# **Communicated Values as Informal Controls:**

# **Gaining Accuracy While Undermining Productivity?**

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## Abstract

Using a laboratory letter-search task, we find that the effectiveness of piece-rate compensation relative to fixed pay hinges on the presence or absence of a nonbinding statement to participants that the experimenter values correct responses. In the absence of the value statement, participants with piece-rate rewards for correct responses generate more correct and *incorrect* responses than do their counterparts with fixed pay, correcting errors as they go along to maximize compensation. Essentially, piece-rate compensation acts as an *output* control, incentivizing participants to achieve accurate output through a "produce-and-correct" strategy. The value statement suppresses this strategy because it appears to be perceived as an *input* constraint that emphasizes accuracy as a condition of the production process, prompting greater care in production at the expense of lower productivity. As a result, the value statement eliminates the gains in accurate production that piece-rate incentivized participants otherwise realize. Thus, in settings in which workers can adjust and correct as necessary to maximize accurate production, our results suggest that organizations can be better off just letting incentive schemes operate, rather than emphasizing accuracy in ways that could potentially constrain productivity.

## Communicated Values as Informal Controls: Gaining Accuracy While Undermining Productivity?

### 1. Introduction

Employers desire both productivity and accuracy from their employees (Farrell, Kadous, and Towry 2008; Christ, Emett, Summers, and Wood 2012). To maximize productivity while maintaining accuracy, employers can utilize a variety of (1) performance-contingent compensation schemes, (2) *formal* control systems that explicitly induce accuracy, and (3) *informal* control systems that exert social pressure through communicated organizational values even if there are no explicit control measures to enforce (Berry, Coad, Harris, Otley, and Stringer 2009). Prior experiments have found ways to improve accurate production by manipulating various aspects of compensation contracts (e.g., Farrell et al. 2008) and formal control systems (e.g., Christ et al. 2012). In contrast, we examine whether a seemingly innocuous and unenforced statement of the value placed on accuracy, which essentially serves as an informal control system, can influence the effectiveness of a compensation scheme that already rewards accurate production. Our primary finding is that an informal control of this nature can indeed lower mistakes, but this greater care comes at the cost of suppressing the productivity gains that a performance-contingent compensation scheme otherwise yields.

It is important to add informal controls to the research mix because organizations often communicate organizational values in ways that stop short of formal enforcement. Such communications can range from informal coaching by supervisors to explicit statements of organizational mottos or taglines. Yet, our knowledge of the effects of informal controls, including the unintended consequences of such controls, is scant (Berry et al. 2009, Section 3). We examine the possibility that informal controls can constrain the process, potentially in unintended and counterproductive ways, by which workers attain performance goals. For the

tradeoff between productivity and accuracy, employees can pursue one of two general strategies: (1) produce as much as possible and then take efforts to make the output accurate, or (2) ensure accuracy and then produce as much as possible. As we explain later, if unacceptable output can be corrected and resubmitted at a relatively low cost, the first, "produce-and-correct" strategy can be more efficient. Performance-based compensation can motivate workers to discover such a strategy. Now consider an informal control in the form of emphasizing, independent of the compensation scheme, that the company values *correct* output. Even if technically consistent with a compensation scheme that only compensates correct output, emphasizing accuracy in a value statement can potentially constrain the *process* by which workers approach the task, from a "produce-and-correct" strategy to a slower, "ensure correctness, then produce" strategy. If so, such a statement could serve as an *input* control, suppressing workers' ability to maximize compensation under an output-based incentive scheme.

We test our research question by adapting an experimental letter-search task that Sprinkle, Williamson, and Upton (2008) developed for a different research objective. An important characteristic of this task is that mistakes are generally one-directional undercounts that result from missing one or two occurrences on the grid. Accordingly, if sufficiently motivated by a performance-contingent pay scheme, workers can achieve greater efficiency by speeding up production even if the faster speed results in more mistakes, as long as the production system allows workers to correct errors in predictable ways. Consistent with this reasoning, we observe from our first experimental manipulation that a piece-rate compensation scheme for accurate output significantly increases accurate production relative to a fixed-pay control condition. It also results in a greater frequency of mistakes and corrected retries.

However, this result occurs only when we omit any additional informal control from a value statement, as discussed next.

We introduce our second manipulation by reexamining the effect of performancecontingent compensation in the presence of an additional instructional statement that emphasizes the value placed on accuracy. The exact wording of this statement is, "We value the *number of correct responses you can give*" (with boldface italics for emphasis). This statement does not alter the compensation structure in any way. Indeed, it is technically redundant with the piece-rate compensation scheme we implement to reward correct output. Nevertheless, our experiment investigates the potential for a superfluous value statement to serve as an informal organizational control that constrains how workers approach the task and hence moderates the effectiveness of performance-contingent compensation. Consistent with this reasoning, we observe a significant interaction between our two experimental factors, as the value statement negates the productivity gains that our piece-rate incentivized participants otherwise enjoy, relative to participants receiving fixed pay. To be sure, the value statement also lowers the frequency of mistakes that piece-rate incentivized participants commit, but the cost of this greater care for accuracy is a corresponding loss of productivity.

Our findings add a significant caveat to Christ et al.'s (2012) recent conclusion that controls can improve accuracy without harming productivity. In addition to other design differences, a key difference between the two studies is the task itself, as we operationalize a search task in which errors can be fixed in predictable ways, whereas Christ et al. (2012) employ a data-entry task in which errors are more of a dead-weight loss. Thus, in our setting, incentivized participants have more opportunity to accelerate production, salvaging any resulting increase in unacceptable output by correcting and resubmitting. The value statement

we manipulate appears to constrain this process by emphasizing accuracy as a condition of production, thereby inducing greater care but also lower productivity.

To the extent that real-world environments present opportunities to fix mistakes, our study suggests that it can be best to just let performance-contingent incentive systems operate, rather than attempt to manage the process by which the incentivized goals are attained. Consider, for example, a research-production environment such as a university. Suppose further that the organization rewards "top-tier" research in its compensation and promotion structure. Even with such incentives, employees can be better off simply maximizing the quantity of research conducted, within reason, taking efforts to improve studies that need improvement. Now suppose that the organization emphasizes in its communicated values that employees should work *only* on top-tier research. This added emphasis, on top of the incentive structure already in place, could be perceived as an attempt to manage the research *process* rather than simply rewarding the outputs, potentially constraining productivity to the extent that employees are less willing to risk substandard production.

