

An Experimental Economics Approach to the Study of Whistleblowing

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Unethical behavior associated with corporate fraud has reached an extraordinary level: an estimated \$3.5 trillion, or 5% of global corporate revenue (Association of Certified Fraud Examiners, ACFE, 2012). One effective corporate governance mechanism against fraud and other corporate malfeasance is whistleblowing (ACFE 2012; Federwisch 2007; Deloitte 2007; KPMG 2008; PwC 2012), the reporting of unethical or illegal behavior to persons who are willing and able to correct such misconduct (Miceli *et al.* 2008). To encourage whistleblowing, recent financial reporting legislation has mandated the establishment of confidential mechanisms within public companies (SOX, U.S. House of Representatives 2002), instituted monetary rewards for whistleblowing (Dodd-Frank, U.S. House of Representatives 2010), and established strict prohibitions of retaliation against whistleblowers (SOX, Dodd-Frank). These regulatory changes are designed to reduce the personal and perceived costs that can be attributed to whistleblowing, but there is an absence of an empirically-supported theory to suggest that these mandated changes will effectively mitigate the potential costs of whistleblowing.

In fact, despite this legislation, evidence from surveys of practitioners indicates personal or perceived costs to whistleblowers may serve as an even stronger deterrent of whistleblowing now than in previous years (ERC 2012). For instance, both internal tips and whistleblowing related to cyber-fraud has steadily decreased from 2007 to 2011, despite the increase in actual

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cyber-fraud (PwC 2011). Further, Fredin (2012, 58) reports that the most common reason Institute of Managerial Accountants (IMA) members do not whistle blow is the “fear of retaliation in one form or another, including job loss and difficult working condition.” Therefore, while anticipated costs clearly continue to be a barrier to the decision to whistle blow , regulatory changes alone are not sufficiently removing concerns about the costs or whistleblowing such as retaliation.

Academic research has explored many avenues of behavioral explanation for the low rate of whistleblowing. One difficulty that whistleblower researchers face in advancing our understanding of whistleblowing behavior is the difficulty of simulating the actual costs of whistleblowing in our typical scenario-based studies (Mesmer-Magnus and Viswesvaran 2005). While those of us who engage in scenario-based studies of reporting intentions acknowledge the limitations of our methodology, the very nature of our topic (confidential reporting of observed unethical behavior) severely restricts our ability to test theory-driven predictions regarding the determinants of whistleblowing. With notable exceptions (Near *et al.* 1993), identifying and gaining access to an adequate number of actual whistleblowers to provide for a robust set of findings is very difficult. As a result, there are many limitations on what can be investigated and the generalizability of those results.

A primary goal of this study is to examine the potential efficacy of an experimental economics methodology (EEM) to better understand ethical decision making, as EEM appears to have several advantages over current methods. First, an experimental economics approach allows researchers to impose costs to ethical decision-making situations commensurate with those experienced in actual business settings. Second, EEM allows researchers to observe actual decision-making, so behavior is no longer presumed to follow reported attitude or intentions.

With the ability to observe actions rather than measure intentions, researchers can examine behavior in the presence of varying company policies and practices, which can improve theoretical understanding of the role of such company-level factors and more effectively test available theoretical models that make predictions beyond measured intention. This methodology can also be used to gain a better understanding of individual differences, which can explain why certain people are willing to incur costs associated with reporting unethical behavior. Lastly, researchers can observe whether managers can influence whistleblowing reporting through their interactions with the workers.

We conduct an experiment in which participants are instructed by their manager to behave in a manner that is in violation of company policy, and they are given the opportunity to report the manager. To simulate the costs whistleblowers experience in the workplace, the experiment is designed so that reporting involves both actual costs (sitting out one experimental period without pay) to the reporter and potential costs (managers may punish non-followers with lower compensation). Given our concern that legislation has not proven effective in stimulating reporting, we consider two practices the organization might employ for this purpose. The first practice is the punishment faced by the manager when reported upon. We predict that expectation of punishment level has an inverse-U shaped influence on reporters, such that expectation of very low or very high punishment reduces reporting. The second practice is the style of the reporting mechanism: prompting-style reporting mechanisms incorporated into a 360 degree evaluation process, as opposed to a standard voluntary reporting hot-line.¹ We expect higher reporting levels under the prompting style of a 360-degree reporting mechanism. Since prior studies suggest personal characteristics can help to explain ethical decision choices (Church

¹ A 360 degree evaluation is a comprehensive performance evaluation process that incorporates performance assessment from peers and subordinates in addition to standard assessment from supervisors, by soliciting and incorporating feedback from this diverse set of organizational members.

et al. 2005), we also examine whether ethical ideology and perceptions of the fairness of company policies influence ethicality actions in our setting as they have in survey-based studies.

