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March 2020

Online at <https://mpra.ub.uni-muenchen.de/99176/>

MPRA Paper No. 99176, posted 23 Mar 2020 08:44 UTC

The effect of ethical responsibility on performance

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Abstract

In a laboratory real-effort experiment, we study the effect of responsibility on performance. Specifically, we analyze whether being responsible for an ethical or unethical work environment affects workers' performance. Using a specific randomization technique, we can separate the responsibility effect from a possible selection effect. We find that workers who prefer to work in an ethical work environment perform better if they are also responsible for it, compared to a situation where it was imposed on them. We do not find this positive incentive effect of responsibility for workers that prefer an unethical work environment. Moreover, we observe that if an unethical environment was imposed, workers who prefer an ethical environment perform worse than those whose preference are aligned with the environment.

This version: March 2020

JEL Codes: C91, D90

Keywords: real-effort experiment, responsibility, decision rights, incentive, ethical behavior

Acknowledgments: We thank Lea Cassar, Gary Charness, Anastasia Danilov, Holger Herz, Matthias Heinz, Bernd Irlenbusch, Agne Kajackaite, Nikos Nikiforakis, Ernesto Reuben, Marina Schröder, Matthias Sutter, Peter Werner, Claudia Zoller, and participants at the 2017 spring school of behavioral economics in San Diego, the Brown Bag seminar of the University of Cologne, the 2018 ESA Berlin, as well as the LEOH 2018 for helpful comments and suggestions. We gratefully acknowledge financial support from the Research Unit Design and Behavior (FOR 1371).

1 Introduction

Financial incentives are a well-studied and widely used mechanism to increase workers' productivity. A long strand of empirical studies shows that monetary compensation is a crucial factor for employees' effort choice (Lazear, 2000; Shearer, 2004; Bandiera et al., 2005). At the same time, it is widely accepted among social scientists and practitioners that this is not the only factor that influences workers' motivation. In the past decades, economists and psychologists have emphasized the role of non-financial incentives and investigated how much the work environment can affect workers' productivity (Deci, 1971; Gneezy and Rustichini, 2000; Ariely et al., 2009).

In fact, several studies involving field and lab experiments show that employees exert more effort when they regard their job as meaningful (Ariely et al., 2008; Chandler and Kapelner, 2013) or when the job has a pro-social mission, i.e., contributes to a public good (Fehrler and Kosfeld, 2014; Tonin and Vlassopoulos, 2015; Carpenter and Gong, 2016; Charness et al., 2016; Kajackaite and Sliwka, 2017; Cassar, 2018). These results suggest that workers' motivation is higher if their work environment matches their ethical values and social standards. In other words, it appears that only if the work environment is aligned with the workers' pro-social and moral values do non-financial incentives become effective. For firms, however, this can be challenging and costly to implement. It might, therefore, be useful to provide employees with more discretion to shape their work environment in a way which meets their own social and ethical standards. In this regard, it has become frequent over recent years for an increasing number of companies to grant employees more flexibility to shape their work environment, offering workers decision rights to match their ethical and social values at their work place.

One example is the US online retailer Zappos. The current CEO Tony Hsieh introduced a no-script policy for those who work in the customer service. He argues that employees should be able to "let their true personalities shine during every phone call" by giving them the freedom to interact freely with the customers. Thus, workers can make their own decision whether to consult in a way best for the clients or to sell unnecessary services. This is in contrast to the usual practice of firms to provide written scripts where workers are strongly encouraged to sell services by all means. We argue that a worker is more motivated when he is free to choose his own work environment because this gives him a sense of responsibility over his work.

In this paper, we investigate whether being responsible for a work environment that matches one's own ethical values can serve as an incentive to increase performance. Psychological research studies indicate that the feeling to have self-determined one's own behavior and, thus, the feeling of being responsible for an environment plays a decisive role on individuals' intrinsic motivation. It makes the individual feel more coherent with one's self and thus more committed to the action one executes (Deci, 1971; Ryan and Deci, 2000; Gagné and Deci, 2005).

However, there exists so far limited empirical evidence on this question. Fehrler and Kosfeld (2014) find that participants who choose to contribute their produced output to a charity exerted more effort compared to participants who are randomly assigned to contribute to it. The authors explain this effect by self-selection arguing that the choice acts as a vehicle to efficiently target only those workers for whom Corporate Social Responsibility is an effective non-financial incentive. However, the observed increase in performance might also be caused by the choice itself because workers find themselves responsible for their pro-social behavior. It is, indeed, difficult to separate one explanation from the other because they usually coincide: When an individual makes a choice, she acts in a way that she prefers. Thus, choosing an ethical or pro-social work environment might increase motivation through (i) the fact that the individual acts according to her preferences or (ii) by the feeling of being responsible for it.

In our experiment, we control for selection effects and focus on how being responsible for an ethical or unethical decision affects performance. In particular, we match participants into pairs composed of one worker and one employer. The worker and the employer are each independently assigned a piece-rate for a task the worker eventually has to perform. The payoffs for both - the employer and the worker - are the same and depend on the reported piece-rate and the worker's performance. The employer and the worker are asked to individually report the assigned piece-rate, where they have the incentive to over-report this piece-rate. At the same time, we explicitly declare over-reporting a violation of the rules of the experiment which is, however, not punished. This creates a trade-off between one's own financial gain and ethical considerations. In the following we will refer to a situation where the worker performs under an over-reported piece-rate, he is not entitled to, as an "unethical" environment. Conversely, we will call the situation an "ethical" environment when a worker and the employer receive a payoff based on the designated piece-rate. Furthermore, we introduce a randomization procedure which either implements the reporting decision of the worker or of the employer. This creates our two major "treatment" conditions: *Responsibility* and *NoResponsibility*. In case the worker's decision is implemented we refer to the treatment condition as *Responsibility* and as *NoResponsibility* otherwise.