As a second example, Campbell, Epstein, and Martinez-Jerez (2011) conduct a fieldbased study in the gaming industry, focusing on how casino hosts experiment with different "comps" to different customers. The incentivized production goal in this setting is profitability per customer, balancing the profits from additional playing time against the costs of customer perquisites. Within this environment, the authors find that hosts who are monitored more closely adhere more closely to organizational norms, but this procedural conformity comes at the cost of the productivity gains that hosts otherwise realize from flexibility and experimentation with different strategies. While it is admittedly a stretch to compare these real-world settings to our laboratory letter-search task, we believe that we are observing similar costs of procedural

conformity from informal controls in our experiment. Namely, in the presence of a piece-rate incentive scheme, the value statement we manipulate appears to constrain the production process to ensure accuracy, but this greater care comes at the cost of eliminating the gains that piece-rate participants otherwise realize from a strategy focused on maximizing volume and correcting errors as necessary.

A significant qualification to these conclusions is our implicit assumption that there is little if any direct harm from mistakes, even if mistakes do not "count" towards the ultimate goal of correct output. That is, we allow participants to correct their errors, similar to settings in which some tolerance for mistakes can enable workers to be more effective and efficient in the long run (e.g., Harteis, Bauer, and Gruber 2008; Campbell et al. 2011). To be sure, however, mistakes in production are not always benign (e.g., Farrell et al. 2008; Christ et al. 2012), and can be quite destructive in some occupations (e.g., surgeons and jet pilots), such that a strategy that willingly tolerates mistakes in order to improve productivity could be far from optimal. Thus, a different way to interpret our results is that emphasizing the value placed on correct output can significantly reduce the number of mistakes that workers make. As such, our study suggests that an informal value statement can at least partially substitute for the more formal controls that prior research suggests can reduce mistakes in other settings (Christ et al. 2012). At least in our setting, however, the cost of reducing the number of errors is a commensurate loss of productivity.

Section 2 develops the hypothesized *compensation scheme* × *value statement* interaction we test, within the contextual features of the setting our experiment captures. Section 3 provides further details on our experimental administration and design. Section 4 presents our results. Section 5 offers a discussion, and Section 6 concludes.

## 2. Theory and Hypotheses

#### **Performance-Contingent Incentives in Multidimensional Environments**

Before considering the potential moderating effects of informal controls, we first consider the basic effects of performance-based compensation incentives, operationalized in our experiment as piece-rate pay for correct solutions to letter-search grids. In general, performance-based pay can influence production by (1) motivating increased effort, and by (2) motivating adaptations to redirect effort in ways that maximize the compensated measure (Prendergast 1999; Bonner, Hastie, Sprinkle, and Young 2000; Bonner and Sprinkle 2002). The general effects of motivating increased productive effort are straightforward, so long as the task is effort-aversive enough to provide limited intrinsic motivation in the absence of compensation incentives. A letter-search task likely qualifies. Thus, the first and most direct way in which performance-based pay can improve production is by motivating workers to work harder.

In addition to motivating *additional* effort, incentive-based compensation can also *redirect* effort, particularly in multidimensional task settings.<sup>1</sup> Tasks involving both productivity and accuracy are inherently multidimensional. Although the compensation contract we consider rewards both dimensions, it is still the case that the frequency of mistakes can potentially be influenced by the adaptations people make to such a contract, especially when mistakes can be corrected and resubmitted.

Payne, Bettman, and Johnson (1993, Ch. 2) review what we know from psychology on the cognitive difficulty associated with making tradeoffs between conflicting goals. The goals of productivity and accuracy present a conflict because faster work can improve productivity, but

<sup>&</sup>lt;sup>1</sup> Hecht, Tafkov, and Towry (2012) draw an important distinction between *multidimensional* environments, involving multiple characteristics of the same task, and *multitask* environments that involve separable tasks. We agree with this distinction, restricting our consideration to multidimensional considerations (speed and accuracy in our experiment). We refer the reader to Hecht et al. (2012) for evidence on when incentives are helpful or harmful in multitask settings.

accuracy can suffer as the result, whereas attending more carefully to accuracy can slow down production. As Payne et al. (1993, 30-31) explain, individuals tend to adopt a hierarchical strategy in such settings to ease cognitive strain, prioritizing on one dimension as the primary goal and framing the second dimension as conditional on the first. For the tradeoff between productivity and accuracy, prioritizing on productivity would imply doing as much as possible, and then improving accuracy as needed. Conversely, prioritizing on accuracy would involve ensuring accuracy first, and then doing as much as possible.

An outcome-based compensation measure does not endorse any particular strategy to get the desired outcome, implicitly leaving that determination up to the compensated workers. In turn, the assessment by workers of the relative effectiveness of prioritizing on productivity vs. accuracy likely depends on how "forgivable" errors are in terms of opportunities to correct and rework unacceptable output. While there are certainly many settings in which it is important to "get it right the first time," there are many other settings in which workers can succeed through a process of trial and error, tolerating (and correcting) a greater frequency of short-term mistakes in order to be more productive in the long run (e.g., see Fischer, Mazor, Baril, Alper, DeMarco, and Pugnaire 2006; Harteis et al. 2008; Campbell et al. 2011). We operationalize such a setting based on a variant of the letter-search task used by Sprinkle et al. (2008). Figure 1 shows an example, in which the participant must count the frequency of a specified letter in a 7×18 grid. Each correct answer counts as one complete unit of production, upon which the participant goes on to the next grid and the next letter to be located.

#### < INSERT FIGURE 1 ABOUT HERE >

This task has an important characteristic that potentially facilitates a produce-and-correct strategy that prioritizes on productivity and corrects mistakes, as necessary, to achieve accuracy.

Specifically, mistakes in the letter-search task are likely to be one-directional, namely undercounts. For example, if a participant quickly counts 39 instances of the letter "L" in the grid illustrated in Figure 1, a reasonable conclusion is that the correct count is *at least* 39, or it could be 40 (the actual correct answer) if the participant inadvertently missed one.<sup>2</sup> Thus, a quick count of 39 followed by a relatively easy correction can be more efficient in terms of time spent than a more meticulous process that ensures *initial* accuracy but slows productivity.