We find participants were sensitive to the expected levels of the punishment to their manager/wrongdoer. When punishment was lenient or harsh, individuals were less willing to report than when punishment was moderate. Contrary to expectations, participants were not sensitive to the reporting mechanism. Thus, while 360-degree reports may not be superior to hotlines in soliciting reports of unethical behavior, our results do suggest that this tool is as effective as hotlines. We measure worker ethical ideology using the Ethical Position Questionnaire (EPQ, Forsyth 1980) and find that participants' scores on the EPQ are significantly related to their reporting, as predicted.² Finally, we find manager evaluation of participant performance, one form of employee interaction that can directly impact employee compensation, influences willingness to report in that lower evaluations result in greater reporting levels.

Our study contributes to the existing whistleblower literature in several ways. First, we demonstrate a means of overcoming significant methodological limitations of scenario-driven ethics research by using an experimental economics approach. Further, we investigate two corporate control practices previously unexplored in this literature. No research to date has investigated the efficacy of 360-degree reports in identifying unethical behavior. Additionally, little is known about the impact of expected punishment to perpetrators on ethical decision making. We provide evidence that punishment can impact reporting decisions. Finally, we demonstrate how employee interactions can affect behavior by revealing an unfortunate ability of

² Idealism is the extent to which one optimistically assumes that desirable consequences will necessarily follow from appropriate action, and relativism is the extent to which one rejects universal moral rules (Forsyth 1980).

managers to suppress reporting through the use of performance evaluations. Our findings related to the above topics suggest EEM can be useful in furthering ethics-related research.

In the remainder of this article we first develop our hypotheses, followed by a discussion of our methodology. We then present the results and offer conclusions about our findings.

Hypothesis Development

Much research in psychology and accounting considers influences on behavior to arise from the environment, as well as from more permanent personality trait related to an individual. We consider both state and trait influences on reporting. We begin our discussion with two factors related to the perceptions of the organization's practices, which create a state of mind, and then consider an employee trait, ethical ideology.

Extent of Punishment

Prior organizational response is an important consideration by potential whistleblowers. Indeed, most whistleblowing models include consideration as to whether reporting would be effective in actually stopping the observed wrongdoing as a critical step in the whistleblowing decision (Graham 1986). For example, the Finn (1995) model considers the socialization/educational process of new employees to be the first influence on eventual whistleblowing decision processes. An organization's culture is indelibly imprinted with the behavior of management. Thus, employees notice when management reacts, or fails to react, to unethical employee behavior and employee whistleblowing; and the resulting effect on organizational culture can have long-term consequences. Similarly, from the perspective of organizational leadership, Miceli *et al.* (2008, 35) assert that reacting well to whistleblowers would help managers create more effective organizations; "[however,] published advice as to how this can be achieved is not always informed by existing scientific literature on the topic."

Given that one way of following-through on wrongdoing is to punish the wrongdoer(s), we extend this literature by considering the relationship between whistleblowing and the extent the organization has historically punished wrongdoers, and offering signaling theory and the principle of proportionality as support for this relationship.

Individuals may view punishment as a signal of the company's attitude toward a behavior. Signaling theory suggests certain organizational actions serve as signals to others in predicting organizational actions in the future. These signals can influence ethics-related judgments, as Trevino and Weaver (2001) find that organizational follow-through on ethics policies impacts employee willingness to whistle blow. In this light, prior punishment for unethical behavior may signal to employees the extent to which the organization would, or would not, correct observed wrongdoing if they reported it.