As a first result we find that given an ethical environment, workers in the *Responsibility* condition perform better than in the *NoResponsibility* condition. This result can still be driven by selection because the *NoResponsibility* case also includes workers who would have preferred to work in an unethical environment. We want to focus on the effect of responsibility only and, therefore, concentrate only on those workers who prefer to work in an ethical work environment. When comparing their performance in the *Responsibility* and the *NoResponsibility* condition, we still find that performance is higher for workers in the *Responsibility* condition. This gives us reason to infer that responsibility has an effect on performance. However, we do not find this effect for an unethical environment. Thus, workers who are responsible for an unethical

environment do not seem to be more motivated. Lastly, we find that when workers are asked to perform in an unethical work environment they are not responsible for, ethical workers perform significantly worse than unethical workers. We interpret this as evidence for workers acting in an unethical work environment to even bear ethical costs if they are not responsible for this work environment.

With our results we add to a field of experimental literature studying the relationship between responsibility and effort provision. So far this has only been investigated in gift exchange settings where social preferences explain positive effort choices. Charness (2000), for instance, finds that agents provide more effort when a random procedure determines agents' wages compared to a situation where a third party chooses agents' wages. The author explains this finding by stating that in presence of a random procedure an agent feels solely responsible for final pay-offs, while the same agent can shift part of this responsibility when a third party has determined his wage. Moreover, in a more recent study Charness et al. (2012) show that when employers delegate their wage decision to their workers, workers respond with higher effort. Controlling for other possible explanations such as reciprocity, the authors show that feeling more responsible for the outcome seems to be a driving factor of the effect. Similarly, Falk and Kosfeld (2006) find that when principals restrict the effort choice set of the employees by setting a minimum effort level - and thus also employees' responsibility - employees perform worse than in cases where choice sets are not restricted. Thus, responsibility for final outcomes seems to enhance pro-social motivations and through this channel increases effort. In contrast to these studies, we approach the relationship between responsibility and effort provision from a different angle by asking if being responsible for an ethical work environment creates additional motivation which results in higher performance.¹

Furthermore, this paper relates to experimental research on shifting of costs for unethical behavior. In a dictator game, Bartling and Fischbacher (2011) find that dictators are punished significantly less if they delegate an unfair decision to a second person instead of making the same unfair decision themselves. Even if delegation by design eliminates the possibility of a fair outcome, Oexl and Grossman (2013) observe that dictators are able to successfully shift the blame for an unfair outcome to a powerless delegee. Whereas in this literature the focus lies on the costs that are incurred by other peoples' punishments, we look at self-image related costs that are incurred by the person who acts in an unethical environment. We find that people seem to incur these ethical costs even if they work in an unethical environment they are not

¹Looking at the effort provision in a work environment after the choice was implemented distinguishes our paper from recent research on delegation, which investigates the motivational effect of having decision rights (Fehr et al. 2012, Bartling et al. 2014). In this literature, the focus lies on the effort people provide to keep the right to choose and thus on motivational gains before the choice is implemented. Adding to that literature, Sloof and von Siemens (2019) introduce an implementation stage but do not focus on the effect of responsibility.

responsible for, which implies that they cannot fully shift these costs to the decision maker.

As a specific feature of our design, we separate the choice from its implementation in order to observe the selection that would have evolved in a natural field setting and control for it. This relates our paper to research that studies the effect of democratic institutions on behavior. This body of literature provides various attempts to disentangle the effect of making a decision from the effect of self-selection (Dal Bó et al., 2010; Sutter et al., 2010; Dal Bó et al., 2019). In our paper, we use a technique which is similar to that of Dal Bó et al. (2010). In their setting the group members cast a vote on the implementation of an effective sanctioning institution to enforce cooperation but a random mechanism either implements the group’s voting outcome or overrides the vote. They find that people cooperate more if their own decision outcome is implemented compared to having the same decision exogenously imposed on them. After controlling for possible other explanations such as information transmission, the authors show that the effect is robust and call it an “endogeneity premium”, which we would interpret as a valuation of being responsible. Beside this strand of research, there is one study by Babcock et al. (2015) where the authors argue that the mere act of choosing might be motivating for individuals. In a field experiment, they find that people perform better if they can choose their incentive scheme compared to a situation where they are randomly assigned to it. In contrast to the other studies, Babcock et al. (2015) could rule out selection as an explanation *ex post* since an almost complete selection into one choice option occurred. In this paper, we can control for selection *ex ante* and therefore can explicitly observe the workers’ types even in case when the choice of the employer was implemented. Besides of that, we look at the effect of choosing when it comes with an ethical dimension and implies a trade-off between financial gains and ethical standards.

The remainder of this paper is organized as follows. Section 2 describes the experimental design and procedure. In Section 3, we introduce a basic model that shall illustrate our behavioral hypotheses about the expected treatment effects. Section 4 presents the results of the study and Section 5 concludes.

2 Experimental Design and Procedures

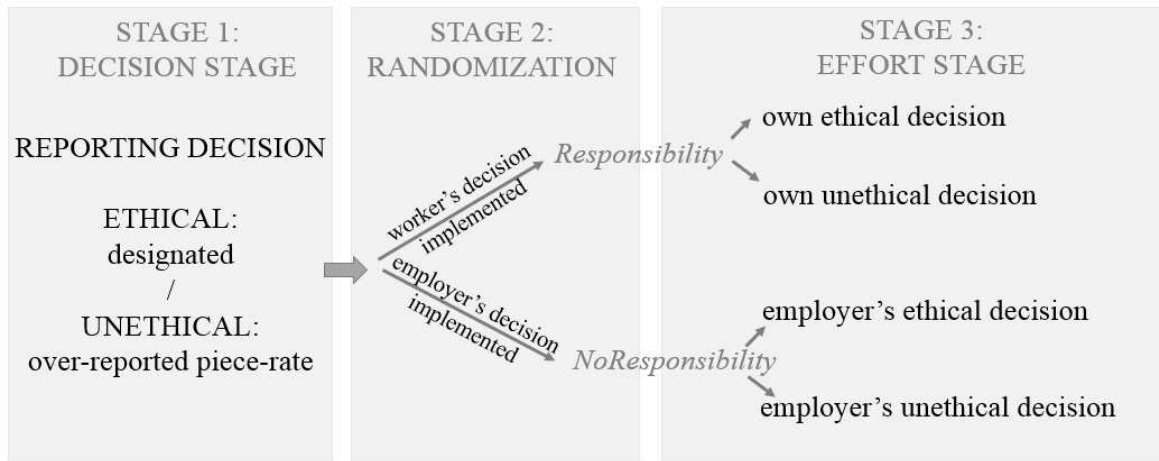
We run a laboratory experiment where we group subjects into pairs and randomly assign one the role of an employer and the other the role of a worker. The experiment consists of three stages (see Figure 1).

