-95.

Posner, E. 2000. *Law and Social Norms*. Cambridge, MA: Harvard University Press.

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

Smith, V. 2008. *Rationality in Economics: Constructivist and Ecological Forms*. New York: Cambridge University Press.

Stevens, D. *2002*. The effect of reputation and ethics on budgetary slack. *Journal of Management Accounting Research* 14 (1): 153-171.

Stevens, D. 2019. Social Norms and the Theory of the Firm. New York, NY: *Cambridge University Press.*

Young, M. 1985. Participative budgeting: The effects of risk-aversion and asymmetric information on budgetary slack. *Journal of Accounting Research* 23 (2): 829–842.

FIGURE 1
Sequence of Events

Panel A: Investment Decision
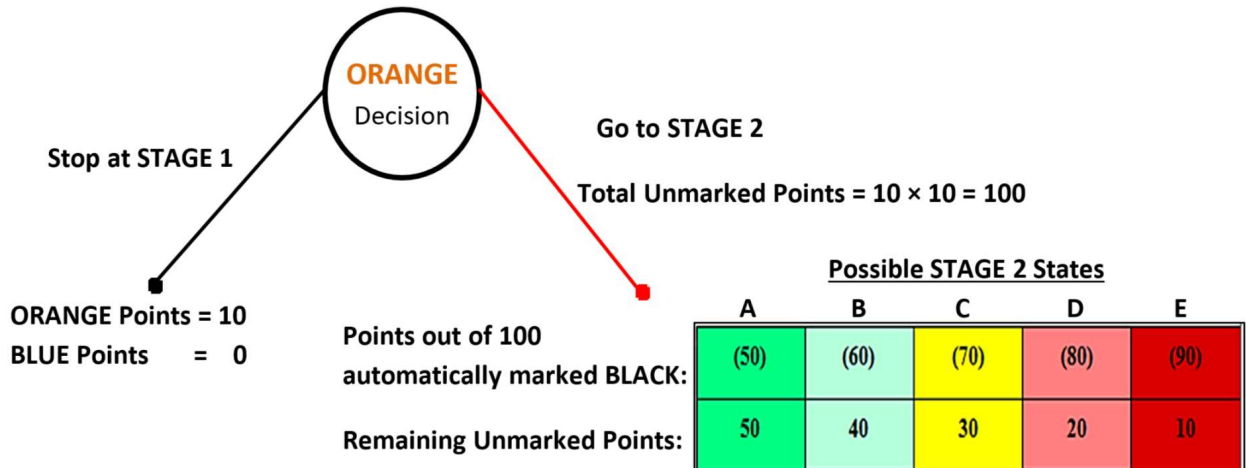
Panel B: Full Decision Tree of the Modified Investment Game
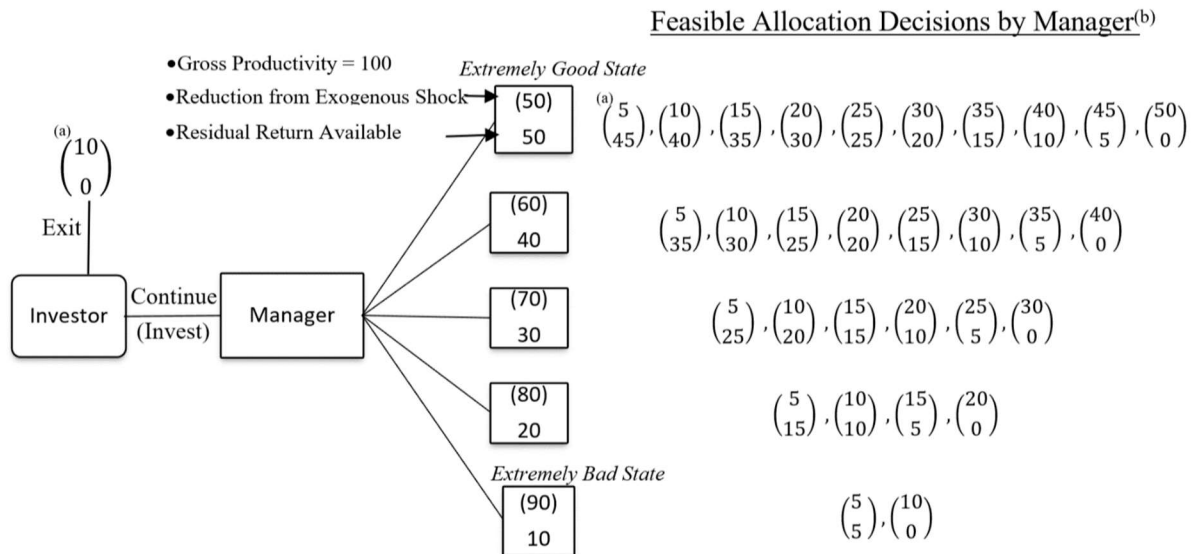
(a)   Within parentheses, upper represents the investor's payoff, and lower represents the manager's payoff.
(b)   The Manager's allocation decision is in integers of 5. Minimum amount required to be returned to the investor is 5.

