

**The Effects of Responsibility and Intentional Trust on
Performance:
An Experimental Study**

by

Ayşe Damla Üzrek

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Ayşe Damla Üzrek

and have found that it is complete and satisfactory in all respects,

and that any and all revisions required by the final

examining committee have been made.

Committee Members:

Asst. Prof. Seda Ertaç

Prof. Thomas F. Crossley

Assoc. Prof. Skander Esseghaier

Date

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ABSTRACT

This study explores the impact of (1) being responsible for the employer's payoff, and (2) being intentionally trusted by the employer, as two types of non-monetary incentives on the employee's performance. We design and implement a laboratory experiment where employers' payoffs are sometimes dependent on their agent's performance and sometimes not. Depending on treatment, the link between the employer's payoff and employee's performance is either randomly determined by the computer, or intentionally by the employer. Our main finding is that being responsible for the employer's payoff significantly increases the employees' performance. Breaking this down by gender, we find that the effect comes mainly from women. Whether responsibility is intentional or not affects employees' performance dependently on gender.

Keywords: Non-monetary incentives, performance, reciprocity, responsibility, intentional trust.

ÖZET

Bu çalışma, parasal olmayan teşvikin iki türü olarak (1) işverenin kazancından sorumlu olma ve (2) işveren tarafından güvenilmenin çalışanın performansı üzerindeki etkilerini araştırmaktadır. İşverenin kazancının bazı durumlarda çalışanın performansına bağlı olduğu, bazı durumlarda ise bağlı olmadığı bir deney dizayn edilmiş ve uygulanmıştır. Uygulamaya bağlı olarak, işverenin kazancı ile çalışanın performansı arasındaki ilişki bilgisayar tarafından rasgele veya işverenin isteği ile belirlenmektedir. İşverenin kazancından sorumlu olma durumunun çalışanın performansını anlamlı olarak arttırdığı sonucu çalışmanın temel bulgularındandır. Cinsiyete göre bakıldığında, bu sonucun kadınlardan kaynaklandığı gözlemlenmiştir. Sorumluluğun isteyerek belirlenip belirlenmeme durumu, çalışanın performansını cinsiyete bağlı olarak etkilemektedir.

Anahtar Kelimeler: Parasal olmayan teşvik, performans, karşılıklı davranış, sorumluluk, güven.

To the memory of my grandfather, Dünder Erbaş

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CHAPTER 1

INTRODUCTION

Figuring out the determinants of individuals' motivation to exert effort and their performance is very important in a number of economic contexts. Performance incentives, and in general ways of inducing individuals to exert effort lie at the heart of labor economics and organizational economics. Incentives are also crucial for performance in educational settings. For instance, Fryer et al. (2012) conducted a field experiment to investigate effect of financial incentives given to teachers on their students' success. Their financial incentive policy which shows power of loss aversion is different from traditional ones. In this policy, teachers are paid in advance and asked to give back the money if their students do not improve sufficiently. The results show that the students of teachers at the loss treatment increase their math scores. Therefore, education is the one of the contexts for which incentives are crucial to improve performance.

Our motivation in this study is that the results may provide useful policy implications. Designing incentives to improve performance is vital in terms of policy implications for a number of different contexts, ranging from firms to schools to sports teams. We can encounter with trust and responsibility as incentive factors in these contexts as well. Whenever someone has responsibility for another person, he might work harder to avoid a bad outcome for them.

For instance, when a member of a sport team has to take his team's responsibility in a critical time, he may decide to exert more effort. Similar in educational setting, if a

teacher trusts his student and shows his trust giving the student responsibility, the student may have more motivation to study and get success. Likewise, in a workplace when an employee is trusted by his employer and given an important responsibility, he may think himself as a successful and valuable employee and get motivated to exert more effort. He may work harder not to 'let the principal down'. The important question is whether this motivation affects performance as a result. If experimental evidence supports such a result, it can be taken into consideration as a base of a feasible policy implication in workplace. In addition, these policies can be implemented in different kinds and sizes of workplaces. These implications are significant since, it is important that what incentives employees and increases their performance in a workplace environment for both employers and employees. From employees' sides, if the employees' motivation is high, they work in a more peaceful and willing way and from employers' sides, the productivity at work gets high. Therefore, we think that trust and responsibility are worth studying for workplace environment in order to drive a flexible and useful policies.

A very important categorization of incentives is in terms of whether they are monetary or non-monetary. While traditional economic theory and principal-agent models have focused primarily on monetary incentives, recent theoretical and experimental results demonstrate that non-monetary incentives are also important for work performance and can have significant impact on an agent's activities. In fact, Ellingsen and Johannesson (2007) argue that economists have been right to concentrate on incentives, but they have been wrong to concentrate so exclusively on material incentives. In this paper, we contribute to the recent literature on non-

monetary incentives by experimentally exploring the effects of responsibility and trust on an agent's performance.

In this paper, we study the effects of (1) responsibility for another person's payoffs, (2) intentional trust by another person as non-monetary incentives. While the studies examined in the literature following this chapter work on taking group members' responsibility, we study the effects of taking employer's responsibility as an employee in a real effort task. Furthermore, in our study, reciprocity and trust are investigated in the work environment; specifically trust and investing money by the employer on the employee's performance are examined as non-monetary incentives. The main question of the paper is that how the employee's performance is affected when the employer credibly declares that he trusts on the employee to increase her performance and invests money on the employee's performance. In our experimental design, when the employer invests on the employee's performance, the employer's payoff is determined according to the employee's performance while the employee's payoff is not affected by this decision, his payoff is determined by only his performance. Therefore, we are able to define trust as a non-monetary incentive and investigate it. In order to separate the effect of being responsible for another's person's payoffs and the effect of the intentional trust decision by the principal, we use a control treatment, in which the trust decision is given by the computer randomly, i.e. the computer either ties the employer's payoff to the employee's performance or not. Unlike the literature following this chapter, intentional trust in our context generates both a financial link between the payoffs of the employer and the employee, and it can also serve as a confidence or morale boost for the employee. In order to understand the source of the trusting behavior of employers, and the

response of employees to responsibility and trust, we also collect data on personality traits.

Our main findings show that to be trusted increases the employees' performance. We also identify strong gender effects: the trust effect on performance is mainly coming from females and there is some evidence that the motivational difference between having responsibility and not is higher for women under the intentional treatment. Besides, the effect of responsibility source is completely dependent on gender.

From now on, this study will continue with literature review in Chapter 2. In Chapter 3, a detailed explanation of experimental design is presented. Thereafter, Chapter 4 describes the procedures of the experiment, while Chapter 5 analyses the data and presents the results. As a final point, conclusion is made in Chapter 6 with discussion of the results of the analysis.

CHAPTER 2

LITERATURE REVIEW

Recently, non-monetary incentives have been studied in considerable experimental papers. Performance feedback, non-monetary rewards, and respect are some of non-monetary incentives studied before (Errikson, Poulsen and Villeval (2009), Errikson and Villeval (2010), Kosfeld and Neckerman (2010), Ellingsen and Johannesson (2007)). Another significant topic of experimental studies on non-monetary incentives is team incentives. For instance, Babcock et al. (2010) investigate the effectiveness of incentivizing people in teams versus incentivizing them as individuals. The paper conducts a field experiment to answer the following question: ‘can incentives targeted at team elicit higher effort than incentives targeted at individuals even when the expected monetary payoffs are lower?’ It is observed that people in a real world setting raise their effort level when a teammate’s payoff is at stake as well, despite the lower probability of receiving a bonus from this increased effort. The study displays taking others’ responsibility affects people’s efforts. This result forms one of our starting questions whether taking the employer’s responsibility affects the employee’s performance. While the study examines effect of taking others’ responsibility in a team setting, our study explores effect of employer’s responsibility in a workplace setting.

Another study on taking others’ responsibility is Ertac and Gurdal’s (2012). Ertac and Gurdal investigate the characteristics that affect a person’s willingness to make risky decisions for a group, such as gender and individual risk attitude. They conduct

an experiment where subjects make risky decisions for their group as a leader, and for themselves. The results demonstrate that women are less likely to be willing to make the group decision than men. Furthermore, the amount of risk taken for the group is generally lower than in the case where subjects decide for themselves only. The implication we derive from this study that taking others' responsibility affects people's decision process contributes to our study while we are building its background. Moreover, although our main aim is not to investigate the trust effect according to gender difference, we also examine it and find some significant differences.