Stage 1: Decision stage

In the decision stage, the employer and the worker are independently assigned a piece-rate.²

²The precise procedure was the following: subjects can choose between five differently colored sealed envelopes

Figure 1. Experimental design



They are then asked to simultaneously report this piece-rate, which in the effort stage will be used to calculate the earnings for both, the employer and the worker. More precisely, in the effort stage the worker performs a real effort task which in 50 percent of the cases is remunerated based on his own reported piece-rate and in 50 percent of the cases based on the piece-rate reported by the employer. Earnings are the same for employers and workers. This means that a higher reported piece-rate implies higher earnings for both employer and worker.³

For this decision, both players find on their screens two different piece-rate options, namely 5 and 8 points per unit of effort, they can choose from. Thus, employers and workers who were actually assigned a piece-rate of 5 points per unit of effort - which happens in 4 out of 5 cases⁴ - have the opportunity to report a piece-rate of 8 points per unit of effort. The experimental instructions explicitly clarify that reporting a higher piece-rate violates the rules of the experiment. Specifically, the instructions say: “Reporting a piece-rate that is different from your designated piece-rate is considered a violation of the rules. If you do so anyway, your

where each envelope contains a combination of piece-rate and real effort task. Subjects neither know the piece-rates nor tasks contained in the different envelope when they make their choice. They also do not know whether the different envelopes yield different piece-rates or tasks. Only after picking an envelope, subjects learn about the designated piece-rate they are entitled to for the respective task. Workers are informed about the specific nature of the task only shortly before performing it, which happens in the third stage of the experiment. For more detailed information, please look into the instructions provided in the Appendix.

³We chose to have employers and workers payoffs aligned in order to provide both with the same incentive to over-report. Moreover, we wanted both of them to make a decision whether to over-report because we wanted to focus on the effect of responsibility, which we can only do by keeping constant the ethical dimension of the decision. For this reason we think it is crucial to also make an employer decide. If we only had a random procedure determining the reported piece-rate, instead of the employer’s decision, one can hardly assume that the environment would be considered ethical or unethical to the same extent.

⁴Employers and workers have no information regarding the exact distribution of piece-rates. From the reporting decision on the screen they can infer that both piece-rates, 5 and 8 points per unit of effort, are possible.

earnings will be calculated based on your reported but not the designated piece-rate. You will, therefore, receive a piece-rate which does not correspond to the piece-rate designated for your task”.⁵ In this sense, we consider the decision to report the designated piece-rate “ethical” and the decision to over-report “unethical” as it violates a stated rule and implies that one earns a higher than designated piece-rate, one is not entitled to.⁶ Accordingly, if a worker performs under an ethical decision we consider it an ethical work environment, whereas working under an unethical decision implies an unethical work environment. Please note that only the workers will learn about the nature of the real effort task, which happens only after the decision stage. Therefore, we can rule out that employers or workers condition their reporting decision on their belief about the worker’s performance in the effort stage because they will have no information about what the worker will do.

Henceforth, we will only consider decisions of participants that were assigned a piece-rate of 5 points per unit of effort and, therefore, faced an actual trade-off between a financial gain and the adherence to rules as a potential ethical standard. This means that the ethical decision always yields a piece-rate of 5 points per unit of effort, while the unethical decision yields a piece-rate of 8 points per unit of effort.

Stage 2: Randomization

After both participants reported their individual designated piece-rate, the reported piece-rate of either the employer or the worker is implemented with an equal probability. The participants know this procedure beforehand. The randomization device creates our “treatment” conditions. In treatment condition *Responsibility*, the worker performs a task that is compensated based on a piece-rate he has reported himself. Thus, he either works in an ethical or unethical environment he is responsible for. In treatment condition *NoResponsibility*, the worker performs a task that is compensated based on a piece-rate the employer has reported. Hence, in that case the worker acts in an ethical or unethical environment is not responsible

⁵Control questions made clear that earning a higher piece-rate would be the only consequence deriving from over-reporting. This ensures that subjects did not expect further consequences from circumventing the stated rule of reporting truthfully.

⁶One could indeed make an objection here as we call an efficiency maximizing behavior unethical which comes along with two implications. First, outcome-based preferences such as altruism or social preferences would lead to behavior which we define unethical. For the unethical case, we would, if anything, under-estimate the effect of ethical costs opposing the effect of responsibility. However, in a questionnaire after the experiment ended the answers of those participants who reported a higher piece-rate show that nobody explained the behavior with ethical reasons but only with their own financial gain. Second, workers who make an ethical decision might want to compensate for the resulting efficiency loss. However, we think that this would go in line with our interpretation of a motivational gain through responsibility. We do not think though that workers feel guilty towards the other employer to have chosen a lower piece-rate and therefore feel obliged to compensate because this would imply that people feel guilty to have made an ethical choice.

for. In the *NoResponsibility* treatment condition, the worker is informed about the designated and reported piece-rates of the employer. This ensures that the worker - when performing the real effort task - knows whether the employer did over-report the piece-rate or not. In case of *Responsibility* the worker receives no information regarding the employer's choice.

Stage 3: Effort stage

In the effort stage, workers are asked to count the occurrences of “7”s that appear in sequential number sequences.⁷ The payoffs for employers and workers are obtained by multiplying the worker's number of correctly solved sequences by the reported piece-rate. The number of correctly solved tasks will be our measure for performance.⁸

Table 1 displays all relevant conditions in which the worker can eventually perform the task. First, we distinguish between *Responsibility* and *NoResponsibility*, which we exogenously vary through the randomization stage and, therefore, call our “treatment conditions”. In case of *Responsibility* the worker performs under his own decision. Based on the worker's own decision, he can be responsible either for an ethical or an unethical work environment. In case of *NoResponsibility* the worker performs under the employer's decision. Thus, he works in an environment he is not responsible for. Second, we distinguish between the workers' types, which reveal endogenously through the workers' decisions in the decision stage. Specifically, we call workers that chose an ethical work environment in the decision stage ethical workers and, respectively, workers who over-reported the piece-rate unethical workers. Therefore, in *NoResponsibility* the worker's type and the work environment chosen by the employer create four possible scenarios in which the worker either performs according to his preferences or not. The worker's preferences are matched with the work environment when (i) an ethical worker performs in an ethical environment, or (ii) an unethical worker performs in an unethical way. Conversely, the worker's preferences are mismatched, if he acts in an environment he would not have chosen himself. At the end of the experiment the employer and the worker receive information regarding the number of correctly solved sequences by the worker, the reported piece-rate, and the earnings of the pair.