FIGURE 2
The Sensitivity of Investors' Investment Decisions to Prior Returns by Reporting Regime[a]
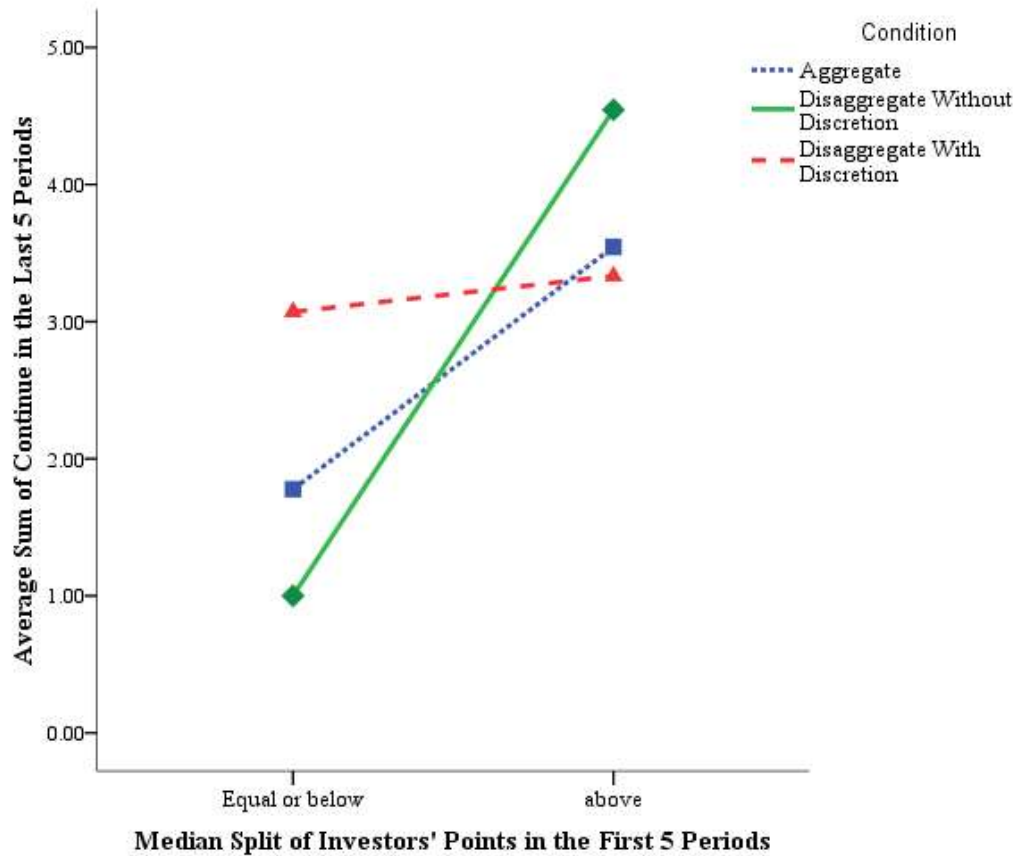
[a] On the horizontal axis we include a dichotomous variable reflecting whether or not investor received above median returns in the first half of the experiment (periods 1 – 5). On the vertical axis we include the average investor's investment frequency in the second half of the experiment (periods 6 – 10) with a minimum of no investment and a maximum of five investments per investor. The three graphed lines represent our three reporting regimes in Experiment 1: an aggregated report; a disaggregated report *without* discretion over cost classification; and a disaggregated report *with* discretion over cost classification.