Ellingsen and Johannesson's (2007) paper is another study focusing on non-monetary incentives. Ellingsen and Johannesson state that while employees appreciate monetary rewards; they care about what others think about them as well. Therefore, respect becomes a non-monetary incentive through which employers can affect their workers' performance. The study lists the ways of showing respects as symbolic rewards, attention, and trust. In our study, we also use the employer's trust on the employee's performance as a non-monetary incentive. Thus, the question that reciprocity determines behavior becomes crucial. An important amount of evidence shows that reciprocity is a crucial determinant of human behavior. According to Falk and Fischbacher (2000)'s definition, reciprocity means that people reward kind actions and punish unkind ones. The concept of reciprocity is starting point of this study. We investigate whether trust of the employer on the employee and investing his money on his employee persuades a reciprocal behavior. In the literature, there are considerable amount of studies on reciprocity specifically on trust. However, they examine these concepts mostly on social preference context. There is a gap in the

work environment. On the other hand, although there some papers on reciprocity in the work environment, they are focus on symbolic awards, trust game or ultimatum games not the employer's trust that senses we used in this study. One aim of this study is to contribute to fulfill this gap.

Eriksson and Villeval's (2010) study investigates the effect of the symbolic reward used by employers on the employees' effort and relational decision. Erikson and Villeval claim that what others do to people is not only incentive but also what others think about them become an incentive for them. Their main hypothesis is that the expression of respect is a crucial source of motivation because of people's esteem needs. Erikson and Villeval focus on three main questions in their study. First, do employers use costly symbolic rewards and if so, are they complements or substitutes to wages and how do they influence profits and efficiency? Second, do employees value the respect expressed by the employers? For given wages, does respect increase the length of the relationship with the same employer and further effort? In a laboratory experiment, they mainly find that employers use costly symbolic reward when they have such an opportunity and they do not use symbolic reward as a strategic action. From the employees' side, their findings display that the employee who gets reward keeps his relationship between the employer who give the reward and sign higher effort next periods. This study supports our expectation about the effect of the employer's trust in the employees' performance for our study. On the other hand, unlike this study, to investigate this effect we use effort tasks and compare the employees' performance on these tasks. There is another study focus on symbolic award which use field experiment. Kosfeld and Neckermann (2010) conducted a field experiment to investigate whether symbolic awards that have no

material benefits increase worker performance. In their experiment, they hire students to work on a database project of an international non-governmental organization. The experiment consists of two main treatments; award and control. In the award treatment, the managing director of the organization told the students that two people who have most effort would be rewarded with a personalized congratulatory card that was signed by the president and the managing director of the organization. In the control treatment, students are not offered any award. Kosfeld and Neckermann conducted one more treatment to separate the effect of the mere presence of the managing in the award treatment. Therefore, in this addition treatment, the award was not introduced by the managing director but the same person who was present in the control treatment. The analysis of the study shows that the symbolic award significantly increases the students' performance by about 12 percent on average. Moreover, there is no significant difference between the award treatment and the addition treatment means that there is no significant effect of the mere presence of the managing. In summary, these symbolic award papers focus on honoring employees as a non-monetary incentive and this method increases the performance of the employees. In this study, our incentive method includes honoring the employee as well and we are able to form expectations of our hypothesis according to these studies.

The papers focusing on trust games are other studies examining reciprocity in the work environment as we mentioned before. Church & Kuang (2007) use a two-person trust game in their study. In this game, a firm and an employee participate in a one shot, sequential interaction. The firm chooses each party's payoff or defers to the employee. In an agency-based control system the firm is likely to decide each party's

payoff. In a trust-based control system, on the other hand, the firm is likely to defer to the employee. If the firm defers, the amount of the payoff is increased meaning that the firm potentially is better off by entrusting the employee to choose the desired action (i.e., the payoff split). The employee then decides each party's payoff. The employee may reciprocate or exploit the firm's trust. They conduct three experiments. In the first treatment, the employee exploits the firm's trust, by the choosing (6, 12) payoff option. Alternatively, if the employee reciprocates the firm's trust, the payoff split is determined according to one of the treatments; firm treatment (14, 10) or equal treatment (10, 10). The second experiment differs from the first in terms of reciprocity option. In this experiment, the employee may choose (14, 10) or (10, 10) payoff split by himself not according to the treatment. Moreover, in the third experiment equal option (10, 10) changes and put a cost for choosing it and the equal option becomes (11, 11). The results suggest that employee's choice of reciprocity is determined by feelings of obligation and concerns over fair. The results of the first experiment display that the employee reciprocates even this causes an inequitable payoff split that favors the firm. In experiment two, the results shows that the employee reciprocates and prefers the unequal to equal payoff split. Church & Kuang interpret these results as that feeling of obligation dominates the fairness concerns. However, the third experiment shows that this result is not always valid. In experiment three, reciprocity may result in an equal or unequal payoff split, but the employee is better off with the equal split means that making firm better is costly for the employee. Thus, the employee prefers equal payoff split interpreted as that fairness concerns determinant of the reciprocity behavior.

CHAPTER 3

EXPERIMENTAL DESIGN

Our laboratory experiment consists of two treatments; intentionally delegated responsibility (intentional from now on) and random responsibility (random from now on).

In both the intentional and random treatments, subjects are randomly assigned to two-member groups. These groups include two different roles; employee and employer. Subjects are assigned one of these roles randomly. Both treatments include two parts and each part includes two periods. Two parts differ from each other in terms of different tasks on which the employee must work the role of the subjects and the subject's group member. In other words, when the part changes, the task changes and the roles of the subjects are switched and the subjects' group members are determined again (that is, groups do not stay the same).

In the intentional treatment, at the beginning of the first part the subjects learn only the subject id number of their group member. Then, the first part task is shown to the all subjects as a practice stage. In this stage all subjects do the first part task in less time than real stages and they do not get any scores or payoffs. The practice stage is to ensure that subjects understand the task and make them familiar to the task. After the subjects complete the practice stage, they learn their role, that they are employer or employee, determined randomly and then real first part task starts. The first part task is 'slider task'. Slider task is a real effort task designed by Gill and Prowse

(2011). Gill and Prowse advocate some advantages of the slider task, such as simplicity to understand, including little randomness and measuring effort exerted by the subjects, not including scope for guessing which would complicate the design and interpretation. Therefore, we choose the slider task as well, since these properties of the slider task are consistent with our research question and meet our need for a real effort task. In the slider task subjects see 48 sliders on their screen. All pointers on the sliders are positioned at 0. These pointers can be moved to right or left by the means of mouse and they can be positioned at any integer number between 0 and 100. The aim of this task is to position as much as possible pointers at 50 in 90 seconds. The point score of the employee (he) increases 1 point for each pointer positioned at 50. The employee's payoff is determined according to his performance on this task, based on a piece-rate incentive scheme. The employee gets 10 ECU for each score (1 ECU= 0.02 TL). The employer (she) also sees the task on her screen, but she does not have to do it because his payoff does not depend on this task. After the employee completes the task, the performance of the employee is shown both himself and to his employer. Then, the employer is asked to give a decision and choose one of two options. One is that she can keep his fixed 200 ECU given him at the beginning of the experiment or the second is that she can invest half of his money if she trusts in his employee and thinks the employee can increase his first period performance by at least 20% percent in the second period slider task. If she chooses the first option her fixed money is kept. Nevertheless, if she chooses the second option her payoff will be dependent on the employee's second period performance on slider task. If the employee increases the first scores at least 20% in the second period, the money invested (100 ECU) on employee doubles and the employer gets 300 ECU in total at the end of the part. If the employee does not increase his first

period scores, the employer loses the money invested and gets 100 ECU for this part. The employee sees the employer's decision and then work on the second period slider task which is the same task with the first period task. The employee's payoff depends on his performance on the second period slider task like the first period with the same piece rate. After finishing this second task, the employee's second period performance is shown to both employee and employer, regardless of what the employer's decision is. The subjects are informed before the treatment that the employer can see the performance on the second period task of the employee, whatever their decision. In the second part the group members are randomly determined again and the subjects' roles are switched, meaning the subject who is employee in the first period is employer now and vice versa. Most steps of the second part are the same with the first part except several points. Main difference is the task the employee must work on. In this part, the subject whose role switched to the employee has to work on 'addition task'. Addition task is used in many experimental studies that need to effort task (e.g. Eriksson, Poulsen and Villeval (2009), Niederle and Vesterlund (2007)). The addition task is a familiar task to subjects that is not complicated to understand, and provides a simple measure of the quality of the effort (incorrect versus correct answers). In our study, in addition task subjects see four two-digit numbers on their screen and they are asked to sum up and enter their answers. These numbers are determined randomly and all employees see the same questions. After entering the answer, they can pass to the other question. The questions come during 180 seconds. The aim of the task is to give correct answer as much as possible in 180 seconds. The employee's score is equal to total correct answers and they get 15 ECU for each score. Moreover, in the second part, the subjects do not see a practice task unlike the first part, which means that the first

addition task they see their screen is the real task from which employees get payoff. Except these differences the other stages of the second part is the same with the first part.