We know from experimental and field evidence that incentive compensation schemes motivate adaptations to maximize the compensated measure (e.g., Kerr 1975, 1995; Prendergast 1999). That is, to the extent that outcome-based compensation delegates production goals to compensated workers, such workers have the incentive to discover the strategy that results in the highest pay. While the literature contains multiple examples of dysfunctional adaptive strategies that workers take to maximize compensation measures (e.g., Courtney and Marschke 1997; Heckman, Heinrich, and Smith 1997; Drago and Garvey 1998), strategic adaptations to a performance-based compensation need not be dysfunctional, especially if the compensated measure captures what the organization hopes to attain – in our setting, maximizing the production of accurate output. As argued above, our setting further captures an environment in which mistakes are relatively "forgivable," facilitating a produce-and-correct strategy of speeding up production and then correcting the results that need correcting. If performancebased compensation incentivizes participants to discover such a strategy, in addition to motivating them to work harder, we should confirm H1 below:

**H1:** In the absence of a statement about valuing correct output, participants will produce more correct output under a piece-rate incentive scheme than under fixed pay.

 $<sup>^{2}</sup>$  In a separate experiment using this task, we confirmed that 97 percent of mistakes are undercounts and 87 percent of mistakes are undercounts by one or two letters.

Moreover, if piece-rate incentivized participants achieve the productivity gains predicted in H1 in part by pursuing the produce-and-correct strategy explained above, we should also see more mistakes and subsequent retries:

**H2:** In the absence of a statement about valuing correct output, participants will generate more errors and retries under a piece-rate incentive scheme than under fixed pay.

Both H1 and H2 are conditioned by the absence of a statement about valuing correct output. Below, we develop reasoning as to why such a statement could moderate both predictions.

### **Moderating Effects of a Value Statement**

Controls in organizations can be formal, such as those imposed by an explicit preventive or detective activity (Christ et al. 2012), or informal, such as those implied by social pressure (Berry et al. 2009, Section 3). The concept of "informal control" relates to Weber, Kopelman, and Messick's (2004) explanation of how people develop a "logic of appropriateness" by searching for subtle cues that define acceptable behavior in social settings.<sup>3</sup> The organization itself can provide these cues in terms of communicating value statements that reinforce norms of acceptable and unacceptable behavior.

More specifically, a value statement can be viewed as an attempt to condition the *process* by which a performance goal is attained. In the presence of performance-based compensation, such a statement could suggest the inputs by which the compensated outputs should be attained. Recall from the earlier discussion that individuals tend to approach multidimensional tradeoffs as a hierarchical structure, prioritizing on one dimension as a condition to be met before moving to the second dimension (Payne et al. 1993, Ch. 2). A value statement could potentially influence the choice among such strategies by suggesting the

<sup>&</sup>lt;sup>3</sup> In turn, Weber et al. (2004) attribute the term "logic of appropriateness" to a book by March (1994).

prioritization valued by the organization.<sup>4</sup> As explained in the method section, our experiment manipulates the presence or absence of an instructional statement informing participants that we "value the *number of correct responses you can give*" (emphasis in original). While subtle, a likely interpretation consistent with conversational norms (see Hilton 1995) is that the experimenter values *correct* responses and not incorrect responses, suggesting that ensuring accuracy and then producing as much as possible is more appropriate than producing as much as possible and then correcting unacceptable output as necessary. In so doing, the statement could be perceived as an *input* control that constrains the ability to improve output-based compensation by tolerating and correcting mistakes.

By way of analogy, we offer two examples from the literature. First, a recent field-based study by Campbell et al. (2011) finds that closer monitoring of casino hosts actually hinders rather than enhances productivity. As the authors explain, the likely reason is that more closely monitored hosts are more procedurally constrained, with less flexibility and freedom to discover optimal strategies for balancing the profits from extended play by "high rollers" against the costs of customer perquisites. As a second example, Kachelmeier, Reichert, and Williamson (2008) find that, in the presence of a statement informing experimental participants that the experimenter values creativity, creativity-weighted compensation is less effective than quantity-only compensation in achieving creativity-weighted productivity. As the authors explain, the likely reason is that the combination of creativity-weighted compensation with the expressed value placed on creativity leads participants to prioritize on creativity as a condition for production, suppressing their willingness to attain creativity benefits through a more

<sup>&</sup>lt;sup>4</sup> For example, the professional services firm Ernst and Young recently changed its logo tagline from "Quality in everything we do" to "Building a better working world." Similarly, Grant Thornton changed its tagline from "A passion for the business of accounting" to "An instinct for growth." While slogans of this nature are likely directed to external marketing, it is plausible that they could also have internal effects in terms of prioritizing employee behavior on the emphasized themes.

volume-oriented strategy of freely generating ideas in a more unconstrained manner. There are key differences between their experiment and ours, as we manipulate the presence or absence of a value statement, while they hold such a statement constant across conditions. Further, we examine accuracy as a conditioning criterion, not creativity. Nevertheless, the same conceptual notion applies: prioritizing on a characteristic of production can be less effective than prioritizing on production itself and then attending to the desired characteristic.

These points notwithstanding, the behavioral "tension" in our manipulated value statement arises from its nonbinding nature and its technical redundancy with the performancebased compensation measure we implement. A statement of the value placed on correct responses carries no authoritative weight other than any nonmonetary preferences participants might have for doing what they perceive is appropriate in the social setting. The wording is subtle, without stating any specific directions on how to do the task or repercussions from mistakes, other than the time needed to correct them. Moreover, the compensation measure itself only rewards correct output, such that the value statement could be viewed simply as reinforcing the compensation incentive. Psychologically, however, we examine the possibility that a value statement, like a corporate motto or slogan that conditions employee behavior, can constrain the process by which workers pursue a compensated production goal.

When considered in the context of H1 and H2 developed earlier, any influence of a value statement is more likely to be manifest as an interaction with piece-rate incentives than as a main effect. The rationale is that H1 and H2 are predicated on the incentives that a performance-contingent compensation scheme induces to discover the produce-and-correct strategy that tolerates (and corrects) more mistakes in order to speed up production. Without such incentives, there would be little reason to pursue such a strategy and hence little that a

value statement could suppress. But with such incentives, a value statement that emphasizes accuracy could suppress the incentivized, output-driven produce-and-correct strategy in favor of a suboptimal, input-driven strategy of ensuring accuracy first and then producing. H3 and H4 below formalize the hypothesized interactions from this reasoning.