However, punishment serves many purposes, including providing restorative or retributive justice to the wronged, preventing a recurrence of the behavior (recidivism), and deterrence of the behavior by others. From the perspective of the observer, one critical concept concerning punishment is proportionality. In ethics and law, fitting the punishment to the crime is the principle that the severity of penalty for wrongdoing should be reasonable and proportionate to the severity of the misdeed (Davis 1983). The general principle of proportionality, applied to corporate misbehavior, suggests that the amount of punishment should be proportionate to the amount of unfair advantages gained by the wrongdoer (Davis 1983). Individuals are likely to perceive punishment that is too lenient or too harsh as unfair because, in the potential reporter's view, these punishments fail the proportionality criterion.³

³ Although the judgment of proportionality between punishment and wrongdoing varies across individuals, as the mismatch between perceptions of appropriate punishment and wrongdoing increases, so too does the agreement amongst individuals that a mismatch exists.

Models of ethical decision-making support this relationship between punishment, the crime, and the advantage gained by the wrong-doer. For example, when individuals first confront a situation with ethical challenges, they attempt to interpret the situation and to determine how alternative actions might affect others (Rest 1986). This action can include the impact of the individual's own potential actions on all involved, including the wrong-doer.

We propose the general principle of proportionality impacts the ethical decision-making process by directly influencing individuals' willingness to report their managers' unethical actions. If the punishment does not fit the crime and is thereby perceived as either greater or less than deemed deserving, observers will be less willing to engage in behavior that could lead to punishment of the perpetrators. Stated formally:

H1: There is an inverted-U shaped relationship between expected punishment and reporting, such that harsh or lenient punishment will reduce reporting relative to moderate punishment.

Reporting Mechanism

Organizations provide many outlets for employees to report observed unethical behavior. However, existing research has primarily considered only whistleblowing, whether as an explicit hotline (Taylor and Curtis 2010) or broader reporting to others in the firm (Robertson *et al.* 2011). To broaden our understanding of how the reporting mechanism can impact employee ethicality behavior, we compare the efficacy of 360-degree evaluation reports as a whistleblowing outlet to that of a traditional ethics hotline. A common purpose of 360-degree reports is to provide feedback to individuals who can use them "to plan their training and development" (Rokendro 2010, 25). In many organizations, 360-degree feedback has migrated from personal development feedback toward performance appraisal (Maylett 2009). Given the

evolution of 360-degree reporting, the appraisal could be extended to other functions, such as reporting wrongdoing. An important feature of 360-degree reporting is that it prompts for “expressed voice” or candid feedback by employees at regular time intervals (Brett and Atwater 2001; Goldberg *et al.* 2011, 75).

We propose that the nature of 360-degree reporting makes these reports an ideal mechanism to encourage employees to report wrongdoing, because 360-degree reports are part of their normal routine. When organizations employ 360-degree reports, employees regularly complete evaluations of immediate subordinates, colleagues, and immediate superiors. These reports are then used by top management as compensation and control tools. Accordingly, employees can report wrongdoing without going beyond their normal routine and process, as an ethics hotline requires. In this light, employees may perceive the organization is truly interested in the ethical behavior of all its employees and, as a result, feel less susceptible to the derogatory associations of being a whistleblower. Within the Finn (1995) model, this context may also represent management practice or instead could be viewed as removing the alternative to do nothing. Indeed, employees may feel compelled to report wrongdoing in a 360-degree report, since completing the evaluation is part of their normally assigned duty, and failure to report may be interpreted as actively concealing a wrongful act. Reporting to a hotline, on the other hand, is generally considered optional and subject to considerable analysis (Finn and Lampe 1992, Hooks *et al.* 1994). Stated formally:

H2: Reporting mechanism influences willingness to report, such that workers report the unethical actions of their managers more frequently when under a 360-degree mechanism than a hotline.

Ethical Ideology

A large body of research has studied the impact of personality traits on attitudes and behaviors (Costa and McCrae 1992; Robinson *et al.* 2013). The finding from this literature, of most relevance to our study, is that individual differences in ethical ideology play a key role in ethical decision making (Davis *et al.* 2001). Indeed, most models of whistleblowing consider the impact of individual differences in the whistleblowing decision process (Finn 1995, Miceli *et al.* 2008, Trevino 1986).

Forsyth (1980, 1992) proposed ethical ideology represents an important individual difference in moral philosophy, and demonstrated that personality-based differences in ethical ideology help to explain moral judgment. Forsyth (1980) developed a scale, the Ethics Position Questionnaire (EPQ), to measure two dimensions of ethical ideology: the individual's stance toward relativism, the extent to which one rejects universal moral rules; and idealism, the extent to which one optimistically assumes that desirable consequences will necessarily follow from appropriate actions. Forsyth's (1980) two-dimensional model suggests that moral judgments and behaviors will vary according to one's position on idealism and/or relativism.