While intentional treatment was conducted with nearly half of the subjects, the other half were randomly assigned to the random treatment as a control group. Almost all parts and periods of the ‘random treatment’ is the same with the ‘intentional treatment’ except one main difference. In the random treatment, the employer does not give her decision by herself in the decision stage; her decision is given by the computer randomly. In the sessions in which random decision treatment applied, all subjects are informed about this decision process before the experiment starts. In other words, subjects know that decisions in this treatment are not employers’ own decisions.

CHAPTER 4

PROCEDURES

The experiment was programmed with software Z-tree (Fischbacher, 2007). Before the real experiment, we conducted two pilot experiments at Koc University. Pilot experiments assisted us to recognize some programming errors and correct them. Moreover, we observed that some participants had difficulties to understand crucial points of the experiment. Then, we made clear these parts in the real experiment and we added a quiz includes these points at the beginning of the experiment to ensure all subjects understand the experiment totally. Besides, according to the means of scores in the pilot experiment tasks, we set down the piece rates of the scores in the real experiment. The actual experiment was conducted at Pamukkale University in Turkey and 136 undergraduate students from different fields participated in it. 80 subjects were female while 56 of them were male. A between-subjects design was used. The experiment was announced in classrooms before lectures. A computer laboratory whose design did not allow the subjects to see the screen of the next subject is used for the experiment. The experiment was conducted in 6 sessions and each session lasted nearly one hour with the time spent on giving instructions and payments. The show up fee was 5 TL and the average total payment except show up fee was nearly 16 TL at the end of the experiment. After giving instructions about the first part, subjects did a short quiz to ensure that they understand the main points of the experiment. After all subjects answered all questions correctly the experiment started. Before the second part, the experiment was stopped and the instructions for

the second part were given. These procedures were the same for the both treatments; intentional and the random decision treatments. At the end of the experiment subjects filled a survey asking about the subjects' general demographic information and including questions about the effects of the employer's decision on the employee's performance and a personality test, the survey questions are given in the Appendix B.

Table 1. *Number of subjects in each treatment*

	Intentional Treatment	Random Treatment
Female	36	44
Male	31	25
All	67	69

CHAPTER 5

RESULTS

5.1. Results on Employee Performance

To begin with, we examine the descriptive data of the first, second and total performance of the subjects in the role of employee for each task and present the data in the Table 2. Data from 129 subjects is used since 7 of them are outliers.¹

Table 2. Summary statistics of performance data of the employees

	Slider Task			Addition Task		
	Perform 1	Perform 2	Total Perform	Perform 1	Perform 2	Total Perform
Female	7.351 (3.155) [37]	8.189 (3.098) [37]	15.540 (5.530) [37]	8 (2.254) [38]	8.421 (2.657) [38]	16.421 (4.290) [38]
Male	9.653 (4.127) [26]	11.115 (2.761) [26]	20.769 (5.955) [26]	9.642 (3.008) [28]	9.964 (3.967) [28]	19.607 (6.795) [28]
All	8.301 (3.735) [63]	9.396 (3.280) [63]	17.698 (6.228) [63]	8.696 (2.705) [66]	9.075 (3.338) [66]	17.772 (5.672) [66]

Note: Means as main number, standard errors in parentheses, and number of observations in brackets.

Mean of the first and second scores of male subjects are significantly greater than female subjects' scores in slider task (Mann-Whitney test, $z = 2.428$, $p = 0.015$), ($z =$

¹ Summary statistics and the following analyses are done by dropping the extreme outliers whose first and/or second stage scores are 1 or smaller than 1, since these represent clear shirking by the employees.

3.477, $p=0.0005$). These differences are also significant for addition task ($z=2.141$, $p=0.032$), ($z=1.817$, $p=0.069$). We then question whether we are able to pool the data from the slider task and the addition task, in terms of first performance, second performance and total performance. The results of two-sample Mann-Whitney tests display that there are no significant difference in the first period performance ($z=-0.564$, $p=0.573$), in the second period performance ($z=0.793$, $p=0.427$) or in total performance ($z=0.153$, $p=0.878$). Therefore, we pool the data from the slider task and the addition task in the following analyses.

5.1.1. Responsibility and Employee Performance

Since one of the main aims of the study is to investigate the effects of being responsible for the employer's payoff on the employee's performance, we begin our analysis with the question of whether there is a significant difference between mistrusted and trusted employees' performance improvement. Since we examine the effect of taking employer's responsibility regardless of the source of the responsibility, we conduct our analysis by pooling data from intentional and random treatments. However, before this analysis, the question whether the trust decision in intentional treatment is randomized reveals. In order to be able to pool the data from intentional treatment and random treatment, and to test the effect of responsibility on performance, the trust decision should be randomized in intentional treatment since trust decision is random in random treatment. Our experimental design allows this randomization for intentional treatment because the employers are informed about only their employees' id number and the first period performance. In other words, the employers do not know their employees' name, gender, ability, personality which may violate randomization before they give trust decision. Therefore we can safely

pool the data from treatments and test the effect of responsibility. Table 3 shows the summary statistics of 1st, 2nd and total performance of employees, depending on whether they had the responsibility of the principal or not.

Table 3. Summary statistics of the performance data of the trusted and mistrusted employees.

	Trusted Employee			Mistrusted Employee		
	Perform 1	Perform 2	Total Perform	Perform 1	Perform 2	Total Perform
Intentional Treatment						
Female	7.25 (2.667) [12]	8.5 (2.938) [12]	15.75 (5.011) [12]	7.909 (2.348) [22]	7.272 (2.004) [22]	15.181 (3.947) [22]
Male	8.285 (3.023) [14]	9.285 (3.123) [14]	17.571 (5.543) [14]	8.937 (3.043) [16]	10.187 (2.688) [16]	19.125 (4.558) [16]
All	7.807 (2.856) [26]	8.923 (3.005) [26]	16.730 (5.280) [26]	8.342 (2.673) [38]	8.5 (2.708) [38]	16.842 (4.600) [38]
Random Treatment						
Female	8 (2.481) [26]	9.269 (3.231) [26]	17.269 (5.340) [26]	7.133 (3.739) [15]	8 (2.903) [15]	15.133 (5.423) [15]
Male	10 (3.794) [11]	11.636 (3.354) [11]	21.636 (6.845) [11]	11.692 (3.859) [13]	11.307 (4.479) [13]	23 (7.810) [13]
All	8.594 (3.022) [37]	9.972 (3.403) [37]	18.567 (6.076) [37]	9.25 (4.385) [28]	9.535 (4.013) [28]	18.785 (7.636) [28]

Note: Means as main number, standard errors in parentheses, and number of observations in brackets.

A two-sample Mann-Whitney test shows that there is a significant difference between trusted and mistrusted employees' performance improvement ($z = -2.104$,

$p= 0.035$).² In other words, trusted employees' performance shows more improvement than mistrusted employees. Furthermore, we find an interesting gender result when we examine this effect for genders separately. While two-sample Mann-Whitney test supports significant difference for female employees ($z= -2.067$, $p= 0.038$), with female employees who are trusted showing greater performance improvement than females who are not, there is no significant difference for male employees ($z= -0.821$, $p= 0.411$).

Furthermore, we inspect whether the significance result regarding performance improvement differences between trusted and mistrusted employees is also there when we compare trusted and mistrusted employees' second period performance. We again detect a significant difference for only female agents ($z= -2.192$, $p= 0.028$).

In order to account for the possibility that the first period performances of these agents could be different and also to control for a number of other variables such as task type and session, we run several regression models to test for the "responsibility effect", which are reported in Table 4. Model 1, 2 and 3 are regressions which study the performance improvement for the pooled data and separately for males and females. Models 4, 5 and 6, on the other hand, analyze the 2nd period performance conditional on the 1st period performance. The regression results confirm the picture gleaned from the non-parametric analysis reported earlier: Responsibility has a significant effect on performance, and this effect comes predominantly from females.

² The results of all non-parametric tests reported are also confirmed by t-tests.