- **H3:** An explicit statement about valuing correct output will moderate the extent to which participants produce more correct output under a piece-rate incentive scheme than under fixed pay.
- **H4:** An explicit statement about valuing correct output will moderate the extent to which participants generate more errors and retries under a piece-rate incentive scheme than under fixed pay.

The irony in these hypotheses is that, if these predictions hold, the informal control of emphasizing the value placed on producing correct output could suppress the ability of an incentive scheme to achieve that value.

## 3. Method

### Task

Sprinkle et al. (2008) develop an uncompensated letter-search task to prompt participant perceptions of effort preceding a project-selection exercise. We adapt their task to our research question involving the interactive effects of a piece-rate incentive scheme and an explicit value statement about correct output. The Appendix reproduces the instructions given to participants.

To begin the task, participants remove a packet from an envelope containing 20 pages of letter grids. As illustrated in Figure 1, each grid specifies a target letter in the upper-right-hand corner. The participant's task is to specify the number of times the target letter appears in the grid. Each page contains six 7×18 grids, such that, in total, participants could complete a maximum of 120 grids if finishing all 20 pages. The most productive participant in our

experiment completed 72 correct grids in the 20 minutes allotted for the task, so the theoretical maximum of 120 well-exceeds participants' practical production capacity.

Participants enter their answers for each grid using a computer interface with 20 rows for the 20 pages and six columns for the six grids on each page. The Appendix includes a computer screen shot for this answer matrix. Upon entering an answer for any particular grid, the computer provides a feedback message indicating whether the answer indicated is correct or incorrect. This message can be construed as an experimental analog to a quality control process that determines acceptable or unacceptable output. Following the terminology used by Christ et al. (2012), it can also be construed as a formal, detective control that we hold constant across all experimental cells by providing immediate accuracy feedback to all participants.

If the feedback message indicates a correct response, participants can then enter another answer for any other grid not yet answered. Conversely, a feedback message indicating an incorrect response blocks further entries for five seconds, operationalizing a modest penalty for unacceptable production. During this five-second period, the participant can continue to work on other grids, but cannot enter further responses. After the five-second delay for an incorrect response, a participant can enter an answer for any grid not yet correctly answered, including an updated answer for the grid that had just been answered incorrectly (i.e., a retry). As explained previously, a reasonable conjecture following an incorrect guess is that the correct answer is one (or maybe two) higher, given that participants might miss a letter (an undercount), while overcounting is unlikely. This task characteristic facilitates a produce-and-correct strategy by allowing participants to correct errors expeditiously, capturing the gains of efficient production (i.e., quick counts) without sacrificing effectiveness in ultimate correct answers.

### **Experimental Design**

Within this basic task structure, we manipulate two factors in a 2×2 between-participants experimental design. The first factor is the incentive scheme. Within the *piece-rate* condition, participants learn that their compensation will be based on the number of correct responses recorded on their computer spreadsheets from working on the task for 20 minutes. Specifically, "All participants in today's session will receive *\$0.50 for each correct response*. Thus, the more correct responses you give, the higher is the payment that you will receive in cash at the conclusion of the experiment" (quoted from the instructions with emphasis in original; see Appendix). Within the *fixed-pay* condition, participants learn that they will receive a fixed payment of \$25 for working on the task for 20 minutes. Specifically, "All participants in today's session will receive a fixed payment of \$25 for working on the task for 20 minutes. Specifically, "All participants in today's payment of \$25 for working on the task for 20 minutes. Specifically, "All participants in today's payment of \$25 in cash at the conclusion of the experiment." Given an overall average productivity of 44 correct grids, fixed compensation of \$25 comes materially close to the total piece-rate compensation of \$0.50 per correct grid, on average. Accordingly, we (approximately) hold constant the *amount* of compensation, while manipulating the *nature* of compensation.

The second manipulated factor is the presence or absence of an additional statement in the experimental materials immediately before the "Compensation" heading and paragraph (see Appendix). In the *value statement present* condition, a separate paragraph above the "Compensation" heading states, in its entirety, "We value the *number of correct responses you can give*. You will have 20 minutes to work on this task" (emphasis in original). In the *value statement absent* condition, we omit the "We value the *number of correct responses you can give*" sentence, appending the "You will have 20 minutes to work on this task" sentence to the end of the preceding paragraph.

The value statement emphasizes the importance the experimenter places on correct responses, and separating this sentence from the compensation paragraph implies that it is a communication from the experimenter (organization) that is not part of the compensation structure *per se*. Nevertheless, the value statement is fully consistent with the piece-rate incentive scheme that rewards only correct output. What the value statement adds is more subtle, suggesting a strategy that produces *correct* output (what is valued), rather than incorrect output. That being said, nothing in the experimental materials would prevent a participant from ignoring the value statement and focusing entirely on the stated compensation scheme, which we hold constant across the two value-statement conditions. Thus, the value statement essentially serves as an informal control (Berry et al. 2009), providing a cue that suggests appropriate behavior without formally measuring or penalizing that behavior.

## **Participants and Logistics**

We recruited student volunteers from undergraduate business classes for participation in one of 12 experimental sessions that we randomly assigned across the four treatment conditions. We arranged the sessions to populate each cell of the  $2\times2$  experimental design with 20 participants, for a total of 80. All sessions were held in a small computer research laboratory. After reading the instructions, participants removed 20 pages of letter-search grids (six grids per page) from an envelope and began the 20-minute timed task. Participants entered responses at individual, partitioned computer stations. The Appendix reproduces screen shots for (1) the answer matrix before beginning the task, (2) an example screen for an incorrect response, and (3) an example screen for a correct response.

After the 20 minutes assigned for the task, participants completed a brief post-experimental questionnaire and were compensated as promised in the instructions

corresponding to their experimental condition (i.e., \$0.50 per correct response or \$25 fixed pay). The experimental administration took slightly less than an hour.

## 4. Results

#### **Correct Responses: H1 and H3**

Table 1 tallies descriptive statistics and Figure 2 depicts means by cell for correct responses over the entire production period (Panel A) and for the final ten minutes of the 20-minute task (Panel B). Data from the second half (i.e., last ten minutes) of production are relevant because it takes time to identify an optimal production strategy, such that the final ten minutes provide a more powerful setting for detecting the influence of a performance-based incentive scheme.