FIGURE 3
Experiment 2 Decision Timelines by Condition

Ex-Ante **Choice of Report Format**

Before the investor decides to invest, the manager chooses whether to use an aggregated report or a disaggregated report *with* discretion over cost classification.

```
┌──────────┐   ┌──────────┐   ┌──────────┐   ┌──────────┐   ┌──────────┐   ┌──────────┐
│ Manager  │   │ Investor │   │ Investor │   │ Manager  │   │ Manager  │   │ Investor │
│ Selects a│ → │ Learns   │ → │ Decides  │ → │ Learns   │ → │ Prepares │ → │ Learns   │
│ report   │   │ the      │   │ to Invest│   │ the state│   │ & submits│   │ his      │
│ format   │   │ manager's│   │ or Exit  │   │ of nature│   │ report to│   │ return   │
│          │   │ report   │   │          │   │ & makes  │   │ investor │   │ through  │
│          │   │ format   │   │          │   │ the      │   │          │   │ report   │
│          │   │          │   │          │   │allocation│   │          │   │          │
│          │   │          │   │          │   │ decision │   │          │   │          │
└──────────┘   └──────────┘   └──────────┘   └──────────┘   └──────────┘   └──────────┘
```
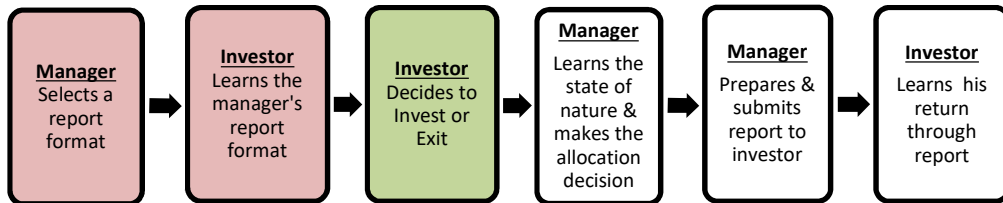
Ex-Post **Choice of Report Format**