Table 4. Regression results for responsibility effect on performance

	Performance Improvement			2 nd Period Performance		
	Pooled	Female Only	Male Only	Pooled	Female Only	Male Only
Trusted	1.018** (0.498)	1.081* (0.660)	0.809 (0.833)	0.814* (0.448)	1.216** (0.588)	0.333 (0.772)
Random	-0.315 (0.871)	1.133 (1.165)	-0.338 (1.597)	0.438 (0.794)	0.312 (1.108)	0.556 (1.479)
Gender	-0.346 (0.508)			-1.147** (0.479)		
Type of task	-0.713 (0.489)	-0.361 (0.626)	-1.239 (0.846)	-0.546 (0.440)	-0.0460 (0.562)	-1.262 (0.770)
Perf1				0.599**** (0.073)	0.554**** (0.103)	0.621**** (0.117)
C	1.604 (1.027)	0.0501 (1.289)	1.960 (1.556)	4.875**** (1.098)	3.066** (1.344)	5.575*** (1.800)
Controls for Sessions	Yes	Yes	Yes	Yes	Yes	Yes
N	129	75	54	129	75	54

Note: Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.001$

Finally, we compare whether there is a difference between trusted and mistrusted employees in terms of achieving the target that they should increase their score at least 20%. Our results do not support such a significant difference. According to two-sample test of proportions result trusted employees do not significantly differ from mistrusted employees in terms of achieving the 20% target ($z = -0.75$, $p = 0.454$). The result does not change when we examine females and males separately, ($z = 0.07$, $p = 0.941$) and ($z = -1.25$, $p = 0.211$). We analyze same question for treatments separately and the results do not still support a significant difference for both intentional treatment ($z = -1.52$, $p = 0.128$) and random treatment ($z = 0.51$, $p = 0.609$).

5.1.2. Intentional Trust and Employee Performance

Another aim of the paper is to examine whether the source of the responsibility matters. In this section we look for the pure effect of intentional trust by separating the effect of taking other's responsibility from it. For this, we compare the data from intentional and random treatments. Figure 1 shows average performance of the trusted and mistrusted female and male employees according to treatments.

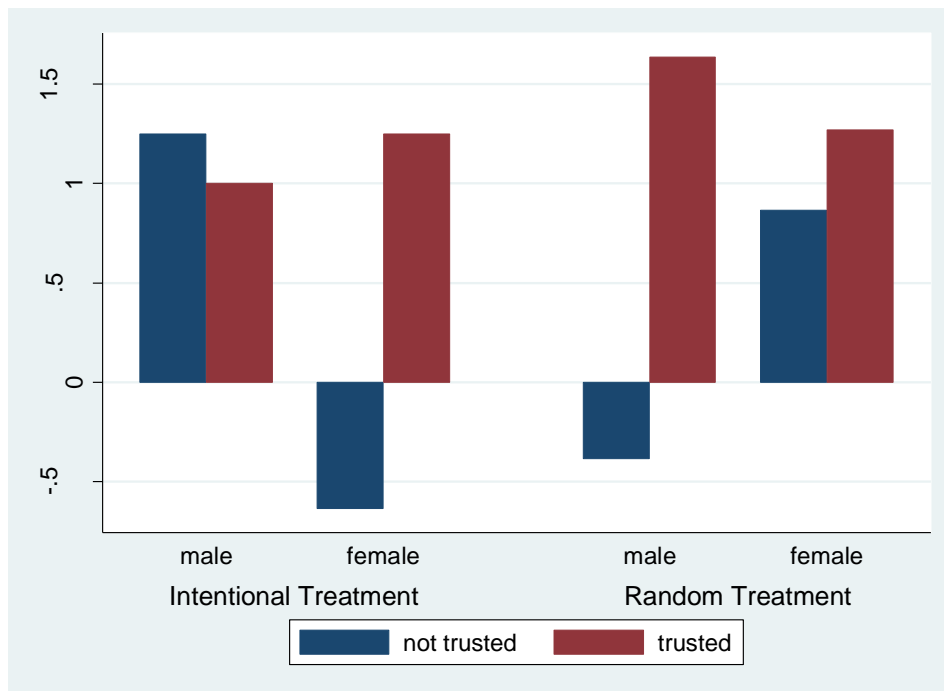


Figure 1. Average performance improvement of trusted and mistrusted employees by treatments.

Figure 2 and Figure 3 show means of first and second period performance trusted and mistrusted employees by treatments.

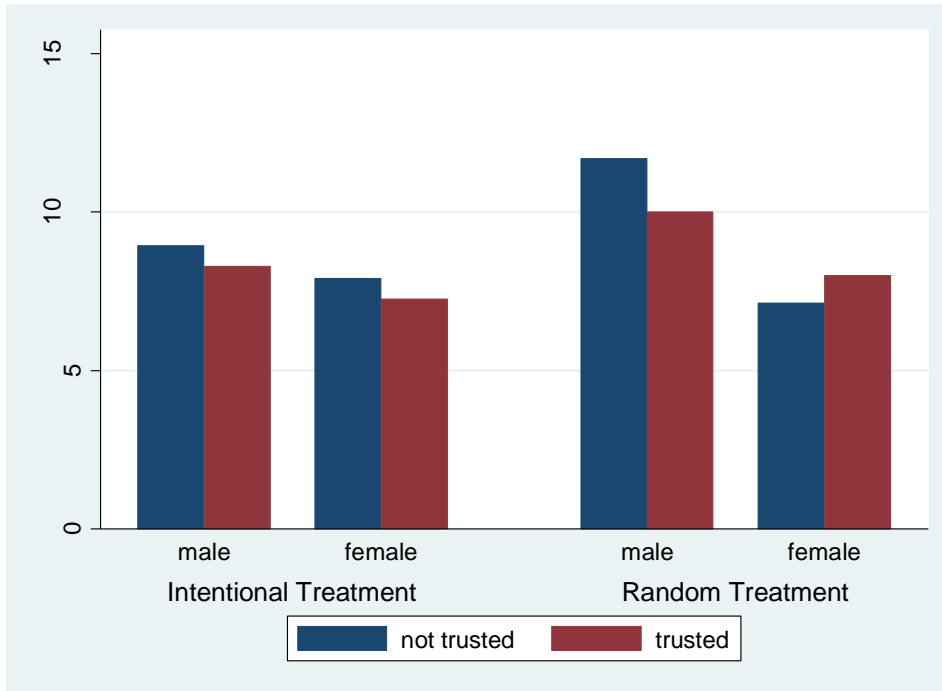


Figure 2. Average first period performance of trusted and mistrusted employees by treatments.

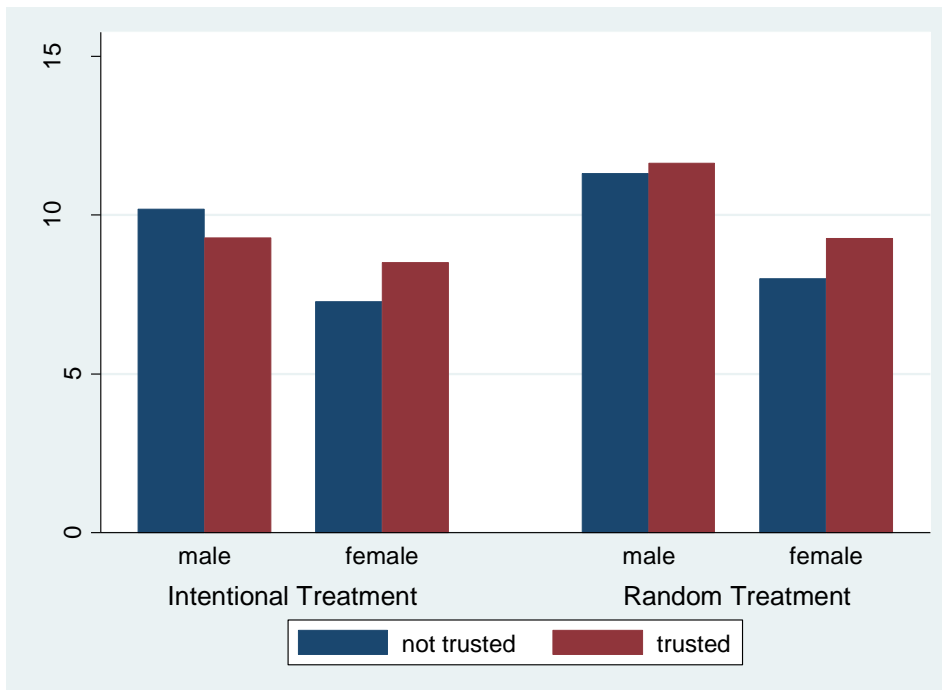


Figure 3. Average second period performance of trusted and mistrusted employees by treatments.