## < INSERT TABLE 1 AND FIGURE 2 ABOUT HERE >

Both panels of Table 1 and Figure 2 reveal the same pattern – production is highest under a piece-rate incentive scheme, but only in the absence of an explicit additional statement about valuing correct responses. Conversely, a value statement immediately above the "Compensation" section of the instructions mutes the effectiveness of the piece-rate incentive scheme relative to the control condition with fixed pay.

To test these conclusions statistically, Table 2 reports overall ANOVA findings and the simple effects of the piece-rate incentive scheme with and without the value statement, presenting separate analyses for the entire experiment (Panel A) and for the last half of the production period (Panel B). Consistent with H1, Panel A shows a marginally significant simple effect of piece-rate incentives on the production of correct output in the absence of the incentive scheme (F = 2.08; one-tailed p = 0.08), and consistent with H3, the value statement moderates

this effect, producing a marginally significant interaction (F = 2.07; one-tailed p = 0.08).<sup>5</sup> The marginal significance levels for both tests likely reflect the noise of early production, given that it takes time for people to adapt to incentives. Accordingly, Panel B of Table 2 (last half of the production period) likely provides a more powerful setting for testing our predictions. Consistent with this supposition, Panel B shows a significant incentive effect in the absence of the value statement, supporting H1 (F = 4.70; one-tailed p = 0.02) as well as a significant interaction, indicating the moderating effect of the value statement predicted in H3 (F = 2.94; one-tailed p = 0.05). Both Panel A and Panel B show that piece-rate productivity is statistically indistinguishable from the fixed-pay control condition in the *presence* of the value statement.

< INSERT TABLE 2 ABOUT HERE >

#### Mistakes and Retries: H2 and H4

#### Mistakes

To the extent that piece-rate incentives motivate and the value statement suppresses a produce-and-correct production strategy, we should obtain similar results for incorrect responses as those we obtain for correct responses. Accordingly, Table 1 tallies and Figure 3 depicts descriptive statistics for incorrect responses by experimental cell. As the comparative means show, incorrect responses reveal a pattern quite similar to that for correct responses: participants operating under piece-rate incentives for correct responses generate significantly more mistakes along the way, but only in the absence of an explicit additional statement about valuing correct output. This result pattern is consistent with the interpretation that participants with piece-rate incentives are more willing to tolerate (correctable) mistakes in order to speed up production, unless a value statement leads participants to prioritize on accuracy instead.

<sup>&</sup>lt;sup>5</sup> A one-tailed *p*-value is appropriate for testing directional predictions of  $2 \times 2$  interactions that can only exhibit two possible directions (McNeil, Newman, and Kelly 1996, 137-139).

Table 3 reports the statistical analysis of incorrect responses. In the absence of the value statement, piece-rate incentivized participants generate significantly more errors than their fixed-pay counterparts over the entire experiment (Panel A: F = 4.76; one-tailed p = 0.02) and during the last half of production (Panel B: F = 3.26; one-tailed p = 0.04). These findings support H2. Similarly, the value statement moderates the effect of piece-rate incentives on incorrect responses, generating a statistically significant interaction between incentives and the value statement over the entire experiment (Panel A: F = 5.90; one-tailed p = 0.01) and during the last half of production (Panel B: F = 5.39; one-tailed p = 0.01). The frequency of incorrect responses no longer statistically differs between piece-rate pay and fixed pay when the value statement is present. These findings support H4.

< INSERT TABLE 3 ABOUT HERE >

## Retries

Our interpretation of these findings hinges on the assumption that incorrect responses lead to subsequent, corrected retries. It is only in this manner that participants who generate more mistakes can nevertheless be more productive overall in terms of accurate output. Accordingly, we determine the percentage of incorrect responses that lead to a subsequent, corrected retry. Whether across the entire production period or for the last half of production, approximately 90 percent of incorrect responses lead to a subsequent corrected response.<sup>6</sup> Thus, incorrect responses are largely isomorphic to the frequency of corrected retries. Participants' success rates in converting incorrect responses to corrected retries do not statistically differ across the experimental cells, but participants have more *opportunities* to correct previous guesses in the condition with a piece-rate incentive scheme but no value statement. In other

<sup>&</sup>lt;sup>6</sup> The exact percentages are 90.3 percent for the entire production period and 89.8 percent for the last half of production. The slight difference is not statistically significant.

words, in the absence of a statement about valuing correct responses, piece-rate incentivized participants try significantly more grids than their counterparts in other experimental cells. In the course of attempting more grids, these participants generate more incorrect responses, but they successfully correct the substantial majority of the grids that they initially miss, likely due to undercount errors of one or two. Anecdotally, the following two open-ended post-experimental comments from participants in the condition with piece-rate incentives but no value statement appear to capture the strategy that likely predominates in this condition:

The main factor for me was just setting up a system in which to scan the letter puzzles. Speed, not accuracy, was my goal because the more I complete the more money I would make.

The compensation for each correct answer made me more motivated to work. I would immediately assume that I missed only one letter if I got the box incorrect, so as soon as my [five second time] penalty was up, I knew what the answer was  $\rightarrow$  faster.

#### **Supplemental Analyses**

#### Mediation Analysis

If incentivized piece-rate participants achieve their productivity gains in the absence of the value statement by committing more mistakes but also learning from those mistakes, then incorrect responses should serve as a mediating variable in the analysis of correct responses. Accordingly, we conduct a mediation analysis (cf. Baron and Kenny 1986) by including incorrect responses as a covariate in the analysis of correct responses. Consistent with the premise that incorrect responses mediate the results we observe for correct responses, including incorrect responses as a covariate in the analysis of correct responses removes the statistically significant interaction between incentives and the value statement for the last half of production (F = 1.39; one-tailed p = 0.12, untabulated) and for the entire experiment (F = 1.19; one-tailed p = 0.14, untabulated). However, the covariate for incorrect responses is itself significant at

conventional levels only for the last half of the production period (F = 3.92; one-tailed p = 0.05), not for the entire experiment (F = 1.20; one-tailed p = 0.14). A Sobel test confirms that the covariate for incorrect responses results in a significant decline in the predictive value of the *compensation scheme* × *value statement* interaction over the last half of production (Sobel test statistic = -21.68; p < 0.01). The stronger evidence for mediation over the last half of production suggests that it takes time for a produce-and-correct strategy to differentiate piece-rate incentivized participants operating with or without the value statement. This reasoning is consistent with evidence from a change analysis of how production evolves over time, considered next.