⁷The real effort task is similar for the different colored envelopes. The only thing which changes is the color in which the number “7” appears in the sequences of numbers.

⁸We use the number of correctly solved tasks as our measure of performance as this measure is incentivized. In Figure 5 in the Appendix we additionally report the results when we use the total number of attempted matrices as our measure of performance. It seems that the effect of responsibility does not reveal in the quantity of work but in the quality of work.

Table 1. Relevant conditions in which worker possibly performs the task

	NoResponsibility Employer's decision implemented		Responsibility Worker's decision implemented
	Ethical worker	Unethical worker	
Ethical decision implemented	Worker is <i>not responsible</i> for the <i>ethical decision</i> and acts <i>according</i> to his preferences (matched) N=29	Worker is <i>not responsible</i> for the <i>unethical decision</i> and does <i>not</i> act <i>according</i> to his preferences (mismatched) N=12	Ethical worker is <i>responsible</i> for the <i>ethical decision</i> N=48
Unethical decision implemented	Worker is <i>not responsible</i> for the <i>unethical decision</i> and does <i>not</i> act <i>according</i> to his preferences. (mismatched) N=9	Worker is <i>not responsible</i> for the <i>unethical decision</i> and acts <i>according</i> to his preferences. (matched) N=7	Unethical worker is <i>responsible</i> for the <i>unethical decision</i> N=20

3 Experimental Procedures

We ran our experiment at the University of Cologne using the software ztree (Fischbacher, 2007) in January and April 2017. The participants earned €1 for 25 points. On average, the participants earned €10.50 including show-up fee.⁹ The instructions were common knowledge and read out loud at the beginning of each session. In total, 312 subjects participated in our experiment.¹⁰ We have 68 observations in our treatment condition *Responsibility* and 57 observations in *NoResponsibility*. Table 1 displays the exact numbers of observations for each condition as described in our experimental design. We preregistered our experiment at AEA RTC Registry (RCT ID: AEARCTR-0001956).

4 Conceptual framework

To develop the intuition of the possible effects of being responsible for an ethical or unethical decision, we provide a basic model. First, individuals decide between piece-rate p^H , p^L with $p^H > p^L$ and where the decision for p^H implies over-reporting and creates an unethical work environment. After the workers report a piece-rate $p^j \in \{p^L, p^H\}$, they choose an effort level e^* which maximizes:

$$U_i(e, \pi_i, \delta_i, \alpha) = p^j e - ce^2 + r\pi_i e - [rv\delta_i + (1-r)v(1-\alpha)\delta_i]e$$

The utility function is composed of the produced outcome, $p^j e$, minus a standard effort cost function with increasing marginal costs, ce^2 . We extend that function now by two additional components. First, we allow for a utility gain from being responsible for a decision, $r\pi_i \hat{A}_i$, where $\pi_i \in [0, \bar{\pi}]$ is the value of responsibility and where $r \in \{0, 1\}$ denotes the treatment condition. We assume that π_i only applies in a situation where a worker performs in a work environment he is responsible for, which is the case in our treatment condition *Responsibility* ($r = 1$). Furthermore, we assume a constant marginal gain from responsibility. We do not claim that this assumption is generalizable but we expect it to derive from our design. In our experiment, the worker can be responsible for the piece-rate which applies for each unit of effort. In this

⁹Prior to their registration at the Cologne Laboratory for Economic Research, all future participants give their informed consent to voluntarily participate in the experiments.

¹⁰One observation was dropped due to a participant writing in the questionnaire: “I was tired and, unfortunately, did not know which role I was.” This means that this person did not know if his effort would actually count for the payoff calculation, since employers were also asked to perform a real-effort task. However, employers’ performance did not count for final payoffs. This was clearly stated in the instructions. As mentioned above, in the following, we will also rule out the observations of those participants who got an actual piece-rate of 8 points per unit of effort assigned and, thus, did not experience a trade-off between a financial gain and the adherence to rules as a potential ethical standard.

way, the feeling of being responsible for acting ethically or, respectively, unethically reproduces for every unit of effort.

Second, we introduce an ethical cost, δ_i , where $\delta_i \in [0, \bar{\delta}]$. We assume that this ethical cost applies in situations where the worker achieves an outcome through a violation of a rule, where $v = 1$. We assume that acting under an unethical decision increases effort costs at a constant marginal rate. This again derives from our experimental design where the unethical decision concerns the piece-rate the worker earns for each unit of effort. Therefore, the rule violation reproduces in each unit of effort and creates the ethical cost again. Due to our experimental design, we also assume ethical costs and effort costs to be uncorrelated. The decision whether to over-report occurs before participants are informed about the nature of the real effort task. This eliminates the concern that the two costs components might be correlated. To capture the phenomenon of shifting ethical costs, we allow the cost of being unethical to be deduced by α , where $0 \leq \alpha \leq 1$, in case the unethical decision was made by someone else. In particular, we refer with this additional parameter to previous literature showing that the costs of being unethical or unfair can be (partly) shifted to the person who actually made the decision (Bartling and Fischbacher, 2011; Oexl and Grossman, 2013).

The worker chooses an optimal effort level e^* which is contingent on the condition in which the worker finds himself (see Table 2). Backward induction reveals the threshold of ethical costs for which individuals are indifferent between choosing a higher piece-rate by making an unethical decision and being honest with the lower piece-rate.

$$\hat{\delta} = p^H - p^L$$

To give the intuition, this threshold simply illustrates that individuals are predicted to choose an ethical work environment only if the marginal cost from violating the rule (δ_i) exceeds its marginal benefit such that $\delta_i > \hat{\delta}$.