According to a two-sample Mann-Whitney test there is no significant difference in performance improvement between trusted employees in intentional and random treatments ($z = -0.663$, $p = 0.507$). When this difference is tested for females and males separately, the results are still not significant. When we apply the same procedure to mistrusted employees, there is no significant difference between treatments either ($z = -0.406$, $p = 0.684$). The only significant difference occurs for females at 90% significance level ($z = -1.723$, $p = 0.084$), that is, females who are not trusted intentionally have lower performance than females who are not trusted and this is due to the computer. These results mean that to be trusted or to be not trusted by the employer or by the computer does not affect the performance improvement significantly.

Alternatively, we can look at whether there is a significant difference between mistrusted and trusted employees' performance within the treatments themselves. Firstly, we analyze the intentional treatment. According to two-sample Mann-Whitney test, there is no significant difference between trusted and mistrusted employees' performance improvement if we pool female and male subjects' data ($z = -1.194$, $p = 0.232$). On the other hand, when we analyze only female employees' data, there is a significant difference between trusted and mistrusted performance improvement in the intentional treatment ($z = -1.992$, $p = 0.046$). Two-sample t-test supports this result as well and shows that mistrusted female employees' performance improvement is significantly less than trusted female employees' ($t = -2.4836$, $p = 0.009$). Secondly, we apply same procedure to the random treatment and find the result that there is no significant difference, either for males or females. Next, we examine the robustness of these results using several regression models.

Table 5 represents the results of regressions for performance improvement, whereas Table 6 shows the results of regressions of Period 2 performance conditional on Period 1 performance. The regression results support the finding that having the employer's responsibility has a significant impact for females in the case of the intentional treatment.

Table 5. Regression results for performance improvement

	Performance Improvement					
	Random Treatment			Intentional Treatment		
	Pooled	Female	Male	Pooled	Female	Male
Trusted	1.027 (0.739)	0.218 (1.072)	2.195* (1.173)	0.567 (0.681)	1.556* (0.832)	-0.442 (1.100)
Type of task	0.234 (0.726)	0.460 (0.995)	0.186 (1.162)	-1.769** (0.670)	-0.919 (0.809)	-2.622** (1.140)
C	0.234 (0.726)	0.841 (1.011)	-1.024 (1.379)	1.496 (0.771)	-0.00828 (0.944)	3.324** (1.282)
Controls for Sessions	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	65	41	24	64	34	30

Note: Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.001$

Table 6. Regression results for 2nd period performance

2 nd Period Performance						
	Random Treatment			Intentional Treatment		
	Pooled	Female	Male	Pooled	Female	Male
Perf1	0.703 ^{****} (0.093)	0.531 ^{***} (0.148)	0.828 ^{****} (0.157)	0.525 ^{****} (0.108)	0.575 ^{****} (0.141)	0.428 ^{**} (0.164)
Trusted	0.804 (0.692)	0.601 (0.966)	1.869 (1.204)	0.302 (0.597)	1.276 [*] (0.741)	-0.820 (0.921)
Type of task	0.501 (0.681)	0.912 (0.901)	0.0394 (1.164)	-1.768 ^{***} (0.585)	-0.966 (0.716)	-2.228 ^{**} (0.954)
C	2.925 ^{**} (1.119)	4.280 ^{***} (1.412)	1.137 (2.399)	5.620 ^{****} (1.196)	3.247 ^{**} (1.395)	6.860 ^{****} (1.767)
Controls for Sessions	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	65	41	24	64	34	30

Note: Standard errors in parentheses
^{*} $p < 0.1$, ^{**} $p < 0.05$, ^{***} $p < 0.01$, ^{****} $p < 0.001$

In order to understand treatment effects on performance for both trusted and mistrusted subjects we use regressions with two and tree way interactions. Results for second period performance are presented in Table 7. Regressions results from the first model where we pooled female and male subjects confirm that there is a significant difference between 2nd period performances of trusted and mistrusted females in intentional treatment. Besides, there is a significant difference between mistrusted females and mistrusted males' second period performances. The second model where the regressions are done for female support the result that source of responsibility does not matter for females when they are trusted. However, second period performance is significant lower in intentional treatment than random treatment meaning that source of responsibility matters for mistrusted females. The results of the third model for males are not significant. However, when we examine

the performance improvement determinants with two way interactions regression for males, the results show that performance improvement of mistrusted males in random treatment significantly lower than intentional treatment. The regression results are displayed in Table 8.

Table 7. Regression results for 2nd period performance

	2 nd Period Performance		
	Pooled	Female	Male
Perf1	0.611*** (0.139)	0.574** (0.189)	0.633*** (0.153)
Trusted	1.445** (0.522)	1.635** (0.593)	-0.581 (0.804)
Random	0.981 (0.555)	1.207** (0.413)	-0.574 (0.584)
Male	2.190** (0.695)		
ItrXra	-0.541 (0.931)	-0.889 (0.736)	2.105 (1.273)
ItrXma	-1.987 (1.388)		
IraXma	-1.523* (0.644)		
ItrXraXma	2.497 (1.316)		
Type of Task	-0.530 (0.672)	0.0821 (0.618)	-1.279 (0.753)
C	2.803 (1.190)	2.673 (1.443)	5.172** (1.797)
<i>N</i>	129	75	54

Note: Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.001$

Table 8. Regression results for performance improvement for males

	Performance Improvement
Trusted	-0.335 (0.525)
Random	-1.589* (0.659)
ItrXra	2.473* (1.141)
Type of task	-1.194 (1.009)
C	1.847 (0.968)
<i>N</i>	54

Note: Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.001$

Besides the analysis we have done so far, we try to figure out the effect of some other factors on the performance improvement of the employees. First, we question whether there is a significant difference between performance improvements of the employees who were employers in the first period according to whether they trusted their employees or not in the first period. According to two-sample Mann-Whitney test there is no such significant difference ($z = -0.481$, $p = 0.630$). When we check this result for genders separately, there is no significant difference either for females ($z = -0.224$, $p = 0.822$) or for males ($z = -0.149$, $p = 0.881$). Secondly, we inspect if there is a significant difference between performance improvement of the employees who were employers before and whose employees improved his performance versus did not improve in the first period, in order to check for some sort of reciprocity motive. Results of Mann-Whitney test show that there is no such a significant difference ($z =$

-0.213, $p= 0.831$). When we add these variables to the regression models where we examine responsibility effect on performance, our previous results are confirmed.

Another potential effect of the possibility of intentional trust is on the first period performance of employees. It might be that if the employees know that they will be evaluated based on their first period performance, this has an effect on the motivation in the 1st period. In order to explore such a relationship, we analyze whether there is a difference between the employees' first period performance and total performance across treatments. Mann-Whitney test results are significant for only male employees for the first period performance ($z= -1.935$, $p= 0.053$) and for the total performance ($z= -1.963$, $p= 0.010$), and in an unexpected direction: both the first period and total performance by male employees in the intentional treatment are significantly lower than the employees in the random treatment. The regressions results to examine the robustness of these results are presented in Table 9.

Table 9. Regression results for 1st period performance

	1 st Period Performance		
	Pooled	Female	Male
Trusted	-0.538 (0.551)	0.172 (0.667)	-1.113 (0.932)
Random	1.046* (0.553)	0.0205 (0.673)	2.306** (0.942)
Gender	-2.047**** (0.554)		
Type of task	0.376 (0.544)	0.653 (0.643)	-0.274 (0.936)
C	9.237**** (0.603)	7.251**** (0.639)	9.280**** (0.876)
<i>N</i>	129	75	54

Note: Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.001$

5.2. Results on the Employers' Trusting Decision

While the employees' working decision is examined so far, the determinants of the employers' trust decision are investigated from now on. Table 10 presents summary statistics of the employer's decision to trust and displays the number and percentage of the trust decision employers. The percentage of the subjects who trust his employee is less than the percentage of the subjects who does not trust in both tasks. The gap is greater in the addition task than slider task period.