The investor decides whether to invest before learning whether the manager chose to use an aggregated report or a disaggregated report *with* discretion over cost classification.

```
┌──────────┐   ┌──────────┐   ┌──────────┐   ┌──────────┐   ┌──────────┐
│ Investor │   │ Manager  │   │ Manager  │   │ Manager  │   │ Investor │
│ Decides  │ → │ Selects a│ → │ Learns   │ → │ Prepares │ → │ Learns   │
│ to Invest│   │ report   │   │ the state│   │ & submits│   │ his      │
│ or Exit  │   │ format   │   │ of nature│   │ report to│   │ return   │
│          │   │          │   │ & makes  │   │ investor │   │ through  │
│          │   │          │   │ the      │   │          │   │ report   │
│          │   │          │   │allocation│   │          │   │          │
│          │   │          │   │ decision │   │          │   │          │
└──────────┘   └──────────┘   └──────────┘   └──────────┘   └──────────┘
```
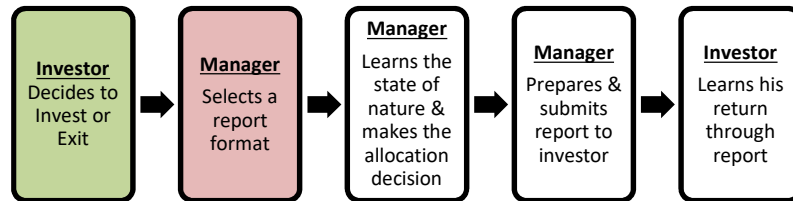
FIGURE 4
Managerial Consumption of Firm Profit by Report [a]
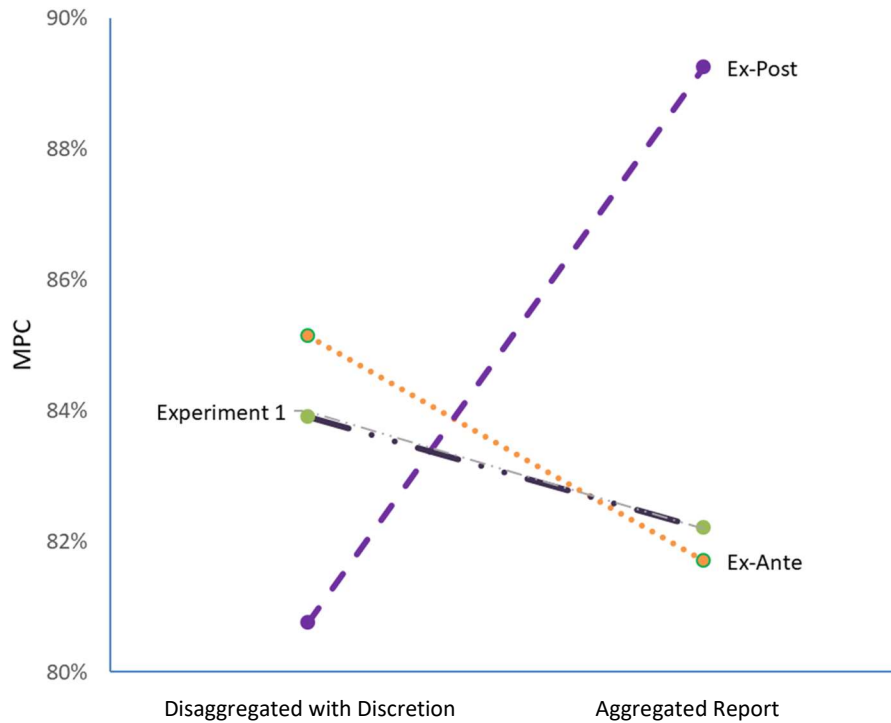
36

TABLE 1
Descriptive Statistics

Panel A: Manager Consumption by Reporting Regime

Reporting Regime	All Ten Periods (1-10)			Early Periods (1 – 5)			Later Periods (6 – 10)		
	Total Taken[a] mean (s.d.)	Total Avail[b] mean (s.d.)	MPC[c] mean (s.d.)	Total Taken[a] mean (s.d.)	Total Avail[b] mean (s.d.)	MPC[c] mean (s.d.)	Total Taken[a] mean (s.d.)	Total Avail[b] mean (s.d.)	MPC[c] mean (s.d.)
Aggregated Report (*n* = 20)	127.25 (40.08)	155.25 (36.97)	82.2% (16.03)	75.00 (2212)	94.25 (24.40)	80.8% (17.02)	52.25 (32.6)	61.00 (29.94)	81.4% (26.39)
Disaggregated Report *without* Discretion (*n* = 20)	117.75 (44.71)	161.75 (41.52)	71.7% (17.26)	65.25 (25.05)	91.75 (25.92)	71.5% (17.34)	52.50 (31.1)	70.00 (32.61)	69.3% (22.94)
Disaggregated Report *with* Discretion (*n* = 20)	146.50 (57.61)	173.00 (52.87)	83.9% (17.44)	78.50 (26.40)	95.5 (21.75)	81.9% (17.90)	68.00 (39.6)	77.50 (41.12)	82.9% (25.90)

[a] **Total Taken** = Average total points taken by manager over the indicated periods (only when investor chose to invest).