If we assumed all parameters to be zero, we would find no ethical behavior in the first place. For a standard selfish decision-maker, ethical costs would not apply. Therefore, we would find no ethical behavior at all because only the marginal benefit from over-reporting would be taken into account. Furthermore, we would find no treatment difference in performance because being responsible would not affect effort cost of the worker. We get the same prediction for any form of outcome-based social preference models. Choosing the highest piece-rate by violating the rule would increase efficiency without distorting equity because the payoffs of the employer and worker are aligned.

We will now discuss the predictions that follow if we assume the parameters we additionally introduced to be non-zero. Let us first look at the ethical costs that would apply when a worker performs in an unethical work environment. If we assume δ_i to be distributed over a

Table 2. Optimal effort levels by condition

	NoResponsibility Employer's decision implemented		Responsibility Worker's decision implemented
	Ethical worker	Unethical worker	
Ethical decision implemented	$e^* = \frac{p^L}{2c_i}$	$e^* = \frac{p^L}{2c_i}$	$e^* = \frac{p^L + \pi_i}{2c_i}$
Unethical decision implemented	$e^* = \frac{p^H - (1-\alpha)\delta_i}{2c_i}$	$e^* = \frac{p^H - (1-\alpha)\delta_i}{2c_i}$	$e^* = \frac{p^H + \pi_i - \delta_i}{2c_i}$

sufficiently large interval,¹¹ we would find a fraction of workers that chooses not to over-report and thus make an ethical decision. Furthermore, since the threshold does not depend on the worker's effort cost c_i the decision itself to be ethical or unethical would not lead to differences in performance between *Responsibility* or *NoResponsibility* conditions.

In case $\pi_i > 0$ workers are motivated by the mere fact that they work in an environment they are responsible for.¹² Specifically, we would find a higher effort level for ethical workers if they act according to their own ethical decision compared to ethical workers that act according to an ethical decision made by someone else.

Ethical workers exert more effort when they perform in an ethical work environment they are responsible for than in an ethical work environment that was chosen by the employer.

For the unethical case, our framework does not give a clear prediction because here we have two possible effects coming along with responsibility that go in different directions. Comparing unethical workers between treatment conditions, the motivational gain from being responsible might be counteracted by ethical costs that are higher if one is responsible for it. Therefore, the observable effect of responsibility on performance in case of an unethical decision is also depended on how much workers can shift the ethical cost to the employer who made the decision in case of *NoResponsibility*. To be more specific about this possible counteracting affect, let us now consider α which is the degree to which ethical costs can be shifted.

First, one could assume $\alpha = 1$ which simply illustrates the case where workers can fully shift their ethical costs δ_i to the employer in *NoResponsibility*. In contrast to unethical workers in treatment condition *NoResponsibility* that act in an unethical work environment chosen by

¹¹Specifically, we need to assume here that δ_i is distributed over an interval $[0, \bar{\delta}]$, where $\bar{\delta} \geq \hat{\delta}$.

¹²For the sake of simplicity, we do assume in this framework a parameter which is uncorrelated with the type of the decision - whether it is an ethical or unethical decision. Alternatively, one could argue that responsibility has a stronger or any impact only in a situation where the individual made an ethical decision. Responsibility would then only be effective if it is connected to a self-image enhancing action and, thereby, act like a moral boost. As we will find in the results, we cannot rule out this alternative approach.

the employer, unethical workers with *Responsibility* add to their optimal effort provision the component $\frac{\pi_i - \delta_i}{2c_i}$. The direction of the effect of responsibility, therefore, depends on the relative magnitudes of π_i and δ_i . Furthermore, with $\alpha = 1$ we would find no difference in effort provision between ethical and unethical workers who work in an unethical work environment chosen by the employer in *NoResponsibility*.

In our experiment, however, we expect that the worker cannot fully shift ethical costs in case of *NoResponsibility* ($1 > \alpha \geq 0$). Even if the employer is responsible, workers still need to perform in this unethical environment. Therefore, we assume that workers cannot fully dissociate from the unethical behavior. This partial shift of ethical costs would also be consistent with results from Oexl and Grossman (2013) who show that observers would blame individuals who carry out an unethical behavior even if they did not initiate it themselves and were not able to correct it. Thus, assuming a partial shift ethical costs for an unethical work environment would arise in both conditions in *Responsibility* and *NoResponsibility* but would be lower in *NoResponsibility*. Lower ethical costs in case of *NoResponsibility* could, in turn, offset the motivational gain from being responsible. The compound effect of responsibility, therefore, depends on the relative magnitudes of π_i , δ_i , and α and does not give a clear prediction. Furthermore, a partial shift of ethical costs implies that in the treatment condition *NoResponsibility* unethical workers choose a higher effort level than ethical workers in case the employer chose an unethical work environment. This is because ethical workers reveal a $\delta_i > \hat{\delta}$ and therefore bear higher ethical costs than unethical workers, where $\delta_i < \hat{\delta}$.

In case the workers act in an unethical work environment they are not responsible for, unethical workers perform better than ethical workers.

5 Results

In the following, we compare the workers' mean performance levels between the different conditions distinguished by treatments and workers' types as described above. We will only compare conditions with the same incentive scheme. We use the non-parametric Mann-Whitney-U test which is suitable for independent observations and small samples. In the first section we will look at aggregated outcomes without controlling for selection. To address the hypotheses we derived from our framework, we will then look at the specific types of workers to see (1) if responsibility itself has an effect on performance and (2) if ethical costs are shifted in case of *NoResponsibility*.