Prior research has correlated these dimensions with a number of ethics-related judgments and behaviors. For example, Davis *et al.* (2001) and Barnett *et al.* (1994) found that the ethical judgments of individuals regarding business-related issues varied as a function of ethical ideology. In a subsequent study, Barnett *et al.* (1996) examined idealism, relativism, ethical judgments, and intentions to report peer wrongdoing. Their results suggest that idealism was positively related, and relativism negatively related, to ethical judgments of peer wrongdoing, which in turn was positively related to reporting intentions. Therefore, we propose that ethical

ideology will influence reporting behavior such that idealism is positively related to reporting and relativism is negatively related to reporting.

H3a: Idealism is positively related to reporting.

H3b: Relativism is negatively related to reporting.

METHODOLOGY

Experimental Economics

While causal experimental designs are desirable and effective in many circumstances because of their ability to isolate the effects of manipulated and measured factors, such designs can be difficult to conceive and execute when exploring the sensitive nature of organizational wrongdoing and the risks in reporting such wrongdoing (Miceli *et al.* 2008). Capturing the reporting of wrongdoing while or after it occurs is difficult, yet such observations seldom allow for causal assertions. Alternatively, subjecting people to actual wrongdoing significant enough to warrant reporting, and to possibilities of reprisal for reporting, raises ethical issues (Miceli *et al.* 1991). Scenario studies can eliminate these concerns, but also raise the question of whether participants' intentions to whistle blow, as captured in such contexts, truly reflect what they would actually do if faced with wrongdoing. Additionally, such studies have difficulty in imposing costs to reporting, consonant with those experienced by actual whistleblowers. Indeed, most scenario-based methodologies involve costless decisions, making it difficult to discern what participants think they would do versus what they would actually do given pressures that could result from whistleblowing (Mesmer-Magnus & Viswesvaran 2005).

We use an alternative methodology to test our hypotheses: experimental economics.⁴ This

⁴ The ethics literature has made relatively little use of experimental economics methodologies. Exceptions to this include several studies assessing the impact of economic self-interest on ethical behavior (Church *et al.* 2005; Gunzberger *et al.* 1977; Malinowski and Smith 1985) and taxpayer compliance (Trivedi *et al.* 2003).

methodology allows us to construct an experimental context that is realistic to the participant during the session, yet allows the participant to walk away unscathed by the experience once the experiment is completed. Thus, the experimental economics approach we employ in this study provides for one means of balancing relevance and rigor (Miceli *et al.* 2008).

Participants

The sample is composed of 62 undergraduate and graduate business students at a public university in the southwest United States, assigned as ‘workers’ in one of seven data collection sessions and recruited through announcements in accounting classes. The mean participant age was 25.34 (range 20 to 55), college major was primarily accounting and finance, and the sample consisted of 35 males and 27 females. Twenty students had previously taken an ethics course. All participants received extra credit in their accounting classes and the opportunity to receive monetary awards based on their decisions in the experiment.

Procedure

Participants signed in when they entered the computer lab for their data collection session and then proceeded to a computer. We used partitions to prevent participants from seeing other computers. Once all participants had read the written instructions, including how their pay would be determined, we followed a script to explain procedures to participants and allowed participants to ask questions (See the Appendix for a more detailed description of the experimental process). Participants were assigned to a role of manager or worker, and then engaged in two practice periods to gain familiarity with the software, experimental procedures, and their role in the session. Following the two practice periods, we informed participants there would be multiple periods in the actual experiment and provided a second opportunity to ask questions. The experiment involved eight experimental periods, demographic questions, and the

payout at the end of the session. Although participants initially were unaware of the number of periods they would complete, we informed participants when only two periods remained.