[b] **Total Available** = Average total points available for the manager after the realized exogenous shock to make the allocation decision over the indicated periods (only when investor chose to invest).

[c] **Manager Percent Consumption (MPC)** = $\dfrac{\text{Total points taken by manager}^{(b)}}{\text{Total points available after realized exogenous shocks}^{(c)}}$

Panel B: Investor Frequency of Investment by Reporting Regime

Reporting Regime	All Ten Periods (1 – 10)		Early Periods (1 – 5)		Later Periods (6 – 10)		Test of Difference in % Investment (1 – 5) vs. (6 – 10)		
	Invest (out of 200)	% Invest[d]	Invest (out of 100)	% Invest[d]	Invest (out of 100)	% Invest[d]	df	t	p-value*
Aggregated Report (*n* = 20)	136	68%	81	81%	55	55%	198	-4.08	0.000
Disaggregated Report *without* Discretion (*n* = 20)	137	68.5%	78	78%	59	59%	198	-2.94	0.004
Disaggregated Report *with* Discretion (*n* = 20)	143	71.5%	80	80%	63	63%	198	-2.69	0.008

[d] Percent Investment = $\dfrac{\text{Frequency of periods in which "Continue" was selected by all Investors}}{\text{Total cumulative number of periods for all investors}}$

* Reported p-values are two-tailed.

TABLE 2
Manager Return Behavior by Reporting Regime

Comparisons of Manager Percent Consumption[a]

Comparison	All Ten Periods (1-10)			Early Periods (1 – 5)			Later Periods (6 – 10)		
	df	t	p-value	df	t	p-value	df	t	p-value
Disaggregated Report *without* Discretion *versus* Aggregated Report **(H1)**	38	-1.98	**0.027***	38	-1.71	**0.048***	38	-1.54	**0.065***
Disaggregated Report *with* Discretion *versus* Disaggregated Report *without* Discretion **(H2)**	38	2.22	**0.016***	38	1.87	**0.034***	38	1.76	**0.04***
Disaggregated report *with* Discretion *versus* Aggregated report **(H3)**	38	0.33	0.75	38	0.21	0.83	38	0.18	0.85

[a] **Manager Percent Consumption** $= \dfrac{\text{Total points taken by manager}}{\text{Total points available after realized exogenous shock}}$

*p-values in bold are one-tailed. All other p-values are two-tailed.

TABLE 3
Manager Reporting Behavior under the Disaggregated Report with Discretion

Panel A: Managers and Investors' Beliefs[a] about whether Classification Shifting is a Violation of an Honesty Norm

PEQ Item	Managers' Responses $n = 20$		Investors' Responses $n = 20$		Test of Differences (Managers vs. Investors)		
	Mean	s.d.	mean	s.d.	df	t	p-value (one-tailed)
Beliefs about Honesty: "I consider a report that indicates BLUE points that are lower than the actual points marked BLUE as a dishonest report"	4.45	1.47	5.95	1.35	38	-3.36	**< 0.01**
Beliefs about Acceptability: "If a BLUE player reports BLUE points in the report that are lower than the actual points marked BLUE, I consider this acceptable."	4.30	0.80	3.80	2.14	38	.98	0.16

[a] Reported in Panel A are managers' and investors' mean responses to the two exit questionnaire items measured on a 7-point scale in which 1 was labeled "strongly disagree" and 7 was labeled "strongly agree" for both items.