5.1 Responsibility versus NoResponsibility in aggregated outcomes

Figure 2 compares the mean performance of workers who act under *Responsibility* (dark gray bars) to workers that act under *NoResponsibility* (light gray bars). The left panel illustrates

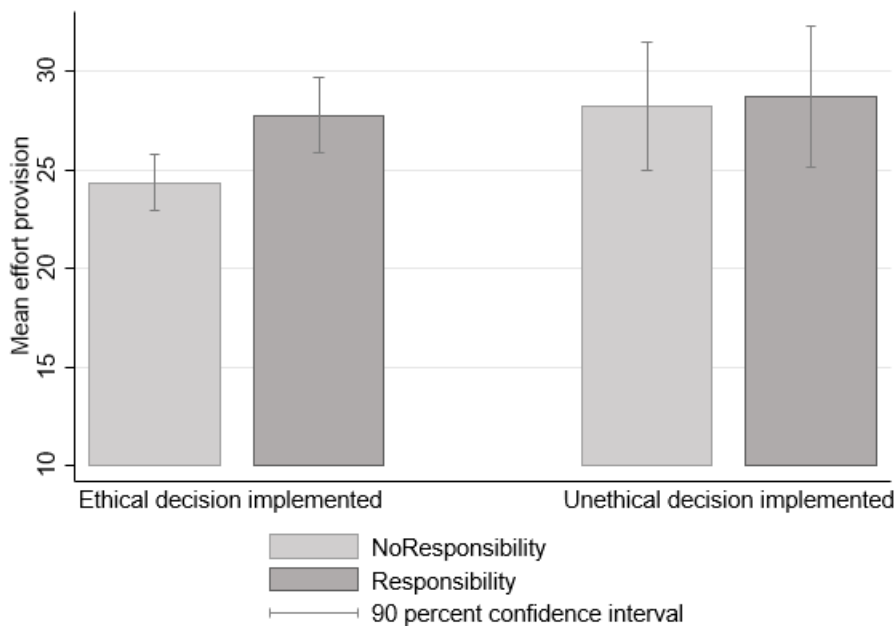
the workers' performance in an ethical work environment, whereas the right panel displays the mean performance when the workers act in an unethical work environment. First, the figure shows that there is a fraction of participants that do prefer an ethical work environment despite the lower financial incentives. Specifically, we find a remarkable fraction, namely 70 percent of workers, who do not violate the rules. This suggests that people do incur ethical costs from reporting a higher piece-rate in our setting.¹³ Second, if we aggregate both treatment conditions and compare performances in the ethical and unethical work environment, we see that performance is slightly higher in the unethical case (26.1 versus 28.4 correctly solved sequences). This difference partly derives from our incentives structure. While participants in the ethical work environment earn 5 points per unit of effort, the earnings correspond to 8 points per unit of effort in the unethical work environment. However, since not only monetary incentives but also non-monetary considerations - among those responsibility and the shifting of ethical costs - additionally affect performance levels, this difference in aggregate outcomes turns out not to be statistically significant ($p=0.1767$).

In order to assess the impact of responsibility on performance, we now turn to the left panel of Figure 2 and, therefore, look at the workers' performance in an ethical work environment under low incentives. We find that the performance is higher for workers who are responsible for the ethical decision compared to workers that perform in an ethical work environment chosen by the employer (27.8 versus 24.2 correctly solved sequences). This is an increase in mean performance of about 15% which is economically and statistically significant ($p=0.049$). The positive effect of responsibility we find for an ethical environment can be explained by two potential factors. On the one hand, we hypothesize that workers are potentially more motivated if they act in a work environment which they chose and for which they are responsible. On the other hand, the effect could be driven by self-selection. Whereas in the *NoResponsibility* condition the ethical work environment might match or mismatch the worker's preference, workers choosing the ethical work environment in the *Responsibility* condition revealed their preference for it. Thus, the comparison of these two different groups of workers could create a performance difference as, for instance, acting according to one's preferences might be motivating. We want to rule out this latter possible effect as an explanation and, therefore, only compare workers who anyways prefer to work in an ethical environment.

For now, we look at the right panel which displays the mean performance levels in case of an unethical work environment. Given such an environment, we do not find any difference in performance between treatment conditions. However, this does not tell us yet how responsibility affects performance because also in this case selection could be going on. In particular, our model shows that in an unethical environment, ethical types bear higher ethical costs and this

¹³We find the same fraction of employers making an ethical decision.

Figure 2. Performance of workers under ethical and unethical decisions by treatment condition



might lead them to perform worse than unethical types. Therefore, our model anticipates that selection might play a role when an unethical work environment is implemented.

Consequently, to explore the underlying mechanism that causes the differences in aggregate outcomes, we will now proceed with type specific comparisons.

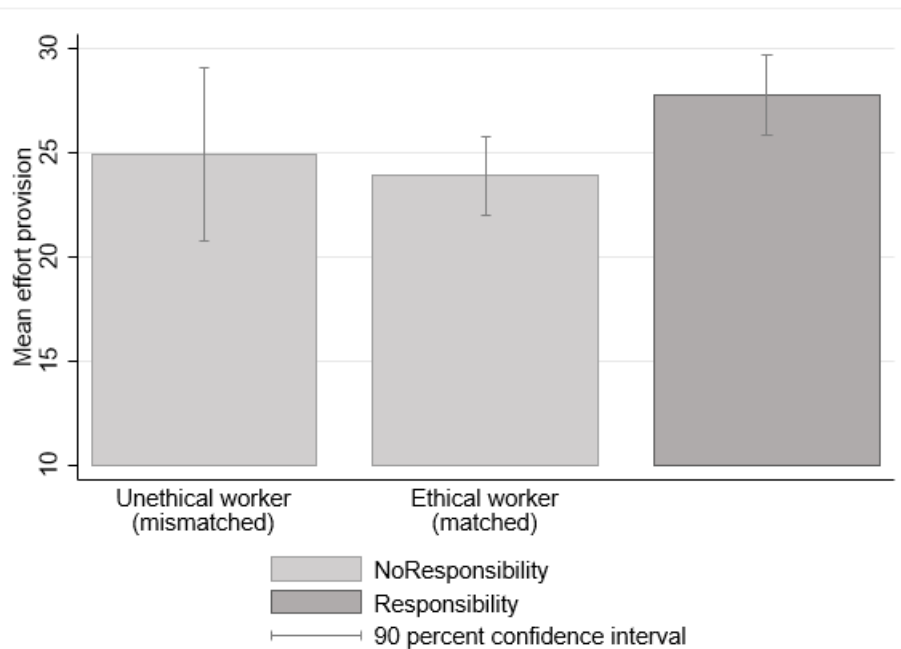
Workers who work in an ethical work environment for which they are responsible perform better than workers who work in an ethical environment chosen by the employer. We do not find this effect for implemented unethical decisions.