Workers retained the same combination of manipulations throughout the eight periods. In each period, workers were responsible for allocating their effort across three performance tasks upon which they were evaluated. Managers (not included in this study) were responsible for four tasks, two of which they had in common with the worker tasks. Task outcome for the worker and manager were a function of allocated worker effort and random chance such that greater effort on a task resulted in a greater probability of a higher outcome score on that task. The organization informed participants that worker effort should be expended equally on all tasks for maximum company benefit. In fact, workers could earn a company bonus of \$1,000 based on their total performance on their three measures. They also were informed that their best chance to earn the bonus was to allocate their effort equally. However, we created conflict between worker actions that mostly benefited the company and actions that mostly benefited the manager such that managers would generally benefit most when workers focused only on the two tasks that the managers and workers had in common (instead of all three). Because the compensation that derived from the manager's evaluation of the worker could exceed the bonus from the company, there also is a competing financial incentive for the worker to follow the manager (e.g., Fayard, Leitch, Cockrell and Curtis 2013). However, all participants were informed that managers should provide feedback to workers so that all tasks should be treated equally and by not doing so, they were in violation of company policy and could be punished if reported by the worker.

After the outcomes of the worker effort allocations were determined in each period, managers evaluated workers' performance based on the outcomes on their tasks. The evaluations given by managers and the bonuses given by the company affected worker payoff at the end of

the experiment. Managers also provided feedback to workers about how to allocate future effort. Thus, managers could instruct workers to expend more effort on their two common tasks and could reward workers who followed their instructions, albeit they would be in violation of company policy. The organization encouraged workers to report managers who violated the organizational policy.⁵ Only workers who received unethical effort allocation instructions were of interest to this study, and since we were interested in the way workers respond to managers who violate company policy, we only retained in the sample those workers whose managers provided opportunistic guidance to them.⁶

Workers were assigned one of two ways to report manager behavior that violated company policy (hotline or 360-degree report). We also informed participants that workers would incur a cost if they reported their manager. Specifically, reporting required the worker to sit out the next period; thus the cost was the lost opportunity to participate in one experimental period.⁷ We made these design choices (sitting out and manager performance evaluation) to simulate the costs of whistleblowing in practice. Reporting also imposed a cost to the wrongdoer-manager (the severity of this penalty was manipulated across three levels: lenient, moderate, and harsh).

Manipulated Independent variables

Our experimental design incorporates two independent variables manipulated between

⁵ Workers were either partnered with a computer-manager programmed to guide workers to direct effort in the manager's favor, inconsistent with company policy, or with a human participant assigned the role of manager. Workers did not know whether they were partnered with a computer or a human manager, and consideration of this distinction did not change our reported results. This setting is based on the study by Fayard Leitch, Cockrell and Curtis (2013), which demonstrates that managers in a Balanced Scorecard-like setting will direct worker effort inconsistently with the organization's stated goals.

⁶ We began with 80 participants designated as workers. Because we were only interested in the actions of workers given unethical instructions, 18 workers who received only instructions that conform to company policy were removed from the sample.

⁷ Of course, the exception to this cost is whistleblowing in the final period. Interestingly, we found no greater incidence of whistleblowing in the final period than the previous periods even though participants were notified when only two periods remained.

subjects. Reporting method was manipulated at two levels (360 degree reporting and reporting hotline) while punishment was manipulated at three levels (harsh, moderate and lenient). We manipulated the type of report by providing participants with the opportunity to report concerns regarding their manager by either using an employee hotline or the organization's 360-degree report. The 360-reporting method is coded 1, and the hotline method is coded 0. In the 360-report condition, all workers answered performance evaluation questions about their manager, including a question that asked if the manager had violated company policy. In the employee hotline condition, the worker computer screen included a "report" button that could be clicked throughout the experiment. If workers did report their managers, using either method, we gathered additional information from them while they were sitting out for the period.

We manipulated punishment through our description of the organization's response to managers who had been reported in the past. In the harsh condition, workers learned that managers would be fired if they misdirect employee effort and were reported (in this situation, workers were assigned to a new manager). In the moderate condition, managers sat out one period without pay – the same as the worker who reports the manager. In the lenient condition, the managers sat out a period but still received pay that is approximately equal to what managers earn on average during a period. Recall that reporting imposes the opportunity cost to the worker of sitting out one period without compensation, in all manager punishment conditions. This condition is coded as 0 for lenient, 1 for moderate, and 2 for harsh.