Table 10. Number and percentage of the employers who trust and not trust

	Trust		
	Slider Task	Addition Task	All
Female	9 47.37%	4 23.53%	13 36.11%
Male	6 42.86%	7 41.18%	13 41.94%
All	15 45.45%	11 32.35%	26 38.81%

We now try to understand the determinants of the decision of whether to trust or not. To begin with, we explore whether the trust decision differs across gender. Results of two-sample test of proportions display that there is no significant difference between female and male subjects ($z= 0.487$, $p= 0.626$), although male subjects trust more. Besides, there is no significant difference in trust decision between tasks ($z= 1.100$, $p= 0.271$). Another question is whether the employers who were in the role of employee in the first period trust more. According to two-sample Mann-Whitney test, there is not such a significant difference. Moreover, the question of whether the employers who were employees and who were trusted in the first period trust more is

important. However, Mann-Whitney test result shows that there is again no significant difference between trust decisions of the employers who are trusted employees and mistrusted employees in the first period ($z= 0.128$, $p= 0.898$).

Furthermore, Table 11 presents the regression results used in order to figure out the determinants of the trust decision. The first model studies the trust decision as functions of the 1st period performance of the employee, gender, task. The 2nd model adds demographic controls (year in school, faculty). The 3rd model also adds personality factors. In the 4th model, variables of trusted when employee and total performance as an employee are included in the regression, which reduces the sample to employers who are in the 2nd period. As it is seen in the Table 11, the coefficients of the two early "senior" dummy is significantly positive at the 90% significance level in the second model, suggesting that older students tend to trust less. We find that total performance of the employer when he was employee in the previous period affects his decision of trust significantly. That is, employers who themselves had higher performance as employees are less likely to trust.

Table 11. Regression results for determinants of the trust decision

	1 st Model	2 nd Model	3 rd Model	4 th Model
First performance of the employee	0.0124 (0.082)	-0.0254 (0.088)	0.0167 (0.094)	0.203 (0.364)
Gender	-0.304 (0.514)	-0.613 (0.561)	-0.761 (0.590)	-3.585* (1.831)
Type of Task	-0.594 (0.518)	-0.459 (0.547)	-0.626 (0.598)	
Faculty		1.598* (0.933)	1.726* (0.962)	1.859 (1.973)
Senior		-0.941* (0.553)	-1.168* (0.610)	-1.248 (1.439)
Openness			0.000881 (0.033)	-0.0605 (0.066)
Conscientiousness			-0.00297 (0.032)	0.168* (0.090)
Extraversion			0.0321 (0.033)	0.113 (0.081)
Agreeableness			-0.00945 (0.028)	-0.0850 (0.067)
Neuroticism			0.0417 (0.033)	0.0135 (0.090)
Total performance of the employer				-0.340** (0.143)
Trusted when employee				0.789 (1.296)
C	-0.0984 (0.723)	0.567 (0.827)	-2.689 (3.671)	-3.996 (10.35)
<i>N</i>	67	67	67	34

Note: Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.001$

5.3. Personality Measures

At the end of the experiment we asked subjects to answer some questions to get their personality information and use it in our analysis with the help of Five-factor model

of personality. Openness, conscientiousness, extraversion, agreeableness, neuroticism, are the five factors used in our analysis. These factors are also known as the Big-Five. In our analysis, we calculate the Big-Five personality factors benefiting from a version of the NEO PI-R (Costa and McCrae, 1992), adapted to and standardized in Turkey by Gülgöz (2002). Summary statistics of the data is shown at Table 12. We use this data to investigate the relationship between personality characteristics and decisions of working and trust. Before the test this relationship, we examine the difference in personality characteristics across gender and find that conscientiousness is significantly different across gender and female participants are significantly more conscientious than male participants ($z = -2.157, p = 0.031$).

Table 12. Summary statistics of personality data

	Nero.	Ext.	Open.	Agreebl.	Consc.
Female	48.730 (10.670) [75]	53.624 (9.541) [75]	49.980 (7.556) [75]	51.783 (11.556) [75]	56.260 (8.834) [75]
Male	48.006 (8.252) [54]	51.535 (9.628) [54]	49.296 (8.915) [54]	50.827 (8.765) [54]	52.892 (8.797) [75]
All	48.427 (9.703) [129]	52.750 9.596 [129]	49.694 (8.126) [129]	51.383 (10.452) [129]	54.850 (8.941) [129]

Note: means as main number, standard errors in parentheses, and number of observations in brackets.

In order to investigate the effect of the personality on decisions of working and trust, we analyze some regressions. For the trusting decision, we do not get significant results if we regress the trust decision on only the personality variables. If we use the personality traits along with other regressors, we do not get significant results either. Likewise, none of the personality variables are significant in regressions of 1st period

performance, 2nd period performance, total performance, or performance improvement on the 5 traits only. Adding these variables to our previous regressions on performance improvement and 2nd period performance, we again do not find significant results except for agreeableness. Only agreeableness is significant for the regressions for 2nd period performance and performance improvement for females from intentional treatment. More importantly, the effects we outlined earlier are robust to the inclusion of these personality variables.

Overall, our results show that the personality doesn't affect neither working decision nor trust decision significantly.

5.4. Survey Results

At the end of the experiment we ask 10 survey questions in the intentional treatment and 9 questions in the random treatment. The questions are presented in the Appendix B and Table 13 displays summary statistics of the answers to a couple of questions.

Table 13. Summary statistics of the answers to the some survey questions

	Intentional Treatment	Random Treatment
Questions	Avg.	Avg.
Level of understanding the experiment	9.105 (1.303)	8.015 (2.027)
Importance attended to giving high scores	8.562 (2.173)	8.553 (2.076)
Level of self confidence at addition task	8.062 (2.629)	8.215 (2.182)

Note: means as main number, standard errors in parentheses.

The results confirm us about that responsibility is motivating employees since 84.6 % of the subjects who are trusted in the intentional treatment mark the option that 'I tried to increase my score as much as possible feeling responsible to the employer' at the fourth question of the survey. Likewise, 64.8 % of the subjects who are assigned responsibility mark the same option from random treatment. There is no significant difference between the answers of this question across treatments ($z = -1.602$, $p = 0.109$). These results show us responsibility is the main motivating issue when subjects are trusted which is consistent with our results from 5.1.2.

Other considerable answer is to the tenth question of the survey in the intentional treatment. 40.2 % of the subjects mark the option that 'I tried to increase my score as much as possible to show the employer that he did a mistake by not trusting me.' This shows us not trusting on employee have an adverse effect compare our expectations for some subjects. However, in 5.1.2. Intentional Trust and Employee Performance part, the analysis doesn't support such a significant result. Finally, we examine whether there is a correlation between answers to the survey question and the performance improvement of the subjects. However, there is no strong correlation between answers and the performance improvement. The reason for this might be that the tasks are more ability-driven than effort-driven, and that at least in the short interval that subjects do the task, the mental will to exert effort may not have been reflected in performance for some subjects. We therefore view our results as a lower-bound for the effect of trust on performance in the longer-run.

CHAPTER 6

DISCUSSION AND CONCLUSION

6.1. Discussion and Interpretation of Results

Classical economic theory assumes that people are rational and self interested. In other words, people behave in a way which only maximizes their utility. We can apply this assumption to our study as following. If this assumption is valid in our case, i.e. the employees are selfish and care only about themselves, they are not expected to exert effort in order to increase their score when they are trusted and responsible for the employees' payoffs since employees' payoffs are not depend on the employers' decisions. In sum, according to classical economic theory, responsibility is not expected to affect employees' performance. Nevertheless, our experimental results do not support this hypothesis.

Our first main result is that employees given responsibility improve their performance more. However, we find important gender differences. Although the statistical power of our tests may be low, the results show that (1) the responsibility effect comes from females; (2) the effect of the source of responsibility is completely dependent on gender. While trusted females' performance is not affected significantly by the source of responsibility, it matters for mistrusted females and males in an opposite way.

Moreover, there is a weak result that the intentional treatment may reduce the 1st period performance of male employees. Given that assignment to intentional and

random treatments is random, one possible interpretation is that the trust decision being made by a real person may make male employees anxious and decreases their performance compared to the random treatment. In order to make this result more clear, we examine whether there is a significant relationship between the survey question that how important was it for you to get high scores and this result. For the subjects who answer to the second question as 5 and more than 5, the result becomes more significant.

Our results of the regressions which explore the determinants of trust decision show that faculty of the subjects, whether they are senior, and total performance of employer in the first period have an impact on trust decision. Furthermore, the results do not provide evidence for a kind of reciprocity effect, in the sense that prior experience in the opposite role (e.g. having been trusted as an employee or trust having paid off as an employer) does not seem to affect trusting behavior or work motivation in the 2nd period. However, employers who had been employees before and had high performance are less likely to trust. This might be because they compare their performance to the performance of their employee and interpret the employee to be of low ability or motivation.