5.2 Type specific comparisons

Figure 3 displays mean performance of workers that perform in an ethical environment. As in Figure 2 we distinguish between the two conditions *Responsibility* and *NoResponsibility*. In addition to this, Figure 3 also separates the types of workers in the *NoResponsibility* condition. The right light gray bar displays the mean performance of ethical (matched) workers, who thus act according to their preferences. And, respectively, the left light gray bar denotes the mean performance of the unethical (mismatched) workers who would not have chosen that environment they eventually work in.

We can now compare mean performance of the same types between the two different treatment conditions in order to control for possible selection effects. Therefore, we compare ethical workers that work in an ethical environment they are responsible for (the dark gray bar) to ethical workers performing in an ethical work environment under *NoResponsibility* (right light

Figure 3. Performance with the ethical decision being implemented by treatment conditions and worker's type



gray bar). We still find that the difference between the dark gray bar and the left light gray bar is statistically significant (27.8 versus 23.9 correctly solved sequences, $p\text{-value}=0.037$). This result provides evidence that the mere fact of being responsible for an ethical work environment seems to increase motivation and, thereby, positively affects performance.¹⁴ We now turn to the left light gray bar which displays mean performance of mismatched unethical workers in the *NoResponsibility* case. When we compare the two light gray bars, we find that unethical types perform as well as ethical types when executing the employer's ethical decision ($p\text{-value}=0.518$).

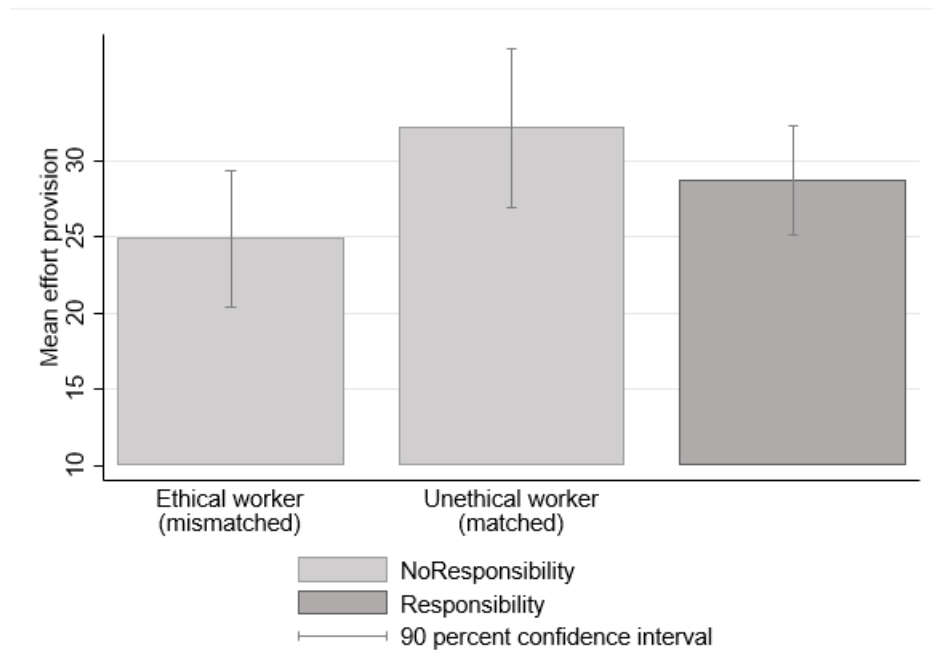
In an ethical work environment, ethical workers perform better under Responsibility than under NoResponsibility. This result suggests that the mere fact of being responsible for an ethical work environment positively affects performance.

Figure 4 shows the mean performance of workers when an unethical decision is implemented. Again, we distinguish between the treatment conditions. The dark gray bar represents mean performance under *Responsibility* and the light gray bars stand for mean performance under *NoResponsibility*. As before, we distinguish between types which are the mismatched ethical workers (left light gray bar) and the matched unethical workers (right light gray bar).

We first look at the workers acting under their own unethical decision (dark gray bar) and compare their mean performance to unethical types working in an unethical work environment

¹⁴Figure 6 in the Appendix reinforces this finding by displaying the cumulative distribution of effort provision of ethical workers when an ethical work environment is implemented. With *Responsibility* the distribution shifts to the left assessing a positive impact *Responsibility* has on the whole distribution of ethical workers.

Figure 4. Performance under an unethical decision by treatment conditions and worker's type



chosen by the employer *NoResponsibility* (right light gray bar). The difference in mean performance is, if anything, going in the opposite direction compared to the ethical case which means that under responsibility workers perform worse than under *NoResponsibility*. We, however, do not find a significant difference between treatments ($p=.331$). Even if we cannot draw a clear conclusion from this result, it still gives some suggestive evidence for the hypothesis that in *NoResponsibility* workers can to some extent shift their ethical costs. Thus, relative to *NoResponsibility* the workers incur higher ethical costs in *Responsibility* which would counteract the motivational gain from responsibility in that treatment condition.

When we compare the two light gray bars we do find a significant difference. Specifically, in an unethical work environment ethical workers perform significantly worse than unethical workers (24.9 versus 32.1 correctly solved sequences, $p=.034$). This result confirms our hypothesis 2 and shows that the different ethical costs ethical and unethical workers bear, translate into different performance levels when an unethical work environment is implemented. Furthermore, this result also shows that even in case of *NoResponsibility* workers are not able to fully shift their ethical costs to the employer.

In case of an unethical work environment, there is suggestive evidence that responsibility does not increase performance as much as it does in case of an ethical decision. If the unethical decision of the employer was implemented, we do find that ethical workers perform significantly worse than unethical workers.

6 Conclusion

We study whether the feeling of being responsible for one's own work environment might serve as an incentive to increase workers' performance. For this purpose, we let workers choose between an ethical or unethical work environment. In the field having the choice about one's own work environment usually implies not only responsibility but also allows people to sort into environments they prefer. Both mechanisms might affect workers' motivation. Using a specific randomization technique in a laboratory experiment, we can separate the former from the latter possible effect. Specifically, we can compare workers that both act according to their preferences but once with and once without responsibility for this environment.