Measured Independent Variables

We employ Forsyth's (1980, 1992) measure of ethical ideology, the Ethics Position Questionnaire (EPQ). Consistent with Forsyth, our factor analysis of the EPQ results in two dimensions: relativism and idealism. Forsyth (1992) reports Cronbach's alpha of 0.80 and 0.73

for idealism and relativism, respectively; similarly, we find coefficients of 0.82 and 0.74 (see Table 1).

<< insert Table 1 here >>

Dependent Variable

We measured whistleblower reporting as a representation of participant willingness to make costly ethical decision. Whistleblower reporting is a binary measure of whether participants report the manager during the experimental period, either by hotline or 360-report.⁸ For each period, reporting is coded as 1 if the worker reported on the manager and 0 if not.

Covariates

We included several demographic measures considered relevant to the decision to whistleblow, including gender, number of ethics courses taken in college, and where they attended high school. We measured perception of company practices using a portion of the multi-dimensional ethics scale (MES, Reidenbach and Robin 1990)). We modified the moral equity dimension of the MES to evaluate perceptions of the appropriateness of company's practices. Factor analysis of our 8-item scale results in a single factor. We find a Cronbach's alpha of 0.93 and composite reliability of 0.94 (see Table 1).

RESULTS

Descriptive Results

Upon completion of the experiment, we asked participants to assess the complexity of the experimental task, the severity of the punishment in their scenario, and the ethicality of managers

⁸ Since the worker must sit out a session after reporting, the data contains fewer than 8 experimental sessions for workers who reported.

redirecting worker effort. Participants assessed the ease of the exercise as 1.53, with points of 1=very easy, 2=somewhat easy, and 3=somewhat difficult. Participants also assessed the severity of punishment as 2.73 on a scale of 0=lenient to 6=harsh. The average perceived severity for each of the three manipulated levels was lenient=2.47, moderate=2.72, and harsh=2.94.

Regression analysis of perceived severity regressed on manipulated punishment level (0=lenient, 1= moderate and 2= harsh) reveals significant difference between each levels ($p=0.040$, one tail).

When asked if it was unethical for managers to redirect worker effort to his or her own benefit and at the expense of the organization, mean response was 1.77 on a scale of 0=unethical to 8=not unethical, and there was not a significant difference between punishment levels. Thus, despite consistent attitudes toward manager behavior across punishment levels, the instrument appears to provide discrimination between treatment levels.

Hypothesized Relationships

We tested our hypotheses using repeated-measures ANCOVA. The results are presented in Table 2.⁹ Hypotheses 1 relates to how punishment level impacts reporting. Specifically, H1 predicts an inverted-U shaped relationship, such that participants would be more willing to report managers when they are expected to receive a moderate level of punishment than either lenient or harsh punishment. As predicted, this factor was significantly related to reporting by workers ($p = 0.041$). Means presented in Table 2, Panel B confirm the hypothesized inverted-U effect.

Hypothesis 2 predicts the reporting mechanism will influence reporting such that workers report managers more often through a 360-degree mechanism than a hotline. Inconsistent with H2, participants were not more likely to report via a 360-degree mechanism than through an ethics hotline ($p = 0.178$).

⁹ Reported p-values are one-tailed for hypothesized relationships, and two-tailed for all other tests of significance.

Hypotheses 3a and 3b, related to ethical ideology, propose that reporting is positively related to idealism and negatively related to relativism. Untabulated correlations demonstrate a significant positive correlation between reporting and idealism ($r = 0.095$, $p = 0.054$, two-tailed), and a significant negative correlation between reporting and relativism ($r = -0.153$, $p < 0.01$, two-tailed). Both measures were significantly related to reporting in ANCOVA analysis depicted in Table 2 ($p < 0.001$ for each).

<< insert Table 2 here >>

Control variables

We also found significance for several demographic measures as they impact employee actions. Males were more inclined to whistle blow ($p = 0.084$, two-tailed), those who received their education in the USA were more inclined to whistle blow ($p = 0.017$, two-tailed), and number of ethics courses participants had taken was positively related to whistleblowing ($p = .050$, two-tailed).

Supplemental Analysis

Because there is a possibility that employee reporting could be influenced by manager performance evaluations, we re-performed the ANCOVA and included manager evaluation (untabulated). We found that this variable significantly impacts reporting ($p < 0.001$), but does not change the significance of other relationships reported above. The correlation between these two variables supports the notion that lower performance evaluations result in higher incidences of reporting ($r = -.261$, $p < 0.001$).