6.2. Conclusion

Revealing factors affecting individuals' incentives to make effort is a considerable issue for in some economic context such as labor economics and organizational economics. Moreover, it is important for policy implementations in some areas such as education as well. Therefore both monetary and non monetary incentives are worth studying. What we investigate is whether to be trusted by the employer affects the employees' performance and whether it differs that to be trusted by real person or

the computer. Hence, our experimental design allows us to distinguish the trust effect and taking the employer's responsibility effect on performance.

At the end of the experimental design and the analysis detailed in the study, we figure out that to be trusted affects the employees' performance positively and this effect comes mainly from women. On the other hand, the effect of the source of the responsibility is depend on gender and the direction of the invest decision. Therefore it could be said that for intentionally trusted females the source of the responsibility does not affect the performance. However, for the mistrusted females it matters. For mistrusted males, this relationship is in an opposite way. Hence, we find some evidence for reciprocity against negative decision of the employers. These results are significant to improve policy implication based on responsibility as a non-monetary incentive in a work place.

Although this study drives significant and applicable results, there were a couple of limitations encountered during the execution of it. First, although the sample size enough for our research, number of the subjects who choose to trust option is not much. In other words, number of the subjects who trusted on the employee was less than the number of the subjects who did not. In order to compare the effects of these two decisions in a healthier way, their size should be close each other. Also, because the data reveal gender differences, more data is needed to show gender-dependent effects in a statistically more powerful way. Hence, future research should use a bigger sample size to have enough data both for subjects who trust and who do not trust. Besides, we prefer laboratory experiment since field experiment needs more sophisticated factors to fixed and more time and finance. However, the field experiment may bring new insights for our research question since it includes real

effort task and it investigate the trust effect in workplace environment. Therefore, a field experiment may be designed for a workplace in future studies.

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APPENDICES

Appendix A. Instructions³

Intentional Treatment

Welcome!

The aim of this study is to examine economic decisions. Your data is recorded with your participant number randomly given. Your decisions and answers are not identified with your name definitely.

The money that you get at the end of the experiment is depended on your performance at the given activities, your decisions and chance. The experiment is comprised of two parts. The money you get from two parts is computed at the end of the experiment and the money which you get for attending to the experiment (5 TL) is added to this. Payment is immediate, in cash and confidential. The currency in the experiment is ECU and 1 ECU: 0.02

The experiment consists of two parts and each part has two periods. In each part, two member groups are determined randomly. In one group there are two roles; employer and employee. The roles and your group member are changed randomly in the second part. You do not know who your group member is. In both part, employee works given activity and his performance is recorded. There are different activities in the first and the second part.

³ Original instructions were in Turkish and they are available upon request.

1. Part

The activity of this part is 'slider task'. In this activity, you will see 48 lines that have pointers. The activity must be done with mouse only, you must not use keyboard. If one is seen using keyboard, he/she will be disqualified. The pointers are moved by the means of the mouse to the right or left. When the pointer is moved to the right, the number (0) near the line rises and takes some value of any integer number. When the pointer moves to the end of the line the number becomes 100. The aim of the activity is to reach the pointer middle of the line, make the number near the line 50 by sliding the pointer. Your score will rise 1 point for the each line you center. Success in this activity requires carefulness and speed. You have 90 seconds for this activity and your payoff will depend on your score in this time.

1. Part, 1. Period

The employee will work on the slider task and get 10 ECU for the each line he centers. The employer can see the task, but she does not get any payoff depends on the task. The employer starts the experiment with 200 ECU fixed money. At the end of this period, the employer is informed about the score of her employee. If you are employer, after the first slider task, you will see the score of your employee. You will be asked to give a decision for the second period. You can choose to invest half of your money (100 ECU of 200 ECU) on the second period performance of your employee or not. If the employer chooses to invest her money, her payoff will be determined by the second period performance of his employee. If the employee increases his first period score at least 20% at least in the second period, the employer's invested money doubled. If the employee does not increase his scores at least 20%, the employee will lose the invested money. In other words, if the

employer thinks that the employee can increase his performance at least 20% in the second period and invest on him, the employer's payoff will be determined by the employee's second performance. If the employer does not think that the employee can increase his performance at least 20% in the second period and choose not to invest on the employee, the employer's beginning money will be kept.

1. Part, 2. Period

If you are the employee, before the second slider task you will see whether the employer invest on your second performance or not and then you will work on the second slider task. You will get 10 ECU for each line you center like the first period. Your score will be shown to the employer whatever her decision is.

The employee's first part payoff:

The employee gets 10 ECU for each line he centers for both the first and second period. The employee's payoff does not depend on the employer's decision.

The employer's first part payoff:

The employer begins the experiment with 200 ECU. If he invests on the employee's performance and the employee's increases his performance at least 20%, the employer will get 300 ($100+2*100$). However, if the employee does not increase his score, the employer will get 100 ECU. If the employer does not invest on the employee's performance, she will finish this part with 200 ECU.

Example:

Let assume that the employee's first score is 10, the employer invests on his second performance and the employee's second score is 13. In this case, the employee's total

payoff is 230 ECU ($10 \cdot 10 + 10 \cdot 13$) and the employer's total payoff is 300 ($100 + 200$). If, the employee does not increase his score at least 20%, let assume that his second score is 10, the employee gets 200 ECU ($10 \cdot 10 + 10 \cdot 10$) and the employer gets 100 ECU.

2. Part

You will be separated into the two-member groups as the first part. Your role and group member in the first period will be changed in this period. If your role is employee in this period, you will work on the addition task. You will be asked to answer some addition questions during 3 minutes. The questions are seen one by one and you will be able to pass the other question after answer the current question. If you do not want to answer current question and pass to the other, you can write any number as answer and click the 'OK' button and pass to the other question.

2. Part, 1. Period

In this period, the employee will work on the addition task. He gets 15 ECU for each correct answer. The employer can see the task, but she does not get any payoff depends on the task. The employer starts the experiment with 200 ECU fixed money. At the end of this period, the employer is informed about the score of his employee. You will be asked to give a decision for the second period. You can choose to invest half of your money (100 ECU of 200 ECU) on the second period performance of your employee or not. If the employer chooses to invest his money, her payoff will be determined by the second period performance of her employee. If the employee increases his first period score at least 20% at least in the second period, the

employer's invested money doubled. If the employee does not increase his scores at least 20%, the employee will lose the invested money.

2. Part, 2. Period

If you are the employee, before the second addition task you will see employer's decision and then you will work on the second addition task. You will get 15 ECU for each correct answer like the first period. Your score will be shown to the employer whatever his decision is.

The employee's second part payoff:

The employee gets 15 ECU for correct answers during the 180 seconds for both the first and second period. The employee's payoff does not depend on the employer's decision.

The employer's first part payoff:

The employer begins the experiment with 200 ECU. If she invests on the employee's performance and the employee's increases his performance at least 20%, the employer will get 300 ($100+2*100$). However, if the employee does not increase his score, the employer will get 100 ECU. If the employer does not invest on the employee's performance, she will finish this part with 200 ECU.

Example:

Let assume that the employee's first score is 10, the employer invests on his second performance and the employee's second score is 13. In this case, the employee's total payoff is 345 ECU ($15*10 + 15*13$) and the employer's total payoff is 300 ($100+200$). If the employee does not increase his score at least 20%, let assume that

his second score is 10, the employee gets 300 ECU ($15 \cdot 10 + 15 \cdot 10$) and the employer gets 100 ECU.

Your total payoff at the end of the experiment is summation of your first period and second period payoffs. The attendance payment, 5 TL, will be added to this summation and your final payments will be computed.

Random Treatment

Welcome!

The aim of this study is to examine economic decisions. Your data is recorded with your participant number randomly given. Your decisions and answers are not identified with your name definitely

The money that you get at the end of the experiment is depended on your performance at the given activities, your decisions and chance. The experiment is comprised of two parts. The money you get from two parts is computed at the end of the experiment and the money which you get for attending to the experiment (5 TL) is added to this. Payment is immediate, in cash and confidential. The currency in the experiment is ECU and 1 ECU: 0.02

The experiment consists of two parts and each part has two periods. In each part, two member groups are determined randomly. In one group there are two roles; employer and employee. The roles and your group member are changed randomly in the second part. You do not know who your group member is. In both part, employee works given activity and his performance is recorded. There are different activities in the first and the second part.