## Change in Productivity over Time

As a second supplemental test, we conduct a change analysis to investigate productivity *improvements* from the first to the last half of the experiment. Absent a value statement, we argue earlier that piece-rate incentives will motivate participants to discover that a "produce-and-correct" strategy is the most effective way to maximize the long-term production of correct responses. If so, and if it takes time for participants to optimize in this manner, we should see improvement over time under piece-rate incentives relative to fixed pay, but only when no value statement is present. Consistent with this reasoning, participants in the condition with piece-rate incentives but without the value statement generate a significant improvement in correct production from the first to the last half of the experiment (difference in last half – first half production = 7.25 versus 4.30 under fixed pay; F = 5.50; one-tailed p < 0.01). Conversely, when the value statement is present, piece-rate incentives yield no discernible improvement over time relative to fixed pay (last half – first half difference = 4.10 versus 3.10; F = 0.63; two-tailed p = 0.43). Figure 4 depicts the mean improvements by cell. Collectively, these results

suggest that the value statement inhibits the ability of piece-rate incentives to improve productivity over time.

< INSERT FIGURE 4 ABOUT HERE >

#### 5. Discussion

When faced with a multidimentional task, participants can face tradeoffs between conflicting objectives. Psychology research finds that individuals tend to ease the cognitive strain from evaluating tradeoffs by adopting hierarchical strategies that prioritize on one desirable dimension as a condition to be met before considering other dimension(s) (Payne et al. 1993, Ch. 2). When faced with the tradeoff between productivity and accuracy, prioritizing on productivity can result in more output, but with more mistakes along the way that need correction. Conversely, prioritizing on accuracy can "get it right the first time," but at the expense of slower, more methodical production.

Our experiment examines a setting in which mistakes can be relatively easily diagnosed (i.e., undercounts) and are relatively forgivable in terms of the ability to correct and resubmit unacceptable output. Within this setting, a produce-and-correct strategy that prioritizes on productivity can be more efficient without sacrificing long-term accuracy, to the extent that workers can correct their mistakes and continue to work. We find that performance-based compensation incentivizes participants to discover such a strategy, as long as we omit an additional statement emphasizing that the experimenter values correct responses. Conversely, when the value statement is present, participants appear to prioritize on accuracy even in the presence of piece-rate incentives, likely discerning a "logic of appropriateness" (Weber et al. 2004) that makes them less willing to tolerate the additional errors that arise from a produce-and-correct strategy. As a result, piece-rate compensated participants make fewer mistakes

when the value statement is present, but the *quid pro quo* is that they no longer enjoy any improved productivity from piece-rate compensation, relative to fixed pay.

To the extent that real-world environments can present similar opportunities to improve and salvage output that is unacceptable initially, an implication from our study is that it can be best to just let incentive systems operate, rather than attempting to condition production with real-world analogs to the value statement we implement in our experiment. In settings involving the generation of customized solutions, for example, it is unlikely that employees can maintain high productivity if they perceive the need to come up with perfect initial solutions. That is, perceiving the need to "get it right the first time" can risk the mental blockage of not getting it done, at least not on a timely basis. In such situations, the more production-oriented strategy of doing the work and then focusing on any needed improvements can be more efficient and, in the long-run, more effective. Importantly, these implications do not suggest that quality and accuracy are unimportant. Rather, the point is simply that that it can be more effective to produce and then attend to these characteristics, as needed, than to view these characteristics as conditions that must be met for initial production. Our results suggest that a performance-based incentive scheme can yield production benefits from the first strategy, but only in the absence of communicating values that could suggest that the second strategy is more appropriate.

Occupations such as research and consulting come to mind as settings in which quality is important, but is not always achieved in the first try, with opportunities to improve and resubmit. There are certainly other settings, however, in which errors are less forgivable. For instance, mistakes can have carryover effects that damage future profitability or effectiveness, as in an experiment recently conducted by Farrell et al. (2008). In addition, mistakes can sometimes be dead-weight losses with little if any opportunity to salvage unacceptable output,

such as the data-entry errors examined in a recent experiment by Christ et al. (2012). The different setting likely helps to explain Christ et al.'s (2012) different conclusion that controls can improve accuracy without harming productivity, as there is little to be gained from a produce-and-correct strategy if there is no opportunity to correct. At the extreme, pilots, surgeons, and soldiers would certainly be ill-advised to try a produce-and-correct strategy, as initial errors in these occupations can be devastating.

These points suggest setting-specific limitations to our research conclusions. However, if the informal control of a nonbinding value statement suppresses mistakes even in an environment in which mistakes are relatively benign and efficiency gains can be realized from a produce-and-correct strategy, it seems likely that emphasizing the importance of accuracy could also influence behavior in settings in which mistakes are more harmful. For example, Propper, Sutton, Whitnall, and Windmeijer (2010) find that incentives implemented to reduce hospital waiting times *do not* lead to increased patient mortality from careless, rushed behavior, likely because the organization makes it clear that neglect of patient health is an unacceptable response to the incentive system. Thus, to the extent that our conclusions generalize to such settings, our results suggest that even informal, nonbinding statements of organizational values can potentially substitute for the more formal controls tested by Christ et al. (2012) to reduce errors. The *quid pro quo* in our setting, however, is that the improved initial accuracy prompted by the value statement we test comes at the expense of lower long-term productivity.

#### 6. Conclusions, Limitations, and Future Directions

Using a letter-search task, we find that the effectiveness of a piece-rate incentive scheme depends on the presence or absence of a nonbinding statement in the experimental instructions that "we value the number of correct responses you can give." Absent this statement,

participants under a piece-rate incentive scheme for accurate output significantly outperform their fixed-pay counterparts. Such participants appear to achieve these productivity gains by adopting a strategy that prioritizes on faster production, committing more undercount mistakes but also correcting these mistakes to maximize the compensated measure. Essentially, piece-rate compensation appears to incentivize the *output*, along with the produce-and-correct prioritization strategy that best maximizes that output.

Conversely, in the presence of a nonbinding instructional statement that emphasizes the value placed on correct responses, participants with piece-rate compensation commit significantly fewer errors than do the piece-rate participants in the condition without the value statement, but the *quid pro quo* is that they also lose the productivity gains that piece-rate participants otherwise enjoy. Essentially, the value statement appears to serve as an informal control over the task *input*, prioritizing accuracy as a condition that must be met for production, seemingly at the cost of efficiency and long-term productivity. Overall, we observe a significant interaction between piece-rate incentives and the value statement, with significant monetary incentive effects in the absence of the statement but no discernible monetary incentive effects in the presence of the statement.