CONCLUSION

The objective of this study is twofold. First, we use an experimental economics approach as an alternative methodology to overcome limitations in scenario-based whistleblowing research. Second, we examine how organizational control variables and individual traits influence reporting decisions following unethical acts committed by supervisors.

Concerning methodology, prior research on whistleblowing is often scenario-based, requiring participants to consider how they would respond to a given hypothetical ethical situation. General limitations of the scenario-based approach include potential differences between what participants indicate they would do and what they would do in an actual setting (e.g., Mesmer-Magnus and Viswesvaran 2005) and obtaining participants who have experience whistleblowing in actual settings. We contribute to the extant whistleblowing literature, and address these general limitations, by using an alternative methodology: experimental economics. This approach allows us to create a controlled environment in which participants observe wrongdoing committed by their supervisor, and they have the option to whistle blow. The EEC methodology is particularly appropriate when considering costs associated with ethical decision making because we can control the costs associated with certain behaviors.

Our experimental economics design involves two manipulated independent variables. We manipulate extent of punishment by varying prior punishment for similar actions committed by individuals in the same position as the wrongdoer in our study. We find support for our inverted U-shape prediction such that employees were more likely to report managers who behave unethically when expected punishment was moderate than either lenient or harsh.

We also vary reporting mechanism by providing participants with a confidential reporting hotline or a 360-degree report, which involves providing performance feedback on multiple

parties surrounding the individual worker, including subordinates, peers, and the supervisor (Rokendro 2010). We find that reporting does not differ significantly whether reports are made through 360-degree reports or an ethics hotline. Our design also includes two individual traits, which we assessed using the Ethical Position Questionnaire (EPQ, Forsyth 1980). As predicted, we found a positive (negative) relationship between reporting and idealism (relativism).

In regard to covariates, we find that individuals educated in the USA, individuals with more ethics courses, and males were more likely to report than their counterparts. Perceived fairness of company policies increased reporting, as did lower performance evaluations from the manager.

In addition to our contribution to the academic literature by using an experimental economics design, our results concerning idealism and relativism may be useful to future research. We suggest that future whistleblowing studies should consider the use of these measures as control variables, given the impact they can have on reporting decisions.

We also offer implications for practice. For instance, our result concerning expected punishment indicates that organizations can best encourage whistleblowing through moderate punishments rather than through harsh or lenient punishments. Further, our result concerning reporting mechanisms did not support the notion that a 360-degree report creates greater or lower whistleblowing than a more expensive hotline. Prior research has considered in-house and external whistleblowing channels such as reporting to executives, supervisors, and internal auditors, or using either internal or external hotlines, or contacting regulatory agencies (e.g., Robertson *et al.* 2011; Kaplan *et al.* 2010; Barnett 1992; Miceli *et al.* 1991). However, to our knowledge, this study is the first to consider 360-reports as a potential whistleblowing mechanism. While organizations typically consider 360-degree reports as performance feedback

and evaluation tools (e.g., Rokendro 2010), our results suggest that this organizational control tool also may be useful in identifying wrongdoing such as deviations from policy.

Finally, our logical yet troubling finding that manager performance evaluations influence reporting should be explored further. This finding can be viewed from two perspectives. First, employees receiving lower evaluations may be inordinately willing to punish the manager, and second, managers may be able to influence workers not to report by giving them higher performance evaluations.¹⁰ Neither of these influences is good for the organization and we hope that future researchers will provide theoretical foundation to extend these results. We feel that this scenario is just one example of how employee interactions can affect reporting behavior. Future research can further utilize the interactive experimental economics methodology to investigate other forms of potentially coercive employee interactions.

¹⁰ The same phenomenon applies to student evaluations of teachers.