Panel B: Classification Shifting

Reporting Regime	Total Points Shifted	Total Points Available	Min % Shifted[c]	Max % Shifted[c]	Mean % Shifted[c]
Disaggregated Report *with* Discretion ($n = 20$)	69.75	143.50	0%	100%	48.35%

Panel C: Correlation between Manager Percent Consumption[b] and Percent Classification Shifting[c]

Correlation	All Ten Periods (1-10)			Early Periods (1 – 5)			Later Periods (6 – 10)		
	n	r	p-value*	*n*	r	p-value*	*n*	r	p-value*
Pearson Correlation	20	0.745	<0.01	10	0.808	<0.01	10	0.682	0.03
Spearman Correlation	20	0.765	<0.01	10	0.696	0.03	10	0.812	<0.01

[b] **Manager Percent Consumption (MPC)** $= \dfrac{\text{Total points taken by manager}}{\text{Total points available after realized exogenous shock}}$

[c] **Percent Classification Shifting** $= \dfrac{\text{Total points manager misclassified}}{\text{Total points available for misclassification}}$

* P-values reported on Panel C are two-tailed.

TABLE 4
Investors' Beliefs about the Exogenous Shock and the Sensitivity of Investments to Prior Returns

Panel A: Accuracy of Investors' Beliefs about the Exogenous Shocks[a]

| Reporting Regime | Estimate < Actual | | Estimated = Actual | | Estimated > Actual | | Total |
	n	%	n	%	n	%	n
Aggregated Report	50	37%	43	31%	43	32%	136
Disaggregated Report *with* **Discretion**	27	19%	65	45%	51	36%	143

[a] After investors reviewed the reports under the aggregated reporting and the disaggregated reporting *with* discretion regimes, they were asked to indicate what they believed the exogenous shock was for the period (i.e., a reduction of 50, 60, 70, 80, or 90). We categorize investors responses into three categories: underestimated the exogenous shock; accurately estimated the exogenous shock; and overestimated the exogenous shock. To the extent the investor overestimated the reduction from the exogenous shock, she underestimated the manager's opportunism in the amount returned.

Panel B: Multinomial Repeated Measures Logistic Regressions on Investors' Beliefs

Model	Wald Chi-Square	p-value
Model 1[b]		
Dependent variable: Ranked estimate of the exogenous shock		
Coded: 1= "Estimate < Actual"; 2="Estimate=Actual"; 3="Estimate>Actual"	2.95	**0.04***
Factor: Reporting Regime		
Coded: 1= "Aggregated"; 2= "Disaggregated *with* Discretion"		
Model 2 [c]		
Dependent variable: Estimate of the exogenous shock		
Coded: 90; 80; 70; 60; 50	3.06	**0.04***
Factor: Reporting Regime		
Coded: 1= "Aggregated"; 2= " Disaggregated *with* Discretion"		

(b) To generate the dependent variable in Model 1, we first calculated the difference between the actual point reduction in gross productivity from the exogenous shock, and the investor's estimation of those points (measured each period after investors reviewed the manager's report under the aggregated reporting and the disaggregated reporting *with* discretion regimes). Then we assign an ordinal ranking based on whether the difference is positive (coded 1: investors held a belief that it was a better exogenous shock than actual), zero (coded 2: investors accurately estimated the exogenous shock), or negative (coded 3: investors held a belief that it was a worse exogenous shock than actual).

(c) After investors reviewed the reports under the aggregated reporting and the disaggregated reporting *with* discretion regimes, they were asked to indicate what they believed the exogenous shock was for the period (i.e., a reduction of 50, 60, 70, 80, or 90). The analysis in Model 2 are estimations of investors for identical states of the exogenous shock across the two reporting regimes.

*p-values in bold are one-tailed.

Panel C: ANOVA of Investor's First Half Returns on Second Half Investment

Source	Type III Sum of Squares	df	Mean Square	F	P-value*
Corrected Model	79.57	5	15.91	6.64	0.00
Intercept	464.65	1	464.65	194.0	0.00
Reporting Regime[(e)]	2.89	2	1.45	0.60	0.54
Above_median_returns[(f)]	48.40	1	48.40	20.21	0.00
Reporting Regime x Above_median_returns	24.73	2	12.36	5.16	**0.01**
Error	129.27	54	2.39		
Total	731.00	60			
Corrected Total	208.85	59			

R Squared = 0.381 (Adjusted R Squared = 0.324)

(d) Panel C reports an ANOVA of investors' investment frequency in the second half of the experiment conditional on the reporting regime and the level of return investors received in the first half of the experiment. The dependent variable is calculated by summing up the number of times an investor chose to invest (continue to Stage 2) in the last five periods of the experiment.