These findings shed insights on the effects of "informal controls" that, unlike formal measures, do not involve explicit preventive actions, detective actions, or enforcement mechanisms (Berry et al. 2009). Nevertheless, even subtle communications of organizational values can shape behavior by defining the "logic of appropriateness" within a social setting (Weber et al. 2004), which in our setting appears to have the ironic effect of leading participants to prioritize on accuracy at the expense of long-term accurate productivity.

As is typical of laboratory experiments in this genre, our study is limited by the stylized nature of the task, which abstracts away from several real-world complexities. Most prominently, we employ a task in which erroneous output can be corrected and salvaged at low cost, with no harm to the organization other than the time taken to commit and correct the error. But if mere wording about the value placed on correct output curtails mistakes even in such a setting, it is reasonable to conjecture that a value statement of this nature could also help to curtail mistakes in settings in which errors are more costly. Thus, an alternative interpretation of our findings is that even something as subtle as a nonbinding, largely superfluous statement in the instructional materials can curtail errors that participants would otherwise commit, although this greater care for accuracy can come at the cost of a commensurate loss of productivity.

More generally, we view our study as a shift away from the common theme in incentive research that "you get what you pay for" (e.g., see Kerr 1975, 1995; Prendergast 1999). That is, several studies in the literature are predicated on the notion that compensation incentives can be inconsistent with organizational values. Our study, in contrast, can be viewed as reversing this reasoning, in the sense that too much emphasis on organizational values can undermine the effectiveness of compensation incentives for attaining those values. Thus, if it is true that organizations sometimes "get what they pay for," it can also be true that organizations should be "careful what they wish for," insofar as communicating organizational values through informal controls can have unintended consequences. We encourage additional research that goes beyond the "you get what you pay for" theme towards a richer understanding of the interface between incentive compensation systems and the formal and informal controls organizations use to moderate those incentives.

# Appendix

## **Experimental Instructions and Materials**

## **Experimental Instructions**

## **Ground rules**

Before describing the experiment, it is important to establish two ground rules.

## 1. NO TALKING WITHIN OR BETWEEN SESSIONS

While we hope that you find this experiment to be fun, it is also serious research. Please help us maintain control over the experiment by refraining from comments or other communication with your fellow participants in this session or with other students who might be participating in future sessions. You will be working individually during this experiment, so there is no need to communicate with other participants. If you have any questions, just raise your hand and we will assist you.

## 2. NO DECEPTION

We promise to carry out the experiment in the manner described in these instructions, with no deception of any form. Your compensation will be determined exactly as described in the rules explained later for this session.

# <u>Task</u>

You have an envelope at your workstation labeled "**Production**." At the start of the experiment, you will be instructed to remove the contents from the envelope and perform the task as described below.

The envelope contains 20 pages. On each page, there are 6 boxes of random letters (labeled 1 through 6). Each box has a single letter (the search letter) highlighted in the top right hand corner. Below the search letter is a 7-row by 18-column block of letters. Your task is to determine the number of times the search letter appears in the corresponding box of letters.

An example of this task is provided below. In this example, letter "I" (the highlighted letter in the top right corner) is the search letter. The box of letters contains 9 "I"s. The answer for this box is therefore "9."

T Example Ζ С Е Μ Ζ Ρ J W D Н Н Ρ R R Ν L R 0 Ζ Т L E U Ρ Y Ζ Q Q Т Н S Κ Ζ W F Y Ο Ρ Т Т Т Т В Е Υ S F Q Н W В T Ζ Е С W S Е Μ J 0 W Κ F U Μ Ν L J S Ζ С U J Т W U I Н В Κ Κ J W Х Κ D S G Υ V U U Ν W Μ Ρ Μ Q А G K Т Ρ Μ Ζ В т С Ζ Е I 0 A Н Ν V Μ А Х V Κ

You will record your answer in the appropriate cell in the computer spreadsheet at your workstation. Once you enter this number and hit the "tab" key, the computer will determine if your response is correct. Note: you may also use the "arrow" or "enter" keys to navigate in the spreadsheet.

## [CONDITION WITH VALUE STATEMENT:]

If your response is <u>incorrect</u>, a message box will appear telling you the answer is wrong and you will not be able to re-enter any number in the spreadsheet for 5 seconds. If your response is <u>correct</u>, you will be permitted to provide a response for the next box of letters. This process will be repeated until time runs out in the round.

We value the *number of correct responses you can give*. You will have 20 minutes to work on this task.

## [CONDITION WITHOUT VALUE STATEMENT:]

If your response is <u>incorrect</u>, a message box will appear telling you the answer is wrong and you will not be able to re-enter any number in the spreadsheet for 5 seconds. If your response is <u>correct</u>, you will be permitted to provide a response for the next box of letters. This process will be repeated until time runs out in the round. You will have 20 minutes to work on this task.

## **Compensation**

## [CONDITION WITH PIECE-RATE INCENTIVES:]

Your compensation will be based on the *number of correct responses* recorded in your computer spreadsheet from working on this letter search task for 20 minutes. *All participants* in today's session will receive **\$0.50 for each correct response**. Thus, the more correct responses you give, the higher is the payment that you will receive in cash at the conclusion of the experiment.

## [CONDITION WITH FIXED PAY:]

You will receive a fixed payment for working on this letter search task for 20 minutes. *All participants* in today's session will receive a *fixed payment of \$25*. You will not need to do anything else, and you will receive your \$25 in cash at the conclusion of the experiment.