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Appendix

Experimental Procedures

General:

1. Instructions – written and oral
2. Question and answer session
3. Role assignment – manager or worker
4. Practice periods
5. Question and answer session
6. Experimental periods
7. Pay out determined
8. Demographics questions completed

Activities within each experimental session:

1. Worker assigns effort
2. Worker outcomes, as determined by effort allocation and random table, determined and reported
3. Manager outcomes, as determined by worker outcomes, determined and reported
4. Manager evaluates worker, determining worker pay
5. Manager provides guidance for next period
6. Worker and manager receive notice of pay (based on outcomes) and bonus (based on effort allocation)
7. Worker with 360-degree reporting manipulation receives opportunity to complete 360-degree evaluation report at the end of each period, while the hotline is available throughout each period

Table 1: Factor Analysis of Scales		
Panel A: MES-Fairness of Company Practices		
	In your opinion, the punishment for violating company policy is Scale: 06	Factor
Item 1	Just.....Unjust	.806
Item 2	FairUnfair	.830
Item 3	Morally Acceptable... Morally Unacceptable	.782
Item 4	Acceptable to my family... Unacceptable to my family	.873
Item 5	Culturally Acceptable... Culturally Unacceptable	.807
Item 6	Traditionally Acceptable... Traditionally Unacceptable	.827
Item 7	Best for the company...Not best for the company	.875
Item 8	Produces the greatest utility ... Produces the lest utility	.756
	<i>Cronbach's alpha</i>	.93
Panel B: EPQ-Idealism		
	Scale: 0.....8	
Item 1	A person should make certain that their actions never intentionally harm another even to a small degree.	.791
Item 2	Risks to another should never be tolerated, irrespective of how small the risks might be.	.758
Item 3	The existence of potential harm to others is always wrong, irrespective of the benefits to be gained.	.721
Item 4	One should never psychologically or physically harm another person.	.823
Item 5	One should not perform an action which might in any way threaten the dignity and welfare of another individual.	.832
Item 6	If an action could harm an innocent other, then it should not be done.	.708
Item 7	Deciding whether or not to perform an act by balancing the positive consequences of the act against the negative consequences of the act is immoral.	.110
Item 8	The dignity and welfare of people should be the most important concern in any society.	.698
Item 9	It is never necessary to sacrifice the welfare of others.	.394
Item 10	Moral actions are those which closely match ideals of the most "perfect" action.	.210
	<i>Cronbach's alpha</i>	.82

Table 1 (continued)		
Panel C: EPQ-Relativism		
Item 1	There are no ethical principles that are so important that they should be a part of any code of ethics.	.281
Item 2	What is ethical varies from one situation and society to another.	.480
Item 3	Moral standards should be seen as being individualistic; what one person considers to be moral may be judged to be immoral by another person.	.544
Item 4	Different types of moralities cannot be compared as to "rightness."	.440
Item 5	Questions of what is ethical for everyone can never be resolved since what is moral or immoral is up to the individual	.710
Item 6	Moral standards are simply personal rules which indicate how a person should behave, and are not to be applied in making judgments of others.	.679
Item 7	Ethical considerations in interpersonal relations are so complex that individuals should be allowed to formulate their own individual codes.	.639
Item 8	Rigidly codifying an ethical position that prevents certain types of actions could stand in the way of better human relations and adjustment.	.345
Item 9	No rule concerning lying can be formulated; whether a lie is permissible or not permissible totally depends upon the situation.	.639
Item 10	Whether a lie is judged to be moral or immoral depends upon the circumstances surrounding the action.	.497
	<i>Cronbach's alpha</i>	.74

Table 2				
Repeated Measures ANOVA Results and Descriptive Statistics for Frequency of Reporting				
Panel A: ANCOVA Results				
Source	Numerator df	F	p-value	Hypothesis
Intercept	1	2.730	.041	
Prior Response	2	2.730	.041	H1
Type of Reporting Mechanism	1	0.879	.178	H2
Prior Response x Type of Report	2	.023	.977	
EPQ - Idealism	1	4.595	<.001	H3a
EPQ - Relativism	1	11.824	<.001	H3b
Fairness of Company Practices	1	8.521	<.001	
Gender	1	3.193	.084	
Educated in USA	1	6.370	.017	
No of ethics courses	1	4.191	.050	
Panel B: Mean Frequency of Reporting Across Punishment Levels and Report Types				
	Type of Report			
	Hotline	360	Overall Mean	
Prior Response				
Lenient	-.008	.040	.016	
Moderate	.130	.159	.144	
Harsh	.032	.067	.049	
Overall Mean	.051	.088	.070	
Table Notes:				
Hypothesized relationships are presented with one-tailed P-values, others are two-tailed				
Means created in the presence of the three continuous variables: Fairness, Idealism, and Relativity				