(e) Reporting regime variable is whether the report is aggregated, disaggregated *without* discretion, or disaggregated *with* discretion.

(f) Above_median_return is a dichotomous variable reflecting whether or not investors had received above median returns in the first half of the experiment (coded 0, 1).

* Reported p-values are two-tailed.

TABLE 5

Experiment 2 - Report Selection, Investment Frequency, and Manager Percent Consumption by Condition

Panel A: Ex-Ante Condition (Managers choose which report format they will use first, then investors choose whether to invest or not) – Report selection and Investment Frequency

		Aggregated	Disagg. *with* Discretion	Total
First 5 periods	Rate of Report Selection by Managers (Count)	26% (39)	74% (111)	100% (150)
	Rate of Investment (Count)	79% (31)	75% (83)	76% (114)
Last 5 Periods	Rate of Report Selection by Managers (Count)	31% (46)	69% (104)	100% (150)
	Rate of Investment (Count)	61% (28)	61% (63)	61% (91)
All 10 Periods	Rate of Report Selection by Managers (Count)	28% (85)	72% (215)	100% (300)
	Rate of Investment (Count)	69% (59)	68% (146)	68% (205)

Panel B: Ex-Post Condition (Investors choose whether to invest or not first, then managers choose which report format to use) – Investment Frequency and Report Selection

		Aggregated	Disagg. *with* Discretion	Total
First 5 periods	Rate of Investment (Count)			65% (98)
	Rate of Report Selection by Managers (Count)	32% (31)	68% (67)	100% (98)
Last 5 Periods	Rate of Investment (Count)			41% (62)
	Rate of Report Selection by Managers (Count)	29% (18)	71% (44)	100% (62)
All 10 Periods	Rate of Investment (Count)			53% (160)
	Rate of Report Selection by Managers (Count)	31% (49)	69% (111)	100% (160)

Panel C: Manager Percent Consumption by Condition[a]

	Ex-Ante n=30			Ex-Post n=30		
	Aggregate	Disagg W Discretion	Total	Aggregate	Disagg W Discretion	Total
MPC	**81.7%**	**85.14%**	**84.14%**	**89.25%**	**80.76%**	**83.37%**
Classification shifting	N/A	**38.69%**		N/A	**39.83%**	

[a] **Manager Percent Consumption (MPC)** = $\dfrac{\text{Total points taken by manager}}{\text{Total points available after realized exogenous shock}}$

Appendix A
Summary of Experiment Designs used in Honesty Research

Experimental Setting	Dependent Variable and Discussion
Evans et al (2001)	
Participative budgeting: Manager privately learns the actual cost and submits a budget report. Budgetary slack increases by overstating the budget.	*Manager's Decision:* Report a budget cost that determines firm surplus *Information Asymmetry?* Yes, the investor does not know the actual budget cost or the manager's slack, only the reported budget cost which determines the investor's payoff. *Discussion*: By design, higher managerial consumption is only achieved by more dishonesty. The reported budget cost, thus, reflects both a measure of honesty and a measure of the fairness of the resulting allocation of available slack between the manager and the investor. *Study's Conclusions:* Managers have preferences to be honest, which decreases their excessive consumption of firm resources.
Rankin et al. (2008); Douthit & Stevens (2014)	
Participative budgeting: Similar to Evans et al. (2001).	**Condition 1** *Manager's Decision:* Allocation of firm surplus *Information Asymmetry?* Yes, the investor does not know the actual budget cost or the manager's slack, only the amount allocated to them, which determines the investor's payoff. *Discussion*: The allocation decision does not involve a factual assertion and so is not intended to measure honesty, but rather a measure of the fairness of the resulting allocation of available slack between the manager and firm.