Start	art			ning:	Production	]	
	Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	1
Page 1						5.1518	# Correct
Page 2							
Page 3							
Page 4							
Page 5							
Page 6							
Page 7							
Page 8							
Page 9							
Page 10							
Page 11							
Page 12							
Page 13							
Page 14							
Page 15							
Page 16							
Page 17							
Page 18							
Page 19							
Page 20							

# Input Screen for Participant Responses

Star	rt	WRONG.	Wait 5 Seconds.	Time Remaining:	19:3	В	Production	]
		Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	1
Pa	age 1	3	61160				6.000	# Correct
Pa	age 2							
Pa	age 3							
Pa	age 4							
Pa	age 5							
Pa	age 6							
Pa	age 7							
Pa	age 8							
Pa	age 9							
Pa	age 10							STOP
Pa	age 11							
Pa	age 12							
Pa	age 13							
Pa	age 14							
Pa	age 15							
Pa	age 16							
Pa	age 17							
Pa	age 18							
Pa	age 19							
Pa	age 20							

# Example of Feedback for Incorrect Response

# Example of Feedback for Correct Response

Start	CO	RRECT!	Time Remainin	ng: 18:34	4	Production	
	Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	1
Page 1	4						# Correct:
Page 2	:						
Page 3							
Page 4							
Page 5	i						
Page 6							
Page 7							
Page 8							
Page 9	)						
Page 1	0						
Page 1	1						
Page 1	2						
Page 1	3						
Page 1	4						
Page 1	5						
Page 1	6						
Page 1	7						
Page 1	8						
Page 1	9						
Page 2	0						

# Figure 1

2																L	
0	Х	K	U	L	Ν	L	Т	Е	I	G	F	Ν	Y	Р	0	L	Т
Т	Н	L	R	В	С	Е	V	С	L	S	L	L	Q	Т	L	L	Ι
L	Y	F	Р	0	Е	L	I	L	F	Ν	U	V	W	Q	V	L	Ι
Q	L	Q	Х	Ζ	L	J	F	J	L	L	L	М	L	L	L	Е	L
L	L	R	G	В	Q	Х	E	В	F	R	G	L	N	J	L	Z	Р
Z	U	L	L	S	S	Ι	Y	L	L	Y	L	L	Ζ	Α	L	Т	L
L	L	W	С	L	K	R	L	S	Α	Α	L	D	Т	L	Ζ	В	В

# Example Grid from Experimental Letter-Search Task

In this example, the letter "L" in the upper-right corner identifies the target letter. The task is to count the frequency of the target letter in the grid that follows.







# **Panel A: Entire Production Period**







## **Incorrect Responses**



# **Panel A: Entire Production Period**









# Improvement from First to Last Half of Production Period

# Table 1

# **Descriptive Statistics**

## **Panel A: Entire Production Period**

	Value State	ment Absent	Value State	Value Statement Present			
	Fixed-Pay	Piece-Rate	Fixed-Pay	Piece-Rate	Overall		
Correct responses:							
Mean	42.4	47.1	43.6	41.7	43.7		
Standard deviation	10.8	8.5	10.6	10.7	10.2		
Range	21 - 57	31 - 72	28 - 71	21 - 65	21 - 72		
Incorrect responses:							
Mean	11.5	16.9	12.8	9.7	12.7		
Standard deviation	6.4	11.5	6.6	5.4	8.1		
Range	1 - 24	1 - 49	3 - 32	2 - 21	1 – 49		
No. of participants	20	20	20	20	80		

# Panel B: Last Half of Production Period

	Value S Ab	tatement sent	Value State	Value Statement Present			
	<b>Fixed-Pay</b>	Piece-Rate	<b>Fixed-Pay</b>	Piece-Rate	Overall		
Correct responses:							
Mean	23.3	27.1	23.3	22.9	24.2		
Standard deviation	5.7	4.0	6.1	6.1	5.7		
Range	11 - 30	21 - 39	14 - 41	7 - 35	7 - 41		
Incorrect responses:							
Mean	6.6	10.2	8.7	5.7	7.8		
Standard deviation	4.0	9.7	5.6	4.3	6.4		
Range	1 – 13	1 - 44	1 - 25	0 - 15	0 - 44		
No. of participants	20	20	20	20	80		

# Table 2

# Analysis of Variance for Correct Responses

# Panel A: Analysis of Correct Responses, Entire Production Period

Factor	df	MS	F	<i>p</i> -value <sup>a</sup>
Omnibus ANOVA:				
Incentive Scheme (fixed-pay or piece-rate)	1	37.81	0.36	> 0.500
Value Statement (present or absent)	1	86.11	0.83	0.365
Incentive Scheme × Value Statement	1	214.51	2.07	0.078
Error	76	103.75		
Simple effects:				
Simple effect of Incentive Scheme in the				
absence of the value statement	1	216.23	2.08	0.077
Simple effect of Incentive Scheme in the				
presence of the value statement	1	36.10	0.35	> 0.500

# Panel B: Analysis of Correct Responses, Last Half of Production Period

Factor	df	MS	F	<i>p</i> -value <sup>a</sup>
Omnibus ANOVA:				
Incentive Scheme (fixed-pay or piece-rate)	1	56.11	1.82	0.181
Value Statement (present or absent)	1	90.31	2.94	0.091
Incentive Scheme × Value Statement	1	90.31	2.94	0.046
Error	76	30.76		
Simple effects:				
Simple effect of Incentive Scheme in the				
absence of the value statement	1	144.40	4.70	0.017
Simple effect of Incentive Scheme in the				
presence of the value statement	1	2.03	0.07	> 0.500

<sup>a</sup> Reported *p*-values are one-tailed for tests of directional predictions, as indicated in **boldface**, and are two-tailed otherwise.

# Table 3

# Analysis of Variance for Incorrect Responses

# Panel A: Analysis of Incorrect Responses, Entire Production Period

Factor	df	MS	F	<i>p</i> -value <sup>a</sup>
Omnibus ANOVA:				
Incentive Scheme (fixed-pay or piece-rate)	1	26.45	0.43	> 0.500
Value Statement (present or absent)	1	174.05	2.84	0.096
Incentive Scheme × Value Statement	1	361.25	5.90	0.009
Error	76	61.23		
Simple effects:				
Simple effect of Incentive Scheme in the				
absence of the value statement	1	291.60	4.76	0.016
Simple effect of Incentive Scheme in the				
presence of the value statement	1	96.10	1.57	0.214

# Panel B: Analysis of Incorrect Responses, Last Half of Production Period

Factor	df	MS	F	<i>p</i> -value <sup>a</sup>
Omnibus ANOVA:				
Incentive Scheme (fixed-pay or piece-rate)	1	2.11	0.05	> 0.500
Value Statement (present or absent)	1	30.01	0.76	0.388
Incentive Scheme × Value Statement	1	214.51	5.39	0.012
Error	76	39.77		
Simple effects:				
Simple effect of Incentive Scheme in the				
absence of the value statement	1	129.60	3.26	0.038
Simple effect of Incentive Scheme in the				
presence of the value statement	1	87.03	2.19	0.143

<sup>a</sup> Reported *p*-values are one-tailed for tests of directional predictions, as indicated in **boldface**, and are two-tailed otherwise.

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