We find that responsibility for a work environment can serve as an incentive but it depends on the way the work environment is shaped. In particular, it seems that the incentive effect becomes effective if workers are responsible for an ethical work environment. In this case, it seems that workers perform better than those who also prefer an ethical environment but are not responsible for it. In contrast, those workers who choose an unethical work environment do not respond to the same extent to responsibility. In that case the incentive effect of responsibility seems to be counterbalanced by ethical costs which arise when acting in a way that violates ethical standards. From this finding one might conjecture that responsibility effectively increases performance only for workers with high ethical cost who have a preference for an ethical environment even if it means to sacrifice monetary gains. These types of workers are more likely to be found in organizations with strong ethical and social missions as workers would rather sort into environments they prefer. Those types of organizations often face tight budget constraints. Thus, our finding might be particularly relevant for these organizations as it provides them with a cost-saving tool to improve performance.

Our results might also have interesting implications for the field of compliance management, which installs monitoring systems to effectively ensure workers' behavior to comply to legal and ethical standards. Our results show that monitoring might come at costs that have not been accounted for so far because it could spoil the positive effect of responsibility on performance. This means that workers would provide less effort when they are forced to act ethically compared to a situation where they autonomously choose to work this way. In this light, apart from the important role of monitoring, a firm might also put emphasis on careful screening for workers with high ethical standards. Screening for employees with high ethical standards and granting them the possibility to actively shape their work environment might not only save monitoring costs but even increase the motivation of workers.

Lastly, our results show that imposing a work environment which does not match workers' ethical standards might have deteriorating effects on their performance. Coming back to our example from the beginning - most of the customer service departments enforce very detailed

scripts workers are required to follow exactly and mostly serve to up-sell services by all means. In case this procedure violates a worker’s ethical values, we find that this work environment might lead to performance reduction. Specifically, we observe that workers perform worse if they prefer to work in an ethical work environment but are forced to act against their ethical standards compared to workers who themselves were willing to install an unethical work environment. Our results show that even higher monetary incentives cannot compensate for this mismatch in ethical standards. This might provide further justification for allowing employees to shape their work environment in a way that meets their ethical standards. Only in this case firms can ensure that employees with high ethical standards will be able to fully unfold their potential.

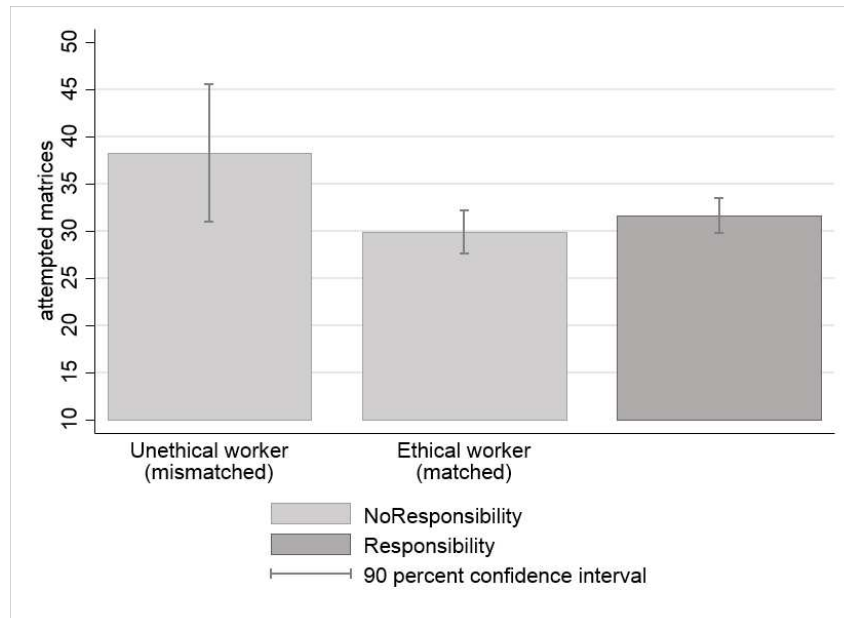
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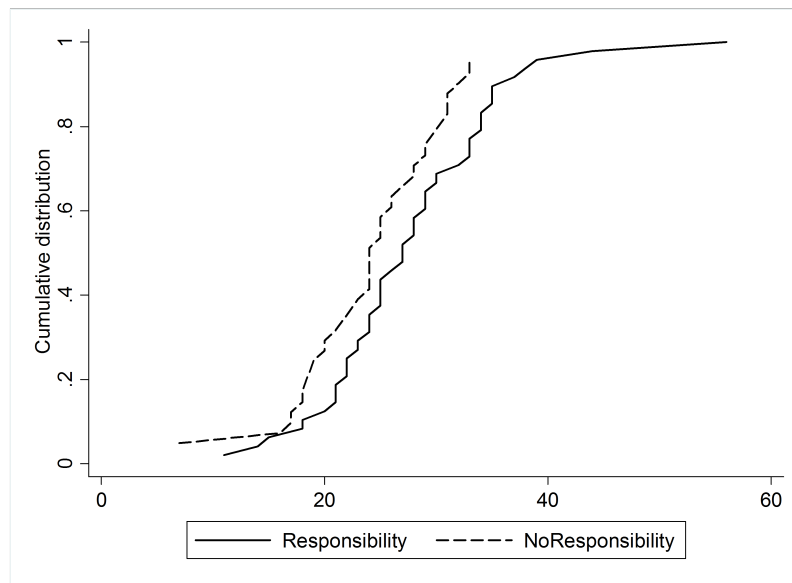
Appendix A Additional Figures and Tables

Figure 5. Number of attempted matrices with the ethical decision being implemented by treatment conditions and worker's type



Notes: When using the total number of attempted matrices - in contrast to the total number of correctly solved matrices - we find no effect of responsibility on performance. Ethical workers acting under *Responsibility* do not try to solve more matrices compared to ethical workers acting in an ethical work environment imposed by the employer (31.6 vs 32.4; $p=0.256$, Mann-Whitney-U Test). In this sense, not the quantity of the work but the quality of the work improves in the presence of responsibility.

Figure 6. Cumulative distribution of effort provision of ethical workers when the ethical decision is implemented



Notes: Figure 6 displays the cumulative distribution of effort provision of ethical workers in an ethical work environment. The solid line illustrates the *Responsibility* condition, while the dashed line highlights effort provision in the *NoResponsibility* condition. With *Responsibility* the distribution shifts to the right showing that effort provision under *Responsibility* is higher for all effort levels.