	Condition 2 *Manager's Decision:* Factual Assertion of actual cost that determines firm surplus *Information Asymmetry?* Yes, the investor does not know the actual budget cost or the manager's slack, only the reported budget cost submitted by the manager which determines the investor's payoff. *Discussion:* By design, higher managerial consumption is only achieved by more dishonesty. The reported budget cost, thus, reflects both a measure of honesty and a measure of the fairness of the resulting allocation of available slack between the manager and investor. *Studies' Conclusions:* Managers' preferences for being honest have an incremental effect above their fairness concerns.
Hannan et al. (2006); Abdel-Rahim & Stevens (2018)	
Participative budgeting: Similar to Evans et al. (2001).	*Manager's Decision:* Report a budget cost that determines firm surplus *Information Asymmetry?* Manipulated between subjects (Full and Reduced). When information asymmetry is full, the setting was similar to Evans et al. (2001). When information asymmetry is reduced, the investor has an information system that reveals a range within which the manager's actual cost lies, then receives the manager's reported budget cost (by hand) which determines investor's payoff. *Discussion*: By design, higher managerial consumption is only achieved by more dishonesty. The reported budget cost, thus, reflects both a measure of honesty and a measure of the fairness of the resulting allocation of available slack between the manager and the investor. Thus, the manipulation of information asymmetry provides a test of the incremental effect of transparency on both preferences for honesty and fairness. *Studies' Conclusions:* Reduced information asymmetry increases managerial honesty (i.e., decreases managers' consumption of firm resources).

Current Study	
Modified investment game: Investment of 10 is multiplied by 10 (rather than 3 as in the original game), and we add an exogenous shock (observable only by the manager) that affects firm surplus. The manager decides how much of that available surplus to keep versus return to the investor and submits a cost report.	**Condition 1: Aggregated report** *Manager's Decision:* Allocation of firm surplus *Information Asymmetry?* Yes, the investor does not know the exogenous shock or manager pay, only the net investor payoff. *Discussion*: The allocation decision does not involve a factual assertion and so is not intended to measure honesty, but rather a measure of the fairness of the resulting allocation of available slack between the manager and investor. **Condition 2: Disaggregated report *without* reporting discretion** *Manager's Decision:* Allocation of firm surplus *Information Asymmetry?* No, the investor knows the exogenous shock and manager pay. *Discussion*: The allocation decision does not involve a factual assertion and so is not intended to measure honesty, but rather a measure of the fairness of the resulting allocation of available slack between the manager and investor. **Condition 3: Disaggregated report *with* reporting discretion** *Manager's Decisions:* (i) Allocation of firm surplus and (ii) cost classification *Information Asymmetry?* Yes, the investor does not know the exogenous shock or manager pay, only the net investor payoff. *Discussion*: (i) The allocation decision does not involve a factual assertion and so is not intended to measure honesty, but rather a measure of the fairness of the resulting allocation of available slack between the manager and investor. (ii) The classification decision does not alter the allocation and so is not intended to measure fairness of the allocation, but rather a measure of honesty in how the manager wants to be perceived.

Appendix B
Illustration of Report Types

Aggregated Report

There are 50 Unmarked Points. How many will you mark BLUE?

30

Tentative Report

Your Report to ORANGE

Total Points =	100
NON-ORANGE Points =	80
ORANGE Points =	20

Submit Report

Disaggregated without Discretion

There are 50 Unmarked Points. How many will you mark BLUE?

30

Tentative Report

Your Report to ORANGE

Total Points =	100
BLACK Points =	50
BLUE Points =	30
ORANGE Points =	20

Submit Report

Disaggregated with Discretion

There are 50 Unmarked Points. How many will you mark BLUE?

30

Tentatively Mark

Your Report to ORANGE

How many of the BLUE Points would you like to indicate in the report?
(The rest, if any, will be reported as BLACK)

20

Tentative Report

	Actual	Report
Total Points =	100	100
BLACK Points =	50	60
BLUE Points =	30	20
ORANGE Points =	20	20

Submit Report