1. Part

The activity of this part is 'slider task'. In this activity, you will see 48 lines that have pointers. The activity must be done with mouse only, you must not use keyboard. If one is seen using keyboard, he/she will be disqualified. The pointers are moved by the means of the mouse to the right or left. When the pointer is moved to the right, the number (0) near the line rises and takes some value of any integer number. When the pointer moves to the end of the line the number becomes 100. The aim of the activity is to reach the pointer middle of the line, make the number near the line 50 by sliding the pointer. Your score will rise 1 point for the each line you center. Success in this activity requires carefulness and speed. You have 90 seconds for this activity and your payoff will depend on your score in this time.

1. Part, 1. Period

The employee will work on the slider task and get 10 ECU for the each line he centers. The employer can see the task, but she does not get any payoff depends on the task. The employer starts the experiment with 200 ECU fixed money. At the end of this period, the employer is informed about the score of his employee. If you are employer, after the first slider task, you will see the score of your employee. And then, computer will choose decision among two options randomly instead of you. According to this decision, half of your money (100 ECU of 200 ECU) may be invested on the second period performance of your employee or not. If the employer's money is invested on the employee's performance according to the random decision of the computer, the employer's payoff will be determined by the second period performance of his employee. If the employee increases his first period score at least 20% at least in the second period, the employer's invested

money doubled. If the employee does not increase his scores at least 20%, the employee will lose the invested money. In other words, if the employer's money is invested according to random decision of the computer, the employer's payoff will be determined by the employee's second performance. If the employer's money is not invested, the employer's beginning money will be kept.

1. Part, 2. Period

If you are the employee, before the second slider task you will see whether the employer invest on your second performance or not and then you will work on the second slider task. You will get 10 ECU for each line you center like the first period. Your score will be shown to the employer whatever the random decision of the computer is.

The employee's first part payoff

The employee gets 10 ECU for each line he centers for both the first and second period. The employee's payoff does not depend on the investment decision of the computer.

The employer's first part payoff:

The employer begins the experiment with 200 ECU. If her money is invested on the employee's performance and the employee's increases his performance at least 20%, the employer will get 300 ($100+2*100$). However, if the employee does not increase his score, the employer will get 100 ECU. If the employer's money is not invested on the employee's performance, she will finish this part with 200 ECU.

Example:

Let assume that the employee's first score is 10, according to the decision of computer employer's money is invested on the employee's second performance and the employee's second score is 13. In this case, the employee's total payoff is 230 ECU ($10 \cdot 10 + 10 \cdot 13$) and the employer's total payoff is 300 (100+200). If, the employee does not increase his score at least 20%, let assume that his second score is 10, the employee gets 200 ECU ($10 \cdot 10 + 10 \cdot 10$) and the employer gets 100 ECU.

2. Part

You will be separated into the two-member groups as the first part. Your role and group member in the first period will be changed in this period. If your role is employee in this period, you will work on the addition task. You will be asked to answer some addition questions during 3 minutes. The questions are seen one by one and you will be able to pass the other question after answer the current question. If you do not want to answer current question and pass to the other, you can write any number as answer and click the 'OK' button and pass to the other question.

2. Part, 1. Period

In this period, the employee will work on the addition task. He gets 15 ECU for each correct answer. The employer can see the task, but she does not get any payoff depends on the task. The employer starts the experiment with 200 ECU fixed money. At the end of this period, the employer is informed about the score of her employee. If you are employer, after the first addition task, you will see the score of your employee. And then, computer will choose decision among two options randomly instead of you. According to this decision, half of your money (100 ECU of 200

ECU) may be invested on the second period performance of your employee or not. If the employer's money is invested on the employee's performance according to the random decision of the computer, the employer's payoff will be determined by the second period performance of her employee. If the employee increases his first period score at least 20% at least in the second period, the employer's invested money doubled. If the employee does not increase his scores at least 20%, the employee will lose the invested money.

2. Part, 2. Period

If you are the employee, before the second addition task you will see the investment decision of the computer and then you will work on the second addition task. You will get 15 ECU for each correct answer like the first period. Your score will be shown to the employer whatever the decision of the computer is.

The employee's second part payoff:

The employee gets 15 ECU for correct answers during the 180 seconds for both the first and second period. The employee's payoff does not depend on the decision of the computer.

The employer's first part payoff:

The employer begins the experiment with 200 ECU. If she invests on the employee's performance and the employee's increases his performance at least 20%, the employer will get 300 ($100+2*100$). However, if the employee does not increase his score, the employer will get 100 ECU. If the employer does not invest on the employee's performance, she will finish this part with 200 ECU.

Example:

Let assume that the employee's first score is 10, the employer's money is invested on the employee's second performance according to random decision of the computer and the employee's second score is 13. In this case, the employee's total payoff is 345 ECU ($15 \cdot 10 + 15 \cdot 13$) and the employer's total payoff is 300 ($100 + 200$). If the employee does not increase his score at least 20%, let assume that his second score is 10, the employee gets 300 ECU ($15 \cdot 10 + 15 \cdot 10$) and the employer gets 100 ECU.

Your total payoff at the end of the experiment is summation of your first period and second period payoffs. The attendance payment, 5 TL, will be added to this summation and your final payments will be computed.

Appendix B. Questions of Post-Experiment Survey

Intentional Treatment

- 1- How well did you understand the experiment? Please answer on a scale of 0 to 10.
- 2- How important was it for you to get high scores? Please answer on a scale of 0 to 10.
- 3- How much do you have confidence at addition? Please answer on a scale of 0 to 10.
- 4- When you were employee, if your employer invested his money on your performance; how did this affect you?
 - 1- The employer didn't invest.

- 2- I tried to increase my score as much as possible feeling responsible to the employer.
- 3- I didn't feel any responsibility, investing the money didn't affect my motivation.
- 4- I tried not to increase my score to prevent the employer to get much money.
- 5- When you were employee, if your employer didn't invest his money on your performance; how did this affect you?
 - 1- The employee invested.
 - 2- I tried to increase my score as much as possible to show the employer that he did a mistake by not trusting me.
 - 3- Not trusting decreased my motivation.
 - 4- Not trusting didn't affect me negatively or positively.
- 6- How old are you?
- 7- What is your major?⁴
- 8- What is your class?⁵
- 9- What is your gender?
- 10- What is your GPA? ⁶

Random Treatment

- 1- How well did you understand the experiment? Please answer on a scale of 0 to 10.

⁴ Engineering = 1; Economics, Management, International Relations=2; Arts and sciences=3; Law=4; Art and Design= 5; Medicine= 6

⁵ Class if Preparatory=0, Master=5, Phd=6

⁶ GPA if <2=1, 2.0-2.49=2, 2.5-2.99=3, 3.00-3.49=4, 3.5-4.0=5

- 2- How important was it for you to get high scores? Please answer on a scale of 0 to 10.
- 3- How much do you have confidence at addition? Please answer on a scale of 0 to 10.
- 4- When you were employee, if your employer's money was invested on your performance; how did this affect you?
 - 1- The employer's money was not invested.
 - 2- I tried to increase my score as much as possible feeling responsible to the employer.
 - 3- I didn't feel any responsibility, investing the money didn't affect my motivation.
 - 4- I tried not to increase my score to prevent the employer to get much money.
- 5- How old are you?
- 6- What is your major?⁷
- 7- What is your class?⁸
- 8- What is your gender?
- 9- What is your GPA?⁹

⁷ Engineering = 1; Economics, Management, International Relations=2; Arts and sciences=3; Law=4; Art and Design= 5; Medicine= 6

⁸ Class if Preparatory=0, Master=5, Phd=6

⁹ GPA if <2=1, 2.0-2.49=2, 2.5-2.99=3, 3.00-3.49=4, 3.5-4.0=5

Appendix C. Summary Statistics of the Answers to the Post-Experiment Survey

Table 14. Summary statistics of the answers to the post-experiment survey

Question	Intentional Treatment				Random Treatment			
	Min.	Avg.	Max	Std. Error	Min.	Avg.	Max	Std. Error
1	18	21.703	26	1.696	18	21.138	26	1.477
2	1	1.921	3	.369	1	1.415	3	.527
3	1	2.437	4	1.206	1	1.984	4	1.023
4	0	.531	1	.502	0	.630	1	.486
5	1	2.718	5	.899	1	2.753	5	.984
6	5	9.105	10	1.303	2	8.015	10	2.027
7	1	8.562	10	2.173	2	8.553	10	2.076
8	0	8.062	10	2.629	0	8.215	10	2.182
9	1	1.609	3	.681	1	1.830	4	.782
10	1	2.028	4	1.043				